

University of Nevada, Reno

The Impact of Postsecondary Transition to College Programs for Students with Disabilities

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in
Education

By

Olga L. Mesina, M.A., M.S., NBCC, CRC
Dr. Tammy Abernathy, Ph.D./Dissertation Advisor
August, 2021

Copyright by Olga L. Mesina 2021
All Rights Reserved

UNIVERSITY OF NEVADA, RENO
THE GRADUATE SCHOOL

We recommend that the dissertation
Prepared under our supervision by

OLGA L MESINA

entitled

**THE IMPACT OF POSTSECONDARY TRANSITION TO COLLEGE PROGRAMS
FOR STUDENTS WITH DISABILITIES**

Be accepted in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

Tammy V. Abernathy, Ph.D.
Advisor

Maryann Demchak, Ph.D.
Committee Member

Stephen Rock, Ph.D.
Committee Member

Bill Thornton, Ph.D.
Committee Member

Leping Liu, Ph.D.
Graduate School Representative

David W. Zeh, Ph.D., Dean
Graduate School

August, 2021

Abstract

Individuals with disabilities live in higher rates of poverty and are not always able to fully integrate into their communities. Postsecondary education has traditionally been a means to enhance employment opportunities. Currently, students with disabilities are attending community colleges as their primary choice for higher education. Having an increased participation in postsecondary education is a significant step forward for students with disabilities. It is imperative that the focus now shift toward students with disabilities graduate from postsecondary institutions, specifically community colleges with the credentials needed that will lead to full integration into work and their communities. Understanding what works or best practices should be researched so students with disabilities complete postsecondary education. Research for students with disabilities has included follow along studies on what is occurring post high school graduation. This ex post facto study looked at the impact of two interventions on four academic factors. These factors included within-semester retention, semester-to-semester enrollment, spring to fall enrollment, overall grade point average above 2.0, and student's completion of academic goals or graduation. Intervention One (ASI) was a pre-college short-term precollege intervention. Intervention Two (CareerConnect) was a long-term case management intervention program. The two intervention groups were composed solely of students with disabilities who chose to participate in disability services and the intervention. Each intervention group was compared to students with disabilities that were receiving services from the disability services office. Correlation analysis were run to look at the impact of Intervention One (ASI) and the Disability Services Only groups on the four academic dependent variables. For Intervention One (ASI) none of the findings were statistically significant in finding

a relationship to this intervention. Correlation analysis were also run the impact of Intervention Two (CareerConnect) and the Disability Services Only group on the four academic dependent variables. A fifth dependent variable was present only for Intervention Two (CareerConnect) the number of contacts or appointments. The only statistically significant relationship was a positive correlation between total contacts and semester-to-semester retention. The results and implications for students with disabilities, community college and partners, and funding structures are discussed.

Keywords: postsecondary education, students with disabilities, community college, graduation, summer programming, long-term case management

Dedication

This work is dedicated to my daughter; may my ceiling be your launching pad. You have participated in this endeavor with me. As an avid conference participant and traveler, I hope you continue with the legacy of inquisition and pursuit of knowledge regardless of the barriers that come into your path. This is also for my father, who passed before I was officially admitted as a scholar, but I know he was able to see this to fruition. Gracias papa por tu amor y coraje para la vida. For my mama, gracias por todo, aunque no entendías lo que estaba haciendo me apoyabas.

Con todo mi corazon

Acknowledgements

I appreciate all of the guides and mentors that allowed a first-generation Latina to become a Doctora. Thank you forevermore, Marsha Dupree, and the McNair Scholars Program, for seeing in me what I have yet to realize is there. Thank you to my friends and family for your support and patience as I pursued my educational dreams.

To my TMCC folks, thank you for allowing me the space to follow my heart down this pathway. Thank you for listening to my research ideas, allowing me to work on all the statistics to ensure I would do well in my classes, and for being my cheer section when I doubted myself. To the PhD Singles Group, you welcomed me to your safe space where I could be myself, taught me how to navigate and that I belonged in academia. You all celebrate my accomplishments and shenanigans as only family can. To my cohort, thank you for all of your support and for sharing your knowledge and experiences with me. Janice, thank you for navigating graduate student life as a mom, and thank you for sharing your village with my daughter and me. Sharon, without your coaching and push, this last phase may not have happened.

Thank you to my committee; without your support, I would not have been able to get where I am today. Each of you bestowed your expertise upon me and kept me on this pathway. Dr. Tammy Abernathy, you have been my motivator, chair, mentor, and accountability partner. You envisioned this version of me since the beginning, and to get me here, you worked through my insecurities with such love and support. I do not have words to express the gratitude and admiration I hold for you and your eternal patience.

Table of Contents

Abstract.....	i
List of Tables	viii
List of Figures.....	x
Chapter 1: Introduction	1
Starting at a Community College.....	3
Challenges to Completing Postsecondary Education	5
Problem Statement	9
Purpose.....	10
Research Questions.....	11
Operationalized Terms.....	12
Chapter 2: Review of Literature	14
Search Strategy	15
Legislation Involving Individuals With Disabilities.....	16
Workforce Innovation Opportunities Act.....	16
Wagner-Peyser Act.....	17
Workforce Investment Act.....	18
Adult Education and Family Literacy Act.....	19
The Rehabilitation Act.....	21
Education of Handicapped Children Act	24
Individuals With Disabilities Education Act	28
Workforce Innovation Opportunity Act and Transition	32
Postsecondary Education Retention and Persistence.....	34
Risk Factors for Students With Disabilities.....	35

Retention Programming	36
Postsecondary Education and Completion.....	39
Effects of Leaving College Before Graduation	40
Summary.....	41
Chapter 3: Method	43
Research Site.....	43
Participants.....	45
Research Design.....	48
Data Collection	56
Data Analysis	57
Design Variables.....	58
Chapter 4: Results	61
Sample.....	63
The Effect of ASI on Academic Outcomes (Question 1)	64
Semester-to-Semester Retention.....	66
GPA > 2.0	66
Academic Goals.....	68
GPA.....	69
Within Semester Retention Percentage.....	70
The Effect of CareerConnect on Academic Outcomes (Question 2).....	71
Semester-to-Semester Retention.....	71
GPA > 2.0	72
Academic Goals.....	73

GPA.....	73
Within Semester Retention Percentage.....	75
Total Contacts.....	76
The Effect of Intervention Groups on Academic Outcomes	76
Semester-to-Semester Retention.....	77
GPA > 2.0	76
Completion of Academic Goals.....	78
GPA.....	77
Within Semester Retention Percentage.....	81
Total Contacts.....	80
Summary.....	82
Chapter 5: Discussion.....	84
Implications	86
Implications for Students.....	86
Implications for Community Colleges and Their Partners	87
Implications for Funding Structures	89
Future Research	89
Limitations	93
Conclusion	94
References.....	97
Appendix A.....	117
Appendix B.....	113

List of Tables

Table 1	Variable Descriptions and Codes.....	59
Table 2	Demographics of the Sample.....	64
Table 3	Sample Demographic by Cohort.....	65
Table 4	Crosstabs of ASI and Semester-to-Semester Retention.....	66
Table 5	Crosstabs of ASI and GPA > 2.0.....	68
Table 6	Crosstabs of ASI and Academic Goal Completion.....	68
Table 7	Mean GPA Differences Between ASI and DRC.....	69
Table 8	Mean GPA Differences Between ASI and DRC Within Semester.....	70
Table 9	Regression Model Predicting Within Semester Retention Percentage.....	71
Table 10	Crosstabs of CC and Semester-to-Semester Retention.....	72
Table 11	Crosstabs of CC and GPA > 2.0.....	72
Table 12	Crosstabs of CC and Completion of Academic Goals.....	73
Table 13	Mean GPA Differences Between CC and DRC.....	74
Table 14	Mean GPA Differences Between CC and DRC by Semester.....	74
Table 15	Regression Model Predicting Within Semester Retention Percentage.....	75

Table 16	Correlation With Total Contacts Among CC Students.....	76
Table 17	Crosstabs of Intervention Group and Semester-to-Semester Retention	77
Table 18	Crosstabs of Intervention Group and GPA > 2.0.....	78
Table 19	Crosstabs of Intervention Group and Achievement of Academic Goals.....	79
Table 20	Regression Model Predicting GPA.....	79
Table 21	Regression Model Predicting Within Semester Retention Percentage.....	81
Table 22	Regression Model Predicting GPA.....	82

List of Figures

Figure 1 Intertwining of Legislation16

Figure 2 Assignment of Group Participation48

Figure 3 Academic Skills Institute Program Sample Schedule.....51

Figure 4 Sample of CareerConnect Experiences.....54

Figure 5 Group Sample Sizes.....64

Chapter 1: Introduction

According to the U.S. Department of Labor (2020), eight out of ten individuals with disabilities do not participate in the labor force. The definition of *labor force*, also referred to as *workforce*, includes those individuals who are either working at least part-time or actively looking for employment. Current studies show participation in the workforce for individuals with disabilities is 20.5%, compared to 61.7% for individuals without disabilities, and these statistics have been stable across time (U.S. Census Bureau, 2016; U.S. Department of Labor, 2020). Even when individuals with disabilities seek employment, their outcomes are bleak. The Department of Labor (2020) statistics reported unemployment rates on September 2018 and February 2019 for individuals with disabilities was at 7.3%, compared to 3.4% and 3.5% for individuals without disabilities. In 2019, the employment rate went up by .4% for individuals without disabilities as compared to 2% for individuals with disabilities.

To increase opportunities in the workforce for individuals with disabilities, those who are underemployed, those who are transition-age students, and those pursuing high school equivalency, Congress passed the Workforce Innovation Opportunity Act (WIOA; 2014). The underlying function for WIOA is to provide opportunity and equity in the workforce for underserved individuals. The goal is to provide funding for career exploration, job training, and social skills development needed for employment as well as increasing employment and independence for these selected groups of Americans, thereby increasing the size of the productive workforce of our communities (WIOA, 2014).

According to Newman et al. (2011), a postsecondary degree or credential is critical to participating in the labor force and earning a livable wage. For students with disabilities, earning a living wage increases opportunities to be included in their communities. A living wage allows

full participation in economic and social activities of communities, thereby meeting the goals families had for these young adults with disabilities. Thus, WIOA (2014) has specific language requiring state agencies, such as vocational rehabilitation offices, to work within communities to expand employment opportunities.

Postsecondary education is an additional option within WIOA (2014) that is now available for agencies to serve their populations. Federal agencies can partner with postsecondary education institutions to create potential pathways to increase student access to education thereby helping students with disabilities in obtaining full employment. Over time, the attendance rates in higher education have increased for students with disabilities, from 1995 at 6%, to 19% in 2019 (Cameto et al., 2004; Hong, 2015; National Center for Education Statistics, 1999). Students with disabilities are transitioning to postsecondary institutions; however, they are struggling to navigate postsecondary education and accomplish their academic goals (Fleming et al., 2017; Getzel, 2008; Kim & Lee, 2016; Lee et al., 2015).

Increasing participation in postsecondary education is important for students with disabilities, but it is critical to focus on completion/graduation with credentials that lead to employment. When students fail to complete their academic goals, their workforce goals are also out of reach (Newman et al., 2011). Students with disabilities who leave college without earning degrees have fewer opportunities to participate socially and vocationally in their communities (Braxton et al., 2000; Carnevale et al., 2010; Horn & Berkold, 1999; Reinschmiedt et al., 2013). Examining postsecondary retention and graduation efforts is critical to closing the discrepancy that currently exists between individuals with disabilities and their peers. The effects of this gap in postsecondary graduation rates between students with disabilities and typically developing peers in higher education may lead to significant disparities in the workforce.

Entering the work force is an essential step in transitioning to adulthood, but there are many individuals with disabilities who struggle with this transition (Lindstrom et al., 2011). Transition age as defined in WIOA (2014) refers to students who are high school starting at 14-years-old until their 22nd birthday. Students with disabilities need exposure to activities that are critical to connecting postsecondary education with work goals. One example of these activities is developing career goals through career exploration. Wehmeyer and Shwartz (1997) found that students with disabilities who have developed their own career goals and have a sense of self-efficacy have higher wages in their careers. Further, Flannery et al. (2008) noted that students with disabilities who received services with vocational rehabilitation and postsecondary education improved their financial outlooks. These small steps in career development often occur through the postsecondary career education process (Lindstrom et al., 2011).

Starting at a Community College

Open-access institutions, like community colleges, do not have entrance requirements, such as minimum GPA (GPA) or ACT scores, making them a preferred option for students with disabilities (Mullin, 2010). Many community colleges are open-access institutions; this may be why students with disabilities are enrolling in higher numbers as compared to enrollment rates in 4-year institutions (Kimbark et al., 2016). In a national longitudinal study, Newman et al. (2011) reported that approximately 60% of students with disabilities transitioned from high school to community colleges. Traditionally, community colleges have successfully implemented a host of access programs for a variety of populations since the 1950s (Kimbark et al., 2016). Therefore, community colleges are perfectly positioned to collaborate with agencies to meet the requirements of WIOA (2014).

Community College Credentialing Opportunities

Credentialing or degree granting in the community college setting offers a continuum of options, including workforce development workshops, certificates, and associate degrees (Mullen, 2010). These options may be a pathway for providing more workforce opportunities upon graduation. Community college certificates can encompass skill certificates or micro-credentials (Perea, 2020) that may require as little as one semester or up to 30 credits of required coursework. Micro credentialing can open doors to students who may need to exit postsecondary education with workforce credentialing, but still leave an option open to returning later for a degree if desired. An example of a certificate is a certified nursing assistant program that requires six credits that can be completed in one semester of academic coursework and includes a clinical internship (Truckee Meadows Community College, 2019). The clinical internship requires a specific number of hours working as a nursing assistant under the supervision of a licensed nursing assistant. A student would be able to earn a skills certificate in early childhood education on their way to earning their Associate of Arts in Early Childhood Education. Associate degrees are more traditional in community colleges, with specific coursework of about 60 credits, and can be terminal degrees or transferrable degrees to 4-year institutions (Mullin, 2010).

Workforce development workshops are also available at community colleges (Truckee Meadows Community College, 2019). For example, workshops focusing on Microsoft Office products may not come with college credits, but they can offer industry-specific or national-credentialing opportunities that are needed in the workforce. In summary, community colleges offer students with disabilities options, such as workforce development, community college certificates, and 2-year associate degrees.

Challenges to Completing Postsecondary Education

Graduation rates in community college settings are approximately 50% for all students (Seidman, 2012; Tinto, 2003; Tinto & Engle, 2008). According to Newman et al. (2011), in a national longitudinal study, about 31% of students with disabilities left postsecondary education completing the requirements for graduation. Students with disabilities who leave postsecondary institutions without graduating or credentialing face barriers integrating into their community, participating in the workforce, and earning a livable wage (Department of Labor, 2017, Smedema et al., 2015).

Kutscher and Tuckwiller (2019) completed a systematic review of literature from the 1990s to 2017 focusing on factors related to persistence for students with disabilities in higher education. These researchers noted that there are three categories of facilitating factors that may aid in persistence in postsecondary education. The categories included characteristics the students bring with them, engagement of the students both in and out of the classroom, and use of accommodations. The literature on retention or persistence in postsecondary education has focused on specific cohorts based on criteria such as race or ethnicity, socioeconomic status (SES), and academic standing—e.g., first-year, academic probation, etc. (Talbert, 2012; Tinto, 1993, 1997). While there may be students with disabilities in each of the cohorts studied, disability has not been a category of sole focus in retention research for postsecondary education, specifically community colleges. Students attending community college may experience additional challenges, including student characteristics, remediation, eligibility programming, use of services, and lack of interventions.

Students with disabilities are frequently identified with additional risk factors, such as minority race/ethnicity, first-generation status, low SES, etc., that impact their ability to

complete postsecondary education in addition to challenges associated with having a disability (Kim & Lee, 2016; Weis et al., 2016). Tinto (1997) has been studying the relationship between student demographics and postsecondary education retention since the 1970s. Tinto noted that while being engaged in the classroom and campus is important the first academic year, financial resources are key to degree completion (Tinto & Russo, 1994; Tinto & Love, 1995; Tinto, 1998). The following demographics of students with disabilities play parts in postsecondary education completion, but disability is often not teased out: (a) first-generation, (b) low (SES), (c) race or ethnicity, (d) parental expectations, (e) activities outside of school, and (f) independent mobility of a student (Roux et al., 2015).

Remediation

Stewart et al. (2015) noted that many first-year students at 4-year institutions persist even when remediation is required but that other factors, such as the student's personal demographics, play a part in completion. Early research on students with disabilities in higher education was first published in the 1990s with minimal publications since (Oertle & Bragg, 2014). Students with disabilities attending postsecondary education are expected to adjust to higher demands as well as a different law for accommodations (Americans With Disabilities Act Amended [ADAA], 2008). New demands of students with disabilities can include organization or self-regulation. These expectations may have been mitigated in secondary grades through an individual education plan (IEP) by adults. Students who have not developed advocacy skills and whose parents may have limited their children's access to their IEPs and future planning can create situations in which students are not prepared for the rigors of postsecondary education (Fleming & McMahon, 2012). DuPaul et al. (2018) noted that students with ADHD are more likely to attend postsecondary education yet the graduation rate is a dismal 5%. A student's high

school GPA is a commonly used indicator for the ability to get through postsecondary education; however, other variables should be examined, including the number of credits students are enrolled in and those successfully completed (DuPaul et al., 2018).

