THE DIFFERENCE IN SELF-EFFICACY SCORES AMONG STUDENTS WHO PARTICIPATE IN WORK-BASED LEARNING AND THOSE WHO DO NOT BASED ON THEIR DISABILITY STATUS IN COMMUNITY COLLEGE PROGRAMS

by

Kimberly Bowen

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

Students with disabilities are attending higher education institutes at an increasing rate due to the programs and retention practices developed in k-12 classrooms. A concern for community colleges is the student's ability to transition into the workforce after graduation. A high percentage of students with disabilities are unemployed. It is essential to study factors that can contribute to a student's ability or inability to successfully transition into employment after matriculation. Self-efficacy has been associated with academic success and could be a determinate for employment status. The purpose of this study was to determine if self-efficacy levels differ between students with and without disabilities who do or do not participate in work-based learning. Work-based learning is a program-specific internship experience designed to develop students' hard and soft skills, job awareness, and professional network. The causal-comparative study determined the effect of work-based learning and disability status on students' self-efficacy. Self-efficacy was measured using the General Self-Efficacy Scale. The data was collected from 14 North Carolina community colleges using convenience sampling. The data was analyzed using a two-way analysis of variance (ANOVA). The two-way ANOVA yielded no statistical significance between self-efficacy scores between students with and without disabilities who did or did not participate in work-based learning. The difference between self-efficacy scores in students with and without disabilities was statistically significant and therefore support previous research studies' assertations. Future studies should compare students' self-efficacy scores over a semester to determine if there is a positive or negative change.

Keywords: Self-Efficacy, Work-Based Learning, Disability, Behavior, Community College, Matriculation, Andragogy

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Lincoln Conrad, your little kicks have been a wonderful distraction and as I close my formal educational journey, I am excited to see where yours takes you.

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List of Abbreviations

Americans with Disabilities Act (ADA)

Americans Disabilities Amendment Act (ADAA)

Analysis of variance (ANOVA)

Community College (CC)

Education for All Handicapped Children Act (EAHCA)

Individuals with Disabilities Act (IDEA)

Institutional Review Board (IRB)

Higher Education Opportunity Act (HEOA)

General Self-Efficacy Scale (GSE)

North Carolina (NC)

Summary of Performance (SOP)

Work-Based Learning (WBL)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, causal-comparative research study was to determine if there was a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. Chapter one contains a background section on the topics of self-efficacy, higher education, disabilities, and work-based learning. The background section also contains the relevant theories for this study. The problem statement reviews recent research surrounding the topics of this study. The purpose study is followed by the significance of the study and the research questions. Chapter one concludes with a review of key terms and their definitions.

Background

The focus of this study was to determine if there is a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. Work-related learning experiences have been identified as increasing self-efficacy in students without disabilities (Grosemans et al., 2018). An average of 30% of people with disabilities are employed (Sannicandro et al., 2018). Increasing students' self-efficacy in their careers through a work-related experience before graduation could increase employment rates post matriculation. Work-based learning is a work-related experience that could positively affect students with disabilities' self-efficacy and increase matriculation and employment rates.

Students with disabilities are less likely to graduate from a higher education institution than their peers without disabilities, with only 50% of students with disabilities completing their degrees (Wasielewski, 2017). The discrepancy in matriculation has left an average of 70% of

students with disabilities unemployed (Sannicandro et al., 2018). Students with disabilities have endured a long, arduous journey in pursuing equity in education (Kirby, 2017). Despite the various milestones and steps towards an equitable education, students with disabilities continue to encounter numerous challenges (Aro et al., 2018).

Not even a century ago, schools could exclude students with disabilities from the classroom (Kirby, 2017). In 1919, a Wisconsin school petitioned those students with disabilities be exiled from a classroom if they are a distraction to their peers or teachers. The school leaders argued that students with disabilities reduced productivity and hindered learning for their peers. The Wisconsin Supreme Court agreed with this argument, and schools barred students with disabilities from attending classes. The first step in equal education for all, including students with disabilities, would not happen for almost another four decades.

The Civil Rights Movement began a revolutionary change in equal education for all (Kirby, 2017). The first step occurred with the ruling of Brown v. Board of Education in 1954. This case challenged the idea that separate is not equal and demanded that schools desegregate for the good of all students. Although this movement did not specifically focus on students with disabilities, the Disability Rights Movement stemmed from this historical event. In 1975, the first act to protect students with disabilities' rights was passed.

The Education for All Handicapped Children Act was passed in 1975 in response to two notable Supreme Court Cases in 1972 (West & Whitby, 2008). Th` e first case was between the Pennsylvania Association for Retarded Children and the state of Pennsylvania. The association demanded that schools provide a similar educational experience to students with mental challenges. The second case, Mills v. Washington D.C. Board of Education, was led by a group of parents advocating for equal education for all students, despite his or her disability. This push

for equality contributed to the concept of zero rejection in education. The Education for All Handicapped Children Act (EAHCA) required that any student be permitted into the classroom regardless of his or her disability (West & Whitby, 2008).

The inclusion of students with disabilities in classrooms was not sufficient. Many students with disabilities were experiencing discrimination and neglect in school (West & Whitby, 2008). Legislative changes did not address this issue until 1990, when the Americans with Disabilities Act was enacted (Kirby, 2017). This act ensured that students with disabilities could not experience discrimination in the classroom (U.S. Department of Education, n.d.). Under this act, schools did not require differentiated educational strategies that supported students with disabilities' unique needs (Kirby, 2017). The Individuals with Disabilities Act (IDEA) in 1997 addressed the need for specialized learning for students with disabilities. The IDEA required schools to provide students with the appropriate accommodations and resources to be successful (Kirby, 2017).

Due to the increase in special educational programs, students with disabilities have begun enrolling in higher education institutions. The decision to pursue a higher education degree has left many institutions and students with disabilities facing new hurdles (Majoko, 2018). Institutions have incorporated various inclusion programs and accommodations to counteract the unique learning deficiencies students with disabilities encounter. Students with disabilities attending post-secondary schools have numerous barriers, including technology accessibility, learning environments, teacher perceptions, bureaucratic processes, and social interactions (García-González et al., 2020). These barriers cause students with disabilities to have increased stress levels throughout their academic careers (Gabriely et al., 2020). Personal challenges,

exacerbated by students' disabilities, produce additional stress. The increased stress causes students to have higher anxiety levels and lower self-efficacy levels (Grosemans et al., 2018).

Self-efficacy is important in education because it is directly related to academic success (Gannouni & Ramboarison-Laloa, 2018). Self-efficacy is the belief in one's ability to overcome a challenge (Peiffer et al., 2020). The perception of one's ability is more important than a person's actual skill set. Theoretically, if a person believes he or she can learn a new concept or skill, then he or she will. These fundamental truths can enable students to master concepts that may have been out of their skill range. However, students with disabilities tend to have lower self-efficacy levels, which affects their academic success (Aro et al., 2018). A discrepancy tends to occur between students with disabilities' actual abilities and their perception of their abilities. This discrepancy causes students with disabilities to doubt themselves, leading to underperformance.

Increasing self-efficacy in students with disabilities could lead to an increase in academic success and employment. Research suggests that self-efficacy can increase recent graduates' career success (Grosemans et al., 2018). Increasing students' self-efficacy in their career skills through work-based learning could lead to an increase in employment. Work-based learning is a college course that enables students to participate in an internship with college instructors' assistance (Ali et al., 2017). Work-based learning relies on both college and employer to provide an equitable learning opportunity for students in the workplace. By participating in this experience, students can interact with their careers before graduation. Work-based learning increases career awareness, soft skill development, job choice, and self-efficacy.

Bandura introduced the concept of self-efficacy in 1977. After developing the social cognitive theory, Bandura further studied human motivation and determined that perceived capabilities were more apt to determine success than actual knowledge or skills (Bandura, 1977).

Bandura developed the theory of self-efficacy to explains this phenomenon. Bandura identified four sources of self-efficacy. Students can increase self-efficacy by mastering a skill or concept, observing others master a skill, and verbal persuasion. The last source is the student's emotional and mental health. Students with poor mental or emotional health will have decreased self-efficacy levels and vice versa.

Knowles' theory of adult learning challenged the idea that adult learners prefer the same educational experience as young learners (Knowles, 1984). Knowles identified that adult learners prefer an education experience that is self-lead and involves student input. Additionally, adult learning should be steeped in experience and problem-solving activities. Adult learners view their education as future training for their career goals. Therefore, their education is internalized and needs to be specific to match their needs.

Kolb's theory of experiential learning focuses on learning through experiences instead of traditional classroom teaching (Kolb & Kolb, 2005). Learning through experiences is often the preferred method for adult learners and should be considered when examining higher education instructional practices. Kolb developed an Experiential Learning Cycle to explain the process that occurs when learning happens during an experience. The cycle contains four stages: concrete experiences, reflective observation, abstract hypothesis, and active testing (Kolb & Kolb, 2005). The theory of experiential learning and the theory of self-efficacy are related because if students persist through the learning cycle and achieve success, then they will increase their self-efficacy.

Students with disabilities in education encounter more unique challenges than their peers without disabilities. Identifying and researching these challenges can help determine the accommodations, programs, and practices that increase students' success. One area that needs improvement in students with disabilities is low self-efficacy. By creating experiences that

encourage growth in a nurturing environment, students with disabilities could increase their self-efficacy. Work-based learning is an established internship program for many associate degree programs. It has been identified as having positive effects on student outcomes and could increase self-efficacy in students with disabilities (Roberts et al., 2017).

Problem Statement

Students with disabilities in higher education are matriculating at lower rates than their peers (Aro et al., 2018). This has led to a disparity in success and has left numerous students with disabilities unemployed (Sannicandro et al., 2018). Researchers have studied the causality related to low matriculation rates and students with disabilities. These studies have determined that students with disabilities have lower self-efficacy levels, higher personal and social anxiety levels, and poor mental health (Aro et al., 2018). In addition to these factors, students with disabilities face instructor biases and misconceptions about their needs (Riesen & Oertle, 2019).

Work-based learning is a practical method to develop career awareness while increasing students' soft skills (Stewart et al., 2017). Work-based learning is akin to a traditional internship, but it involves the inclusion of college support to provide an equitable experience. By allowing students to interact with their future workplace before graduation, they better understand the skills and knowledge needed to succeed. The positive experiences inside work-based learning can help students feel more confident in their job choice and career capabilities. By allowing students to experience career success in a safe, supportive environment with a supervisor's assistance, they artificially increase their self-efficacy. When students can overcome an obstacle in a workplace, it will give them the confidence to overcome future obstacles during or outside the work-based learning placement.

There have been correlation research studies conducted on work-based learning and self-efficacy. A past study conducted by Solberg et al. (2012) determined that there is a correlation between transition experiences and self-efficacy. However, a limitation of their study was that causality could not be determined for work-based learning participation and self-efficacy. Therefore, research needs to be conducted to determine if work-based learning affects the development of self-efficacy. In a recent study, Roberts et al. (2017) determined there was a positive change in students' self-efficacy who participated in work-based learning. This study only surveyed students in one institution and found that the small sample size was a limitation of the study. Therefore, future research should focus on surveying students from multiple institutions. Determining if there is a significant difference in self-efficacy scores among students with and without disabilities who do or do not participate in work-based learning could improve these students' academic and career success. The problem is, more research is needed to determine if there is a difference in self-efficacy scores among students who participate in work-based learning and those who do not, based on their disability status in community college programs (Roberts et al., 2017).

Purpose Statement

The purpose of this quantitative, casual-comparative research study was to determine the difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. This study could further the support for the use of work-based learning in community college programs. When implementing a new program, it is essential that the program’s benefits and drawbacks are researched. There are no current causal-comparative research studies on the effect of work-based learning on students with disabilities. By filling this gap, schools can make an informed decision

on implementing work-based learning into their schools. The study will determine if the independent variables influence the dependent variable. The independent variables are the students' participation or nonparticipation in a work-based learning experience and his or her disability status. Disability status will be annotated as either *yes-identified as a student with a disability or no- a student not identified as a student with a disability*. The dependent variable is the students' self-efficacy scores.

Significance of Study

Students with disabilities tend to have lower levels of self-efficacy in their academic abilities (BenNaim, 2016). This is due to the added impairments that their disability can cause. Students with disabilities often believe that their abilities are low and their efforts ineffective (Niazov et al., 2021). The additional time and energy can cause students with disabilities to view their academic success as lesser because it required more effort than their peers. This skewed perspective leads students with disabilities to develop lower levels of self-efficacy. Studies focusing on self-efficacy have determined that academic success is directly related to a student's self-efficacy level (Niazov et al., 2021). One program that has had positive effects on the development of self-efficacy in students without disabilities is work-based learning (Roberts et al., 2017).

Research has shown that students who participate in work-based learning have higher self-efficacy levels. Roberts et al. (2017) studied the effects of work-based learning on students' self-efficacy. This study determined that students had an increase in means between 0.27-1.55 in self-efficacy after participating. However, this study only surveyed students in one institution. Therefore, a strong conclusion on the average effect of work-based learning on self-efficacy cannot be determined. The researchers have determined that this is a limitation and future

research needs to be conducted on students from multiple institutions. The proposed research study would study the effects of work-based learning on students' self-efficacy from 14 colleges in North Carolina.

Determining programs and accommodations that improve self-efficacy in students with disabilities in higher education is crucial. Approximately 20% of people with disabilities are continuously employed (Sannicandro et al., 2018). By incorporating researched and proven accommodations and practices, students with disabilities could increase their self-efficacy and consequently increase their academic and career success. Research has also shown that employers are tentative to hire students with disabilities due to misconceptions (Riesen & Oertle, 2019). Working with students with disabilities could affect the employer's perception of employees with disabilities in the workplace. Future studies could focus on comparing the different types of disabilities and their experiences in work-based learning.

Research Questions

RQ1: Is there a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs?

Definitions

1. *Disability*- A deficit in a student's learning capabilities (Kirby. 2017)
2. *Disability Status*- A self-reported answer of either yes-I have a disability or no-I do not have a disability.
3. *Self-Efficacy*- An individual's belief in their capabilities to overcome a challenge or learn a new skill or concept (Bandura, 1977)

4. *Work-Based Learning*- An educational program designed to expose students to real work experiences (Reisen & Oertel, 2019)
5. *Behavior*- A choice in action, performance, and persistence (Betz, 2007).
6. *Matriculation*- To complete all requirements of a degree, certificate, or program (Aro et al., 2018)
7. *Self-reported*- A participant's choice of answer without interference or persuasion from an outside source (Schwarzer & Jerusalem, 1995).
8. *Student*- A person enrolled in a higher education institution (Aro et al., 2018).

CHAPTER TWO: LITERATURE REVIEW

Overview

A review of the literature was conducted to determine the difference in self-efficacy between students with or without disabilities who did or did not participate in work-based learning. This chapter will establish a theoretical framework by analyzing three theories: Kolb's theory of experiential learning, Knowles' adult learning theory, and Bandura's theory of self-efficacy. The second section will review various research articles on students with disabilities and their experiences in higher education and future employment. This examination will be followed by a summary of self-efficacy and work-based learning as they relate to students with disabilities. The synthesis of literature will reveal a gap in research and will support the need for the study.

Theoretical Framework

The research study is grounded in Bandura's (1977) theory of self-efficacy, Knowles' (2005) adult learning theory, and Kolb's (2005) theory of experiential learning. The theoretical framework provides a basis for examining the different variables and participants of the research design. The dependent variable, self-efficacy, is supported by Bandura's theory of self-efficacy. This theory provides a framework of the development, encouragement, and effect of self-efficacy in an individual. The independent variable, work-based learning, will be analyzed by Kolb's theory of experiential learning. Kolb's theory establishes a system in which effective experiential learning must operate. Lastly, the participants, adult learners, will be discussed through Knowles' theory of adult learning. Adult learning differs from adolescent learning and therefore requires consideration when studying post-secondary students.