Eligibility Services

One challenge in postsecondary education for students with disabilities is that they are required to disclose their disability to access services; whereas, in secondary education, administrators seek out students to provide services (ADAA, 2008 Newman et al., 2011; Squires et al., 2018). Students with disabilities in postsecondary education have to meet criteria for eligibility-based services, including having a diagnosis that qualifies them for services under ADA or section 504 of the Rehabilitation Act (Gobbo & Shmulsky, 2012, Lee et al., 2015; Shmulsky & Gobbo, 2013.) Services are not granted to the parents or guardians of the student in postsecondary education, and the parents or guardians, many times, were the sole party involved in the process throughout secondary education. Scaffolding the responsibilities involved can be hit or miss and the student with disabilities can oftentimes be unprepared on how to access services or even if they want to access services (Squires et al., 2018).

Newman et al. (2011) reported that approximately 19% of students with disabilities access accommodations in postsecondary education, compared to 87% in high school. Students pursuing education at community colleges need to seek out disability services and self-disclose to access services (ADAA, 2008). Other variables that can impact a student's access to disability services include stigma associated with receiving services, family income level, and degree of impact of the student's disability (Newman & Madaus, 2015). The requirement of having to seek out services is noted by Newman and Madaus (2015) as an additional challenge for students in community colleges or universities.

Within the population of students with disabilities there are differences in how disabilities manifest, and these differences can create additional challenges when accessing postsecondary education (Flexer et al., 2011). For example, students with severe disabilities have lower academic skills and need more supports (Gregg 2007, 2012). Accessing accommodations is usually essential for students with disabilities when completing postsecondary education. While the degree of impact and a higher visibility of disabilities increase the likelihood that students will access disability services, the visibility of a disability is not a guarantee of success (Newman & Madaus, 2015). The need for accommodations is beneficial for all students with disabilities; although, specific research would be helpful to identify best practices.

Lack of Interventions

Currently there is a lack of research, in general, about interventions for students with disabilities but especially concerning evidence-based interventions in the community college setting (Barnhill, 2016). Research about students with disabilities has heavily focused on required self-determination, skill-building, and transition planning for students in secondary education to support access to disability services in postsecondary education (Newman & Madaus, 2015). Interventions for students with disabilities, such as teaching self-determination skills, are warranted, even though other barriers exist (Weis et al., 2016). Newman & Madaus (2015) noted that postsecondary educational institutions could create further opportunities to teach self-determination skills to ameliorate barriers caused by the student's disability. However, the relationship between self-determination and postsecondary education outcomes has not been studied.

Problem Statement

WIOA (2014) was passed with language to facilitate collaboration between agencies and postsecondary educational institutions. The legislation was designed to help individuals with disabilities enter the workforce and reduce the discrepancy of workforce participation between young adults with disabilities and those without disabilities.

Community college students with disabilities are not graduating from postsecondary programs at the same rate as students without disabilities (Newman et al., 2011). According to Newman et al. (2011), a focus on retention of students with disabilities is necessary as only 34% of students with disabilities graduate from community colleges compared to 54% of students without disabilities. This discrepancy in graduation rate is concerning because obtaining a degree or certification impacts a student's ability to reach a level of financial security (Department of Labor, 2018; Smedema et al., 2015). Research indicates that any completed postsecondary work positively affects a student's ability to secure work and maintain a livable wage compared to those who do not pursue or complete postsecondary education (U.S. Department of Education, 2015; Shaw & Dukes, 2013). Further, there is a lack of evidence-based strategies for bridging the gap between completing secondary education and entering the workforce regarding students with disabilities. The programs available to support students with disabilities in postsecondary education is a function of both federal legislation, such as the Workforce Investment Act (WIA; 1998), and WIOA (2014), and the funding that legislation can generate. The impact of federal programs only lasts as long as funding is available; therefore, funding needs to be long-term and enduring for students with disabilities to bridge from postsecondary education to careers.

Higher education programs lack evidence-based remediation interventions to improve the academic skills that students with disabilities need to graduate (Getzel, 2014; Kim & Lee, 2016;

Morningstar et al., 2010; Oertle & Bragg, 2014). Without specific strategies or best practices designed specifically for individuals with disabilities to succeed in postsecondary education, it is unlikely that there will be a change in the economic outcomes of these students, their families, or their communities (Getzel, 2008; Knight et al., 2018).

Purpose

Community colleges are the most likely postsecondary education option for students with disabilities (Newman et al., 2011). Further, Mullin (2010) noted that community colleges have a mission to fill the gaps in vocational or specific skill openings in the community. Community colleges are traditionally open-access institutions and, as such, meet the needs of their communities by providing programs aimed at meeting local employer needs. Consequently, these 2-year colleges are best positioned to provide evidence-based remediation services for students who may need support services to graduate. Therefore, students with disabilities who are successful in community college programs may find themselves positioned to enter the workforce via a skilled job (Brucker et al., 2015).

The purpose of this study is to determine the impact of two programs, one pre-college and one that followed enrolled, first-year students with disabilities at a selected community college. First, outcomes of students with disabilities who participate in the two distinct interventions will be compared to students who choose not to participate. Second, the impact of a long-term case management program for community college students who are seeking services to support their disability needs in the community college setting will be compared to students with disabilities who only seek supportive services. This quantitative ex post facto study examined the impact of programs on retention and graduation of first-year students with disabilities at a western, public, 2-year, urban community college who enrolled from 2015–2019.

Research Questions

1. Are there differences of measures of success between first-year community college students with disabilities who: (a) participated in a short-term, pre-college program (Academic Skills Institute [ASI]) and accessed disability services, and those who (b) participated in receiving disability services only? Measures of success include:
 - a. Within-semester course retention,
 - b. Semester-to-semester enrollment,
 - c. Overall GPA above 2.0,
 - d. Completion of academic goals/graduation, and
 - e. Semester GPA means.

2. Are there differences in measures of success between first-year community college students with disabilities who: (a) participate in a long-term case management program (CareerConnect) and who access disability services, and those (b) who only access disability services. Measures of success include:
 - a. Within-semester course retention,
 - b. Semester-to-semester enrollment,
 - c. Overall GPA above 2.0,
 - d. Completion of academic goals/graduation,
 - e. Semester GPA means, and
 - f. Number of case management sessions/appointments.

Operationalized Terms

The following terms are defined as they are used within this study.

1. *Academic Accommodation*—An alternative way of presenting academic material or services that is not originally accessible to a student with a disability (Gordon & Keiser, 1998).
2. *Academic Skills Institute*—A short-term, pre-college program for students with disabilities. Participants could be determined as eligible for services for state vocational rehabilitation programming (Mesina, 2015).
3. *Attrition*—A term used to describe students who fail to re-enroll at a postsecondary institution in consecutive semesters (Tinto, 1993).
4. *CareerConnect Program*—A long-term case management program for students with disabilities connected with their community college disability services office and state vocational rehabilitation office (Mesina, 2015).
5. *Grade Point Average (GPA)*— “A measure of scholastic attainment computed by dividing the total number of grade points received by the total number of credits or hours of course work taken” (Definitions, n. d., para. 1).
6. *High Incidence Disabilities*—Students identified as special education depending on the frequency of a particular disability may be encountered in the classroom. The disabilities in this category can include Autism spectrum disorders, speech-language impairment, learning disabilities, emotional disturbance, and mild intellectual disabilities (Friend & Bursuck, 2012).

7. *Learning disability*—A group of disabilities that represent skills that are not at average peer level as defined by eligibility requirement for ADAA (2008) and Rehabilitation Act Reauthorized (2014).
8. *Persistence*—“The desire and action of a student to stay within the system of higher education” (Berger & Lyon, 2005, p. 7).
9. *Public Law 94-142*—“The Education for All Handicapped Children Act (EAHCA) passed in 1975, passed by congress for services to be provided for children with disabilities. This guaranteed parents and guardians that their child(ren) would be entitled to ‘free, appropriate public education’ aged 3–21. Further, PL 94-142 was an amendment to the Education of the Handicapped Act (EHA) of 1970 and served as Part B of the EHA. Congress has since replaced PL 94-142 with the Individuals with Disabilities Education Act and the Individuals with Disabilities Education Improvement Act, but the tenets of the EAHCA—namely to improve the educational opportunities of students with disabilities—remain intact.” (Dunn, 2013, p. 1)
10. *Retention*—The percentage of students that continue enrollment within the same postsecondary education institution (National Student Clearinghouse, 2018, p. 11).
11. *Within-semester course retention*—Defined as the semester that the student is enrolled in the student remains enrolled for the duration of the semester (Mesina, 2020).
12. *Program completion/graduation*—Completion of all degree requirements to meet the requirements for graduation (Mesina, O, 2020).

Chapter 2: Review of Literature

Individuals who have a disability live in poverty at disproportionately higher numbers than the general student population (Brault, 2012; Brucker et al., 2015; Yeo & Moore, 2003). Of individuals with disabilities who have less than a high school education, 48.86% live in poverty (Brucker et al., 2015). Even those individuals with disabilities who are employed are still at risk of living a life in poverty (Kraus, 2015). Overall, of the individuals with disability who are living in poverty, 29.13% have a high school education, and 20.25% have higher than a high school degree 20.25% (Brucker et al., 2015). Because opportunities to enter the workforce for individuals with disabilities are connected to completing college training, attention must be paid to providing essential postsecondary education opportunities (Brucker et al., 2015; Ji et al., 2015). Those individuals with disabilities who do not have postsecondary education or vocational training are more likely to remain in poverty. There is a limited body of knowledge regarding programming specifically for students with disabilities and retention or college completion. Postsecondary outcomes for students with disabilities have been tracked since 1987 via the National Longitudinal Transition Study 1 (NLTS) and the National Longitudinal Transition Study-2 (NLTS-2; Javitz & Wagner, 1990). NLTS-2 is key in seeing that while there are more students with disabilities attending college, they are floundering and not completing their educational goals.

This literature review introduces educational programming at the community college level that can help students with disabilities successfully complete college despite any barriers they may have due to their disability. Language in WIOA (2014) will be reviewed to showcase opportunities and partnerships that could be created to support students with disabilities in the community college setting. The language from WIOA (2014) is explicit for the agencies under

the Vocational Rehabilitation Act. Agencies must offer significant opportunities for individuals with disabilities as well as precise verbiage for youth and persons with disabilities. The language is specific to help individuals with disabilities enter the workforce by way of postsecondary education to bridge the discrepancy in entering the workforce. The review will focus on postsecondary education and the benefits, barriers, and interventions currently facing students with disabilities. Also included in this discussion are some considerations for overcoming barriers to college completion. Finally, this study seeks to develop programming for students with disabilities aimed at retention and successful community college completion.

Search Strategy

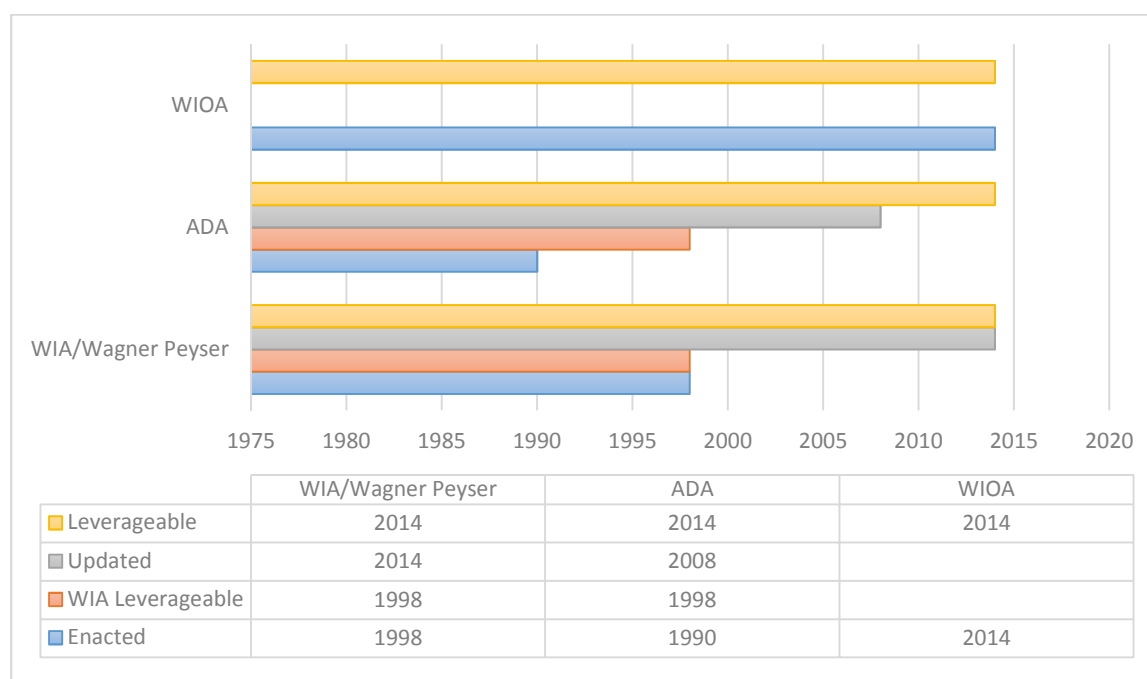
The search strategy for creating this literature review was to use keywords in searching databases. Keywords included, but not limited to, were as follows: *students with disabilities, benefits of college education, college completion, community college, Individuals With Disability Act, summer bridge, students with disabilities + community college, National Longitudinal Study, National Longitudinal Study-2, students with disabilities + college completion, retention, the education of handicapped children act, vocational rehabilitation + postsecondary education, and Workforce Innovation and Opportunities Act + students with disabilities or special needs.* EBSCOHOST, ERIC, ProQuest, and One Search databases were searched. Google Scholar was also used to search for relevant articles and information. Sources of information included peer-reviewed journal articles, books, government statistics, government websites, theses, and dissertations. While the majority of the publications were within the last 10 years due to the lack of recent research into this topic, older sources were included to provide a history of programming around students with disabilities in postsecondary education.

Legislation Involving Individuals With Disabilities

WIA (1998) laid the groundwork for WIOA (2014). Acts such as the Family Education Act and the Rehabilitation Act (1975) have pieces that are bound to WIA (1998), and now, WIOA (2014) as it has been updated. Other legislative acts, such as IDEA (1990, 1997) and ADA (1990, 2008), were also critical in leveraging WIOA (2014) to same population of individuals. The matrix of major legislative pieces are demonstrated in Figure 1.

Figure 1

Intertwining of Legislation



Workforce Innovation Opportunities Act

Legislation has often led to changes needed to correct disproportionality in American society that does not correct by itself. WIOA (2014) legislation passed with language opening more opportunities for all Americans, but it has opportunities specifically for individuals with disabilities. WIOA (2014) was passed with the intent to integrate funding resources and expand training opportunities for disconnected youth, unemployed or underemployed individuals, and

veterans. To understand the scope of WIOA (2014), one must possess significant knowledge of previous workforce and legislation related to individuals with disabilities, such as The Wagner-Peyser Act (1933, 1998, 2014), the Rehabilitation Act (1973), and the Adult Education and Family Literacy Act-Title II (1998). The Education of Handicapped Children, also known as Individuals with Disabilities Education Act (IDEA) of 1990 and 1997, included the critical component of outcome measures. The edict was followed by conducting national surveys, NLTS and NLTS-2, to gauge the outcomes of legislation for students with disabilities in entering postsecondary education, the workforce, and their communities (Petcu et al., 2017; Wagner & Davis, 2006; Wagner et al., 2005; Wehman et al., 2014; Wehmeyer & Ward, 1995).

Wagner-Peyser Act

The Wagner-Peyser Act was passed originally in 1933 and amended in 1998 and 2014. This act established nationwide job centers to assist those individuals who are not employed yet are seeking services leading to employment (WIA, 1998). The 1998 amendment to the Wagner-Peyser Act included the following: (1) direction and responsibilities for how state funds would be allocated, (2) state requirements needed to maintain eligibility for funding, (3) process of handling unemployment compensation for eligible individuals, and (4) employment-seeking activities required of participants. In addition, the amendment added the ability to aid those workers who were permanently categorized as *layoff*, *pending layoff*, or *unemployed* due to company downsize or closure.

In reviewing the reports, there is a lack of specific information relating to the outcomes of youth with disabilities. While legislators required surveying student with disabilities' outcomes, there is no related directive on programming or how funding is being used to meet the needs of those students. The federal government gathers data for fiscal reporting on how legislative

funding, in this case WIOA (2014), funding is being utilized. The report for WIOA (2014) in fiscal year 2015 does not list specific information related to programming for youth. Data are crucial when WIOA (2014) called for more of the same type of joint services to be put towards programming (U.S. Department of Labor, 2016). WIOA (2014) is missing specificity regarding working with individuals with disabilities; specific guidelines and calls for best practices are needed.

Workforce Investment Act

WIA was passed in 1998 and called for services and federal programs to partner to serve individuals with disabilities in entering the workforce. WIA (1998) combined many legislative programs to concentrate funding and bridge Americans into the workforce. Individuals with disabilities were designated as a qualifying category for funding and services. WIA (1998) specifically noted that statewide youth activities can include completion of secondary education and alternative secondary education (adult basic education or similar programming). This ties into secondary education legislation, which at this time is IDEA (1990, 1997). Important language from IDEA (1990, 1997) that continued into the new law addresses full inclusion into society and self-determination skill-building to make informed decisions with regard to their futures (WIA, 1998).

Part of the services outlined in WIA (1998) included outreach to students who needed transition services and connection to services that would be critical to success once high school was done (Wehmeyer & Ward, 1995). Service utilization by students with disabilities after they completed high school was not adequately demonstrated in research being conducted. Prior to the intertwined service provision done through specific language in WIA (1998) and IDEA (1990, 1997), there was no legal precedent to coordinate services across legislative platforms.

WIA (1998) required coordination of services at the secondary level in compliance with different legislative pieces, such as WIA (1998) and IDEA (1990, 1997), to create a consortium of services for Americans out-of-work as well as individuals with disabilities. The purpose of the consortium of services was to ensure that at least three or more possible programs or partners were in one location for ease of access and adherence to IDEA (1990, 1997). Serving individuals with disabilities meant a partnership in services and resources to be leveraged in a fiscally judicious manner (WIA, 1998). Changes enhanced previously authorized legislation under the Wagner-Peysner Acts and established what entities could be listed as authorized training sites (WIA, 1998). The purpose of these training sites was to have a list of recognized training facilities based on workforce needs for the state. At this time, postsecondary institutions were mentioned in connection with vocational training for qualified individuals, specific academic programs, and successful employment outcomes (WIA, 1998).

Adult Education and Family Literacy Act

The Adult Education and Family Literacy Act (AEFLA) was created in 1998 and amended in 2014 by WIOA. Both the Departments of Labor and Education worked together in creating and changing the regulations within the act. Americans who had dropped out of secondary education were provided literacy and completion of secondary education services. The services could include alternative adult education services such as completing the General Education Development (GED) to create more opportunities for their children, for economic self-sufficiency, and activities between parents and their children (WIA, 1998). Individuals with limited English proficiency were also able to access services with the same goals and additionally would be able to function in the workplace and their community.

The types of tests or assessments for participants were reviewed and updated regarding the Standards for Educational and Psychological Testing in the national database for centers (WIOA, 2014). Language was changed within the AEFLA to clarify the change from English as a Second Language (ESL) to English Language Acquisition (ELA) to ensure alignment between the two documents. Another technical change included replacing the name of the Office of Vocational and Adult Education with the Office of Career, Technical, and Adult Education. A regulation change noted in the AEFLA was how to measure educational gains in adult education. The AEFLA had previously allowed the Carnegie unit or credits to be reported as educational gains for participants. The Carnegie Foundation for the Advancement of Teaching (2014) defines a unit as “a credit system that bases awarding of academic credit based on how much time students spend in direct contact with a classroom teacher”.

Under WIA (1998), the AEFLA (2014) was aimed at improving educational and employment outcomes of adults by helping them become self-sufficient and helping them to progress the educational development of their children. There are no specific areas dedicated to individuals with disabilities within the AEFLA and its predecessor versions; however, the definition of an individual with a disability as originally noted in WIA (1998) counts within the adult education programs as well. Statistical data for annual reporting do not contain disability information. In WIOA (2014), AEFLA gets additional goals, but primarily it is the shift towards postsecondary education as a key indicator. Under WIOA (2014), additional goals have been added to the AEFLA such as transitioning to postsecondary education and training and formally including ELA as a role of adult education in which the participant completes the program by achieving a high school equivalency through an exam/competency process, which leads to postsecondary education or training leading toward employment.

The role of adult education centers will need to include skill development for self-management and digital literacy for the current basic academic and critical thinking skills under WIOA. WIOA (2014) included services for adults with disabilities to complete high school or alternative diploma pathways. The adult or alternative education services can also be used for individuals who received an adjusted diploma in high school (Benz et al., 1997). Previous legislation stopped at completing high school or an equivalency; however, with this new legislation, the importance of postsecondary education and skill training is emphasized. There are provisions aimed at students or youth with disabilities transitioning from high school into postsecondary education and the workforce. There is also guidance for state vocational offices to be more collaborative and work with local education agencies, not just until high school graduation.

The Rehabilitation Act

This will be a cursory overview of this legislation as it has changed due to WIA (1998) and what changed are under WIOA (2014). The Rehabilitation Act of 1973 (The Rehab Act) was passed on September 26, 1973, as PL 93-112. The federal act mandated that states provide services and training to those individuals with the most severe handicaps. The expansion of federal responsibilities included research and training programs for individuals with disabilities and the requirement to aid in an individual's ability to live independently and with self-sufficiency as much as possible. Funding requirements were written into the legislation requiring participants and agencies to access other resources, including non-federal funding, prior to applying for federal funds. It was determined that federal agencies, employers/contractors, or entities receiving federal funds could not discriminate against individuals with disabilities. The Rehab Act requires that each state have a plan to include programming for individuals with

developmental disabilities. If there is noncompliance, there are punitive actions that can be taken that include termination of funding.

This act included the addition to services, expansion of current services, direction on setting aside federal funding to aid youth with disabilities, prioritization of serving youth with disabilities, direction to support STEM and other technical program training, and support of employment funds to be split in half to fund youth with the most significant disabilities as they enter the workforce (Slupe, 2014). Specifics with additional services include “pre-employment transition services” (pp. 11–12) to those students transitioning from school to the workforce and allocate 15% of funding for this purpose, which benefits all students who may be eligible for vocational services and the exploration of jobs for youth which need to be from work experiences and counseling on postsecondary opportunities

Youth will be able to explore the workforce and training prior to deciding to participate with the vocational rehabilitation agency. Within the State of Nevada Bureau of Vocational Rehabilitation, there is a need for vendors willing to partner with the agencies and provide pre-employment services to students with disabilities in high school (C. Canton, personal communication, March 3, 2017). Accountability measures are across the board in WIOA (2014) and include vocational rehabilitation agencies and six indicators for youth working with vocational rehabilitation. The Association of University Centers on Disabilities AUCD released a summary of WIOA on July 24, 2014, along with the changes to the Rehab Act (1973), and described how employers are to be engaged specifically by vocational rehabilitation agencies in offering work experiences for youth with disabilities with an emphasis on competitive and integrated work for individuals with disabilities. Prior to WIOA (2014), subminimum payment or “wages that are less than the prevailing wage to workers who have disabilities for the work being

performed” (Department of Labor Fact Sheet #39, 2008 section), could be an option for vocational rehabilitation agencies or families to refer individuals who were deemed to not benefit from services and enter a sheltered work environment. A sheltered work environment, according to Armstrong (as cited in Encyclopedia of Clinical Neuropsychology, 2011), is a “setting in which people with disabilities receive services and training to develop work-related skills and behaviors [and] segregated in nature” (p. 2286).

A larger change for the Rehab Act (1998) within WIOA (2014) was that sheltered employment in which individuals with disabilities were paid subminimum wages is no longer an accepted practice. This culminated individual changes that were occurring in different federal agencies. According to AUCD’s summary report (2014), “the grant program Projects with Industry was repealed” (p. 3), and according to the U.S. Department of Education (2014), the program was no longer funded after 2010. The Projects with Industry and Recreational Programs were intended to develop work readiness skills, job skills training, job development, and job placement among the purposes for the programs (U.S. Department of Education, 2014). Other programs within vocational rehabilitation that were repealed included the In-Service Training Program, Migrant and Seasonal Farmworker Program, and Recreational Programs. All of these changes propel WIOA (2014) into the legislation that can aid services to be created in new and innovative ways with colleges.

Education of Handicapped Children Act

Congress passed the Education of Handicapped Children (EAHCA), PL94-142, in 1975, and under this law, individual states and schools were held accountable for providing services to children from ages 3–21 (Dunn, 2013). Bellamy (1985) noted that students with disabilities were not engaging with supportive services after high school. The students with disabilities in this

group also struggled to secure full-time employment and competitive pay. While the directive to provide education was federal law guaranteed within EAHCA (1975), the directive came alone to the states and schools. Stark (1982) noted that while EAHCA (1975) had been passed almost a decade before, implementation was difficult due to finances being limited within the schools and states to support the needed services. Stark (1982) pointed out doubled the number of children were served by EAHCA's mandates, yet federal funding did not increase. While federal funding was not increased, oversight increased by multiple federal agencies, creating the very inequity the law was meant to address (Stark, 1982).

Hasazi et al. (1985) noted that no agency is singularly responsible for tracking progress of students with disabilities after high school. The authors arrived at this after following a sample of Virginia students with disabilities who left high school from 1979 to 1983. The study's focus was to look at the relationship between high school and postsecondary experiences and employment outcomes for students with disabilities. The authors noted that the support services and other variables needed for the students with disabilities to achieve the current employment outcomes. At the time that Hasazi et al. (1985) were following this cohort, EAHCA (1975) had been in effect for 10 years. Bellamy (1985) pointed out that the information in Hasazi et al. (1985) was specific to one state and should be expanded across more areas to examine the condition of students with disabilities after high school graduation. This helped create the impetus to look at the state of transition for students with disabilities across multiple factors.

National Longitudinal Transition Study of Special Education Students-1

NLTS was reflective of the long-term effects of EAHCA (1975) legislation in multiple facets of a transitioning student's life (Javitz & Wagner, 1990). The survey was conducted across the nation starting in 1985 and covering all of the following: sampling 8,000 students,

interviewing parents, extrapolating data from school records, surveying secondary special education programs, and analyzing nonresponses (Javitz & Wagner, 1985). NLTS was focused on how students with disabilities were faring post high school graduation; specific areas examined were work, postsecondary education, and living situations (Blackorby & Wagner, 1996). The study was groundbreaking in that it was the first review of the lives of students with disabilities after the implementation of EAHCA (1975) across time and looking at their lives after secondary education. Javiz and Wagner (1990) noted that the directive for NLTS the first wave from the federal congressional level in 1983 to conduct a study on students with disabilities and follow the cohorts from 1987 to 1990. The goal was to assess the effects of EAHCA and whether it was creating the change that was intended (Javiz & Wagner, 1990). Data gathering and process for parent or guardian surveys along with special education program surveys were only gathered for this general overview. Results of the NLTS will be discussed after the general overview of the data conducted by Wagner et al. (1987).

Data were gathered in 1987 and planned to be gathered again in 1990, for a total sample of 10,369 youth, using the 11 federal disability categories and the complete sample together (Wagner et al., 1989). Wagner et al. (1989) published a report on the collection and procedures on the data collected. The first component, parent interviews, will be explained in how the data were collected and analyzed for the report. Interviews were conducted in 1987 via telephone and data were noted on the family as well as the student with a disability from a household. These interviews were intentionally created for the parents as some questions were specifically about the parent or guardians' demographics and their expectations for their student. Wagner et al. (1989) used skip logic, which is defined as omitting questions that were not applicable to a participant from their interview. Questionnaires were limited to bimodal (*yes* or *no* responses),

and subcontractors were used to reach out to all the participants. When interviewing the parents, the subcontractors were using a computer program (computer assisted telephone interviewing) that was programmed to use skip logic to determine what questions to asked (Wagner et al., 1989). Utilizing a computer program was intended to assist in quality control of the answers received. Contacting the participants began with an introductory letter, and interested participants notified Wagner et al. (1989) and returned a completed release of information.

Wagner et al. (1989) had many cases in which the participant information was not accurate and thus needed to reach out to the school district for current information; however, this only yielded about 27% of the requested data. Other contact options were setting up a 1-800 number so participants could call in and be interviewed as well as mailings (questionnaires and postcards) requesting participants to contact the survey authors. Wagner et al. (1989) did have participants refuse to give information but not many, and the authors believed this was “due the subject matter” (p. 14). With all of these measures, 6,438 interviews were fully completed for parent or guardian surveys. The data were then reviewed by Wagner et al. (1989), and cases that had discrepancies or issues with the data were removed before analysis.

Wagner et al. (1989) also collected data on special education programs that were connected to the students with disabilities and the community. The survey intended to collect data on the special education programs had two components; one was for staff with a macro-understanding of the program and school, and the other was intended for staff with boots on the ground. Due to issues with this survey, it needed to be modified; specific service information for each of the 11 disability categories was omitted, and general service information only was requested. All the schools that were connected, according to identified students' school records, were mailed an introductory letter, survey, and an envelope with prepaid postage; a total of 1782

surveys were sent out. Responses by each of the schools was categorized or reasons why no response was given were identified. After the initial mailing, one additional round of prompt mailings (postcards and then a complete survey packet) were sent to the schools on a biweekly basis. If these prompts were unsuccessful, phone calls to the schools then began. An additional option of filling out the survey via phone was added to ease completion. All of these efforts led to 1,736 surveys being filled out and reviewed for data analysis. Data reliability was questioned on one item prompting phone calls to the schools for follow up questions (Wagner et al., 1989).

Blackorby and Wagner (1996) noted of the students with disabilities in NLTS who were post-graduation from a few months up to 5 years, 20% were without employment or not looking for work. Having an unemployment rate of 20% is very high considering the unemployment of their peers was at least 10% lower. The NLTS looked at the employment rate for students with multiple disabilities, and this group's unemployment rate increased another 10%; race and gender were noted as factors in being competitively employed (Blackorby & Wagner, 1996). Another key finding from NLTS was that only 14% of eligible students applied for vocational rehabilitation services (Wagner & Cox, 1991).

Fairweather and Shaver (1990) followed students in middle and high school in the 1985 to 1986 NLTS for their study. Transition to vocational schools was encouraging as the numbers of students with disabilities attending was the same as their peers without disabilities; however, the outlook was bleaker when looking at community colleges and universities (Fairweather & Shaver, 1991). Transition to postsecondary education is critical for students with disabilities as these student are not as prepared as their peers upon exiting secondary education (Blarkorby & Wagner, 1996). The attendance percentages varied by disability category, and if they had multiple disabilities, but maxed out at less than 45% (Fairweather & Shaver, 1991). Blackorby

and Wagner (1996) compared postsecondary education participation between students with disabilities, who were at 14%, and their peers, who were at 53%, noting this significant difference in participation. They found that the students with disabilities who were classified as having hearing impairments, learning disabilities, or speech impairments were much more likely to attend college than those with multiple disabilities or deaf/blindness (Blackorby & Wagner, 1996). The discrepancies for students with disabilities within the group and as compared to their peers without disabilities in the areas of work and education were glaring in the NLTS. This and many other studies called for more research following cohorts of students with disabilities, more individualized transition planning, and increasing the participation with agencies such as vocational rehabilitation can increase positive long-term outcomes (Blackorby & Wagner, 1996).

Individuals With Disabilities Education Act

This data all lead to the next piece of legislation impacting how transition services are managed—the Individuals with Disabilities Education Act (IDEA) in 1990 and 1997. Starting with IDEA in 1990, the transition from high school is emphasized as launching from secondary at this point. The importance of preparing students for life post-school and the usage of services is critical in ensuring transition into work, independence in living situations, and integration into their communities. Wehmeyer and Ward (1995) noted that the spirit of IDEA (1990) needed to be followed, not just the black and white words written on paper. During IDEA (1990), the push for student involvement and self-determination skill development was starting (Wehmeyer & Ward, 1995). Both Ward and Wehmeyer had been working on defining self-determination as part of IDEA (1990), leading to an explicit definition as follows: student participating in the process as well as providing skills that would be needed to meet the needs of transitioning after high school (Wehmeyer & Ward, 1995). Another legislative change that occurred due to IDEA

(1990), the Rehab Act was amended in 1992 to create stronger focus on transition services and a critical partner for education agencies and students with disabilities (Benz et al., 1999).

All of the changes in legislation and progress created a spot at the transition table for students with disabilities and the IEP (Wehmeyer & Ward, 1995). IDEA was amended in 1997 with more specific language for transition and the role of students with disabilities and their transition to the work world and living as fully integrated as possible in their community (IDEA, 1997; Levine et al., 2004). Levine et al (2004) noted that the IEP should contain services as needed by the student with a disability and specifically listed rehabilitation counseling. A call for greater opportunities be presented to students with disabilities vs. limiting their potential and thus transition options (Heumann & Warlick, 2000). Transition information as captured in the NLTS-2 is critical in knowing what students with disabilities are experiencing under legislation surrounding transition for students with disability (Cameto et al., 2004).