Theory of Self-Efficacy

Bandura's theory of self-efficacy was developed after his publication of the social cognitive theory (Bandura, 1977). The theory of self-efficacy develops the idea that people can persist through a challenging situation based on their perceived capabilities and less on their actual knowledge and skills (Parikh-Foxx- 2020). Because self-efficacy is based on the belief in one's abilities, the level of self-efficacy predicts actions. Namely, the amount of self-efficacy will determine what copying behavior will be adopted, the amount of effort a person will expend, and the duration a person will persist through the situation (Bandura, 1977). These actions will determine if a person persists in developing self-efficacy in behavior or set of behaviors (Betz, 2007). However, an assumption of Bandura's theory is that a person will avoid any activity he or she believes will result in failure (Motlagh et al., 2019). Self-efficacy's initial development is affected by three influences (biological, cognitive, and affective) and one's determinization (Betz &Hackett, 2006).

Bandura theorized that there are four sources whereby a person gains self-efficacy. These four sources of self-efficacy are commonly known and cited in numerous studies (Betz & Hackett, 2006). Mastery experience is the primary source of self-efficacy (Bandura, 1977). The act of merely mastering a skill is not sufficient for developing or increasing self-efficacy. Students must master a skill or knowledge subset in a situation they feel threatened by but is actually safe. Self-efficacy can be derailed by a person's doubt or defense mechanism during a difficult task. Placing a person in a seemingly dangerous environment allows the person to practice dimensioning self-doubt. Becoming more skilled and knowledgeable provides a person the confidence to master any skill or area in a similar experience. Conversely, failing to overcome an obstacle will detract from a person's self-efficacy. Anxiety is a consequence of weak and low self-efficacy (Betz & Hackett, 2006).

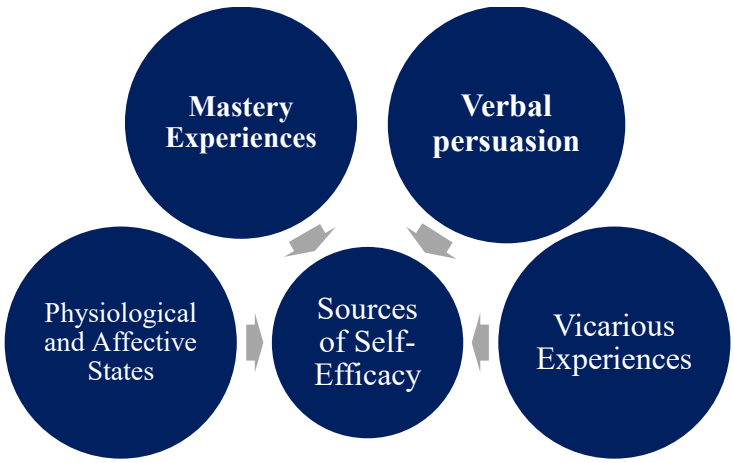
The following source is vicarious experiences (Bandura, 1977). One can develop self-efficacy by observing others overcoming obstacles (Snyder & Fisk, 2016). When observing someone overcome an obstacle in a seemingly threatening experience without harm, a person can convince him or herself that he or she can also overcome the same obstacle while avoiding harm. (Bandura, 1977). However, this source of self-efficacy is less dependable than a mastery experience. This source is most effective when the person observed is a role model or someone with whom a person can identify. For example, when a student observes a peer with similar intelligence and capabilities overcome an obstacle, the student will theoretically believe he or she can overcome the same obstacle.

Verbal persuasion is the act of encouragement through influential people in one's life (Snyder & Fisk, 2016). These influences can be teachers, parents, coaches, or any person that is viewed in a supportive manner. An influential person can increase one's self-efficacy by persuading him or her that he or she can succeed. This strength in belief can provide sufficient stamina to persist through the actual mastery of the skill concept (Bandura, 1977). An influential person can also harm one's self-efficacy. For example, if a teacher proposes failure, then the student will feel failure is inevitable and will not attempt to overcome obstacles. Next, self-efficacy can be influenced by one's emotional health. If a person is depressed or anxious, it can lower his or her ability to persist through a task. Verbal persuasion from a trusted source can be diminished if the person has had contradictory experiences (Snyder & Fisk, 2016). Positive emotions can produce a converse effect. If a person approaches a challenge with good spirits, he or she is more likely to master it (Bandura, 1977). These sources can increase and decrease one's self-efficacy, which can determine his or her success in academia, personal life, work, or any other area.

The last source of information is the physiological and affective states (Snyder & Fisk, 2016). Physiological changes when completing tasks can deter one's confidence. These changes are often coupled with stress and may look like emotional changes, sweating, increased heart rate, and more. These changes are often interpreted as a weakness and therefore lead one to doubt his or her capabilities and therefore affect their self-efficacy. Bandura proposed that teaching an individual to interpret these physiological changes as normal instead of indicative of weakness can improve his or her self-efficacy (Bandura, 1977). A common misconception is an assumption that symptoms of stress are an indication of a lack of capabilities (Snyder & Fisk, 2016). This assumption decreased self-efficacy because any sign of stress will automatically trigger doubt in capabilities.

Figure 1.

Sources of Self-Efficacy (Brandura, 1977)



Theory of Adult Learning

Before Knowles' theory of adult learning, it was commonly accepted that children and adults learn and are motivated similarly (Knowles et al., 2005). This theory provided insight into

the adult learner's preferences and motivation to pursue continuing education. Adult learners primarily seek education for experiences to develop job-relevant skills. These experiences act as a resource for learning in both current and future situations. This shift from subject matter to experiences brings a change in post-secondary instruction and curriculum. The framework outlining the practices for the curriculum and instruction of adult learners is andragogy (MacLellan et al., 2019).

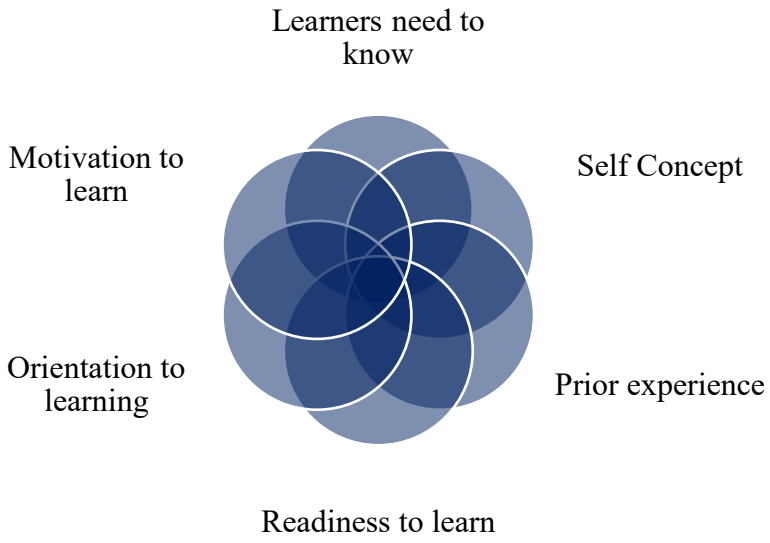
In the United States of America, Knowles is known as the father of andragogy (Mews, 2020). Although Knowles popularized the framework, andragogy was developed by Alexander Kapp in the 1830s. After the adult learning movement that enabled Knowles to popularize andragogy, many educators and researchers have compared andragogy to pedagogy. Pedagogy is the framework employed in k-12 classrooms for curriculum and instruction. In contrast, andragogy is the framework implemented in adult education settings. The term andragogy was developed from the Greek word "andr" meaning man, and "agogus" meaning leader of. In contrast, pedagogy was developed from the Greed work "paid," meaning child. Andragogy is a commonly cited term in adult learning research and is contingent on six principles (Youde, 2018). The andragogy framework is based on six assumptions.

To better understand adult learners, Knowles developed six assumptions (Knowles, 1984). These six principles provide the framework of andragogy (Allen & Zhang, 2016). The first principle is that adult learners need to know what content they will learn, how they will learn it, and why the content needs to be learned. Adult learners differ from young learners because they internalize their learning and perceive it as a function. Instead of viewing school as an obligation, adult learners view school as training for a future career. Therefore, the second principle is that adult learners need to take responsibility for their learning and their choice to

attend school (Knowles, 1984). Next, adult learners view education as training for their career. Therefore, these learners often prefer experiences over traditional classroom teaching (Maclellan, 2019). Experience-centered learning often employs problem-solving to learn new content or behaviors. This relates to the next principle, which is that adult learners prefer problem-centered learning rather than content-centered (Knowles, 1984). Problem-centered learning allows adult learners to apply their new knowledge and gain a better understanding of the newly learned information. The last principle is motivation. Adult learners are internally motivated versus children who are externally motivated (Allen & Zhang, 2016). Knowles maintained that internal motivation is affected by individual stressors, situational differences, and goals.

Figure 2.

Six Assumptions of Andragogy (Knowles et al. 2020)



Adult learners shift from perceiving education as a passive experience for future application to an active engagement of relevant problems (Knowles et al., 2005). Adult learners understand the barriers and requirements they may encounter in future working conditions. These requirements often require workers to overcome issues and resolve matters in isolation.

Therefore, adult learners tend to engage in problem-solving activities. These activities are most effective in environments that closely mimic the future working condition. A consequence of learning through experiences could be an increase or decrease in self-efficacy. If adult students are able to overcome obstacles during their learning experience, then it will help develop their self-efficacy (Bandura, 1977). However, if adult learners exhibit physiological symptoms of stress and interpret it as a failure or do not have the necessary mastery experiences or verbal persuasion, the result could be a reduction in self-efficacy and an increase in anxiety. To better understand effective learning experiences, Kolb's theory of experiential learning should be reviewed. Additionally, Knowles' principles suggest that adult learners crave experiential learning styles over traditional classrooms.

Theory of Experiential Learning

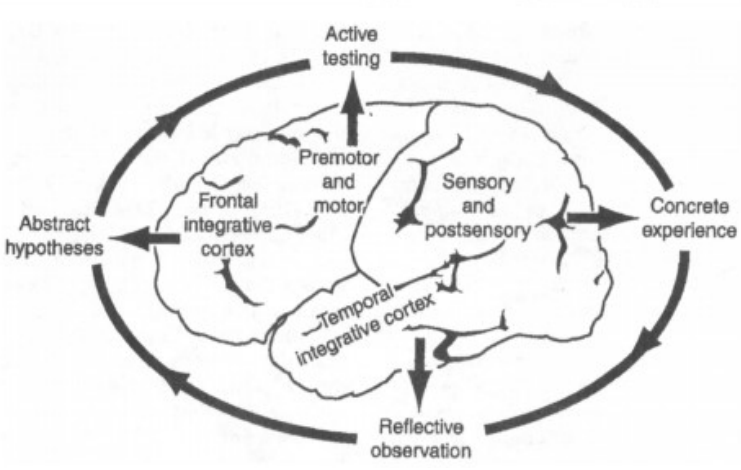
Kolb's theory of experiential learning (1984) was developed in response to the idea that experience was an effective learning strategy. Kolb's theory was primarily influenced by scholars that had experience in their learning theories (Kolb & Kolb, 2005). Such scholars included John Dewey, Kurt Lewis, Jean Piaget, Carl Jung, and more. Kolb developed this theory as a representation of adult learning. These studies for this theory have quadrupled over the past 20 years in areas such as education, science, management, nursing, accounting, and law (Morris, 2018). Kolb's theory is the most widely accepted model for experiential learning. The theory is founded on two components: the four-stage learning cycle and four learning styles (Kolb & Kolb, 2005).

This process of developing skills and knowledge is accomplished through the Experiential Learning Cycle. This cycle is composed of four stages: concrete experience, reflective observation, abstract hypothesis, and active testing (Fewster-Thuente & Batteson,

2018). Concrete experiences occur when a student engages with an experience and interacts with an issue (Chiu, 2019). The student is faced with the option to resolve or avoid the problem. Self-efficacy directly impacts the student's ability to choose to resolve the problem. The next stage, reflective observation, is triggered when the student chooses to resolve the program. This step involves the student analyzing the issue through their own experiences and trying to understand the necessary action. During the abstract conceptualization step, the student analyzes the experience through his or her experiences and knowledge. Next, the student creates a hypothesis and attempts to resolve it by testing his or her solution (Kolb & Kolb, 2005). This last step does not necessarily mean resolving the problem. It is common for students to repeat this cycle several times until he or she discovers the solution. By enabling students to develop his or her skills and knowledge through this process, they increase his or herself-efficacy. Students who persist through the cycle and achieve success will be more likely to attempt to solve future problems simply because they were successful before.

Figure 3.

Illustration of Kolb's Experiential Learning Cycle (Kolb & Kolb, 2005)



Using the learning cycle, Kolb developed four learning styles (Biabani & Izadpanah, 2019). Each learning style is an outcome of two variables on the Experiential Learning Cycle

(Kolb & Kolb, 2005). The first style is termed diverging and is the combination of concrete experience and reflective observation (Sudria et al., 2017). Students with this learning style prefer to observe and think through possible strategies rather than learning by trial and error (Biabani & Izadpanah, 2019). This preference makes them excellent at viewing situations from multiple perspectives. These learners tend to be imaginative and emotional. Next, an assimilating learning style focuses on reflective observation and abstract hypothesis variables on the cycle (Kolb & Kolb, 2005). These learners prefer a logical approach and see ideas and concepts as more important than people. The converging learning style is composed of abstract hypotheses and active testing (Biabani & Izadpanah, 2019). They prefer to solve problems through hands-on experiments (Kolb & Kolb, 2005). The last style is accommodating and is the combination of active testing and concrete experience (Sudria et al., 2017). This hands-on learning style tends to appeal to students who use intuition to solve problems.

Kolb continued his research in experiential learning and, in 2018, published eight tenets of the Experiential Learning Cycle (Kolb & Kolb, 2018). First, Kolb maintains that learning is similar to a spiral that increases in difficulty as a person develops (Morris, 2018). A student never stops learning or implementing the learning cycle. Next, learning requires experience (Kolb & Kolb, 2018). Kolb stresses that any form of the learning cycle requires some type of experience. Third, the human brain responds to experiential learning. Research done by James Zull (2011) found that the different cortexes of the brain corresponded to the different stages of the learning cycle. Next, Learning is motivated by the dialectic poles of the cycle (Kolb & Kolb, 2018). Concrete experience/ abstract conceptualization and reflective observing/active experimentation are the dialectic poles of the cycle. The opposite sites allow the experience to be both immersive and reflective, which allows learners to view situations from differing

perspectives. Kolb & Kolb (2018) warn that when one pole is dominant, learning ceases because the perspective is limited.

The fifth tenet is that Kolb's learning styles are the different approaches to navigating the learning cycle (Kolb & Kolb, 2018). Educators and students should not idealize one particular learning style but embrace all methods of navigating the cycle. Next, completing the cycle of learning increases learner development. Although learning styles are important, a student needs to be flexible and embrace all steps of the cycle in order to analyze a problem during an experience fully. Learning is a constant spiral, and to continue the spiral, the process needs to be completed. Seventh, teachers should use the learning cycle in their instruction. Educators should match their instruction to the learning cycle instead of the individual learning styles. Although learning styles can help students understanding their learning preferences, it does not mean that other methods of learning are not beneficial. Lastly, the learning cycle can be adapted into a rubric. Kolb believes that by allowing students to learn in multiple processes, they should also be able to express their understanding in multiple methods. Using the cycle to assess students can help define expectations.