National Longitudinal Transition Study-2

NLTS-2 was a national survey that continued in the steps of NLTS that began in the year 2000 and served as a 10-year-follow-along study (SRI, 2000). The SRI (2000) study surveyed students with disabilities in seventh-grade and ages 13 to 16, parents or guardians, and schools. SRI (2000) alternated the years surveys sending surveys to students with disabilities (Years 1, 3, 5, 7, and 9), parents or guardians (Years 1, 3, 5, 7, and 9; Years 5 and 7 are contingent on the identified student being under 18 years old), and schools (Years 2 and 4), along with an annual analysis. A broad overview of data collection and analysis procedures for the three cohorts identified above will be done.

Data collection procedures of how the surveys for the identified students with disabilities, parent or guardian, and school will be reviewed along with any quality control involved in the

NLTS-2. Questions that were static throughout the 10 years of the study were removed if the parent or guardian had already given the information in past surveys (SRI, 2000). The SRI (2000) survey for parents or guardians was considered necessary for the identified years as they may be knowledgeable about familial demographic information (acceptance of services, hopes, etc.). Collection of data was in a broader approach than in NLTS as surveys were mailed, telephone interviews were conducted, and additional outreach efforts were made for nonresponses. The additional efforts for nonresponses were intended to lower skewed results for the study. SRI (2000) sought out the students with disabilities who were nonresponses, data collectors were sent to the known addresses with phones so the student and family could complete their surveys. The surveys were in English and Spanish, but the survey could also be translated to a diverse number of additional languages. SRI (2000) used a computer program that was also used in NLTS to aid in ensuring only appropriate questions were being asked. By utilizing this process, an investigator attempts to lessen response fatigue and increased completed surveys. The student interviews were to commence in Year 3 of the study (SRI, 2000).

Data collection for the student surveys included a waiting period for Year 3, inquiring about capability to complete the survey and be conducted in different years to focus on secondary education experiences as well as experiences after graduation (SRI, 2000). Student surveys were sent out in Years 3, 5, 7 and 9, and for each designated year, the parents or guardians were asked if the students with disabilities had the capability to respond independently. SRI (2000) surveyed students with disabilities in Years 2 and 4 to capture the experiences in secondary education. SRI (2000) also included a payment of \$25 for students with disabilities to complete the survey post high school graduation.

The school version of NLTS-2 included a survey for: (a) the first period teacher (to avoid selection bias), (b) the identified student's special education teacher, (c) the principal to acquire background information on the school itself, and (d) a transcript for the identified student. The schools were identified in Years 1 and 3 from the parent or guardian surveys when questions were asked about the specific student the identified student attends among other relevant questions (SRI, 2000). Surveys were sent to the schools with an introductory letter and each identified teacher or administrator was able to fill out the surveys and return them. For the nonresponse surveys for the schools, a telephone interview was attempted (SRI, 2000).

The selected results are all extrapolated from the NLTS-2 in reports or journal articles by various authors, and each wave is analyzed separately focusing on different pieces of the surveys and cohorts. Sanford et al. (2011) analyzed data up to 6 years after graduation for students with disabilities in the NLTS-2 and found that 55% of them had attended postsecondary education. Students with disabilities up to 6 years after graduation in the NLTS-2 enrolled in postsecondary education at a rate of 39% compared to their peers at 60% (Sanford et al., 2011). Sanford et al. (2011) noted that the attendance rates of students with disabilities varied based on disability category. Students with sensory impairments (hearing or visual) were more likely to attend (70%) than students with autism or multiple disabilities (47% and 31% respectively; Sanford et al., 2011). The attendance rates in postsecondary education have increased for students with disabilities dramatically and are almost triple what they were in the 1990s (Cameto et al., 2004; Hong, 2015; National Center on Education Statistics, 2000). Between 68–85% of students with disabilities attend postsecondary education, and the difference is dependent on the disability category (Newman et al., 2011).

Specific enrollment type, specific disability categories transition to community colleges, and college completions has been analyzed from the NLTS-2 surveys. Enrollment on a fulltime basis is 71% of students with disabilities who are attending postsecondary education. The most recent review of NLTS-2 cohort of students that transitioned in 2008 noted that 44 % of students with disabilities pursuing postsecondary education do so at public 2-year institutions or community colleges. The following break-down represents the categories of students who transitioned to 2-year institutions or community colleges: 37.7% emotional disturbance, 49% learning disabilities, 46% speech/language, 51.5% hearing, 51.5% visual, 50.3% orthopedic, 32.2% autism, and 51.6% other health disabilities (Newman et al., 2011). Yu et al. (2018) analyzed NLTS-2 data for students with a learning disability category, a college preparation program, and college completion rates. Students with learning disabilities who completed the college preparation program were more likely to complete college (Yu et al., 2018).

Workforce Innovation Opportunity Act and Transition

To help ensure shared responsibility, WIOA (2014) focused on transition program centers, combining state and federal agency responsibilities, and funding to aid in the provision and rollout of programming. The intended impact of this legislation for transition programming was to extend the responsibility of student preparation for the transition from K–12 institutions to include state agencies, federal agencies, and communities. Collaboration between rehabilitation agencies and community colleges has been noted to help bridge low expectations, retention, and graduation rates (Newman et al., 2011; Oertle & Bragg, 2014). This is a considerable shift how secondary education students with disabilities launch into postsecondary education or the workforce. While the focus is still on the final goal being the students with disabilities enter the workforce, more supports can be developed aimed at completion of academic goals (WIOA,

2014). More students with disabilities are entering postsecondary education; however, retention and graduation are not comparable (Getzel, 2008; Knight et al., 2018; Newman et al., 2011; Wagner et al., 2003).

Progress in transition planning is noted in NLTS-2 as 90% of the students have some sort of planning being done whether on their behalf or with the student participant, but only 14% have received services under the Rehab Act as of November 2004 (Cameto et al., 2004). There is evidence that students with disabilities opt to attend community colleges for various reasons, such as the lower cost of attendance, they are first-generation, or that they can take remedial coursework (Mamiseishvili & Koch, 2012; Pascarella et al., 2004; Tinto & Engle, 2008). In a survey from the 2008–2009 academic year, Raue and Lewis (2011) asked both public and private institutions about students with disabilities attending their institutions; there were approximately 707,000 students with disabilities enrolled in the 2008–2009 academic year. Public institutions, 2-year institutions or community colleges reported 328,800 students with disabilities compared to 205,600 at 4-year institutions.

Johnson et al. (2008) noted there are more supports for students with disabilities at community colleges. Through those supports, they are able to complete their educational goal by either transferring to a 4-year institution or gaining skilled employment. Community colleges offer a wider variety of educational experiences for students than their 4-year counterparts (Ankeny & Lehmann, 2010). Research at community colleges is limited for programming with students with disabilities (Mamiseishvili & Koch, 2012). Rosenbaum (2018) applied Tinto's community college theory that students with physical disabilities should be considered of minority status, and participation in college matters. In her study, Rosenbaum (2018) looked at graduation rates in 2008 for students with physical disabilities who enrolled in 2001, and 60% of

students earned postsecondary degrees. Mamiseishvili and Koch (2012) looked at students with disabilities in the Beginning Postsecondary Students Longitudinal Study, from 2004–2006, and noted that students with orthopedic disabilities or depression were more likely to leave community college without completing. Students with dyslexia or emotional or psychiatric disabilities were able to persist in this group of students (Rosenbaum, 2018). As more students access postsecondary education, data on their success and challenges should be investigated. The collected data can assist postsecondary education institutions to create programming.

Postsecondary Education Retention and Persistence

Retention of all college students has been studied and methods researched for over 100 years (Seidman, 2005; Tinto, 1975, 2003). Retention for all students differs between 4-year and 2-year institutions or community colleges. Four-year public institutions have entrance requirements that can include minimum high school GPA, minimum placement exam scores, and residency on-campus, to name a few (Craig & Ward, 2008). Mullin (2010) noted that 2-year institutions have an open-access mission where they are focused on meeting the needs of their community. While the expectation for increased graduation across America is still on the national agenda, funding to support community colleges has not been. While community colleges have been working on increasing retention rates, the focus has been towards the completion of students' goals.

The shift for community colleges has been to certificates or credentials to aid students in entering the workforce or reentering with a new skill set quickly (Mullin, 2010). Community colleges serve a variety of populations from high school students taking college courses to those who need a short-term credential to re-enter the workforce. Mullin (2010) notes that community colleges have an on-going dilemma of attempting to meet national standards for outcomes in

postsecondary education or their community's needs centered on work-based requirements. Potential areas to meet national standards include stackable credentials (academic credits that are transferrable), career pathways (Shifting-Gears military program), and credentialed apprenticeships. Students with disabilities may benefit from being able to tap into career pathways where students may be able to complete degrees or certificates (Mamiseishvili & Koch, 2012).

Risk Factors for Students With Disabilities

Risk factors for students with disabilities include having low levels of academic preparation, management of self, rates of persistence in college, needing to seek out accommodation services, and being discouraged from attending by faculty and classmates (Getzel, 2008; Whitney et al., 2012). Some examples of barriers include: not earning a secondary diploma, not being exposed to rigorous secondary coursework, taking a gap year in studies, and being on their own financially (Crisp & Mina, 2012). Only about 19% of students with disabilities access accommodations in postsecondary education as compared to 87% in high school (Newman et al., 2011). Students attending community colleges also noted that barriers include having limited contact with faculty outside of class (Schuetz, 2008).

Contributions to the body of research are disproportionate for strategies specifically for students with disabilities attending community colleges (Oertle & Bragg, 2014). Research that was published was significant in the 1990s with minimal publications since and without theoretical foundations for strategies (Oertle & Bragg, 2014). Mamiseishvili and Koch (2012) noted that over half the students in their study delayed entering college, thus decreasing their chances of college completion. Some recommendations for interventions include academic factors such as retention and persistence in courses, semester GPA and overall GPA, and

progression to goal completion (Flink & Leonard, 2018; Kim & Lee, 2016). Kim and Lee (2016) looked at accommodations and GPAs, and while there was a connection, this was mitigated by other factors such as personal/demographic factors the students bring with them to college. Other factors included not having high career expectations after completing high school and not being able to navigate through career requirements (Fabien & Liesener, 2005; Kortering, Brazeil, & McClannon, 2010; Mamiseishvili & Koch, 2012). One recommendation from Mamiseishvili and Koch (2012) was high contact with college faculty and advising staff as keys to retention and persistence, which is also noted in Tinto's theory (1993). The challenges for students on the autism spectrum include nonverbal communication and flexibility (Flexer et al., 2011). Current research for evidence-based strategies is needed for all students with disabilities to assure success in postsecondary education.

Retention Programming

The literature on retention in postsecondary education has focused on populations based on specific criteria such as race or ethnicity, SES, and academic standing (i.e., first-year, academic probation, etc.; Talbert, 2012; Tinto, 1993, 2003). Factors that affect retention and completion in postsecondary education include being a first-generation college student, being an older student, delaying entry to college, not engaging with the college campus community, and, for students with disabilities, not receiving disability accommodations/services (Heiman & Precel, 2003; Lawson et al., 2016; Newman et al., 2011; Tinto, 2004). Efforts to increase retention and graduation rates in postsecondary education have consisted of first-year college programming (Institute of Education Sciences, 2016; Jamelske, 2009); bridge programming for specific populations such as academic preparation, underrepresented populations, specific

academic programming (Arendale & Lee, 2018; Kim & Lee, 2016); and federal TRiO programming (U.S. Department of Education, 2018).

Retention Programming for Students With Disabilities

Students with disabilities, arrive to institutions of postsecondary education with their characteristics (i.e. race, first-generation, low SES, etc.) that may be barriers, but they have an additional barrier of being an individual with a disability and need to disclose their disability to access services (Kim & Lee, 2016). The focus of research and interventions for individuals has not focused on academic factors. The focus has been on self-determination training, education on changes in access laws, access to accommodations, and accessibility of technology (AHEAD, 2012; Kim & Lee, 2016; Morningstar et al., 2010; Oertle & Bragg, 2014; Reinschmidt et al., 2013).

Other factors have been looked at such as access to accommodations, faculty comprehending the usage of accommodations, and peer acceptance. Looking at accommodation access, Reinschmidt et al. (2013) examined student satisfaction with accommodations, and while students were satisfied, the authors recommended tweaking accommodations to ensure students were receiving the appropriate accommodations. Coaching was the focus of Prevatt (2016) as an intervention for students with ADHD in college; however, this is a personal service and not mandated under ADA. Students with disabilities who were using accommodations found them beneficial, but the accommodations were not understood by faculty and peers according to Timmerman and Mulvihill (2015). The importance of faculty understanding the student's accommodation, according to Timmerman and Mulvihill (2015), is the faculty's amenability in working with the student on successful implementation of accommodations.

Students with disabilities need to understand the importance of accommodations by students who have invisible disabilities and those from low-income households according to Newman and Madaus (2015). The literature did not yield any specific accommodation recommendations and Weis et al. (2016) noted that accommodations should be reviewed to ensure that they do not modify the curriculum in postsecondary education, which is not the purpose of accommodations.

Having a positive outlook for college completion will have an impact on persisting in college (Mamiseishvili & Koch, 2011). Timmerman and Mulvihill (2015) noted that the students in their study were not only positive but understood about following through on tasks themselves. Flexer et al. (2011) gave insights to where practitioners can focus interventions in higher education, specifically for students who are on the autism spectrum. Having a sense of purpose or understanding of set goals is necessary, according to Newman et al. (2019), for students with disabilities to persist and complete postsecondary education. Researchers are beginning to examine postsecondary education for students with Asperger syndrome or high functioning autism (Barnhill, 2016; Wolf et al., 2009). However, the research is primarily in the university or 4-year setting rather than at community colleges.

Interventions for students with disabilities can also include collaboration between rehabilitation agencies and community colleges to help bridge low expectations, retention, and graduation rates (Newman et al., 2011; Oertle & Bragg, 2014). Oertle and Seader (2015) noted that interagency partnerships have not been as commonplace as needed for students with disabilities to achieve their full potential in postsecondary education. Partnerships with vocational rehabilitation entities have been subject of research as far back as 1980s, but the projects are temporary. Specific variables of vocational rehabilitation's involvement have not

been teased out as to what is effective for which populations and mainly surround transitioning to college rather than college completion (Oertle & Seader, 2015). While personal demographics need to be accounted for, having students with disabilities complete college preparation courses along with receiving services in college increases completion of college by 5 times across the board (Yu et al., 2018). The research and strategies fail to address academic preparation issues, integration into college, and funding postsecondary education for students with disabilities.

Postsecondary Education and Completion

Increases in enrollment at community colleges have been in the double digits after the 2009 call by former President Obama on America to increase college graduation (Mamiseishvili & Koch, 2012; Mullin, 2010; The White House, Office of the Press Secretary, 2009). Students with disabilities attend community college at a higher rate than 4-year institutions (Flink & Leonard, 2018; Newman et al., 2011). Programming and offerings have ebbed and flowed as demand for vocational training has increased along with academic preparation for universities (Crisp & Mina, 2012). Since the inception of community colleges in the 1940s, the students served have been the most diverse as access has been very broad (Crisp & Mina, 2012; Melguizo et al., 2017; Seidman, 2005). The missions of public 2-year institutions or community colleges often receive lower funding due to the nature of the students they serve and the level of credits earned (Melguizo et al., 2017). Legislative changes in funding have created the need for publicly funded postsecondary educational institutions to evaluate retention across all student populations.

Community colleges serve as an open-access avenue for students who may not otherwise attend postsecondary education (Crisp & Mina, 2012; Mamiseishvili & Koch, 2012). They also need to help students address academic and environmental gaps that students have to overcome

in order to be successful and graduate. Pecteu et al. (2017) took a look at certain factors within self-determination that influenced students with disabilities. When Pecteu et al. (2017) looked at factors for 2-year institutions or community colleges and vocational schools for students with disabilities, they noted that individual characteristics affect attending specific institutions. Taking a look at the individual characteristics as well as the disability categories are important to successful completion of vocational and community colleges (Pecteu et al., 2017). A critical component of the transition process needs to include disclosure and requesting accommodations from the community college's disability services office (Yu et al., 2018).

Effects of Leaving College Before Graduation

The gap in college graduation between students with disabilities and their typically developing peers leads to significant disparities in the workforce. Eight out of 10 individuals with disabilities do not participate in the labor force as defined by the Department of Labor (2017). According to the Department of Labor, only 18.7% of those individuals with disabilities were participating in the labor force as compared to 65.7% of individuals without disabilities in 2017 (Department of Labor, 2017). In looking at the Department of Labor statistics for March 2019, the unemployment rate for individuals with disabilities is 7.3% as compared to their counterparts at 3.4% (U.S. Labor Statistics, 2019). Students with disabilities who leave college without completing have fewer opportunities to participate socially and vocationally in their communities (Braxton et al., 2000; Carnevale et al., 2010; Horn & Berkold, 1999; Reinschmiedt et al., 2013). The communities to which they return are also affected in ways such as loss of income and tax revenue and increased welfare burden (Saddler et al., 2011). Students with disabilities are diverse, but they still need to know that any programming or supports available

will lend them an opportunity to complete their educational goals (Yu et al., 2018). Looking at retention and graduation efforts is critical to leveling the discrepancy that currently exists.

Summary

There have been numerous pieces of legislation passed in order to get to this point where there are multiple resources available to benefit individuals with disabilities in the postsecondary setting. WIOA (2014) combined multiple resources under its umbrella including vocational rehabilitation, the U.S. Department of Education, and services under Title I of WIA (1998). IDEA (1990, 1997) and ADA (2008) have also been updated and now offer individuals with disabilities and agencies the ability to pool services to enter postsecondary education. Key stakeholders such as community colleges, which are governed by ADA (2008) partnerships with other agencies that are governed by WIOA (2014), can begin to offer more supportive services. One of the intents of WIOA (2014) was to have multiple agencies working together in order to have individuals with disabilities access as many services as possible and be able to enter the workforce and their communities and be as self-sufficient as possible.

Community colleges are where individuals with disabilities are choosing to enter postsecondary education (Newman et al., 2011). Community colleges are open-access postsecondary educational institutions thus these institutions are not selecting individuals based on specific criteria or demographics to admit (Mullin, 2010). Community college institutions are bound to offer services to students with disabilities under Section 504 of the Rehab Act (2014) and the ADA (2008). While both Section 504 (2014) and the ADA (2008) require accommodations, these laws are vastly different from IDEA (1990, 1997). Individuals with disabilities who enter community colleges to become students with disabilities have to seek out services and be able to navigate the explicit rules and hidden rules of academia (ADA, 2008;

Newman et al., 2011). While students with disabilities are attending postsecondary education, specifically community colleges, they are failing to complete (Newman et al., 2011). Leaving community college without completing is detrimental for students with disabilities as well as their communities (Blackorby & Wagner, 1996; Newman et al., 2011; Wehman et al., 2014). A community college or postsecondary degree offers a key step for students with disabilities to achieving integration to work, living independently, and being able to fully integrate into their communities. Previous articles have supported specific programming for certain disability categories (traumatic brain injuries, hearing impairment, autism, and learning disabilities); however, generalizing the strategies has not been proposed for postsecondary education (Wehman, 2014; Brown & Coomes, 2016; Cawthon, 2016; Yu et al., 2018). Much of the data utilized in these articles come from a national survey in which there is not an actual intervention being analyzed. Programming or strategies that can be applied at the community college level are needed that leverage supports currently available, that can be generalized to other disabilities, and that are available in the community college setting (Yu et al., 2018).

Community colleges need guiding practices to offer students with disabilities. Strategies or programming that will guide students with disabilities to an equal opportunity for completion of academic goals is critically needed (Yu et al., 2018). It is not sufficient to have students with disabilities attend community college but instead to support and guide them towards completion of their academic goals. This study aims to look at programming for students with disabilities at the community college level by offering opportunities to access multiple services both at the college and with local partners.

Chapter 3: Method

The purpose of this ex post facto study is to assess two interventions designed to support students with disabilities at community colleges. First, a short-term pre-college program for students with disabilities, the ASI, was examined. Second, the impact of a long-term case-management program, CareerConnect, on retention for students with disabilities was evaluated. The layout of this chapter is comprised of the site description, participant description, research design, data collection, data analysis, assumptions and limitations. The two research questions examined the impact of programming for first-year college students with disabilities who participated in the intervention programs and those who did not. For clarity purposes, the procedures, analysis, and limitations sections will be divided into a description of Intervention 1: ASI, and Intervention 2: CareerConnect (CC). The impact of the interventions will be measured on course retention, continued enrollment, semester and overall GPAs, and program completion or graduation.

Research Site

The sample used in this current study represented students who attended a mid-sized western community college that serves approximately 11,000–11,500 students per year. Student data for the 2015–2019 academic years were used for this study. These years were selected to accurately capture the estimated student completion. According to Newman et al. (2011), rates of completion for students with disabilities can be longer than their peers. Using these years allowed for evaluation of students' start and completion of community college goals. At the time of this current study, enrollment was approximately 28–29% full-time students and, overall, 56% of the enrollment in the 18–24 year-old age range (TMCC 2018 Factbook, p. 3).

This community college offers support services that are available for all enrolled students. The services offered include the following (TMCC, 2020):

- academic advising,
- counseling services,
- financial aid,
- veteran services,
- disability services,
- student conduct,
- career services,
- admissions and records,
- international student services,
- student life and development (student government), and
- outreach and recruitment services.

Some of the services offered at the community college have eligibility requirements, such as the Disability Resource Center or Veteran Resource Center.

This community college houses a Disability Resource Center (DRC) that serves all students who wish to self-disclose and request accommodations as per the Americans With Disabilities Amendments Act (ADAA; 2008). The disabilities served within the DRC include students with emotional or psychiatric disabilities, learning disabilities, physical disabilities, traumatic brain injuries, deaf and hard of hearing, and visual impairments (ADAA, 2008). Disability services in postsecondary education is an eligibility based service and guided by the Rehabilitation Act of 1973, specifically section 504, and title II of the AADA (2008). Each postsecondary education service center applies the laws at their discretion. Students with

disabilities need to request services and provide proof of a disability to become eligible for services/accommodations in accordance with the regulating laws (U.S. Department of Education, 2011). At this community college, once services are requested, an intake interview is scheduled with a disability specialist. Any previous accommodations from another higher education institution are reviewed. For example, once the student has a class schedule, accommodations are reviewed and granted based on both the documentation provided and the intake interview. Students can then choose to follow the disability specialist's recommendations, select their preferred accommodations from what was approved for their academic courses, or choose not to use any accommodations. Students who are connected to disability services are encouraged to connect with other appropriate student services across campus for needed services. Communication between departments is encouraged as students may belong to more than one special population or could benefit from services after encountering barriers in their educational pathway. Thus students can be referred to the DRC or get referrals from this office to other resources at the community college.

Participants

The current study included three groups of students in two distinct interventions. The first group included those who enrolled in Intervention One: Academic Skills Institute. The second group was comprised of those students who enrolled in Intervention Two: CareerConnect. The third group served as a control for both intervention groups. Students in the third group did not participate in interventions but chose to seek out DRC services only with no additional services.

The following sample demographic information for all three groups was included in the study: (a) socio-economic-status (SES), Pell eligibility, (b) ethnicity, (c) gender, (d) age, (e) disability, and (f) number of courses taken. Student SES was determined by eligibility (*yes/no*)

for federal student financial aid. Students applying for federal financial aid provided the needed financial documentation to the college's financial aid office to determine eligibility for the Pell Grant (U.S. Department of Education, 2020a). This grant is a federal subsidy given to students that meet certain criteria through an institution's financial aid office to pay for their first bachelor's degree (U.S. Department of Education, 2020b). Ethnicity was disclosed when applying for admission to college, and students could choose whether to disclose this information. Students also disclosed their genders and could change to preferred gender as well, but *non-binary* was not a gender option at the time of this study. When applying to the community college, the date of birth was required and thus connected to the student's information. Information on disability will be listed as *primary disability* or, if there was more than one, *comorbidity*, and the primary disability the student receives services for. Documentation for disabilities was required for service provision.

Group 1: Participants in Intervention One (ASI)

Participants were recruited for the Academic Skills Institute (ASI) program from 12 local high schools. New, incoming first-year community college students with disabilities who were under 24 years-of-age seeking disability services are given an opportunity to participate in ASI. Participation is voluntary. ASI intervention was only open to students with disabilities who intend on enrolling at the community college. ASI was considered a short-term, pre-college intervention to support the retention and success of students with disabilities.

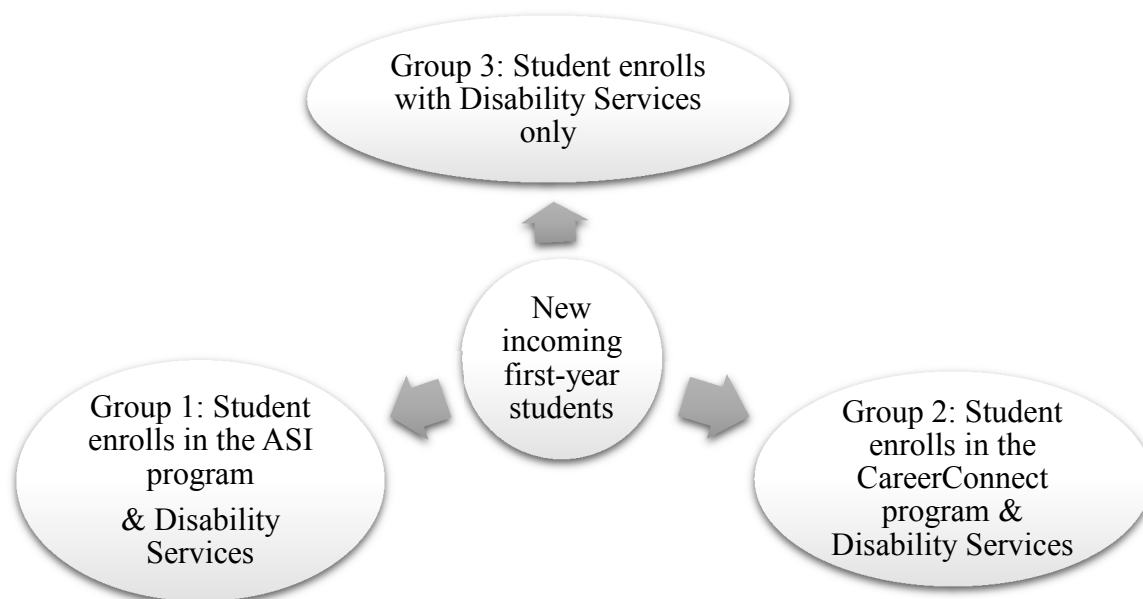
Group 2: Participants in Intervention Two (CareerConnect)

At the community college involved in this study, recruitment for the long-term intervention, CareerConnect, was a joint activity with the state vocational rehabilitation program and the community college's DRC. Students with disabilities could choose to connect with either

the DRC or vocational rehabilitation first but must ultimately connect and receive services from both support services to qualify for the CareerConnect program. For example, if a student with a disability has a plan with state vocational rehabilitation department that includes postsecondary education, they must also connect with the community college's disability services office. When the student connects with both support programs, then they can receive additional services from the CareerConnect program. Participants in this group elected to participate in this long-term case management intervention that occurred throughout the academic year. The supports followed students until they transferred to a 4-year institution or were employed for 3-months post-graduation or completion of their academic goals.

Group 3: Participants in DRC Services Only

At the community college, recruitment for the disability resource center is done through presentations at the local high schools. Students with disabilities choose to connect with the DRC at any time while taking courses at the community college. Students with disabilities needed to self-disclose that they have a disability and provide supporting documentation. Once documentation and intake is completed, the specialist and student review the needed accommodations. The accommodations vary depending on the impact of the student's disability on having equal access to their academic courses. Since this service is choice-based, students who connect with the DRC may or may not access their accommodations for their courses. Students receiving accommodations were identified by academic year status to ensure first-year students are selected for the current study. Figure 2 illustrates the flow of how student groups were identified.

Figure 2*Assignment of Group Participation***Research Design**

This descriptive study used an ex post facto design using extant datasets. According to Cohen et al. (2000), using an ex post facto two-group comparison design allows for a retrospective analysis of the impact of programming on students with disabilities and changes that occurred between groups. As each of the intervention groups will be compared to a third group composed of students with disabilities choosing only to receive services from the disability services office. Data from 2015–2019 were requested for the three different student groups from the institutional research office of the 2-year, publicly funded community college. Two groups of students in each intervention will be included in the study. Each intervention, ASI and CareerConnect, were compared to a control group of students with disabilities who elected not to participate in the selected interventions.

Interventions

In the current study, there were two interventions, therefore, two independent variables. Intervention One (ASI) is designed for new, incoming students with disabilities who are between 16–21 years old, choose to connect with the DRC, and are potentially eligible for the state’s vocational rehabilitation program. Intervention Two (CareerConnect) is designed for students with disabilities who choose to connect with the state’s vocational rehabilitation program and the community college’s DRC. There were no age qualifiers for this group. The DRC only group was comprised of those students who connected with the college’s DRC for services but chose not to participate in any other intervention groups. Interventions One and Two are explained separately but the dependent variables will be explained together as they are the same for the two interventions.

Intervention One (ASI): as an Independent Variable. The ASI is a pre-college and first-year college, short-term summer program created for students who are finishing high school or are 24 years-old or younger. Students who choose to participate in the ASI program committed to attending the full program during the summer before starting at the community college. The program was developed to increase access and retention of students with disabilities from the first year of their academic career to the second. Grant funding for this program was sought in partnership with the state vocational rehabilitation program. There were age restrictions to be accepted; the participants need to be transition age, and according to WIOA (2014), that ends on the 22nd birthday for the students participating due to the grant funding rules from the state vocational rehabilitation office. The partnership was created to help the state vocational rehabilitation program fulfill requirements for WIOA (2014).

The students were connected with the state vocational rehabilitation and received services from the DRC for their academic courses during the summer program. Students were also provided with an opportunity to open a case with the state vocational rehabilitation office; however, students with disabilities were able to participate in ASI without accessing vocational rehabilitation services. There were no costs to students who participated in ASI.

The ASI program included an academic course, textbooks, mathematics skills remediation, career exploration, and food for breakfast and lunch. If other needs were identified, the student was given a referral to college resources as well as a referral to the state vocational rehabilitation office. The impact of the Academic Skills Program (ASI) was measured on the following factors: grade point average, within-semester course retention, semester-to-semester enrollment, and graduation.

The expectation for college level academic work was incorporated into Intervention 1: ASI and was completed in its entirety with regular college grading. Components of the program consisted of a three-credit educational leadership course, a non-credit math remediation course, and workshops aimed at developing self-determination skills. Figure 3 is a visual representation of the weekly schedule for the ASI program. The students took pre- and post-assessments of the Accuplacer English and math placement tests. This pre- and post-testing is designed to measure the learning that the students with disabilities gained in English and math from participating in the intervention. Students' scores also determine whether additional remediation needs to be done in the afternoon homework session.

Intervention One (ASI) was designed as an academic summer program that was intended to provide students learning opportunities in adjusting to the college environment and academic rigor. Programming was on the community college campus, and there were four instructors and

two tutors who supported the 6-week intervention. The academic course covered career exploration, intrapersonal and interpersonal skill development, and tips for academic success.

Figure 3

Academic Skills Institute Program Sample Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
8:30 am – 9 am Breakfast	8:30 am – 9 am Breakfast	8:30 am – 9 am Breakfast	8:30 am – 9 am Breakfast	8:30 am – 9 am Breakfast
9 am – 11:30 am First Year Experience Course	9 am – 11:30 am First Year Experience Course	9 am – 11:30 am First Year Experience Course	9 am – 11:30 am First Year Experience Course	9 am – 12 pm Career Exploration Workshops
11:30 am – 12:30 pm Lunch	11:30 am – 12:30 pm Lunch	11:30 am – 12:30 pm Lunch	11:30 am – 12:30 pm Lunch	12 pm – 1 pm Lunch
12:30 pm – 2 pm Math - Remediation	12:30 pm – 2 pm Math- Remediation	12:30 pm – 2 pm Math- Remediation	12:30 pm – 2 pm Math- Remediation	No programming
2 pm – 3 pm Homework time (voluntary)	2 pm – 3 pm Homework time (voluntary)	2 pm – 3 pm Homework time (voluntary)	2 pm – 3 pm Homework time (voluntary)	

The course could be counted towards the college's humanity requirement or as an elective, and it could be transferred to other institutions. The students with disabilities who chose to participate in the ASI program had additional self-determination skill workshops within the structure of the course. Some students chose to participate in the ASI program and, after starting the academic year, could choose to participate in Intervention Two (CareerConnect) as a long-term support.

Intervention Two (CareerConnect) as an Independent Variable. The CareerConnect program was a long-term case management program created for students with disabilities connected between the community college's disability service office and state vocational rehabilitation agency. Students who chose to participate in the CC program committed to receiving services from the college's disability services office and to have an open case with the state's vocational rehabilitation agency. The program was developed as a partnership with the state's vocational rehabilitation agency to support mutual students/participants and joint funding allocations within WIOA (2014).