Kolb's theory is grounded in hands-on experience (Kolb & Kolb, 2005). In traditional learning environments, students are presented with information and asked to present their understanding of the material through various written, verbal, or hands-on tasks and assessments. In Kolb's theory, students analyze problems and overcome them through primarily hands-on learning. Through the problem-solving techniques, adult learners develop their knowledge and understanding of new concepts while increasing their self-efficacy. This is due to the idea that self-efficacy is commonly developed through the mastery of a skill or concept. The theoretical framework will provide a foundation on which the following literature is founded.

Related Literature

Understanding Disabilities

Understanding the term and outward expression of disability provides a foundation for studying the challenges, accommodations, and effects of having a disability on a student's academic achievement. Each definition provides context for how the disability affects a person's day-to-day life. This can range from viewing a disability as anything outside of the norm to the specific interactions between a person's impairment and their environment. However, the term disability is defined, it is agreed that it can affect a person's physical and psychological state. These effects can result in different strengths and weaknesses, which can be determined using Gardner's theory of multiple intelligences.

Definition

Over the years, the definition of disability has been augmented for the specificity of different modes (Patel & Brown, 2017). Initially, disability was used in a medical sense but since has been used concerning social and environmental factors. The term disability relays different connotations based on the mode and environment it is presented (Grimes et al., 2019). In the medical field, disability is related to any difference outside the norm that affects a person’s physicality or psychology, resulting in an impairment or deficit. These differences are often relayed on a spectrum rather than one intrinsic value. A potential negative connotation of defining disability in a medical mode is that it is often synonymous with a sickness (Patel & Brown, 2017). Meaning, a disability can be remedied.

In the social mode, a disability is an interaction between a person’s impairment and the environment. (Grimes et al., 2019). How a person interacts with the environment determines not only the disability but the severity as well. This mode indicates that a person’s disability may not

be an impairment unless presented in certain socioeconomic and environmental situations that make it such (Patel & Brown, 2017). The last definition is determined under the ecological mode. This mode uses the person's interaction with the environment, social, familial, and other outside factors in determining a person's disability. (Grimes et al., 2019).

For the purpose of this study, a disability will be defined by any deficit that inhibits a person's learning capabilities (Kirby, 2017). This definition is intended to account for numerous types of physical and intellectual disabilities that hinder a person's ability to thrive in their academic or non-academic setting. The definition also aligns with the North Carolina Community College definition of disability in accordance with Section 504 of the Rehabilitation Act (Disability Guide, n.d.) North Carolina Community Colleges define disability as a person's mental or physical impairment that limits a person ability in one or more major life activities such as walking, seeing, hearing, speaking, breathing, learning, working, caring for oneself, and performing manual tasks (Disability Guide, n.d.).

Multiple Intelligences

Dr. Howard Gardner developed the theory of multiple intelligences in 1983 because he believed the standard IQ measurement did not accurately express students' true intellectual abilities (Coroiu, 2018). He initially proposed that there are seven independent but interlocking intelligences (Leshkovska & Spaseva, 2016). The first type is verbal or linguistic intelligence and generally means a person favors reading, writing, and narrating (Coroiu, 2018). Next is logic and mathematics. Students with this intelligence are adept in deductive reasoning and abstract problem-solving. Students with the third type, visual or spatial awareness, are good at visualizing things. Next, students with kinesthetic intelligence have a talent for body movement. Fifth, students with musical intelligence are able to hear patterns, rhythms, tones, and melodies with

ease. The next type of intelligence is intrapersonal intelligence. These students are highly aware of their feelings, emotions, and motivations and enjoy self-reflecting. The seventh intelligence, interpersonal intelligence, means students can observe and understand others' feelings and emotional states. Although Gardner originally proposed seven types, he eventually added an eighth, naturalist intelligence. Students with this intelligence enjoy connecting with nature (Leshkovska & Spaseva, 2016).

Gardner created these intelligences to explain the different ways in which students' intellect will manifest (Leshkovska & Spaseva, 2016). However, the intelligences are not to be studied individually in students. Gardner explains how the intelligences work together with several concepts. First, students possess all of the intelligences, but they function together uniquely in each student. Second, every student can develop each intelligence to a level of competency. Third, the intelligences work together in complex ways, and four, students can show intelligence in different ways in each category.

Understanding these intelligences provides a framework for the different ways in which students with and without disabilities' strength may manifest. By providing experiences outside of the classroom, students can thrive using their different intelligences. These intelligences may also be tied to a student's self-efficacy. Students with low intelligence in different categories could account for their poor performance on a task.

Students with Disabilities and Self-Efficacy

Self-efficacy is a person's innate belief that they can overcome a problem and potentially master a new concept (Bandura, 1977). The concept of self-efficacy is crucial for students in education and has been a topic of research for many years (Gutiérrez & Tomás, 2019). It has been identified as a leading factor for success in education. Students who believe they can learn a

concept or skill will be more likely to master them. The student does not base his or her capability to complete a task on his or her actual knowledge or skill set instead of on past successes (Peiffer et al., 2020). A positive experience leads to an increase in self-efficacy and vice versa. Therefore, the student's academic self-efficacy begins progressing early in the student's academic development.

Role

The use of self-efficacy is the act of predicting success (Versland, 2016). Students assume they can succeed, and, therefore, they succeed. However, students can also predict failure. Without the presence of mastery experiences or a mentor to encourage internal belief, students will continue to predict failure and eventually retreat from any challenge. This cycle eventually leads to students lowering their goals and an increase in self-doubt. If a student suffers from low self-efficacy, it will significantly impede his or her ability to thrive academically.

Self-efficacy also affects the work completed by students (Ayllón et al., 2019). Students perceived level of self-efficacy would affect their choice in a task, the task performance, effort award to the task, and perseverance. This means that students will choose more comfortable or more complex tasks based on their perceived capabilities to complete the task. If the task is more complicated than expected, students with low self-efficacy will put forth less effort and quit faster than their peers with higher self-efficacy. This creates varying levels of success for students based on their perceived capabilities and not their actual abilities. Self-efficacy becomes more problematic for students because one’s level of self-efficacy varies subject to subject and can differ on specific tasks inside a subject field. For example, a student could have high overall self-efficacy in math but still have low self-efficacy in factoring. This means self-efficacy plays a significant role in students’ academic performance and success.

Development

In education, self-efficacy development is primarily executed through academic experiences (Duchatelet & Donche, 2019). Duchatelet and Donche (2019) studied the effects of motivation to determine if higher education institutes could foster self-efficacy in students. Their results determined that there is a positive relationship between self-efficacy and motivation with $\beta = .560$; $p < .001$. With teacher motivation, students can increase their self-efficacy by participating in experiences that require them to overcome challenges. This increase will help students learn new concepts and skills in the same subject. They believe they can learn the concept simply because they were able to master a similar one previously. If students endeavor to master a concept, teacher support can catalyze students to succeed (Duchatelet & Donche, 2019). Therefore, if a teacher encourages a student to achieve success, it may help them view themselves as succeeding.

There are two methods in which a teacher can encourage student self-efficacy. First, students can increase their self-efficacy by tracking their progress (Ayllón et al., 2019). Student's ability to recognize improvements and growth can boost their confidence. They will be able to recognize their success. However, some students may find it difficult to acknowledge their improvements. When this occurs, teachers need to help students identify their growth and praise them. The second method of teacher support is the willingness to assist. Self-efficacy does not mean the student feels sufficiently confident to approach a challenge without assistance. Often students will ask for help during a difficult task so teachers can provide clarity. If teachers are unwilling to help or appear disinterested, students may not feel comfortable asking for assistance.

In every instance, when a student can increase his or her self-efficacy, he or she could also decrease his or her self-efficacy. Identifying which habits cause students to doubt their capabilities needs to occur so schools can provide adequate support. One group of students who routinely shows low self-efficacy is students with disabilities (BenNaim, 2016). Research has identified the persistence of challenges students with disabilities encounter. When learning a new concept, students with disabilities may have to overcome more than one obstacle at a time based on the experience. For example, if a student with dyslexia has to learn a new concept through reading a textbook, he or she encounters two challenges. He or she must understand the material and navigate through his or her disability while so doing.

It can be difficult for students to be confident in their abilities when their abilities are impeded by something outside of his or her control. This self-doubt often leads to depression, increased tiredness, and in some cases, loss of hope (BenNaim, 2016). The decrease in mental health often means that students with disabilities' success decreased throughout the academic. One study found that students with learning disabilities' self-efficacy decreased from a mean of 24.64 to 23.8 in one academic year (Vukman et al., 2017). The decrease indicates that students with disabilities experience more negative outcomes, such as increased anxiety, depression, and fatigue (BenNaim, 2016). A study determined that students with learning disabilities reported higher rates of fatigue with a mean = 4.37 and lower rates for students without disabilities with a mean of 4.07 (BenNaim, 2016).

Self-efficacy affects not only academic outcomes but social interactions. Students will learn how to interact in a social situation by experiencing positive or negative interactions (Peiffer et al., 2020). Peiffer et al. (2020) determined that the difference between students with disabilities' ability to self-concept and their self-efficacy ranges between 0.57-0.68. Students

without disabilities are more likely to experience positive interactions and increase their social self-efficacy. In one research study, students with disabilities reported that they did not feel they can effectively participate in social interactions. Students with disabilities cannot increase social self-efficacy because they are not offered positive experiences leading to social acceptance. This can affect a student's ability to transition into the workforce.

Students with Disabilities in Education

Students with disabilities have an estimated population of 64 million in the United States of America (CDC, 2018). Students with disabilities are not a group that can be ignored. Their prevalence has pushed society to reevaluate their perceptions of the ordinary and the abilities of an induvial with disabilities. However, society's perception of students with disabilities has only been challenged over the past 70 years (Kirby, 2017). Just 100 hundred years ago, some students with disabilities were being excluded from schools.

Historical Overview

Much of the history involving students with disabilities is a story of intolerance and discrimination. A portion of this discrimination is predicated on the misunderstanding of equality versus equity. Equality is the practice of ensuring that all students receive the same treatment and resources in the classroom (Cramer et al., 2018). Considering that all students are inherently unique and require different resources to succeed, the practice of equality results in unequal outcomes. Conversely, equity is the process of analyzing students' needs to allocate resources to ensure equal outcomes. Focusing on equitable practices in education for students with disabilities ensures more equal outcomes. However, before equality and equity, there was intolerance.

In 1919, in the case of Beattie v. Board of Education (*Beattie v. Board of Education*, 1919), a school in Wisconsin petitioned that students with disabilities be excluded from the

classroom (Yell et al., 1998). School officials argued that the student was a distraction to both students and teachers and impeded productivity. The student had suffered from uncontrollable facial movements that caused him to drool and impaired his speech. These conditions were sufficient for the Wisconsin Supreme Court to rule in favor of the Board of Education and prohibit any student with a disability from being able to attend school. The court argued that a singular student should not detract from another students' education (Kirby, 2017). This perspective and ruling precluded numerous students with disabilities from the right to an education.

Students with disabilities' journey towards representation started with a goal of equality. The first step towards equality for all in education was the Civil Rights Movement. The ruling of the Brown vs. Board of Education in 1954 (*Brown v. Board of Education*, 1954) enacted the idea that separate was not equal and changed the course of education (Kirby, 2017). The Disabilities Rights Movement stemmed from the Civil Rights Movement and pushed for genuine acceptance of all students in schools. This led to most states enacting laws that required schools to educate students with disabilities by the late 1960s and early 1970s (Yell et al., 1998).

The first homogenized view of both state and federal government officials concerning students with disabilities in education occurred in 1975 with the passing of the Education for All Handicapped Children Act (EAHCA) (Yell et al., 1998). This Act required all students with disabilities to be included in the classroom. Although students with disabilities were permitted in the classroom, they did not receive the support needed to be successful. The EAHCA was renamed the Individuals with Disabilities Act (IDEA) in 1990. An amendment of the IDEA was that students with autism spectrum disorder and students with traumatic brain injuries were identified in different classes entitled to their own laws. In this law, schools were required to

create transition plans for each student and place them in his or her Individualized Education Program (IEP). These acts started the transition from equality to equity for students with disabilities. Meaning, students with disabilities were no longer simply included in the classroom but given adequate resources to achieve and have similar outcomes as their peers.

In 1997, President Bill Clinton signed the IDEA Amendments into law (Yell et al., 1998). When reviewing the achievements of the original IDEA, it was determined that it had successfully increased access to educational services for students with disabilities. The updated act in 1997 would focus on increasing academic success for students with disabilities. Changes to the act included that all students would participate in assessments, and measurable annual goals would be included in students' Individualized Education Program (IEPs). The IDEA was reauthorized in 2004. It required that students with disabilities be included in the classroom and provided accommodation and support necessary to ensure academic success (U.S. Department of Education, 2020). These acts lead to the development of special education programs in grades k-12.

The Individuals with Disabilities Act requires that any student in k-12 has access to a supportive and unrestrictive learning environment (U.S. Department of Education, 2020). These legal precedents expire once a person with a disability leaves the secondary classroom. The Americans with Disabilities Act (ADA) was enacted in 1990 to protect the rights of any person with a disability. Under the ADA, employers must provide accommodations for employees with disabilities, public areas must follow certain practices to provide equal access, transportation should be accessible, state and local government agencies cannot discriminate, and information should be accessible in many formats. This legislation and Section 504 of the Rehabilitation Act protect college students with disabilities.

Students with disabilities in colleges have numerous protections and rights under the ADA and Section 504 (Resource Guide, n.d.). Students with disabilities must be allowed admission into a college if they meet the necessary requirements. Students with disabilities cannot be discriminated against in recruitment practices, educational practices, and treatment. It is also stated under these Acts that students with disabilities should be given the necessary accommodations required for their academic success if they present the necessary documentation. Additionally, students with disabilities have a right to privacy, and their disabilities cannot be disclosed to anyone unless needed.

In 2008, the ADA was revised into the Americans with Disabilities Amendment Act (ADAA) and expanded the legal definition to include college students (Keenan et al., 2019). The ADAA refined the definition of disability and shifted focus from eligibility of a student to appropriate accommodations needed. After passing the ADA, students with disabilities were still encountering barriers in higher education classrooms. Students with disabilities were struggling to attend higher education institutions due to financial barriers (Chiwandire, & Vincent, 2019). The cost of post-secondary education can be a determining factor for any student. Paying for tuition, fees, housing, and general expenses poses a challenge for students in low-income families. By providing financial assistance, students can focus on their studies and not basic needs. Students with disabilities may have additional educational costs due to specific accommodations they need for their disability. For example, students with hearing impairments will have to pay for recorders, interpreters, and Smartpens. A student with a learning disability may have to pay for a tutor, educational aid, or medication to manage the disability.

The Higher Education Opportunity Act (HEOA) passed in 2008 was enacted to increase the budget for disability services (Grigal & Papay, 2018). The passing of HEOA allowed

students with disabilities to access Title IV funds and institutions to qualify for various grant funds. Under this Act, students with intellectual disabilities would be offered more payment options through Pell Grants, Federal Supplemental Educational Opportunity Fund, and Work-Study without a required high school diploma or High School Equivalency Degree (Resource Guide, n.d.). The grants also allowed colleges and universities to create programs that increased the retention of students with disabilities in higher education.

Although these Acts provided more support and accommodations for students with disabilities, there is still a gap in the equity between students with and without disabilities. It is estimated that 90% of people without disabilities have a high school diploma, while only 79% of people with disabilities do (U.S. Census Bureau, 2016). Additionally, only 17% of adults with disabilities hold a bachelor's degree compared to 35% of adults without disabilities. The outcomes for students with disabilities are not equal to their peers. A method to increase equity in higher education institutes is to research practices and determine if there are differing outcomes.