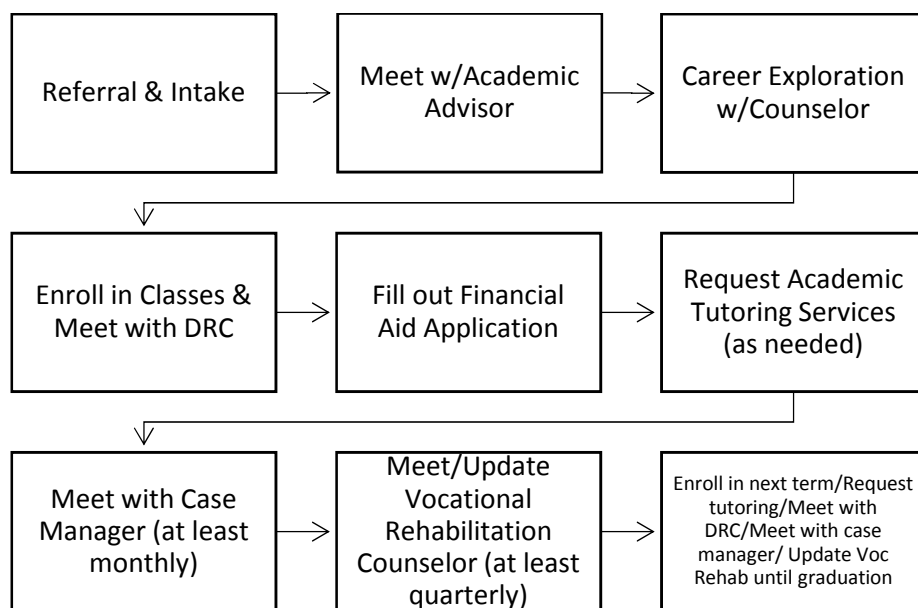
At the community college, recruitment for the long-term intervention CareerConnect was a joint activity between the state vocational rehabilitation program and the community college's DRC. Students with disabilities could choose to connect with either the DRC or vocational rehabilitation but ultimately must connect with both support services in order to qualify for the CareerConnect program.

For example, if a student with a disability has a plan with state vocational rehabilitation department that includes postsecondary education, they may choose to enroll with the CareerConnect program to receive additional support services during their community college education. This interagency collaboration assures that the vocational rehabilitation counselor sends a referral to the CareerConnect program, a copy of the vocational plan, a release of

information, and contact information. Students could be enrolled in certificate or degree programs at the community college while participating in this intervention. Intervention Two (CareerConnect) did not have an age restriction to participate. Intervention Two (CareerConnect) was created through a third-party cooperative agreement between the college and the state vocational rehabilitation on a 3-year contract basis. The partnership enabled the college to hire four additional staff members whose primary responsibility was supporting this group of students.

To participate in Intervention Two (CareerConnect), students needed to set up an appointment with the program coordinator for an intake appointment. At the intake appointment, the coordinator reviewed documentation from the referral and spoke with the student to review program requirements. Releases of information forms were signed so the programs were able to exchange information as needed. Figure 4 shows a sample of the Intervention Two (CareerConnect) process of steps that needed to be completed throughout a student's academic experience. Students and the vocational rehabilitation counselor would get a copy of the roadmap with designated steps that need to be completed by the student. The steps to enroll and roadmap documentation for Intervention Two (CareerConnect) can be located in Appendix A and B.

Additional services that were offered through Intervention Two (CareerConnect) include assistance navigating the college offices and understanding processes to complete requirements within the college and with the state vocational rehabilitation agency. Specific additional services could include individual guidance when requesting college services; individualized self-determination skill development; workshops were offered to develop study techniques; additional tutoring services that included more hours of tutoring and prearranged tutoring for the full semester; and work readiness skill development.

Figure 4*Sample of CareerConnect Experiences*

Intervention One (ASI) and Intervention Two (CareerConnect) as Independent Variables. Comparisons were conducted between students who received Intervention One (ASI) and those who only received DRC services while at the community college. Comparisons will be conducted between students who received Intervention Two (CareerConnect) and those who only received DRC services for the entirety of their attendance at the community college. The measures of success on dependent variables for Intervention One (ASI) are: (1) within-semester course retention, (2) semester-to-semester enrollment, (3) overall GPA above 2.0, and (4) program completion or graduation. The measures of success for Intervention Two (CareerConnect) were measured on the following dependent variables: (1) within-semester course retention, (2) semester-to-semester enrollment, (3) overall GPA above 2.0, and (4) program completion or graduation. The additional dependent variable of contact or appointments with the case manager was for Intervention 2: CC only.

Within-Semester Course Retention. Within-semester course retention is defined in that the student is enrolled and remains enrolled in the same semester. This was a categorical variable and will be coded as an *affirmative* if they remained enrolled or *negative* if they did not remain enrolled in the semester. This variable was critical to look at to ensure that students are enrolling in sufficient credits to complete their degree in a timely basis. There could also be risks for students to enroll in too many credits and withdrawing, putting them at risk for not returning.

Semester-to-Semester Enrollment. Semester-to-semester enrollment is when a student is enrolled in one semester (fall or spring) and enrolls in the following semester (fall or spring) without an interruption in enrollment. This was a categorical variable as it will be a *yes* or *no* variable. This was important to ensure that students continually enroll to complete their academic goal or degree. Breaks in the academic pathway can result in students never returning and not having the necessary skills to be successful in their community.

Overall Grade Point Average Above 2.0. GPA was a dependent measure. This was coded by GPA, which is a continuous interval measure. A minimum GPA of a 2.0 is an overall institution requirement to continue attending, and it is the threshold for many requirements at the community college level. Some of the programs or services that require a 2.0 GPA include financial aid and scholarships, and it is a requirement to graduation. A GPA of 2.0 is needed to continue receiving services and be in good academic standing with vocational rehabilitation. The overall GPA is calculated by averaging the grades of all the courses taken by the student.

Program Completion or Graduation. Having students complete their programs is critical to move on to the career or workforce. Program completion or graduation is categorical measure and will be coded by *yes* (1) or *no* (2). Completion of the degree requirements leads to graduation from the institution. Depending on the student's program, completion does not

include an associate degree from the community college; it can be a certificate in a specific workforce area. For example, program completion could include a skills certificate as a certified nursing assistant or phlebotomist.

Number of Contacts or Appointments. A program requirement for Intervention Two (CareerConnect) was to have monthly contacts with the assigned case manager. These were a necessary component in keeping with the agreement with the partnering agency. Having a case manager and regularly scheduled meeting is a component for the students with disabilities that chose to participate in this intervention. Students with disabilities would need to regularly come in and could discuss any issues or request supports at this point with their case manager. This dependent variable was only applicable to Intervention Two (CareerConnect).

Data Collection

Data collected for this project were extant data, which are routinely collected as part of the institution data gathering processes at the community college. Information collected by the community college includes all demographic information, i.e. age, race/ethnicity, SES, veteran status, higher education generational status, and academic data connected to the student through their student identification number given during the application process. The academic data include the number of courses the student has enrolled in, any withdrawals from courses (after the second week of the semester), and course grades.

Data were housed in a secure database for student information system that is a shared between all the institutions of higher education in the state. Each institution has its own data warehouse, but the institutions are limited to the functions of the database that all the institutions agree to use. Additional information was needed from the DRC for demographic data on disability as that is not collected by the institution. The community college's institutional

research department collects all data related to students' academic records. All courses and information pertaining to those courses were added to the students' records. Student records are collected every semester and include records from courses taken during the summer and winter sessions. All academic data are identifiable by the student identification number. Student data were de-identified by the Institutional Research Department. This ensured that that this researcher received de-identified data.

An application to the researcher's Institutional Review Board (IRB) was submitted to gain approval to request data from the community college. A letter from the community college was needed noting that they would de-identify the student data prior to approval from the researcher's IRB. Once approval was received, the written request was sent to the community college with the IRB approval attached for the described independent and dependent variables. Extant data requested for this research study included high school GPAs, semester GPAs, overall GPAs, enrollment status, credits attempted, credits earned, age, gender, ethnicity, father's and mother's educational backgrounds, and disability category. The academic data included the number of courses the student enrolled in, any withdrawals from courses after the second week of the semester, and course grades. Comparative data were requested for matching students who participated in an intervention to those who chose to only receive disability services. Additional information was needed from the DRC for demographic data on disability as these were not collected by the institution. Groups were not equivalent due to the size of intervention groups and the group of students that did not participate in the interventions.

Data Analysis

Data analysis was completed based on the research questions and measures of success. The dependent variables of each intervention were analyzed as continuous or categorical data.

There were five measures in both interventions that were analyzed (a) within-semester retention, (b) semester-to-semester enrollment, (c) overall GPA above 2.0, and (d) completion of academic goals or graduation. Appointment sessions in Intervention 2: CC were also analyzed.

Design Variables

Each variable within Intervention 1: ASI or Intervention 2: CC were further defined in this section and divided by analysis type categorical (divided into groups of *Yes/1* or *No/0*) or continuous dependent variable (unknown numerical possible values) type. Table 1 shows the variable descriptions and codes.

Categorical Data

The first measure of semester-to-semester enrollment was categorical data. The categorical variable was classified as *Yes* (1) or *No* (0), on student enrollment in the subsequent semester. The semesters evaluated were fall to spring enrollment for Intervention 1: ASI. For Intervention 2: CC, there were additional data based on enrollment from spring to fall of the subsequent academic year. The statistical analysis that was used was the chi-square test of independence.

The second measure of overall GPA above 2.0 was also categorical data. The variable was classified as *Yes* (1) or *No* (0), based on the GPA being below or above 2.0. The statistical analysis that was used was the chi-square test of independence.

Table 1*Variable Descriptions and Codes*

Variable	Categorical variable	Code	Statistical analysis performed
Semester-to-semester enrollment	Yes	1	Chi-square test of independence
	No	0	
Spring to fall enrollment	Yes	1	Chi-square test of independence
	No	0	
Overall GPA above 2.0	Yes	1	Chi-square test of independence
	No	0	
Student's completion of academic goals/graduation	Yes	1	Chi-square test of independence
	No	0	
	Continuous variable		
Semester GPA mean	GPA	Numerical	T-test means/SD
Appointments/contacts	Attended	Numerical	Linear Regression
	Not attended	Numerical	
	Total contacts	Numerical	
Within-semester-retention	Yes	1	T-test means/SD
	No	0	

The third measure of a student's completion of a student's academic goals/graduation was categorical data. The variable was either *Yes* (1) or *No* (0) based on whether the student completed their academic goal or the requirements for graduation. Academic goals could differ from graduation. The community college's skills certification programs are industry specific, but no certificate is generated; it is only designated on the students' transcripts. The requirements for graduation were for a 1-year certificate or 2-year associate's degree. The statistical test that was used was the chi-square test of independence.

Continuous Data

The fourth dependent variable, semester GPA means, were continuous data. The statistical analysis that was used was the student's t-test chi-square test of independence. The fifth dependent variable, number of case management sessions or appointments, that only occurred in Intervention Two (CareerConnect). The number of case management sessions or appointments in which the student was present or did not attend were totaled and analyses were conducted with the four academic dependent variables. Linear regressions were necessary as there were continuing students that were enrolling in subsequent semesters for the case management appointments with the other dependent variables.

The sixth dependent variable was within-semester-retention percentage and was a continuous variable created from several categorical ones. In an example, if a student enrolled in a course, did they stay enrolled, *Yes (1)* or *No (0)*, in that semester. These Yes/No responses were averaged within-student to create an overall percentage of course retention. The statistical analysis test that was used was the student's t-test.

Missing data

The data were analyzed according to the overall number cases and homogeneity between the two groups of students in the two different interventions. Missing data cases were excluded from each cohort. The cases were excluded on the analysis that the data are missing. This method ensured that the data is excluded on the specific missing measure but not from other measures where there was data.

Chapter 4: Results

The purpose of this quantitative ex post facto study was to review two interventions at a western mid-sized community college on first-year students with disabilities and the effects on academic factors leading towards degree completion or goal completion. Community colleges are the institutions of higher education that students with disabilities are coming to in the largest numbers (Newman et al., 2011). While there could be a plethora of reasons for why, community college and higher education need for evidence based practices for students with disabilities (Yu et al., 2018). Students with disabilities require and will continue to require higher education credentials in order to access employment and be fully engaged in their communities (Smedema et al., 2015; Shaw & Dukes, 2013). This study examined the practice of offering multiple supports for students with disabilities in two different interventions while receiving support services from the campus disability services office.

Intervention One (ASI) was a pre-college intervention designed for students with disabilities 22 years of age or younger. The research question below guided the analysis.

RQ#1. Are there differences of measures of success between first-year community college students with disabilities who: (a) participated in a short-term, pre-college program (Academic Skills Institute [ASI]) and accessed disability services, and those who (b) participated in receiving disability services only? Measures of success include:

- a. Within-semester course retention,
- b. Semester-to-semester enrollment,
- c. Overall GPA above 2.0,
- d. Completion of academic goals/graduation, and
- e. Semester GPA means.

Intervention Two (CareerConnect [CC]) was a long-term case management program for students with disabilities enrolled at the community college. Research question #2 guided the analysis, as listed below.

RQ#2: Are there differences in measures of success between first-year community college students with disabilities who: (a) participate in a long-term case management program (CareerConnect) and who access disability services, and those (b) who only access disability services. Measures of success include:

- f. Within-semester course retention,
- g. Semester-to-semester enrollment,
- h. Overall GPA above 2.0,
- i. Completion of academic goals/graduation,
- j. Semester GPA means, and
- k. Number of case management sessions/appointments.

The first research question looked differences and if those differences were statistically significant for students with disabilities in the ASI cohort and students with disabilities that only received DRC services. The academic factors that were analyzed for statistical differences were within-semester course retention, semester-to-semester enrollment, overall GPA at or above 2.0, completion of academic goals/graduation, and semester GPA means for students with disabilities in the ASI intervention and those who only participated in the disability services cohort. This intervention was conducted the summer before the first college semester.

The second research question looked at students with disabilities that either participated in Intervention Two (CAREERCONNECT) along with receiving support services from the disability services office and those students who were only receiving DRC support services.

CareerConnect was a long-term case management intervention combined with receiving accommodations from the disability services office. The CareerConnect program also incorporated additional academic supports such as tutoring along with connection to a case manager. The academic factors that were analyzed were within-semester course retention, semester-to-semester enrollment, overall GPA at or above 2.0, completion of academic goals/graduation, semester GPAs, along with appointments/contact with the case manager. Intervention Two (CareerConnect) was the only cohort that had a requirement for students to contact their program case manager. While the DRC cohort students have their disability services specialist, the students do not have meeting requirements in place.

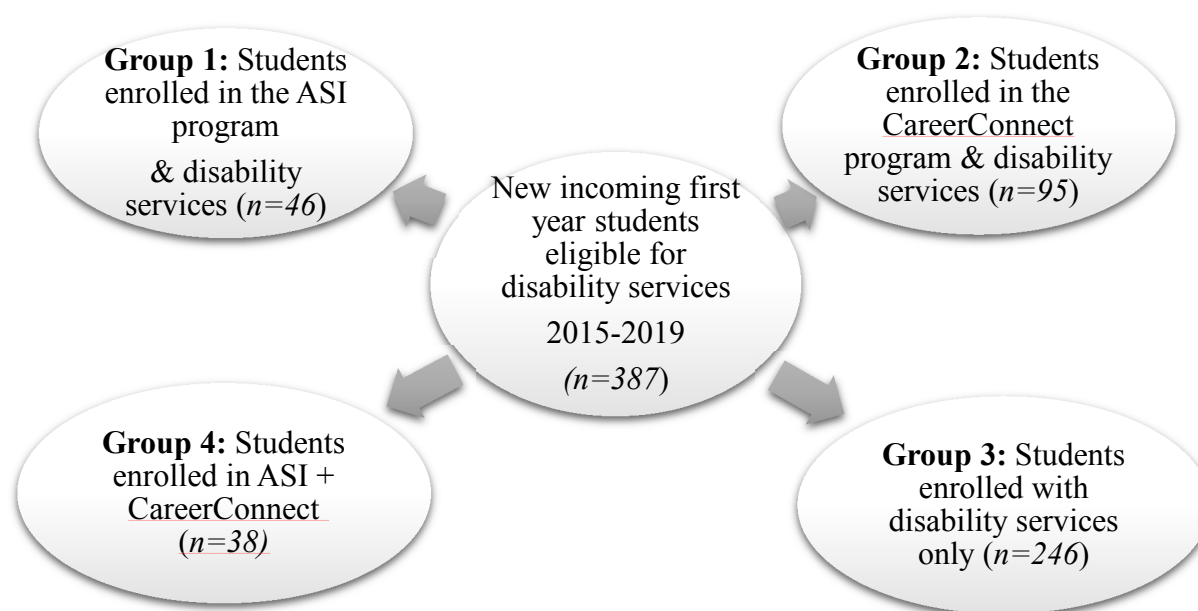
Sample

The final sample for this study was composed of 387 students with disabilities as participants. The majority of students (63.5%) participated in receiving only the DRC intervention (63.56%). The majority of participants were Caucasian (56.59%), were listed in the TMCC Disability Services program (AIM) as having a “Specific Learning Disability” (37.98%) or “Psychological Disability” (14.21%). The average age of the participants was 19.36 years old (SD = 3.99). A full listing of the final sample’s demographic details can be found in Table 2. A breakdown of the sample’s demographic details by intervention cohort can be found in Table 3. It bears mentioning that in some analyses, it was not appropriate to use the full sample. Specifically, students currently enrolled in classes ($n = 36$) could not be used for analysis of data that rely on course completion. To state it otherwise, these students do not have valid data for whether or not they have graduated because they have not dropped out, but may still do so in the future. Additionally, college policies made in reaction to the COVID 19 pandemic, lead to many irregularities in enrollment ($n = 36$), these cases were also not used due to possibility of future re-

enrollment. Lastly, a number of students' enrollment data were missing ($n = 12$). Analysis of semester-to-semester retention, and academic goal completion did not use any of the above-mentioned group. In these cases, the total sample size was 303. Upon cleaning the data, 38 students that participated in Intervention One (ASI) intervention and then chose to participate in Intervention Two (CareerConnect). Individual group sample sizes can be seen in Figure 5.

Figure 5

Group Sample Sizes



The Effect of ASI on Academic Outcomes (Question 1)

The following analyses were repeated specifically comparing students in the ASI intervention group to the remainder of the sample. ASI was the intervention that occurred only during the summer for students with disabilities. The academic outcomes for this cohort were within-semester course retention, semester-to-semester enrollment, overall GPA above 2.0, completion of academic goals, and semester GPA means.

Table 2*Demographics of the Sample*

Variable	<i>n</i>	Valid %
Disability		
ADD/ADHD	40	10.34
Autism	50	12.92
Cognitive disability	14	3.62
Hearing impaired	11	2.84
Multiple disabilities	2	0.52
Psychological	55	14.21
Other health impairment	48	12.40
Specific learning disability	147	37.98
Speech or language impairment	1	0.26
Traumatic brain injury	10	2.58
Visual impairment	9	2.33
Not listed	11	10.34
Ethnicity		
American Indian	3	0.78
Asian	8	2.07
Black	14	3.62
Caucasian	219	56.59
Hispanic	128	33.07
International	1	0.26
Two or more races	11	2.84
Unknown	3	0.78
Gender		
Female	201	51.94
Male	186	48.06

Table 3*Sample Demographic by Cohort*

Variable	ASI (%)		CC (%)		DRC (%)	
Disability						
ADD/ADHD	5	(10.87)	8	(6.02)	31	(12.60)
Autism	7	(15.22)	20	(15.04)	27	(10.98)
Cognitive disability	1	(2.17)	6	(4.51)	8	(3.25)
Hearing impaired	2	(4.35)	4	(3.01)	7	(2.85)
Multiple disabilities	0	(0.00)	0	(0.00)	2	(0.81)
Psychological	3	(6.52)	12	(9.02)	42	(17.07)
Other health impairment	4	(8.70)	12	(9.02)	36	(14.63)
Specific learning disability	23	(50.00)	63	(47.37)	81	(32.93)
Traumatic brain injury	0	(0.00)	0	(0.00)	1	(0.41)
Visual impairment	1	(2.17)	7	(5.26)	3	(1.22)
Not listed	0	(0.00)	1	(0.75)	8	(3.25)
Ethnicity						
American Indian	0	(0.00)	1	(0.75)	2	(0.81)
Asian	0	(0.00)	2	(1.50)	6	(2.44)
Black	0	(0.00)	2	(1.50)	12	(4.88)
Caucasian	27	(58.70)	74	(55.64)	139	(56.50)
Hispanic	19	(41.30)	53	(39.85)	73	(29.67)
International	0	(0.00)	0	(0.00)	1	(0.41)
Two or more races	0	(0.00)	1	(0.75)	10	(4.07)
Unknown	0	(0.00)	0	(0.00)	3	(1.22)
Gender						
Female	21	(45.65)	67	(50.38)	133	(54.00)
Male	25	(54.35)	66	(49.62)	113	(45.93)

Note. Values for age are Mean (Standard Deviation). Parenthetical values for other

variables are valid percentage.

Semester-to-Semester Retention

Retention between semesters was coded into a binomial variable. Students still enrolling in classes were excluded from analysis. The retention variable was compared to ASI vs. non-ASI Participants. The analysis did not yield significant results ($\chi^2(1) = 1.16, p = .28$), indicating there is not statistically significant evidence to show a relationship between semester to semester retention and the ASI intervention group. A full accounting of analysis can be found in Table 4.

Table 4

Crosstabs of ASI and Semester-to-Semester Retention

Variable	ASI (%)	Non-ASI (%)	Total (%)
Not retained	31 (79.49)	188 (71.21)	219 (72.28)
Retained	8 (20.51)	76 (28.79)	84 (27.72)
Total	39	264	303

Note. $\chi^2(1) = 1.16, p = .28$. Column percentages displayed.

GPA > 2.0

The ASI-specific dummy code from the prior regression analysis was entered into a crosstabs vs. the binomially coded variable representing an overall GPA > 2.0. The test did not yield significant results ($\chi^2(1) = 0.90, p = .33$), indicating there is not statistically significant evidence to conclude the ASI intervention was related to an overall GPA > 2.0. The full results can be found in Table 5.

Table 5*Crosstabs of ASI and GPA > 2.0*

Variable	ASI <i>n</i> %	Non-ASI <i>n</i> %	Total <i>n</i> %
GPA ≤ 2.0	22 (47.83)	138 (40.47)	160 (41.34)
GPA > 2.0	24 (52.17)	203 (59.53)	227 (58.66)
Total	46	341	387

Note. $\chi^2(1) = 0.90, p = .33$.**Academic Goals**

The ASI-specific dummy code from the prior regression analysis was entered into a crosstabs vs. the binomially coded variable representing achievement of academic goals. Participants still enrolling were excluded from analysis. The test did not yield significant results ($\chi^2(1) = 0.94, p = .33$), indicating there is not statistically significant evidence to conclude the ASI intervention was related to achievement of academic goals. Results can be found in Table 6.

Table 6*Crosstabs of ASI and Academic Goal Completion*

Variable	ASI <i>n</i> (%)	Non-ASI <i>n</i> (%)	Total <i>n</i> (%)
No goal achieved	30 (76.92)	183 (69.32)	213 (70.30)
Goal achieved	9 (23.08)	81 (30.68)	90 (29.70)
Total	39	264	303

Note. $\chi^2(1) = 0.94, p = .33$. Column percentages displayed.

GPA

A possible relationship between overall GPA and ASI was more directly assessed using a t-test to examine group GPA differences between ASI and DRC groups. The test showed that any mean differences in GPA were not statistically significant ($t(290) = -0.03, p = .97$). There is no empirical support for the hypothesis the ASI intervention will effect GPA. Results are summarized in Table 7.

Table 7

Mean GPA Differences Between ASI and DRC

Group	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i> -value
ASI	2.12	1.09	-0.03	290	.97
DRC	2.13	1.26			

Note. $n = 292$. Equal variance assumed (Levene's $F = 1.73, p = .19$).

To further investigate any possible effect of the ASI intervention will effect GPA, more of the same analyses were performed within each semester ranging from Fall 2015 to Fall 2019. However, none of the results were significantly significant, reinforcing the previous finding that the ASI intervention has no effect on GPA. A summary of all results can be found in Table 8.

Table 8*Mean GPA Differences Between ASI and DRC Within Semester*

Semester	Group	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>Levene F</i>	<i>Levene p-value</i>	<i>t</i>	<i>df</i>	<i>p-value</i>																																																																																																										
Fall 2015	ASI	13	2.05	1.27	1.41	.24	-0.60	74	.55																																																																																																										
	DRC	63	2.31	1.43						Spring 2016	ASI	10	2.00	1.18	0.72	.40	-0.97	71	.34	DRC	63	2.46	1.40	Fall 2016	ASI	18	1.64	1.44	0.13	.72	-1.50	117	.14	DRC	101	2.20	1.47	Spring 2017	ASI	12	2.29	1.31	0.15	.70	-0.74	101	.45	DRC	91	2.60	1.34	Fall 2017	ASI	18	1.80	1.45	0.08	.78	-1.12	134	.26	DRC	118	2.19	1.35	Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94	DRC	95	2.28	1.30	Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58
Spring 2016	ASI	10	2.00	1.18	0.72	.40	-0.97	71	.34																																																																																																										
	DRC	63	2.46	1.40						Fall 2016	ASI	18	1.64	1.44	0.13	.72	-1.50	117	.14	DRC	101	2.20	1.47	Spring 2017	ASI	12	2.29	1.31	0.15	.70	-0.74	101	.45	DRC	91	2.60	1.34	Fall 2017	ASI	18	1.80	1.45	0.08	.78	-1.12	134	.26	DRC	118	2.19	1.35	Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94	DRC	95	2.28	1.30	Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34								
Fall 2016	ASI	18	1.64	1.44	0.13	.72	-1.50	117	.14																																																																																																										
	DRC	101	2.20	1.47						Spring 2017	ASI	12	2.29	1.31	0.15	.70	-0.74	101	.45	DRC	91	2.60	1.34	Fall 2017	ASI	18	1.80	1.45	0.08	.78	-1.12	134	.26	DRC	118	2.19	1.35	Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94	DRC	95	2.28	1.30	Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																						
Spring 2017	ASI	12	2.29	1.31	0.15	.70	-0.74	101	.45																																																																																																										
	DRC	91	2.60	1.34						Fall 2017	ASI	18	1.80	1.45	0.08	.78	-1.12	134	.26	DRC	118	2.19	1.35	Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94	DRC	95	2.28	1.30	Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																																				
Fall 2017	ASI	18	1.80	1.45	0.08	.78	-1.12	134	.26																																																																																																										
	DRC	118	2.19	1.35						Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94	DRC	95	2.28	1.30	Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																																																		
Spring 2018	ASI	18	2.25	1.43	0.11	.74	-0.07	111	.94																																																																																																										
	DRC	95	2.28	1.30						Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87	DRC	141	2.31	1.32	Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																																																																
Fall 2018	ASI	19	2.26	1.30	0.26	.61	-0.17	158	.87																																																																																																										
	DRC	141	2.31	1.32						Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97	DRC	124	2.25	1.39	Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																																																																														
Spring 2019	ASI	15	2.27	1.36	0.02	.89	0.04	137	.97																																																																																																										
	DRC	124	2.25	1.39						Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57	DRC	107	2.42	1.34																																																																																												
Fall 2019	ASI	10	2.16	1.59	0.77	.38	-0.58	115	.57																																																																																																										
	DRC	107	2.42	1.34																																																																																																															

*Note.***Within Semester Retention Percentage**

A possible relationship between within semester retention percentage and ASI was more directly assessed using a regression framework using categorical variables. The dummy-coded ASI variable was and entered into a model predicting the same within semester retention

percentage variable described before. The regression model was non-significant ($F(1, 385) = 0.06, p = .80$) and explained less than 0.10% of total variance. There is not statistically sufficient evidence to state there is any relationship between the ASI interventions and within semester retention percentage. A summary of the results can be found in Table 9.

Table 9

Regression Model Predicting Within Semester Retention Percentage

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i> -value
Constant	0.65	0.02		36.33	< .001
ASI	-0.01	0.05	-.01	-0.25	.80
<i>F</i> (1,385)	0.06				
<i>p</i> -value	0.80				
<i>R</i> ²	< .001				

Note. n = 387.

The Effect of CareerConnect on Academic Outcomes (Question 2)

The analyses below were repeated specifically comparing those undergoing the CareerConnect intervention to the remainder of the sample.

Semester-to-Semester Retention

The retention between semesters variable was coded into a binomial variable. Students that were continuing to enroll in classes were excluded from analysis. This retention was compared to CareerConnect vs. non-CareerConnect Participants. The analysis did not yield significant results ($\chi^2(1) = 0.23, p = .63$), indicating there is not statistically significant evidence to show a relationship between semester to semester retention and the CareerConnect intervention group. A full accounting of analysis can be found in Table 10.

Table 10*Crosstabs of CC and Semester-to-Semester Retention*

Variable	CC <i>n</i> (%)	DRC <i>n</i> (%)	Total <i>n</i> (%)
Not retained	78 (70.27)	137 (72.87)	215 (71.91)
Retained	33 (29.73)	51 (27.13)	84 (28.09)
Total	111	188	299

Note. $\chi^2(1) = 0.23, p = .63$. Column percentages displayed.

GPA > 2.0

The CC-specific dummy code from the prior regression analysis was entered into a crosstabs vs. the binomially coded variable representing an overall GPA > 2.0. The test did not yield significant results ($\chi^2(1) = 0.18, p = .67$), indicating there is not statistically significant evidence to conclude the CC intervention was related to an overall GPA > 2.0. The full results can be found in Table 11.

Table 11*Crosstabs of CC and GPA > 2.0*

Variable	CC <i>n</i> (%)	Non-CC <i>n</i> (%)	Total <i>n</i> (%)
GPA \leq 2.0	56 (42.11)	98 (39.84)	154 (40.63)
GPA > 2.0	77 (57.89)	148 (60.16)	255 (59.37)
Total	133	246	379

Note. $\chi^2(1) = 0.18, p = .67$. Column percentages displayed.

Academic Goals

The CC-specific dummy code from the prior regression analysis was entered into a crosstabs vs. the binomially coded variable representing achievement of academic goals. Analysis was limited to those not still enrolling. The test did not yield significant results ($\chi^2(1) = 0.28, p = .60$), indicating there is not statistically significant evidence to conclude the CC intervention was related to achievement of academic goals. The full results can be found in Table 12.

Table 12

Crosstabs of CC and Completion of Academic Goals

Variable	CC <i>n</i> (%)	Non-CC <i>n</i> (%)	Total <i>n</i> (%)
No goal achieved	76 (68.47)	137 (71.35)	213 (70.30)
Goal achieved	35 (31.53)	55 (28.65)	90 (29.70)
Total	111	192	303

Note. $\chi^2(1) = 0.28, p = .60$. Column percentages displayed.

GPA

Looking at possible differences in GPA between CC and DRC, an independent sample t-test was performed. Directly comparing the two groups, no significant difference was observed ($t(337) = -0.07, p = .95$). There is not statistically sufficient evidence to state there are mean GPA differences between the CC interventions and DRC. A summary of the results can be found in Table 13.

Table 13*Mean GPA Differences Between CC and DRC*

Group	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i> -value
CC	2.12	1.17	-0.07	337	.95
DRC	2.13	1.26			

Note. $n = 379$. Equal variance assumed (Levene's $F = 1.34$, $p = .25$).

Further investigating this trend, the same analysis was performed again for each Fall and Spring semester between Fall 2015 and Fall 2019. Again, there were no significant differences in GPA between the two groups for any semester, reiterating the previous point. The hypothesis is not supported. All results can be found in Table 14.

Table 14*Mean GPA Differences Between CC and DRC by Semester*

Semester	Group	<i>n</i>	Mean	SD	Levene <i>F</i>	Levene <i>p</i> -value	<i>t</i>	<i>df</i>	<i>p</i> -value
Fall 2015	CC	30	2.20	1.40	0.31	.58	-0.32	91	.75
	DRC	63	2.31	1.43					
Spring 2016	CC	25	2.17	1.26	0.25	.62	-0.89	86	.38
	DRC	63	2.46	1.40					
Fall 2016	CC	49	2.27	1.37	0.31	.58	0.26	148	.80
	DRC	101	2.20	1.47					
Spring 2017	CC	46	2.15	1.48	2.32	.13	-1.79	135	.08
	DRC	91	2.60	1.34					
Fall 2017	CC	64	2.24	1.31	0.36	.55	0.26	180	.80
	DRC	118	2.19	1.35					
Spring 2018	CC	66	2.27	1.34	0.05	.82	-0.04	159	.97
	DRC	95	2.28	1.30					

Fall 2018	CC	68	2.19	1.47	2.91	.09	-0.61	207	.54
	DRC	141	2.31	1.32					
Spring 2019	CC	52	2.41	1.26	1.63	.20	0.73	174	.47
	DRC	124	2.25	1.39					
Fall 2019	CC	44	2.34	1.27	0.00	.96	-0.37	149	.72
	DRC	107	2.42	1.34					

Note. *SD* = Standard Deviation.

Within Semester Retention Percentage

A possible relationship between within semester retention percentage and CC was more directly assessed using a regression framework using categorical variables. The dummy-coded CC variable was entered into a model predicting the same within semester retention percentage variable described before. The regression model was non-significant ($F(1, 385) = 0.07, p = .78$) and explained less than 0.10% of total variance. There is not statistically sufficient evidence to state there is any relationship between the CC interventions and within semester retention percentage. A summary of the results can be found in Table 15.

Table 15

Regression Model Predicting Within Semester Retention Percentage

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i> -value
Constant	0.65	0.02		31.04	< .001
CC	0.00	0.04	.00	0.09	.93
<i>F</i> (1,377)	0.08				
<i>p</i> -value	0.93				
<i>R</i> ²	< .01				

Note. *n* = 379.