Students with Disabilities Secondary Education

With the completion rates of students with and without disabilities differing between secondary and post-secondary schools, it is essential to analyze both stages' accommodations and mental fortitude. Anxiety, self-efficacy, and self-determination are all factors that can affect student's ability to thrive in the classroom. Vukman et al. (2017) analyzed the difference of social self-efficacy and social anxiety between students with and without disabilities. The researchers measured students with and with disabilities' social self-efficacy and anxiety at the beginning and end of their first year of upper secondary. The t-test results showed that the variance between the student groups was t= -3.129, p= 0.002 at the beginning of the year, and t=

-3.974, $p = 0.000$ at the end, with the difference between self-efficacy increasing between student groups. The students with disabilities' social self-efficacy decreased from a mean of 24.64 to 23.83. The study showed that students with disabilities self-reported having lower social self-efficacy than their peers without disabilities. Therefore, self-efficacy levels are considering factor prior to their college enrollment.

Despite self-efficacy levels differing between students with and without disabilities, students in secondary school are still completing at a much higher rate (79%) than their students in the post-secondary school (17%). (U.S. Census Bureau, 2016). There are several programs and accommodations that could be contributed to the higher rate of success. A significant difference between the experience of students with disabilities in secondary versus post-secondary is the time spent in general education classrooms with their peers. In secondary classes, On average, 17% of students with intellectual disabilities spend 80% of their school day in general education classes. In comparison, 26.3% spend 40-80% of their day in general education classes, and 49.4 spend between 0-40 % of their day in general education classes (Kuntz & Carter, 2019). Almost half of the students with intellectual disabilities spend less than half of their academic time with their peers without disabilities. This differs from post-secondary accommodations, where students spend all of their class time with their peers.

Over 1,840 accommodations are available for students with disabilities in secondary education classrooms (Kern et al., 2019). These accommodations include presentation changes such as read-aloud of the test or notes, extended times and breaks, preferred settings or small groups, specialized cues, positive reinforcement, and more. The most frequently used accommodations are setting (80%), Scheduling changes or extra time on tasks (82%), and presentation changes (55%). Despite the numerous accommodations available for students, one

study showed that an average of 50% of students felt that they had not received any support despite the accommodation being provided (Yngve et al., 2019). In this same participant group, over 50% of students with disabilities felt they had an unmet need. Only a quarter of the students were satisfied with their accommodations with assistance (41.1%), social activities (37.5%), access to school (36%) being cited as the most helpful. Despite time (82%) and setting (80%) being the most common accommodation, assistance (41.1), social activities, and access (36%) are identified as having more of a positive effect on student outcomes (Kern et al. 2019; Yngve et al., 2019).

With a high school diploma being the most common education attainment for students with disabilities, vocational programs have been introduced to increase employment rates after graduation. Career exploration during school is essential for helping students increase their vocational motivation and career awareness (Myers & Cox, 2020). Myers and Cox (2020) interviewed students with disabilities during a summer vocational program to determine its effectiveness on career awareness and motivation. At the beginning of the summer, students' primary motivation for working was money (89%). However, at the end of the experience, students' motivation changed to gaining a positive experience (44%) and enjoyment of the job (44%). In the same study, students were asked to rank their ability to attain a job to measure their career self-efficacy. At the beginning of work, all of the students reported “pretty/kind of” as their ability to attain a job, to over half reporting “very/really” at the end of the work experience. This increase shows that work experiences can increase students’ self-efficacy in job attainment prior to post-secondary training.

Students with Disabilities in Higher Education

Due to the increase in the support provided to students with disabilities in primary and secondary school, many students have chosen to pursue higher education degrees (Yssel, 2016). It is estimated that 11% of the higher education population is composed of students with disabilities. This increase in attendance has challenged higher education institutes to create a nurturing environment for typical and atypical learners. However, these accommodations and support systems have not adequately addressed all challenges students with disabilities face during post-secondary school.

Accommodations

Under the ADA/Section 504, colleges are required by law to provide specific accommodations for students with disabilities (Resource Guide, n.d.). The accommodations required by North Carolina Community Colleges are as follows. The college is required to review each student's documented disability on a case-by-case basis and provide reasonable accommodations. The accommodations available are based on the type of disability and potential barriers they may cause in the classroom. Students with physical disabilities may be eligible for accommodations such as accessible classrooms and meeting places, additional time to get to classes, use of recording devices or smartpens, specialized technology, accessible parking. If the physical disability precludes the student from taking the class altogether, they can appeal to have the class substituted.

Accommodations for students with visual impairments include receiving reading materials in advance; priority front row seating, tape recorders, large print or speech access on tests or other materials, note-takers, and audio descriptions (Resource Guide, n.d.). Students with a learning disability can receive extended time on tests, frequent breaks, quiet testing locations, alternate forms of tests, and more. These examples show the extensive accommodations that can

be provided based on the Disabilities Office requirements. Faculty members cannot provide accommodations without first communicating with the Disabilities service office. However, if a faculty member believes the student is not qualified for a specific accommodation, they have the right to challenge it. Despite the extensive options for students with disabilities, often students do not use them or even disclose their disability with the school.

Challenges

Students with disabilities (17%) are less likely to graduate with a post-secondary degree than their peers (35%) (Aro et al., 2018). Past research has focused on the barriers that have caused students with disabilities to fail to matriculate. Barriers that prohibit matriculation for students with disabilities include unsupportive environments, biases, assessments, and the accommodation application process. Students do not disclose their disability to their institution for fear of prejudice among instructors (Smith et al., 2019). Many students do not want the label of having a disability following them into the classroom. (Yssel, 2016). Those who wish to disclose their disability have reported that private space to do so was not provided (Smith, 2019).

Another challenge for students with disabilities in post-secondary education is the legal requirement of the ADAA (Keenan et al., 2019). The purpose of this document is to provide equal access to education for students with disabilities. Focusing on equality rather than equity of outcomes lends this legislative to be ineffective. Under the ADAA, Students are required to present paperwork from their secondary school to prove they have a disability that requires the necessary accommodations they are requesting. The difficultly with this process is the excessive amount of documentation needed. Students will need to provide a student's self-report of their disability, documentation on observations of students when an accommodation was

implemented, and additional documentation including IEP's, Summary of Performance (SOP), assessments, and teacher observations. Although these documents may provide a framework for the types of accommodations that are effective for students, it is a barrier in itself. The sheer amount of paperwork would discourage any student with a disability to avoid disclosing their disability. A study focusing on accommodations and disclosure of disability status found that out of 155 participants, 43 reported not using some or any of the accommodations located on campus (Smith, 2019).

When students provide the necessary paperwork and are given accommodations, instructors may challenge the accommodation. Khouri et al. (2019) found that on a Likert scale of 1-6, instructors indicated a willingness to accommodate a 4.9. However, when asked about the fairness of accommodations, the mean dropped to a 3.7/6. Banks (2019) completed a similar study and found that the overall mean of faculty willing to provide testing accommodations (4/5) was higher than their perception of fairness of providing accommodations (3.5/5). These studies point to faculty members generally being willing to provide accommodations but view these accommodations as unfair. This perception could be due to the mindset of equality of outcomes instead of equity. Students with disabilities should be given equal access, which provides accommodations that accurately address the need and reduce learning deficits.

Technology has been identified as an additional barrier for students with disabilities in higher education (Perera-Rodríguez & Díez, 2019).

Technology has become a necessity for students in higher education. Students are required to be adept enough at computer navigation to access their educational platform (Moodle, Google Classroom, Blackboard, and Canvas), email, research, and complete online assignments. However, some students need special technological accommodations for his or her

disability. Perera-Rodríguez and Díez's (2019) study revealed two primary issues with technology and students with disabilities. The first is faculty members not being aware of the needs of students with disabilities. In a qualitative study, students with disabilities stated they could not complete the required online work because they could not see the instructions. This same student felt that the instructor often feel that students are asking for the sake of asking. Meaning, many instructors do not believe students require the accommodation being asked of them, which leads to the second issue with technology and general accommodations for students with disabilities, a lack of training for faculty. Students believe that if faculty were adequately trained to be aware of their needs and the consequences of their learning deficit, then they may be more likely to provide accommodations.

These barriers are external factors that need to be changed in order to support the needs of students with disabilities. There are internal barriers that students with disabilities face due to unsupported environments. Students with disabilities are two to five times more likely to report higher levels of anxiety and lower self-efficacy levels in higher education (Aro et al., 2018). Self-efficacy has been identified as a factor for academic success. If students with disabilities are more likely to suffer from low self-efficacy, then their academics will suffer as well.

Students with Disabilities and Unemployment

It is estimated that 70% of people with disabilities are underemployed, which is 10 times the rate compared to people without disabilities (Sannicandro et al., 2018). The increase in attendance of students with disabilities in higher education institutes should decrease the percentage of unemployment. In 2019, 87% of people with a bachelor's degree or higher were employed, while 74% of people with a high school diploma were employed (NCES, 2019). Emerging research has shown that college attendance should increase employment rates for

students with disabilities. However, research shows that employment rates for graduates with intellectual disabilities are 34% but 76% for graduates without disabilities (Sannicandro et al., 2018).

Students with disabilities are faced with numerous challenges when seeking their career goals. The first challenge is completing their post-secondary degree. Many students with disabilities are not offered the support and accommodations necessary to complete their degree (Aro et al., 2018). Many employers require a particular degree or certification, and without it, students with disabilities are unable to engage in those career options. The next barrier is the employer's perception of students with disabilities. Employer prejudice could mean that students are not adequately considered for a job because of a misconception of their disability (Sannicandro et al., 2018). One study showed that 45.9% of employers indicated that their work was too technical for someone with a disability to complete (Riesen & Oertle, 2019). Employers are misinformed about the range of abilities among students with disabilities. They may think that a person with disabilities cannot safely execute tasks or may distract others from assignments. Employers are also hesitant to adjust to accommodate those with disabilities because they feel it is unfair to people without disabilities. These misconceptions about disability can lead to students with disabilities unable to procure gainful employment.

It is estimated that 44% of people with disabilities work in informal jobs to accommodate their specific needs and schedule (WHO, n.d.). Informal working conditions are not similarly regulated as formal ones. Informal working conditions generally involve lower pay, longer hours, and less chance of promotion (Yahmed, 2018). One study showed that only 13.4% of the 18.6% of adults with an intellectual disability received paid employment (Riesen & Oertle, 2019). Additionally, because there are not as many restrictions, students with disabilities can be

terminated from their position at any time (Yahmed, 2018). Students are not guaranteed a sense of security in their workplace. Informal jobs trap students with disabilities in a low-income bracket because there is a slim chance of increasing pay or even job security.

Work-Based Learning

Work-based learning is a type of experiential learning. The main component of experiential learning is the act of learning through experience (Riesen & Oertle, 2019). Students are embedded in a workplace relevant to their degree. During this time, students can experience authentic work assignments that are similar to those they may encounter post-graduation. Per the adult learning theory, adult learners prefer a hands-on, self-paced education experience (Knowles, 1984). Work-based learning supports adult students' preferred learning style while enhancing their knowledge in both their program and career.

Work-based learning is often contingent on the student's engagement with the experience (Lafton, & Furu, 2019). Students who engage in experiences will develop more skills and increase their self-efficacy. Ali et al. (2017) researched students' soft skill development during work-based learning by having students complete a questionnaire using a 5-point Likert scale. After completing a work-based learning experience, students’ communication skills were 4.12, critical thinking and problem solving were 4.09, teamwork was 4.22, and leadership skills were 4.21. During the experience, students develop soft skills such as problem-solving, organization, time management, and collaboration. Work-based learning was designed to fill the gap between academic knowledge and workplace skills (Riesen & Oertle, 2019).

Work-based learning affects a student's career maturity, helping them with job choice and career aspirations (Ali et al., 2017). However, research on the effect of work experiences on students' self-efficacy has had varying results. A past study conducted by Esters et al. (2013)

quantitatively diagnosed the difference in students' self-efficacy before and after they completed work-based learning. Students' self-efficacy results showed that self-efficacy scores increased from 3.91 to 4.27 after students completed their work-based learning. Additionally, students' career decision self-efficacy increased from 3.91 to 4.27 (Esters & Retallick, 2013). In 2014, Edwards conducted a qualitative study to determine if work placement produced a positive or negative effect on students' development of self-efficacy. Seven of ten students interviewed viewed their work placement as having a positive impact on their self-efficacy.

In contrast, Drysdale and McBeath conducted a study in 2017 to determine if there was a difference in self-efficacy in students who did or did not participate in a work-integrated learning experience. Their study found that there was no correlation between self-efficacy and work-integrated learning with no significant difference between mean scores with 5.50/7 for work-integrated learning and 5.54/7 non-work integrated learning. Another study conducted in 2017 by Roberts et al. investigated the effect of work-based learning on undergraduate student's employability self-efficacy on 9 skills. After participating in work-based learning, each skill had an increase in self-efficacy in students with 0.53 in conducting research, 0.42 in communicating with professionals, 0.37 coming up with new ideas, 0.38 in presenting to an audience, 0.55 in working in a team, 0.44 in confidence in a career context, 0.32 in thinking logically, 0.27 in creating a solution to programs, and 1.55 in knowing what is expected of me a professional work setting. These two opposing studies point to a need for more research on the effects of work-based learning on students' self-efficacy.

The benefit of work-based learning, as opposed to internships, is the college's ability to regulate the experience (Ali et al., 2017). Through work-based learning, the college and the community regularly interact to discuss what skills should be focused on in the classroom and

the work-based learning experience. Colleges will often host business partner meetings to discuss career expectations and pay scale. These meetings usually occur once or twice a year and include faculty members, deans, staff, and employers. Employers rely on higher education institutes to train the future workforce. Therefore, the skills and knowledge that students have acquired should be directly related to their future career goals. Work-based learning bridges the divide and allows employers to have input into an institute's curriculum (Riesen & Oertle, 2019). In return, the students receive a more holistic experience that increases their employment (Ali et al., 2017). Approximately 60% of employers have reported that they are more likely to hire someone with work experience than someone without (Wagner & Strach, 2019).

Work-based learning can affect an employer's attitudes toward hiring students with disabilities (Riesen & Oertle, 2019). A study conducted on employees and students with disabilities found that only 37.84% of employers provided training experiences for students with disabilities. Employers who have not worked with students with disabilities are less likely to hire students with disabilities. This phenomenon is partly due to a lack of training or experience. Employers worry about the safety and integration of students with disabilities in their businesses because they lack experience or training, with 45.9% of employers indicating that their work was too difficult for someone with a disability to complete. Often when employers agree to offer work or internships to students with disabilities, over half (54.05%) request training and a written plan for the student. This helps the employer feel more prepared for the unique abilities of the student with a disability.

Employees with disabilities tend to have lower levels of self-efficacy (Zhu, 2019). Self-efficacy in employees with disabilities averages 6/7, and employees without disabilities have an average of 6.5/7. Inclusion plays a vital role in maintaining self-efficacy in employees. It was

found that when employees with and without disabilities were placed in high inclusion work-environments, his or her self-efficacy maintained at 6 for employees with disabilities and 6.5 for students with disabilities. When employees were placed in low inclusion environments, their average score dropped by almost one point. Therefore, inclusion is a predictor of self-efficacy in workplaces. Colleges should focus on providing work-based learning experiences that offer inclusive working environments.

Summary

Students with disabilities are attending higher education institutions and attempting to enter the workforce at an increasing rate. However, students with disabilities are still faced with numerous barriers that make it difficult for them to achieve their goals (Majoko, 2018). Research studies have indicated that only 10% of students with disabilities will gain full-time employment with a good salary (Sannicandro et al., 2018). One area that has been identified as a predictor of success is self-efficacy. Students with higher levels of self-efficacy are more likely to achieve academic success. Research has indicated that students with disabilities are at risk of developing lower levels of self-efficacy due to their additional challenges. The discrepancy in self-efficacy could be a predictor for employment. Work-based learning is a college course that has been shown to improve employment rates and self-efficacy. Students who participate in work-based learning are more likely to receive and maintain employment after graduation. The use of work-based learning as a catalyst for self-efficacy in students with disabilities could increase employment rates.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative, causal-comparative study was to determine the difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. Chapter three reviews the quantitative study by introducing the design of the study and expanding on the definitions of all variables. The research question and hypothesis will be presented, followed by the participants, setting, instrumentation, procedures, and data analysis plan.

Design

The causal-comparative research design was utilized to determine the difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. The research design was most appropriate because the difference in students' self-efficacy scores already existed between students with and without disabilities and those who have or have not participated in work-based learning. By using the causal-comparative design, the naturally occurring effect of work-based learning and disability status on self-efficacy was able to be measured. Similar studies on self-efficacy have used the causal-comparative design to determine the difference in self-efficacy with and without the presence of certain independent variables. Peaslee (2017) used this design to determine if community college students' self-efficacy was affected by faculty. Similar to the proposed study, Peaslee (2017) focused on self-efficacy in community colleges. Knight et al. (2018) used a causal-comparative study to determine if students with disabilities in college were affected by different policies. This study used the causal-comparative design to determine if

work-based learning and disability status are causing a difference in self-efficacy levels in community college students.

The study was conducted to determine how both independent variables, as defined by the nominal categories of disability status and work-based learning attendance, affected a student's naturally occurring self-efficacy level. A causal-comparative research design is appropriate when a phenomenon consists of two or more groups, and the independent variable is not manipulated by the researcher to be either present or not (Gall et al., 2007). The study was composed of two independent variables, work-based learning and disability status, and their effects on the dependent variable, self-efficacy.

Self-efficacy was measured in each of the four groups using the General Self-Efficacy Scale (GSE). The dependent variable is the students' self-efficacy scores from the General Self-Efficacy scale. Self-efficacy is a person's belief in their capabilities to complete a task or learn a new concept or skill (Bandura, 1977). The causal-comparative design should be implemented when neither of the variables can be manipulated by the researcher (Salkind, 2010). The disability status cannot be manipulated; therefore, an experimental research design was not appropriate (Salkind, 2010).

The independent variables are defined by the nominal categories of disability status and work-based learning participation. Nominal variables consist of two or more categories that do not have an intrinsic order (Assaad, 2015). The first nominal variable was disability status. A disability is defined as having a shortcoming in a learning area (Kirby, 2017). A students' disability status was determined by the presence or absence of a disability in a student. This cannot be manipulated by the researcher because a disability is a natural occurrence in students.

The disability status was self-identified by the student as either present or not present. Data on specific disabilities was not collected.

The second nominal variable was work-based learning. Work-based learning is a community college experience that allows students to interact with real workplaces (Reisen & Oertel, 2019). The researcher did not place students in work-based learning experiences to determine the effect on reported self-efficacy scores. Instead, the researcher compared self-efficacy scores based on whether the student had participated in work-based learning during the time of studies' data collection. Therefore, this variable was also not manipulated by the researcher for the purpose of this study.

The four subgroups were established based on the presence or absence of the two independent variables. Students who did not identify as having a disability and did not participate in work-based learning were assigned to group 1. Group 1 acted as the control group because neither of the independent variables were present. The control group determined students' average self-efficacy without the presence of disability and participation in work-based learning. Comparing the control group to the other three groups that have the independent variables present determined if there is a difference in self-efficacy levels when the phenomenon is present. Students who did not identify as having a disability and participated in work-based learning were assigned to group 2. Students who identified as having a disability and participated in work-based learning were assigned to group 3. Lastly, students who identified as having a disability and did not participate in work-based learning were assigned to group 4.

Research Questions

RQ1: Is there a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs?

Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no difference in student self-efficacy scores, as measured by the General Self Efficacy Scale, between community college students who participate in work-based learning and those who do not.

$H_0$2: There is no difference in student self-efficacy scores, as measured by the General Self Efficacy Scale, among community college students who identified as a student with a disability and students who are not.

$H_0$3: There is no difference in student self-efficacy scores, as measured by the General Self Efficacy Scale, among community college students who participate in work-based learning and those who do not and whether the students are identified as having a disability and students who are not identified as having a disability.

Participants and Setting

Once an appropriate research study was identified, the sampling method, participation procedures, and setting were selected. The following sections provide details on the qualifications and procedures required of the participants.

A convenience sample was used to collect data. Causal-comparative studies can employ most sampling techniques, including convenience sampling. A convenience sample is most appropriate when other types of sampling are not available (Warner, 2013). However, the study requires a control group. Students without disabilities and who did not participate in work-based

learning acted as the control group. The participants in this study were collected from a convenience sample of students attending one of the 14 community colleges offering work-based learning located in North Carolina during the fall semester of the 2020-2021 school year who agreed to participate in the study. A community college qualified for the study if one or more associate degree programs offered work-based learning as a course. Work-based learning is a required course that is offered all year. Students attending classes in the fall semester may be taking work-based learning during that semester, taken it in a previous semester, or not participating in the course. To view a complete list of associate degree programs that offer work-based learning, see Appendix A.

Participants were located in both rural and urban areas. The colleges were composed of students who vary in age, sex, race, disability status, and programs. The following information provides statistics on the current population of all North Carolina community colleges. Students attending a North Carolina community college tend to be 52% female and 48% male (NC Community Colleges, 2019). Students vary on race with 56% white, 21% African American, 11% Hispanic or Latino, 2 % Asian, 2% Native American, 2% multiple races, and 5% other (NC Community Colleges, 2019). Community colleges have varied ages attending college, with the youngest being 16 and the upper echelon ranging from 65 plus. The 2019 census reported that across all North Carolina community colleges, 34% were aged between 25-44, 32% aged between 18-24, 16% aged between 45-64, 15% aged from 16-17, and 3% aged 65 or older (NC Community Colleges, 2019).

The sample was taken from 14 community colleges across North Carolina. The total number of completed consent forms, demographic surveys, and General Self-Efficacy Scale questionnaires were 1,231. All three components had to be completed for the student to be

considered for the study. The absence of the consent form resulted in the survey and questionnaire becoming invalid according to the researcher's stated guidelines. To participate in this study, students had to be 18 years of age or older and currently enrolled in a program at the community college. Students who were enrolled in programs outside of an associate degree and were between the ages of 16-17 were not considered. See Appendix A for all associate degree programs accepted by this study.

Due to the varied population in age, sex, disability status, and programs, community colleges were chosen. Demographic information was collected through the survey. The population of the initial sample was composed of 734 females, 254 males, and 17 students who preferred not to say. Students self-identified their race, and the initial population consisted of 545 white, 219 African American, 121 Hispanic or Latino, 38 Asian, 20 Native American, and 62 Other. Ages ranged from 193 students aged 16- 17, 538 students aged 18-24, 369 students aged 25-44, 124 students aged 45-64, and 7 students aged 65 years and older. The sample consisted of 1,005 students who were currently enrolled in a program and 33 who were not. Associate degree areas consisted of 312 college transfer, 208 associate in general education, 7 agribusiness, 4 biological chemical technologies, 76 business technology, 18 commercial and artistic production design, 13 construction technology, 44 engineering technology, 263 health sciences, 21 industrial technology, 33 public service technology, and 6 transportation systems technology.

The criteria to participate in the study was that the student was 18 years of age or older and currently enrolled in a program. 226 participants did not meet these criteria. The total number of participants sampled who matched the requirements for the scope of the study were 1,005, which exceeds the required minimum of 144 for a two-way ANOVA when assuming a medium effect size, statistical power .7, and a .05 alpha level (Gall et al., 2007). The initial

groups totaled 642 participants in group 1 (control), 162 in group 2, 164 in group 3, and 37 in group 4. The Two-way ANOVA requires an equal number of participants per group. Group 4 had the smallest number of participants totaling 37 and when multiplied by four (the number of groups) the total equals 148 which exceeds the required minimum number of 144 participants (Gall et al. 2007). This is in accordance with Warner (2013), which states that the minimum sample size for a study with a medium effect size with a statical power .7 and a .05 alpha level is 144.

Since the other three groups exceeded 37, systematic random sampling was employed. Systematic random sampling is used when the initial sample exceeds the minimum and a specific number of participants needs to be derived from the initial group (Gall et al. 2007). For this sample method, the total number of participants is divided by the intended group size. For example, group 1 consisted of 642 participants so 642 was divided by 37 (the intended group size) and the answer was rounded to 17. Using the answer, the researcher then counts out every 17^{th} participant and that data is added to the sample. For groups 2 and 3 every 4^{th} participant was added to the sample size. The total sample consisted of 148 which exceeded the minimum 144.

Demographic information on the sample is as follows. The sample was composed of 107 females, 39 males, and 2 students who preferred not to say. Participants races were composed of 83 white, 32 African American, 18 Hispanic or Latino, 5 Asian, 1 Native American, and 9 Other. Participants ages were 82 students aged 18-24, 47 students aged 25-44, 17 students aged 45-64, and 2 students aged 65 years and older. Associate degree areas consisted of 49 college transfer, 35 associate in general education, 3 agribusiness, 0 biological chemical technologies, 3 business technology, 1 commercial and artistic production design, 5 construction technology, 9

engineering technology, 33 health sciences, 4 industrial technology, 6 public service technology, and 0 transportation systems technology.

The two-way ANOVA analyzed the effects of the absence or presence of the two independent variables, work-based learning, and disability status, on a dependent variable, self-efficacy. A requirement of the two-way ANOVA is that data is divided into equal groups. Therefore, participants were divided into four naturally occurring subgroups based on their disability status and participation in work-based learning. The four groups are considered naturally occurring because they would exist with or without the presence of the research (Warner, 2013). The participants totaled 74 students without disabilities and 74 students with disabilities. Students who identified as having participated in work-based learning were 74, and those who had not participated were 74. Group 1 consisted of 37 students without disabilities who participated in work-based learning. Group 2 consisted of 37 students with disabilities who participated in work-based learning. Group 3 consisted of 37 students without disabilities who did not participate in work-based learning. Lastly, Group 4 consisted of 37 students with disabilities who did not participate in work-based learning.

Instrumentation

The General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995) was employed to determine the independent variable's effect on the dependent variable. The purpose of this instrument is to measure participants' self-reported self-efficacy.

Ralf Schwarzer and Matthias Jerusalem developed the scale in 1979 in accordance with Bandura's theory of self-efficacy (Schwarzer & Jerusalem, 1992). The co-authors believed that a person could overcome adverse experiences by believing in their own capabilities; therefore, the authors created the scale to "assess a general sense of perceived self-efficacy with the aim in

mind to predict coping with daily hassles as well as adaptation after experiencing all types of stressful life events" (Schwarzer & Jerusalem, 1995, p. 36). The co-authors revised and adapted the scale for 26 additional languages in 1995 (Schwarzer & Jerusalem, 1995). See Appendix C for the instrument. See Appendix J for the permission overview.

The internal reliability of the General Self-Efficacy Scale (GSE) is between α= 0.76 and 0.90 (Schwarzer & Jerusalem, 1995). In 2005, Luszczynska, Scholz, And Schwarzer conducted a multicultural validation study to determine the overall reliability and validity of the General Self-Efficacy Scale across multiple countries. Researchers analyzed the scale in 28 countries and found the scale to be equivalent across all 28. Examples of Cronbach alphas for the GSE scale from these various countries include Germany α = 0.89, Poland α = 0.87, and South Korea α=0.86 (Luszcynska et al. 2005). Schwarzer and Hallum (2008) confirmed the GSE scale's reliability when conducting a study to determine the relationship between teacher self-efficacy and burnout and determined the scale's reliability to be α = 0.76. Salsman et al. (2019) recently conducted a validation study on the General Self-Efficacy Scale and determined an internal consistency of α = 0.94. The GSE scale has proven to be a valid instrument to measure students' self-efficacy in various settings and languages (Schwarzer & Jerusalem, 1995).

The scale consists of 10 questions and employs a 4-point Likert scale ranging from "not at all true" to "exactly true" (Schwarzer & Jerusalem, 1995). The response options are as follows: *Exactly True = 4, Moderately True = 3, Hardly True = 2, and Not at All True = 1.* (Schwarzer & Jerusalem, 1995). The General Self-Efficacy Scale's score can range from 10 to 40 points, with 10 being the lowest possible score indicating the lowest level of self-efficacy. A higher score, 40, indicates higher levels of self-efficacy (Schwarzer & Jerusalem, 1995). The scores do not need to be recoded (Schwarzer & Jerusalem, 1995).

The scale is available for administration by anyone with the caveat that recognition is provided in the narrative (Schwarzer & Jerusalem, 1995). See Appendix J for permission overview. The scale is intended for adults and adolescents above the age of 12. (Schwarzer & Jerusalem, 1995). The intended population is those experiencing a new event that could change their perceived self-efficacy or a group of people experiencing the same phenomenon (Schwarzer & Jerusalem, 1995). For example, the instrument can be administered to a group before training and then again after training to determine the change in self-efficacy. The scale is self-administered and takes an average of four minutes to complete. To score the instrument, the researcher adds each number between one to four associated with the participant's answer to determine the sum total. The researcher analyzes each score to determine if students are lower in self-efficacy with a score closer to 10 or higher in self-efficacy with a score closer to 40. See Appendix B for the instrument instructions.

Procedures

After obtaining IRB approval from Liberty University and each participating community college, the research was conducted. See Appendix E for IRB approval. The researcher contacted a member of the institutional effectiveness team of each of the 56 community colleges in North Carolina that offer work-based learning to receive approval to conduct research on their campus. The researcher received a response email from 26 of the community colleges contacted. These colleges were Central Carolina Community College, Lenoir Community College, College of the Albemarle, Randolph Community College, Rockingham Community College, Pitt Community College, South Piedmont Community College, Beaufort County Community College, Southwestern Community College, Richmond Community College, Cleveland Community College, Wake Technical Community College, Durham Technical Community College, Mitchell

Community College, Vance-Granville Community College, Alamance Community College, Forsyth Community College, Brunswick Community College, Fayetteville Community College, Piedmont Community College, Carteret Community College, Robeson Community College, Cape Fear Community College. Caldwell Community College and Technical Institute, Wayne Community College, and Nash Community College.

To comply with each college's IRB process, the researcher completed applications and provided other necessary information for each college. Central Carolina CC, Randolph CC, Cleveland CC, Durham Tech CC, Mitchell CC, Brunswick CC, and Carteret CC declined to participate. Rockingham CC, Beaufort County CC, Southwestern CC, Robeson CC, and Cape Fear CC did not follow-up with answer. The 14 colleges who agreed to participate were Lenoir CC, College of the Albemarle, Pitt CC, South Piedmont CC, Richmond CC, Wake Technical CC, Vance-Granville CC, Alamance CC, Forsyth CC, Fayetteville Technical CC, Piedmont CC, Caldwell CC and Technical Institute, Wayne CC, and Nash CC.

A representative from each participating college worked with the researcher to distribute the research materials. College representatives consisted of work-based learning coordinators, academic advisors, and members of the institutional effectiveness team. The college representatives were asked to forward an email to currently enrolled students that included a recruitment letter that contained information on the purpose of the study, participation guidelines, timeframe (See Appendix F), a consent form (See Appendix G), demographic survey (See Appendix D), and the General Self-Efficacy Scale (See Appendix C) to all students between the dates of 09/08/2021 and 09/22/2021. See Appendix H for the forementioned email. Each college representatives contacted via email prior to the study's timeframe to discuss the purpose and encourage participation in the study.

Participants completed the instrument, consent form, and demographic survey in an electronic format. These materials and the letter of intent were sent to students' school emails by the college representative from each of the 14 participation community colleges. The General Self-Efficacy (GSE) scale and demographic survey were digitized by the researcher in Microsoft Forms (Microsoft, 2020). The student completed one form with two sections for the demographic survey and GSE scale in Microsoft Forms. In the demographic section, students answered questions using predetermined multiple-choice options. The demographic information on race, gender, age, disability status, participation in work-based learning, and degree program were obtained. To participate in the study, students had to be 18 years of age or older and currently enrolled in a program of study. The form automatically closed if students answered that they were under the age of 18 or not currently enrolled in a program. To ensure anonymity, no identifiable information was collected.

The data for the independent variables, disability status and work-based learning participation, were collected in the demographic survey section. Disability was defined as any deficit in learning to accommodate the various types of disabilities that can affect a student's ability to learn. This included physical, intellectual, learning, or any other type of disabilities. Disability status was a self-report answer of either yes to indicate a student has a disability or no to indicate that the student does not have a disability. Students self-identified as either yes-participated in work-based learning or no-did not participate in work-based learning. See Appendix D for the demographic questions and answer options. The second section contained the digitized GSE scale, copied into Microsoft Forms verbatim from the original paper document. Each question will allow the student to answer the question on a Likert scale of 1 to 4. See Appendix C for the digitized General Self-Efficacy Questionnaire.

The initial survey was sent to students via email on September 8, 2021. Students were informed that the timeline to complete the survey was approximately two weeks. On September 15, 2021, students received a secondary email with a reminder letter to complete the survey. The same initial information, instrument, consent form, and demographic survey was included. A student who had not completed the survey by September 22, 2021, was not considered for the study. Students who did not complete all materials, including the consent form, demographic survey, and General Self-Efficacy Scale, were not included in the study. The instrument was scored by the researcher using the assigned numbered categories associated with each question to create score between 10 and 40. All participants received a self-efficacy score between 10-40.

Data was collected from the student's electronic responses to the demographic survey and General-Self Efficacy scale in a Microsoft Excel spreadsheet. Neither student nor college names were collected in either the demographic survey or the General Self-Efficacy Scale Questionnaire. Microsoft Forms automatically assigns respondents a number starting with 1 and continuing sequentially (Microsoft, 2020). The number assigned by Microsoft Forms was set as the identifier for each survey and questionnaire response in the Excel Spreadsheet. In the spreadsheet, each response number, starting with one and moving sequentially, was inputted in the far-left column with the heading: *Respondent.* Next to the respondent column, three columns were added to provide information on the variables. The first column determined disability status. Students were given an I if they are identified as having a disability and an N.I. if they are not identified as having a disability. Work-based learning participation was identified with a Y for yes to indicate the student had participated and an N for no to indicate students had not participated. Students' scores from the General self-efficacy scale were recorded in the third column ranging from 10 to 40. Two spreadsheets were created with the same information. The

researcher will create the first spreadsheet, and the second will be created by a third-party individual who was not directly related to the study. An analysis will be conducted by a computer program to determine any discrepancies between the two spreadsheets. See Appendix I for the spreadsheet.

All data was entered into SPSS. Disability status will be dummy coded as 0 for N.I, Not identified as having a disability, and 1 for I, identified as having a disability. Work-based learning participation was coded as 0 for N, not participated in work-based learning, and 1 for Y, did participate in work-based learning.

To ensure security of the research data, any information that could potentially identify participants will be protected at all stages. Data was stored on a password protected cloud storage and the password was not shared. The cloud storage was only accessed by the researcher's computer and no files were saved to the computer's hard drive. The data was stored on the cloud storage for a period of five years after the completion of the research study.

Data Analysis

Data screening was conducted on the dependent variable to check for outliers. A box and whisker plot was conducted to detect extreme outliers on the dependent variable. According to Warner (2013) an outlier is considered extreme if it is +3.00 or -3.00 from the standard deviation. If an extreme outlier is detected, it will be removed from the data set. A two-way analysis of variance (ANOVA) requires an assumption of homogeneity (Warner, 2013). A Levene's test was conducted to test the assumption of homogeneity among variances. Similar studies have used the box and whisker plot and Levene's test. Vaughan (2019) used the box and whisker plot to find outliers and the Levene's test to test the assumption of homogeneity in the two-way ANOVA. Both yielded accurate results. To test for the assumption of normality, the

Shapiro-Wilk was completed because the sample size will be greater than 50 (Warner, 2013). Yarbrough et al. (2016) used the Shapiro-Wilk test to test the assumption of normality and the results showed that there was a possibility for significant outliers. The researchers removed the outliers to determine if there was a significant difference between the new sample and original sample. There was not. Descriptive statistic of the mean and standard deviation of the dependent variable was reported for all groups of the independent variable.

A two-way ANOVA was conducted to analyze the data. A two-way ANOVA analyzes the independent variables' effects on the dependent variable (Gall et al., 2007). The two-way ANOVA is employed in place of a *t*-test when multiple groups are being studied (Warner, 2013). The test analyzes the mean score of each group and compares them by creating a variance. A two-way ANOVA tests two different independent variables on the same group of participants (Warner, 2013).

A two-way ANOVA was appropriate for this study because it compares the presence or absence of two or more independent variables on the dependent variables. In this study, both work-based learning and disability status are either coded as 0 for not being present or 1 for being present. A two-way ANOVA also allows researchers to compare each independent variable's effect on the dependent variable to determine if there is an effect. The purpose of this research was to determine if work-based learning has an effect on students' self-efficacy. Because the study was not being done before and after the completion of work-based learning, the change in self-efficacy needs to be determined by whether the experience was present or not in students in a singular moment. This determined if work-based learning has an effect on self-efficacy without readministering the General Self-Efficacy Scale.

When choosing to conduct the two-way ANOVA, several assumptions were reviewed (Warner, 2013). The dependent variable is classified as an interval variable. The dependent variable will be measured as an interval, which is acceptable for the GSE scale because each response is ordered sequentially and in equal intervals. An interval variable is a variable that has a numerical value and is measured along a continuum (Assad, 2015). The dependent variable cannot be a ratio because the instrument's score does not exist with the value of 0. The interval variables range from 10 to 40 and are equally distanced, as determined by the General self-efficacy scale.

Nominal variables are variables with two or more categories that do not have an intrinsic order (Assaad, 2015). A two-way ANOVA compares the mean difference between the two nominal variables called factors (Assaad, 2015). The factors consist of different values to create different treatments (Assaad, 2015). The factors for this study were work-based learning and disability status. The two factors are considered dichotomous variables. Dichotomous variables consist of two categories that do not require an intrinsic order (Assaad, 2015). The work-based learning variable categories identify as *Yes* for participated and *No* for did not participate. The disability status variable is labeled I for identified and N.I. for not identified as having a disability.

These factors were divided into groups based on the prescribed values. By dividing the factors into groups based on treatments, the two-way ANOVA could compare each independent variable's effect on the dependent variable (Assaad, 2015). The variable studied was termed the response variable (Assaad, 2015). When a factor affects the response variable, it is called the main effect. The purpose of this analysis is to determine if the independent variables have a direct effect on the dependent variable, whether it is present or not. The analysis also determined

if the effect of one independent variable on the dependent variable is similar to the effect of the second independent variable (Gall et al., 2007). This information can be found in the interaction term. The two-way ANOVA determined if there is a difference in scores of self-efficacies between students with and without disabilities and those who did or did not participate in work-based learning. The eta-squared statistic measured the effect size. The dependent variable, self-efficacy score, were compared among the four subgroups using the standard deviation and mean provided in the descriptive statistics. The null hypothesis will be rejected at the 95% confidence level.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, causal-comparative research study was to determine if there was a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs. A two-way analysis of variance (ANOVA) was used to either reject or fail to reject the null hypotheses. This chapter includes a review of the research question and three null hypotheses. Descriptive statistics will be provided, and the results section provides an overview of the assumptions and analysis of the variables.

Research Question

RQ1: Is there a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs?

Null Hypotheses

The null hypotheses for this study are:

$H_0$1: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, between community college students who participate in work-based learning and those who do not.

$H_0$2: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who identified as a student with a disability and students who are not.

$H_0$3: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who participate in work-based learning

and those who do not and whether the students are identified as having a disability and students who are not identified as having a disability.

Descriptive Statistics

Descriptive statistics were obtained on the dependent variable, self-efficacy scores, based on the independent variables, work-based learning participation and disability status, for each of the sample groups. The sample consisted of a total of 148 participants. The total number was equally divided into four groups with 37 participants in each group. Self-efficacy scores can range from 10 to 40. A low score of 10 indicates that participants had low self-efficacy and a high score of 40 means they had high self-efficacy. Descriptive statistic reported below excludes the extreme outlier (Number 119) detected in the Box and Whisker plot. Descriptive statistics can be found in Tables 1 and 2.

Table 1.

Descriptive Statistics: Comparison 1

Descriptive Statistics

Dependent Variable: Self-Efficacy Score

Disability Status	Work-Based Learning	Mean	Std. Deviation	N
NI	N	32.16	4.22	37
	Y	32.40	4.75	37
	Total	32.28	4.46	74
I	N	29.24	6.06	37
	Y	31.14	5.45	36
	Total	30.18	5.81	73
Total	N	30.70	5.39	74
	Y	31.78	5.11	73
	Total	31.24	5.26	147

Table 2.

Descriptive Statistics: Comparison 2

Descriptive Statistics

Dependent Variable: Self-Efficacy Score

Work-Based Learning	Disability Status	Mean	Std. Deviation	N
N	NI	32.16	4.22	37
	I	29.24	6.06	37
	Total	30.70	5.39	74
Y	NI	32.41	4.75	37
	I	31.14	5.45	36
	Total	31.78	5.11	73
Total	NI	32.28	4.47	74
	I	30.18	5.81	73
	Total	31.23	5.26	147

Results

A two-way analysis of variance (ANOVA) was conducted to determine if there was statistical significance between means of the dependent variable, self-efficacy scores, when the independent variables, work-based learning and disability status, were or were not present. The following sections include the descriptions of the assumption testing required for the two-way ANOVA. Each analysis for each of the null hypotheses is reviewed in this section as well.

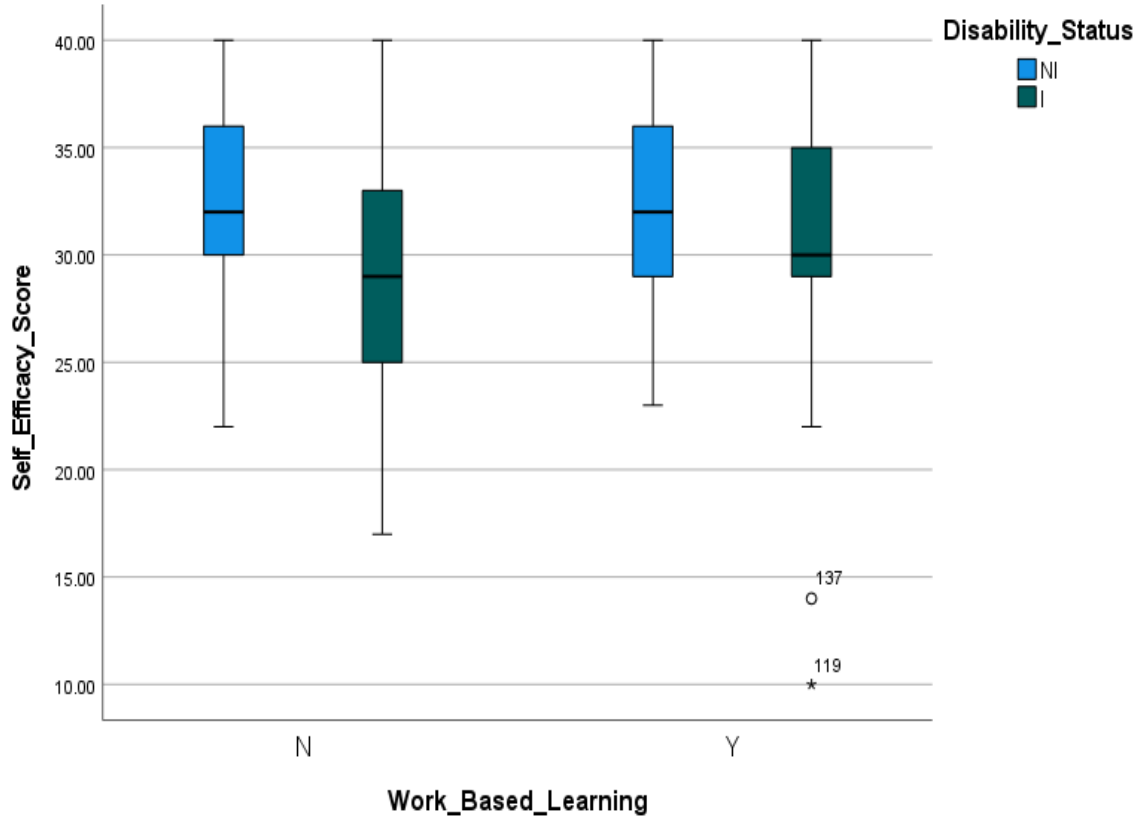
Assumptions

The two-way ANOVA requires that six assumptions be met. Before conducting the data analyses these three assumptions were met: the dependent variable measured on a continuous level, the dependent variable was affected by two or more categorical independent variables, and there were different participants in each group. The two-way ANOVA requires that there are no extreme outliers in the data set. A Box and Whisker plot was used to detect for extreme outliers.

One outlier (Number 119) was detected as an extreme outlier and removed. An outlier was considered extreme if it was +3.00 or -3.00 from the standard deviation. See Figure 4 for the Box and Whisker Plot.

Figure 4.

Box and Whisker Plot



An assumption of homogeneity of variance must be met for the two-way ANOVA (Warner, 2013). A Levene's test was conducted to test for homogeneity. The assumption of homogeneity of variance was met where (p = .099). The Levene's test only indicates statically significance if the $p < .05$. See Table 3 for the Assumption of Homogeneity.

Table 3.

Assumption of Homogeneity

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Self-Efficacy Score	Based on Mean	2.128	3	143	.099
	Based on Median	2.045	3	143	.110
	Based on Median and with adjusted df	2.045	3	124.829	.111
	Based on trimmed mean	2.111	3	143	.101

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Self-Efficacy Score

b. Design: Intercept + Disability Status + Work-Based Learning + Disability-Status * Work-Based Learning

The last assumption that must be met for the two-way ANOVA is the assumption of normality. Scores must be normally distributed amongst the variables. A Shapiro Wilks was used to test this assumption. To meet the criteria, $p > .05$. There was only one variable that did not meet this criterion. In Table 3, the group self-efficacy scores coded Y for work-based learning $p = .027$. According to Warner (2013) the two-way ANOVA is robust enough to handle violations of this assumption. See Tables 4 and 5 for the Assumption of Normality.

Table 4.

Assumption of Normality: Work-Based Learning

Tests of Normality

	Work-Based Learning	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Self-Efficacy Score	N	.103	74	.050	.967	74	.050
	Y	.083	73	.200*	.962	73	.027

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 5.

Assumption of Normality: Disability Status

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Disability Status	Statistic	df	Sig.	Statistic	df	Sig.
Self-Efficacy Score	NI	.108	74	.032	.971	74	.089
	I	.091	73	.200*	.975	73	.146

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Hypotheses

$H_0$1: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, between community college students who participate in work-based learning and those who do not.

A two-way ANOVA was used to test the first null hypothesis and determine if there was a difference in self-efficacy scores based on students' participation in work-based learning. The independent variable was work-based learning, and the dependent variable was self-efficacy scores. The researcher failed to reject the null hypothesis at the 95% confidence level where $F(3, 143) = 1.58$, $p = .211$. Partial eta square equaled ($\eta^2_{part} = .011$). The effect size was small. There was not a statistical difference in self-efficacy scores among students who did not participate in work-based learning ($M = 30.70$, $SD = 5.39$), those who did participate in work-based learning ($M = 31.78$, $SD = 5.11$). See Table 6 for the results of the two-way ANOVA.

$H_0$2: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who identified as a student with a disability and students who are not.

A two-way ANOVA was used to test the second null hypothesis and determine if there was a difference in self-efficacy scores based on students' disability status. The independent variable was disability status, and the dependent variable was self-efficacy scores. The researcher rejected the null hypothesis a the 95% confidence level where $F(3, 143) = 6.03$, $p = .015$. Partial eta square equaled ($\eta^2_{part} = .040$). The effect size was small. There was a statistical difference in self-efficacy scores among students who identified as having a disability ($M = 30.18$, $SD = 5.81$), those who did not identify as having ($M = 32.28$, $SD = 4.46$). See Table 6 for the results of the two-way ANOVA.

$H_0$3: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who participate in work-based learning and those who do not and whether the students are identified as having a disability and students who are not identified as having a disability.

A two-way ANOVA was used to test the third null hypothesis and determine if there was a difference in self-efficacy scores based on students' disability status and work-based learning participation. The independent variables were work-based learning and disability status, and the dependent variable was self-efficacy scores. The researcher failed to reject the null hypothesis at the 95% confidence level where $F(3, 143) = .940$, $p = .334$. Partial eta square equaled ($\eta^2_{part} = .007$). The effect size was small. There was not a statistical difference in self-efficacy scores among students who did not participate in work-based learning and did not identify as having a disability ($M = 32.16$, $SD = 4.22$), students who did participate in work-based learning and did not identify as having a disability ($M = 32.40$, $SD = 4.75$), students who did not participate in work-based learning and did identify as having a disability ($M = 29.24$, $SD = 6.06$), and students

who did participate in work-based learning and did identify as having a disability (M = 31.14, SD = 5.45). See Table 6 for the results of the two-way ANOVA.

Table 6.

Results of Two-Way Analysis of Variance

Tests of Between-Subjects Effects

Dependent Variable: Self-Efficacy Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	229.604[a]	3	76.535	2.869	.039	.057
Intercept	143418.989	1	143418.989	5375.775	<.001	.974
Work-Based Learning	42.025	1	42.025	1.575	.211	.011
Disability Status	160.923	1	160.923	6.032	.015	.040
Work-Based Learning * Disability Status	25.082	1	25.082	.940	.334	.007
Error	3815.062	143	26.679			
Total	147490.000	147				
Corrected Total	4044.667	146				

a. R Squared = .057 (Adjusted R Squared = .037)

CHAPTER FIVE: CONCLUSIONS

Overview

After completing the data analysis, the results were reviewed and discussed in the following section. The discussion section reviews the data from this study and how it aligns with past research. The implications section discusses the outcomes of the study and how it impacts the current body of literature. This section will discuss how colleges could use the data to review their work-based learning programs. Limitations will be discussed, and recommendations for future research will be reviewed.

Discussion

The purpose of this quantitative, casual-comparative research study was to determine if there was a difference in self-efficacy scores among students who participated in work-based learning and those who do not based on their disability status in community college programs. This study aimed to provide current, relevant data to community colleges in North Carolina on the effects of work-based learning participation on students with disabilities. By providing current data, colleges can make more informed decisions on implementing work-based learning into their curriculum programs.

The participants in this study were collected from 14 community colleges across North Carolina, where work-based learning is offered as a course. The participation criteria for the study were that the student is 18 years of age or older and currently enrolled in a program. The sample was composed of 148 participants (N=148). The sample consisted of 73% (107) female, 26% (39) male, and 1% (2) preferred not to identify their gender. The 148 participants were divided into four equal groups of 37, and 100% of the sample completed all demographic questions and the General Self-Efficacy Scale.

The General Self-Efficacy was composed of 10 questions and scored on a 4-point Likert scale. Each participant received a score between 10-40, and scores were analyzed using a two-way ANOVA using the IBM SPSS Statistics program software. A two-way ANOVA requires several assumptions to be met. The data was first tested for extreme outliers using a box and whisker plot. The box and whisker plot detected one extreme outlier (Number 119), and it was removed because it was -3.00 from the standard deviation. The significance level for all analyses was α=0.05 with a 95% confidence level. The assumption of homogeneity was tested using Levene's test. The assumption was met, and the null hypothesis was failed to be rejected with p = .099. Each independent variable was tested to determine if scores were normally distributed. All variables met this assumption except the self-efficacy scores coded Y for work-based learning participation were p = .027.

$H_0$1: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, between community college students who participate in work-based learning and those who do not.

The first hypothesis sought to determine if there was a difference in self-efficacy scores between students who did or did not participate in work-based learning. An increase in self-efficacy could indicate that students who complete a work-based learning course are more confident in their capabilities than those who do not. The two-way ANOVA revealed that there was not a statistically significant difference in self-efficacy scores between students who had or had not participated in work-based learning were p = .211. The effect size was also reported as small were (η^2_{part} = .011). Meaning, the effect of having the variable, work-based learning, present was not significant. Based on the effect size and p-value, the sample did not provide sufficient evidence that the effect exists. Although not statistically significant, the mean score for

students who did participate in work-based learning (M = 31.78) was slightly higher than the mean score for students who did not participate in work-based learning (M = 30.70).

Adding relevant and up-to-date data to the literature was important because past research studies on the effect of work-based learning participation on self-efficacy have had varied results. Past correlation studies determined positive changes in self-efficacy scores. Solberg et al. (2012) conducted a study to determine if there was a correlation between transition experience, such as work-based learning, and self-efficacy. Solberg et al. (2012) determined there was a correlation with a large effect size (β = .74). Although the correlation was identified, causality could not be determined. Esters & Retallick (2013) conducted a similar study and determined that there was a difference in self-efficacy scores with an increase of means from 3.91 to 4.27.

More recent studies have had inconsistent results when determining the change in self-efficacy scores based on work-based learning participation. Roberts et al. (2017) conducted a study to determine if there was a change in self-efficacy scores based on work-based learning participation. The study found a positive change where the mean of scores prior to participation was M = 0.27 and after participating was M = 1.55. Conversely, Drysdale and McBeath (2017) conducted a correlation study and found no significant difference between work-based learning integration. Students with work integration learning had a mean score of 5.50/7.00, while students with non-work integrated learning had a mean score of 5.54/7. These two conflicting studies contain the most recent data directly related to work-based learning and self-efficacy.

Roberts et al. (2017) and Esters & Retallick (2013) both showed approximate growth in self-efficacy by one point. These research studies produced similar results, with means increasing by one-point (M = 31.78), (M = 30.70). Although the effect was found not to be significantly different, the differing scores support previous research studies. This data could

indicate that over the past eight years, these studies have been conducted, work-based learning has yielded similar results on students' development of self-efficacy. For institutions considering implementing work-based learning, the results further support that an increase in self-efficacy can occur. However, there is still not enough data to support that work-based learning is the cause of the increase.

$H_0$2: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who identified as a student with a disability and students who are not.

The second hypothesis sought to determine if there was a difference in self-efficacy scores based on students' disability status. This research was conducted on the assertation that students with disabilities have lower levels of self-efficacy than their peers. This assertion was derived from several research studies. BenNaim (2016) conducted a study to determine if students with learning disabilities had differing academic self-efficacy from their peers. The study's results showed that students with learning disabilities have a lower self-efficacy score mean of 4.85, and students without disabilities having a mean of 5.76 with a large effect size ($\eta^2_{part} = 0.188$). Vukman et al. (2017) researched how students with learning disabilities' self-efficacy scores changed throughout the academic year. The results showed that scores actually decreased throughout the year, with the mean starting at 24.64 and ending at 23.80. A discrepancy in scores between students with and without disabilities is prevalent not only in academia but also in the workforce. Zhu (2019) studied self-efficacy in the workplace, and workers with disabilities had an average score of 0.5 lower than their coworkers without disabilities.

Although other studies support the claim that students with disabilities have lower self-efficacy than their peers without, the phenomenon needed to be detected in the current study. The research question seeks to determine if work-based learning is a viable option for increasing self-efficacy in students with disabilities. If no discrepancy is determined, then the need to increase scores is not needed. The two-way ANOVA revealed a statistically significant difference between self-efficacy scores of students with and without disabilities were $p = .015$. However, the effect size was small ($\eta^2_{part} = .040$). A small effect size indicates that there is not a strong relationship between the two variables. The means of the self-efficacy scores between students with disabilities ($M = 30.18$) and without disabilities ($M = 32.28$) had the greatest difference compared to means in the other hypotheses. The results of the two-way ANOVA demonstrate that there is a difference in self-efficacy scores between students with and without disabilities.

$H_0$3: There is no difference in student self-efficacy scores, as measured by the General Self-Efficacy Scale, among community college students who participate in work-based learning and those who do not and whether the students are identified as having a disability and students who are not identified as having a disability.

The last hypothesis sought to determine if there was a difference in self-efficacy scores between students who had or had not participated in work-based learning based on their disability status. Past studies and the current data collected from this study show that students with disabilities have lower self-efficacy than their peers without disabilities. Since self-efficacy has been linked to success, colleges need to be aware of what programs can positively or negatively affect students' self-efficacy. Some research studies identified work-based learning as a potential method of increasing self-efficacy in students. Work-based learning has been

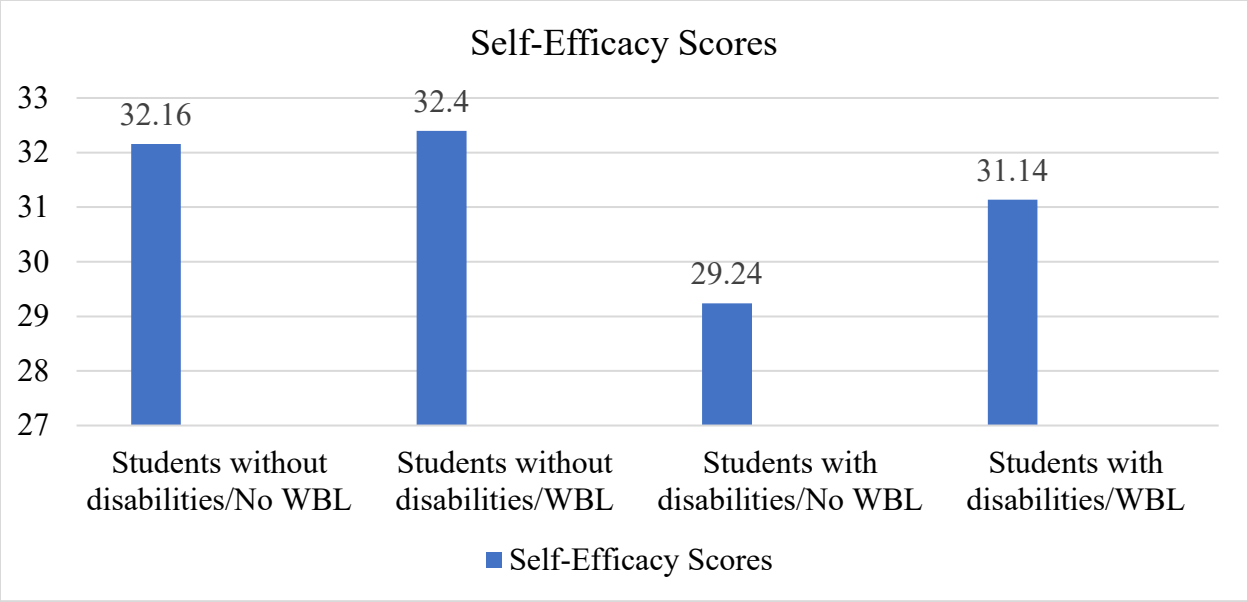
implemented into 57 out of the 58 community colleges in North Carolina. If work-based learning positively affects self-efficacy in students with and with disabilities, then colleges can make data-driven decisions on encouraging participation in the program.

There have been a few studies (Robert et al. 2017) (Drysdale & McBeath,2017) on the effect of work-based learning on self-efficacy. However, there have been no studies on the effect of work-based learning on students with disabilities' self-efficacy. Based on the assertation that students with disabilities have lower levels of self-efficacy and work-based learning can increase self-efficacy, this research study was derived.

The two-way ANOVA revealed that there was not a statistically significant difference in self-efficacy scores between students who had or had not participated in work-based learning based on their disability status were $p = .334$. The effect size was also small, and therefore a relationship between the variables cannot be assured ($\eta^2_{part} = .007$). Students without a disability who did not participate in work-based learning ($M = 32.16$) and students without a disability who did participate in work-based learning ($M = 32.40$) had only a 0.24 difference in means. Conversely, students with a disability who did not participate in work-based learning ($M = 29.24$) and students with a disability who did participate in work-based learning ($M = 31.14$) had a 1.9 difference in means. Although the difference was not found to be statistically significant, there was a positive increase in self-efficacy between students with disabilities who did participate in work-based learning. See Figure 5 for self-efficacy scores.

Figure 5

Self-Efficacy Scores



Implications

The purpose of this study was to answer the research question, is there a difference in self-efficacy scores among students who participate in work-based learning and those who do not based on their disability status in community college programs? The research question was derived from previous studies that focused on the effect of work-based learning on self-efficacy and disability status on self-efficacy. Research showed that students with disabilities had lower levels of self-efficacy than their peers without disabilities (BenNaim, 2016; Vukman et al., 2017). Since self-efficacy has been tied to academic success (Gannouni & Ramboarison-Laloa, 2018), colleges need current data to identify practices that could increase self-efficacy in their students with and without disabilities. Work-based learning was identified as a potential program to increase self-efficacy. Research on the effects of work-based learning on self-efficacy presented inconsistent findings. There are also no current studies on the effects of work-based learning on self-efficacy in students with disabilities. This study was proposed to fill the gap in the literature and provide current data.

Due to inconsistent findings on the effect of work-based learning on self-efficacy, the first hypothesis focused on determining the difference between self-efficacy scores based on work-based learning participation. The results of the study showed that the effect of work-based learning on self-efficacy was not significant, but there was an increase of means from $M = 30.70$ to $M = 31.78$. This indicates that although there was a difference in scores, there is a possibility that the mean scores do not reflect the general population. If this study were completed again with a different sample, the change in means might differ. The data cannot adequately prove if the positive change was naturally occurring. The most recent studies on work-based learning and self-efficacy occurred in 2017. This study provides up-to-date data for colleges. Although differences in scores cannot be assured, colleges can see that there is potential for a positive change in self-efficacy after a student completes a work-based learning course.

The second hypothesis focused on the difference in self-efficacy scores between students with and without disabilities. Unlike the previous hypothesis, this hypothesis was derived from more studies with more current data. The results aligned with previous research, and the positive differing of means, ($M = 30.18$) to ($M = 32.28$), was shown to be statistically significant. This result supports the claim that students with disabilities have lower levels of self-efficacy than theirs. It is essential to reassess self-efficacy in students with disabilities occasionally since colleges are continuously implementing and adapting their accommodations. With the current study showing the same trend in differing self-efficacy scores between students with and without disabilities, colleges can be assured that the issue of discrepancy is still occurring. Therefore, schools need to continue researching practices and programs that could increase self-efficacy and ensure equity to student outcomes.

The last hypothesis focused on the current gap in the literature. There were no current studies on the effect of work-based learning on students with disabilities. The results of the analysis showed that there was no statistical significance between the scores. However, looking at the four sets of means, there is an almost 2-point difference in self-efficacy scores for students with disabilities who participated in work-based learning (31.14) and those who did not (29.24). Although the *p-value* was too high to indicate that the difference in scores was naturally occurring and not random, the 2-point difference in scores indicates that there is still a possibility that work-based learning was the cause for the difference.

Since there was no data on the effect of work-based learning on students with disabilities' self-efficacy, this study provides a starting point for future studies. The difference in means indicates that at least in this occurrence, work-based learning positively affected self-efficacy scores. More research needs to be completed to determine if the difference in scores is just a random occurrence or a naturally occurring phenomenon. Although this study is not sufficient in providing colleges with enough data on the effect of work-based learning on students with disabilities' self-efficacy scores, there is no current data to be reviewed.

Limitations

After reviewing the results of the study, several limitations need to be addressed. First, all answers to the demographic survey and the General Self-Efficacy scale were self-reported. Meaning the demographic information provided was not verified. Since both independent variables, work-based learning and self-efficacy, were not verified, participants could have falsely reported their information due to misunderstanding the questions, inattentiveness, or purposeful skewing of the data. Participants could have rushed to complete the survey and

selected answers randomly. Therefore, the data collected could not reflect the real answers of a general population.

There are several limitations that can occur with a causal-comparative research design (Gall et al. 2007). The researcher does not control any aspect of the experiment. Therefore, extraneous variables may affect the results of the study. Additionally, causal-comparative studies can only provide possible cause-and-effect relationships. Furthermore, other interpretations of the cause-and-effect may occur. For example, statistical significance was not shown for either hypothesis involving work-based learning. The students only identified as either having or not having done work-based learning. A factor that could have affected self-efficacy is the completion date. Therefore, the change in scores between students with and without disabilities who did or did not participate in work-based learning could have been affected by the students' completion date. However, that variable was not measured so a cause-and-effect relationship cannot be determined.

The sample methods were also identified as being a limitation. The study used two sampling methods to compile the sample group. Initially, convenience sampling was conducted, and the survey was sent to all students in the 14 participating colleges. Because anyone can participate, it is difficult to get a generalized representation in the sample. It can be challenging to know if the results represent the general population during the data analysis. This is why the change in means could not be proven to be statistically significant. Another disadvantage of this type of sampling is that it can lead to over or under-representation of certain groups. This phenomenon occurred in the study. The control group was initially composed of 642 participants, and the group with both independent variables present only had 37. A second

sampling method, systematic random sampling, had to be conducted to reduce all groups except the group of 37. The results of cannot be generalized beyond this population.

The electronic format of the survey and scale also caused limitations to the study. Students who did not answer the survey may not have done so due to technology limitations. Some students may not have access to a computer, tablet, or smartphone during the two-week span in which the survey was live. The survey was only in English, so students whose primary language is not English may not have been able to complete the survey. The survey was not inclusive for students with physical disabilities. Students with vision impairment and limitations in their fine motor skills may not have been able to navigate the survey adequately. This limitation is especially concerning since the study focused on disability. Therefore, certain students in a particular group were not captured due to the limited accessibility of the form.

Recommendations for Future Research

The study was completed in two weeks during the first half of the fall 2021 semester. The study captured students' current self-efficacy scores and compared them using their means. The students only indicated yes or no for participation in work-based learning and did not have to report when they completed the course. Therefore, the effect of completing work-based learning could not have been evident anymore because students completed the course several semesters prior. For future studies, students' self-efficacy scores should be examined over the course of the semester that students are completing the work-based learning to determine if there is a positive change. This would ensure that the effect of work-based learning is being captured in real-time.

The study only surveyed students in North Carolina community colleges. Although the 14 participating colleges were located in both rural and urban areas, they do not adequately represent the general population. Future studies should expand the setting to include more states

from different regions. By collected data from larger regions, a more generalized sample could be ensured. To account for sampling error, future studies should focus on making the instrument more inclusive. Inclusivity could be achieved by providing the survey in multiple languages, offering a read-aloud option, or increasing button and text sizes.

Lastly, it may be beneficial to focus on different types of disabilities in future studies. Disability type may impact whether work-based learning affects self-efficacy change. For example, work-based learning is an on-site work experience, so students with physical disabilities may be more negatively impacted than those with learning disabilities. By analyzing each type of disability separately, a more definitive answer may be given on if work-based learning actually positively impacts students with disabilities.

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Appendix A

List of Programs of Study in North Carolina Community Colleges

College Transfer

Associates in General Education

Agribusiness

Biological Chemical Technologies

Business Technology

Commercial and Artistic Production Design

Construction Technology

Engineering technology

Health Sciences

Industrial Technology

Public Service Technology

Transportation Systems Technology.

Appendix B

General Self-Efficacy Scale Instructions

About: This scale is a self-report measure of self-efficacy.

Items: 10

Reliability:

Internal reliability for GSE = Cronbach's alphas between .76 and .90

Validity:

The General Self-Efficacy Scale is correlated to emotion, optimism, work satisfaction. Negative coefficients were found for depression, stress, health complaints, burnout, and anxiety.

Scoring:

	Not at all True	Hardly True	Moderately True	Exactly True
All Questions	**1**	**2**	**3**	**4**

The total score is calculated by finding the sum of the all items. For the GSE, the total score ranges between 10 and 40, with a higher score indicating more self-efficacy.

Appendix C

General Self-Efficacy Scale

	Not at all True	Hardly True	Moderately True	Exactly True
1. I can always manage to solve difficult problems if I try hard enough	□	□	□	□
2. If someone opposes me, I can find the means and ways to get what I want.	□	□	□	□
3. It is easy for me to stick to my aims and accomplish my goals.	□	□	□	□
4. I am confident that I could deal efficiently with unexpected events.	□	□	□	□
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	□	□	□	□
6. I can solve most problems if I invest the necessary effort.	□	□	□	□
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	□	□	□	□
8. When I am confronted with a problem, I can usually find several solutions.	□	□	□	□
9. If I am in trouble, I can usually think of a solution.	□	□	□	□
10. I can usually handle whatever comes my way.	□	□	□	□

Appendix D

Demographic Survey

1. What is your age range?
    a. 16-17
    b. 18-24
    c. 25-44
    d. 45-64
    e. 65+
2. Are you a current community college student?
    a. Yes
    b. No
3. What is your gender?
    a. Male
    b. Female
    c. Prefer not to say
4. What race do you identify as?
    a. African American
    b. Asian
    c. Hispanic or Latino
    d. Native American
    e. White
    f. Other
5. What program are you currently enrolled in?
    a. College Transfer
    b. Associate in General Education
    c. Agribusiness
    d. Biochemical Technologies
    e. Business Technology
    f. Commercial and Artistic Production Design
    g. Construction Technology
    h. Engineering Technology
    i. Health Sciences
    j. Industrial Technology
    k. Public Service Technology
    l. Transportation System Technology
6. Have you participated in a work-based learning course?
    a. Yes
    b. No
7. Do you have a physical, intellectual, learning, mental, or other type of disability?
    a. Yes
    b. No

Appendix E

Institutional Review Board Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

August 19, 2021

Kimberly Bowen
Christian Raby

Re: IRB Exemption - IRB-FY20-21-822 THE DIFFERENCE IN SELF-EFFICACY SCORES AMONG STUDENTS WHO PARTICIPATE IN WORK-BASED LEARNING AND THOSE WHO DO NOT BASED ON THEIR DISABILITY STATUS IN COMMUNITY COLLEGE PROGRAMS

Dear Kimberly Bowen, Christian Raby,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification

submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,
G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

Appendix F

Recruitment Letter

Dear Community College Student:

As a student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Ph.D. in Curriculum and Instruction. The purpose of my research is to determine if work-based learning has a positive or negative effect on self-efficacy levels in students with and without disabilities, and I am writing to invite eligible participants to join my study.

Participants must be 18 years of age or older and currently enrolled in community college. Participants, if willing, will be asked to complete an anonymous demographic survey on their age, race, gender, program status, disability status, work-based learning participation, and the General Self-Efficacy scale, a ten-question survey. It should take approximately 10 minutes to complete the procedures listed. The surveys will be completed online. Participation will be completely anonymous, and no personal, identifying information will be collected. Any illegible survey responses will be discarded.

In order to participate, please click here and complete the survey between September 8, 2021-September 22, 2021. Contact me via email at kbowen7@liberty.edu for more information.

A consent document is provided as the first page of the survey. The consent document contains additional information about my research. After you have read the consent form, please click the button to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the survey.

Sincerely,

Kimberly Bowen
Ph.D. Candidate
Kbowen7@liberty.edu

Appendix G

Consent Form

Title of the Project: The Difference in Self-Efficacy Scores Among Students Who Participate in Work-Based Learning and Those Who do not Based on Their Disability Status in Community College Programs
Principal Investigator: Kimberly Bowen, Ph.D. Candidate, Liberty University

Invitation to be Part of a Research Study

You are invited to participate in a research study. In order to participate, you must be 18 years of age or older and currently enrolled as a student in a community college. Taking part in this research project is voluntary.

Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

What is the study about and why is it being done?

The purpose of this study is to determine if work-based learning increases self-efficacy in students with and without disabilities. This study will be used to support or oppose the use of work-based learning in community colleges.

What will happen if you take part in this study?

If you agree to be in this study, I would ask you to do the following things:

1. Complete an anonymous, demographic survey that will include information on your race, gender, age, program status, disability status, and work-based learning participation. This survey will be completed online and included in the same link as the following procedure.
2. Complete the General Self-Efficacy scale which is a 10-question survey to determine your self-efficacy level Both surveys will take approximately 10 minutes total to complete.

How could you or others benefit from this study?

Participants should not expect to receive a direct benefit from taking part in this study.

Benefits to society include a greater understanding of the effects of work-based learning on community college students and a better understanding of the different outcomes of work-based learning on students with and without disabilities.

What risks might you experience from being in this study?

The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

How will personal information be protected?

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- Participant responses will be anonymous. Any illegible survey responses will be discarded.
- Data will be stored on a password-locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

Does the researcher have any conflicts of interest?

The researcher serves as a work-based learning coordinator at Piedmont Community College. To limit potential or perceived conflicts the study will be anonymous, so the researcher will not know who participated. This disclosure is made so that you can decide if this relationship will affect your willingness to participate in this study. No action will be taken against an individual based on his or her decision to participate in this study.

Is study participation voluntary?

Participation in this study is voluntary. Your decision whether to participate will not affect your current or future relations with Liberty University or your community college. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the survey without affecting those relationships.

What should you do if you decide to withdraw from the study?

If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Whom do you contact if you have questions or concerns about the study?

The researcher conducting this study is Kimberly Bowen. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted]. You may also contact the researcher's faculty sponsor, Dr. Christian Raby, at [redacted].

Whom do you contact if you have questions about your rights as a research participant?

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24571

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Your Consent

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

Appendix H

Institution Permission Request

Dear College Representative:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Ph.D. in Curriculum and Instruction. The title of my research project The Difference in Self-Efficacy Scores Among Students Who Participate in Work-Based Learning and Those Who do not Based on Their Disability Status in Community College Programs. The purpose of my research is to determine if work-based learning has an effect on students' self-efficacy based on their disability status.

I am writing to request your permission to contact students in your college to invite them to participate in my research study.

Participants will be asked to click on the link provided and complete the attached survey. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval.

Sincerely,

Kimberly Bowen
Ph.D. Candidate

Appendix I

Sample Data Spreadsheet

Respondent	Work-Based Learning	Disability Status	Self-Efficacy Scores
42	N	NI	39
76	N	NI	31
115	N	NI	30
148	N	NI	32
176	N	NI	37
208	N	NI	34
234	N	NI	32
267	N	NI	32
304	N	NI	30
346	N	NI	31
388	N	NI	31
412	N	NI	31
441	N	NI	23
472	N	NI	31
503	N	NI	34
540	N	NI	26
568	N	NI	22
597	N	NI	28
628	N	NI	34
658	N	NI	40
685	N	NI	36
720	N	NI	33
753	N	NI	30
780	N	NI	36
826	N	NI	37
859	N	NI	28
896	N	NI	36
938	N	NI	36
969	N	NI	32
997	N	NI	28
1034	N	NI	36
1060	N	NI	30
1100	N	NI	36
1139	N	NI	31

1164	N	NI	35
1185	N	NI	25
1215	N	NI	37
41	N	I	22
65	N	I	27
79	N	I	28
100	N	I	38
112	N	I	27
131	N	I	40
150	N	I	29
186	N	I	27
217	N	I	32
266	N	I	34
312	N	I	36
342	N	I	36
359	N	I	36
373	N	I	33
383	N	I	32
392	N	I	30
420	N	I	25
440	N	I	35
479	N	I	24
510	N	I	27
533	N	I	22
576	N	I	21
596	N	I	19
622	N	I	32
641	N	I	33
672	N	I	17
695	N	I	32
711	N	I	27
745	N	I	29
774	N	I	25
828	N	I	38
898	N	I	23
907	N	I	33
942	N	I	25
986	N	I	38
1059	N	I	18

1096	N	I	32
47	Y	NI	32
87	Y	NI	27
118	Y	NI	40
153	Y	NI	31
170	Y	NI	39
202	Y	NI	30
244	Y	NI	35
277	Y	NI	27
307	Y	NI	37
329	Y	NI	36
364	Y	NI	29
390	Y	NI	36
423	Y	NI	36
463	Y	NI	37
475	Y	NI	27
505	Y	NI	35
527	Y	NI	33
547	Y	NI	34
571	Y	NI	34
600	Y	NI	30
617	Y	NI	31
666	Y	NI	27
725	Y	NI	26
775	Y	NI	38
803	Y	NI	40
827	Y	NI	39
852	Y	NI	23
881	Y	NI	34
903	Y	NI	31
939	Y	NI	37
976	Y	NI	24
998	Y	NI	27
1023	Y	NI	26
1050	Y	NI	30
1071	Y	NI	38
1085	Y	NI	32
1111	Y	NI	31
14	Y	I	30

110	Y	I	28
130	Y	I	40
237	Y	I	36
245	Y	I	22
248	Y	I	30
252	Y	I	29
258	Y	I	10
272	Y	I	32
338	Y	I	33
380	Y	I	30
406	Y	I	38
445	Y	I	31
471	Y	I	39
478	Y	I	29
482	Y	I	32
526	Y	I	25
536	Y	I	40
601	Y	I	33
615	Y	I	30
656	Y	I	29
700	Y	I	27
736	Y	I	30
742	Y	I	31
811	Y	I	35
855	Y	I	14
863	Y	I	33
874	Y	I	40
882	Y	I	25
910	Y	I	29
937	Y	I	23
1053	Y	I	30
1088	Y	I	30
1101	Y	I	36
1126	Y	I	30
1144	Y	I	36
1228	Y	I	36

Appendix J

Instrument Permission Overview

Freie Universität Berlin

Permission granted

to use the General Self-Efficacy Scale for non-commercial reseach and development purposes. The scale may be shortened and/or modified to meet the particular requirements of the research context.

http://userpage.fu-berlin.de/~health/selfscal.htm

You may print an unlimited number of copies on paper for distribution to research participants. Or the scale may be used in online survey research if the user group is limited to certified users who enter the website with a password.

There is no permission to publish the scale in the Internet, or to print it in publications (except 1 sample item).

The source needs to be cited, the URL mentioned above as well as the book publication:

Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp.35-37). Windsor, UK: NFER-NELSON.