Total Contacts

The effects of total contacts as a part of the CC program were compared to other variables of interest to determine any effect. Specifically, academic goal achievement, retention, and GPA. Because total contacts, within-semester retention, and GPA are all continuous a parametric correlation was used. As semester-to-semester retention, and academic goal achievement are binomial, a non-parametric correlation designed to deal with binomial data (Kendall's τ) was used. As with prior analysis, only students not currently enrolled were used in analysis for academic goal achievement. The only significant correlation was a weak-but positive one between total contacts and semester-to-semester retention ($\tau = .24, p < .01$), it is possible this is an artifact of duration in the program contributing to a higher number of total contacts. A summary of all correlations can be found in Table 16.

Table 16

Correlation With Total Contacts Among CC Students

Variable	<i>n</i>	Statistic used	Correlation	<i>p</i> -value
Within semester retention (%)	133	Pearson's <i>r</i>	.07	.40
GPA	133	Pearson's <i>r</i>	.12	.17
Academic goal achievement	111	Kendall's τ	.15	.08
Semester to semester retention	129	Kendall's τ	.24	< .01

Note. Correlation between total contacts and achievement of academic goals only among those not currently still enrolling.

The Effect of Intervention Groups on Academic Outcomes

Due to the lack of mutual exclusivity in the interventions (i.e. some participants receiving both ASI and CC interventions), and the structural characteristics of the outcome variables, a mix of analytical approaches were used. Research questions on categorical outcome variables (i.e.

retention, GPA > 2.0, Completion of Academic Goals) will be addressed with χ^2 analysis, which will treat ASI and CC combined interventions as a distinct group. Research questions concerning continuous outcome variables (i.e. GPA, and Number of Contacts) will be addressed with regression analysis of categorical variables where ASI, CC, and DRC interventions can be examined individually. Regression analysis was chosen in favor of ANOVA as regression coding allows ASI and CC to overlap.

Semester-to-Semester Retention

Retention between semesters was coded into a binomial variable. Students that were continuing to enrolling were excluded from analysis. This retention was compared to intervention group. The analysis did not yield significant results ($\chi^2(3) = 3.00, p = .39$), indicating there is not statistically significant evidence to show a relationship between semester to semester retention and a intervention group. A full list of the analysis results can be found in Table 17.

Table 17

Crosstabs of Intervention Group and Semester-to-Semester Retention

Variable	ASI <i>n</i> (%)	ASI + CC <i>n</i> (%)	CC <i>n</i> (%)	DRC <i>n</i> (%)	Total <i>n</i> (%)
Not retained	4 (100.00)	27 (77.14)	51 (67.11)	137 (72.87)	219 (72.28)
Retained	0 (0.00)	8 (22.86)	25 (32.89)	51 (27.13)	84 (27.72)
Total	4	35	76	188	303

Note. $\chi^2(3) = 4.00, p = .39$. Column percentages displayed.

GPA > 2.0

GPA data were recoded into a binomial variable based on whether or not the participant's overall GPA was above 2.0. A GPA above .20 was maintained by 41.34% of the sample. The χ^2 independence test examining rates of a GPA > 2.0 between intervention groups yielded nonsignificant results ($\chi^2(3) = 4.00, p = .26$). There is no statistically significant evidence to conclude a GPA over 2.0 was related to the intervention group. A crosstab of the results can be found in Table 18.

Completion of Academic Goals

The Academic Goals completion variable was created by creating a binomial variable indicating whether or not a participant had completed a skills certificate, a one-year certificate, associate's degree, or bachelor's degree. At least one academic goal was achieved by 29.70% of the sample. The χ^2 independence test examining rates of achieving academic goals between intervention groups yielded nonsignificant results ($\chi^2(3) = 2.71, p = .44$). There is not statistically significant evidence to conclude that achieving academic goals is related to intervention group. A crosstab of the results can be found in Table 19.

Table 18

Crosstabs of Intervention Group and GPA > 2.0

Variable	ASI <i>n</i> (%)	ASI + CC <i>n</i> (%)	CC <i>n</i> (%)	DRC <i>n</i> (%)	Total <i>n</i> (%)
GPA ≤ 2.0	6 (75.00)	16 (42.10)	40 (42.10)	98 (37.12)	160 (41.34)
GPA > 2.0	2 (25.00)	22 (57.89)	55 (57.89)	148 (62.88)	227 (58.66)
Total	8	38	95	264	387

Note. $\chi^2(3) = 4.00, p = .26$. Column percentages displayed.

Table 19*Crosstabs of Intervention Group and Achievement of Academic Goals*

Variable	ASI <i>n</i> (%)	ASI + CC <i>n</i> (%)	CC <i>n</i> (%)	DRC <i>n</i> (%)	Total <i>n</i> (%)
No goal achieved	4 (100.00)	26 (74.29)	50 (65.79)	113 (70.74)	213 (70.30)
Goal achieved	0 (0.00)	9 (25.71)	26 (34.21)	55 (29.26)	90 (29.70)
Total	4	35	76	188	303

Note. $\chi^2(3) = 2.71, p = .44$. Column percentages displayed.

GPA

GPA for each semester was more directly assessed using a regression framework using categorical variables. ASI, CC, and DRC were dummy-coded and entered into a model predicting overall GPA. All regression models were non-significant with a maximum variance accounted for of 4%. There is not statistically sufficient evidence to state there is any relationship between the three interventions and overall GPA. A summary of results can be seen in Table 20.

Table 20*Regression Model Predicting GPA*

Semester	Predictor	<i>B</i>	<i>SE</i>	β	<i>F</i>	<i>df</i>	<i>n</i>	<i>R</i> ²
Fall 2015	Constant	2.32***	0.35		0.18	2, 90	93	< .01
	ASI	-0.27	0.53	-.07				
	CC				Excluded from analysis—Tolerance limit reached.			
	DRC	0.01	0.39	.00				
Spring 2016	Constant	2.28***	0.35		0.52	2, 85	88	.01
	ASI	-0.28	0.56	-.06				
	CC				Excluded from analysis—Tolerance limit reached.			
	DRC	0.18	0.39	.06				

Table 20 (continued)

Semester	Predictor	<i>B</i>	<i>SE</i>	β	<i>F</i>	<i>df</i>	<i>n</i>	<i>R</i> ²
Fall 2016	Constant	0.81	1.49		2.03	3, 147	151	.04
	ASI	-0.81	0.43	-.18				
	CC	1.74	1.47	.57				
	DRC	1.39	1.50	.46				
Spring 2017	Constant	2.10***	0.24		1.68	2, 134	137	.01
	ASI	0.20	0.47	.04				
	CC	Excluded from analysis—Tolerance limit reached.						
	DRC	0.50	0.28	.17				
Fall 2017	Constant	1.55	1.02		0.98	3, 180	184	.02
	ASI	-0.47	0.38	-.10				
	CC	0.81	1.00	.29				
	DRC	0.64	1.03	.23				
Spring 2018	Constant	1.66	0.21		0.07	3, 158	162	< .01
	ASI	0.02	0.37	-.00				
	CC	0.60	1.36	.23				
	DRC	0.61	1.36	.23				
Fall 2018	Constant	2.19**	0.73		0.14	3, 210	214	< .01
	ASI	0.08	0.41	.02				
	CC	-0.03	0.71	-.01				
	DRC	0.11	0.74	.04				
Spring 2019	Constant	1.65*	0.77		0.44	3, 177	181	.01
	ASI	0.12	0.48	.03				
	CC	0.74	0.74	.25				
	DRC	0.60	0.78	.21				
Fall 2019	Constant	0.63	0.88		1.44	3, 151	155	.03
	ASI	0.56	0.58	.10				
	CC	1.63	0.85	.55				
	DRC*	1.79	0.89	.63				

Note. CC was excluded from most analyses due to excessive multicollinearity ($r = -1.00$, Tolerance = 0.00) with DRC. * $p < .05$, ** $p < .01$, *** $p < .001$.

Within Semester Retention Percentage

The within a semester retention variable was coded as the percentage of courses in which a student remained enrolled for the duration of a semester. ASI, CC, and DRC were dummy-coded and entered into a model predicting within semester retention percentage. The regression model was nonsignificant ($F(3, 383) = 1.07, p = .36$) and accounted for less than 1% of total variance. There is not statistically sufficient evidence to state there is any relationship between the three interventions and within semester retention. Results can be found in Table 21.

Table 21

Regression Model Predicting Within Semester Retention Percentage

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i> -value
Constant	0.42	0.13		3.16	< .01
ASI	0.03	0.06	.03	0.48	.63
CC	0.23	0.13	.33	1.77	.08
DRC	0.23	0.14	.34	1.73	.08
<i>F</i> (3,383)	1.07				
<i>p</i> -value	0.36				
<i>R</i> ²	0.01				

Note. $n = 387$.

Total Contacts

The Contacts Variable was the number of appointments that the CC intervention group had with the program specialist. The CC program required at least one contact per month either in-person, via phone, or email. This would be as a check-in to see how the student was doing and if there were any barriers to completing the courses and to satisfy academic progress requirements. By connecting with the program specialist, the student would be able to discuss any barriers or request supports if needed. The student participating in the program would also be

to continue in their educational pathway and ensure that services such as vocational rehabilitation and financial aid were not lost. The relationship between total contacts and intervention was addressed with a linear regression model using the same dummy-coded variables as the analysis for overall GPA. The regression model was statistically significant ($F(3, 383) = 45.86, p\text{-value} < .001$) and accounted for 26% of total variance. Examination of the beta scores show a moderate positive relationship between the number of contacts and the CC intervention ($\beta = .46$). There was statistically significant evidence to show a relationship between intervention and total contacts. A summary of these results can be found in Table 22.

Table 22

Regression Model Predicting GPA

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i> -value
Constant	1.12	0.49		2.28	.02
ASI	0.23	0.24	0.06	0.98	.33
CC	0.93	0.48	0.36	1.95	.05
DRC	1.00	0.50	0.39	2.01	.04
<i>F</i> (3,383)	1.35				
<i>p</i> -value	0.26				
<i>R</i> ²	0.01				

Note. $n = 387$.

Summary

The descriptive summary demonstrates the students who are choosing to participate in interventions and disabilities services at this institution. The majority of the students in the sample were Caucasian (56.59%) and the largest disability group was specific learning disability diagnosis (37.98%). Female students composed (51.94%) of the selected population and males composed (48.06%). The second largest group of students was composed of Hispanic students (33.07%) and the second largest disability category was psychological (14.21%).

Both intervention groups received services from the disability services office. The two intervention groups' academic factors were compared to those students who were only receiving support services from the disability services office. The academic factors that were within-semester course retention, semester-to-semester enrollment, overall GPA above 2.0, completion of academic goals, and semester GPA means.

Analyses were run on the academic factors and achievement of academic goals for 387 students with disabilities in two interventions and those only receiving disability services supports. The completed analysis shows that generally academic outcomes were not statistically significant for participants in all intervention groups. Students with disabilities, who only participated in Intervention One (ASI), had all of their academic outcomes with no statistically significant correlations and none of the students completed their academic goals. The only exception to this trend were the results for the variables in Intervention Two (CareerConnect). For Intervention Two (CareerConnect) there was a statistically significant relationship between total contacts and semester-to-semester retention. The longer retention time could have also led to more contacts. Intervention Two (CareerConnect) was the intervention to have a statistically significant correlation.

Chapter 5: Discussion

Individuals with disabilities deserve and have a right to access the necessary academic tools to enter and complete postsecondary education and be able to fully enter their communities (WIOA, 2014; Newman et al., 2011; IDEA, 1997). The impact of having strong secondary education transition programming on individuals with disabilities has improved the number of students with disabilities who are now enrolling in postsecondary education (Newman et al., 2011). While increasing enrollment is constructive, access is not enough. Students with disabilities who enter community college are not graduating with their peers which inhibits their access to the workforce and full integration into their communities (Newman et al., 2011; Kortering et al., 2010). Previous studies have focused on following students with disabilities into postsecondary education without attempting to evaluate best practices in guiding them towards their academic goal completion.

While transition programming has been the focus of legislation and research, it has focused primarily on secondary (grades 9-12) educational practices (Cobb et al., 2013). The purpose of this quantitative ex post facto study examined the impact of two types of first-year post-secondary support programs on retention and graduation/completion of students with disabilities who were enrolled from 2015–2019 at a western, public, 2-year, urban community college. The two types of postsecondary support programs under investigation were: (1) A short term pre-college course referred to ASI which was completed in the summer prior to beginning community college; and (2) a long-term intervention collaboration with Vocation Rehabilitation referred to as Career Connect, which was designed to support students through a full academic year. The academic outcomes of students with disabilities who participated in the two distinct

interventions were compared to students with disabilities who only sought supportive services such as the Disability Resource Center.

The first research question was designed to determine if Intervention One (ASI), a short-term summer program, significantly impacted the academic outcomes for the students with disabilities who participated. Among the four dependent variables that were analyzed, there were no significant findings. Although there was not statistical significance with ASI and the four academic dependent variables it is important to note that exposing students with disabilities to career exploration and exposure to college is relevant despite no noticeable long-term effect. Intervention One (ASI) had 24 students with disabilities that achieved a grade point average above the minimum of a 2.0. There were a total of nine students that completed their academic goal within Intervention One (ASI). These are nine students that could potentially move towards the next phase of entering the workforce. Employment trends currently suggest that students with disabilities need to have the type of exposure that ASI provided (Kortering et al., 2010). Mixed methods follow-up research may be a strategy to inquire if the students that participated in Intervention One (ASI) used the content taught and if they have bridged their pathway to employment and to their communities.

The second research question examined the impact of CareerConnect, a long-term case management program that included academic supports. Specifically, the question was designed to determine whether students with disabilities who participated in long-term case management demonstrated a significant relationship with the four academic dependent variables (semester to semester retention, academic goals, GPA and within semester retention) and the number of contacts with support staff. The results indicated that three of the four academic dependent variables did not show a statistically significant relationship for students participating in

Intervention Two (CareerConnect). However, there was a significant correlation between the fourth academic dependent variable, semester-to-semester retention to the total number of contacts. The number of contacts that students had with their case manager positively impacted the likelihood of retention from one semester to the next for students with disabilities. While the relationship is weak it is positive in that having regular contact with a case manager at the community college was an important factor in keeping the students with disabilities continuously enrolled. Students need to persist and continual enrollment from one semester to the next increases their chances of achieving academic goals leading into careers and full integration into their community.

Implications

The implications for this study fall into three groups. First, the results have implications for students with disabilities who enroll in community colleges. These students have unique needs and the types of supports available may impact their success. Second, the results have implications for secondary schools, community colleges and their partners, which in this case is the state vocational rehabilitation department. As these groups consider the types and structures of their programs, this study may provide some guidance. Finally, because so much of the programming offered to post-secondary students is grant based, this study may have implications for future funding options.

Implications for Students

ASI or Career Connect both did not demonstrate any statistically significant relationships with the outcome variables in this study, with the exception of the participants in Career Connect and the number of interactions they have with their case managers. Regular and consistent connection to a case manager is statistically related to semester-to semester retention. Assuring

that students with disabilities understand the impact of this relationship to their personal goals should be part of any programming decisions for these students. Promoting this relationship and providing strategies to students with disabilities for maintaining the relationship may need to be a significant component to orientation and supplemental activities. Students with disabilities are coming to postsecondary institutions and specifically community colleges (Newman et al., 2011). Focusing on the relationships that can make the most important impact on their success and achievement of their goals seems like an easy and manageable step. Students must be taught not only the impact of the relationship between student and case manager, but how to build the relationship and use it to maximum benefit. The messaging that students with disabilities need to hear is they are in charge of building this relationship and actively involved. Students must be empowered to have a plan of consistent contact with a case manager or disability services program specialist. It is not sufficient for students with disabilities to get to college or visit the disability services office. Students with disabilities must actively engage with this office to maximize the likelihood of completing their academic goals.

Implications for Community Colleges and Their Partners

Having an academic goal (Kortering et al., 2010), participating in self-determination training (Test et al., 2009), and access to vocational rehabilitation assists students with disabilities to enter community colleges. However, this preparation does not guarantee academic goal completion. The current ex post factor quantitative study aimed to determine which type of interventions may be the most effective in helping enrolled students meet academic goals. This information is vital to community colleges and their partners who only have limited resources to direct to this group of students. Understanding which interventions are related to positive outcomes can make resource allocation and program development more targeted and useful for

students with disabilities. Further, the literature is void of best practices, so any finding, both significant and not are informative.

Intervention Two, Career Connect holds the most promise for community colleges and their partners. While there was one small finding, all the information learned represents a new direction for how interventions are developed, implemented and evaluated. Importantly, previous research on outcomes in community colleges has not focused specifically on students with disabilities and academic program completion (Smedema et al., 2015; Jenkins et al., 2013; Newman et al., 2011; Tinto, 1993). This study represents an initial attempt at untangling the impact of two types of interventions. While the short-term program for incoming students may be easier on the community college system, the impact on students was not significant. Community colleges that invest in summer preparation may find their funds, and faculty time are better spent elsewhere. The interventions in this study incorporated the local vocational rehabilitation office and working with the school district as partners in the programming.

The study suggests that community colleges may be more successful in helping students with disabilities meet their academic goals if focused long-term programming with human interactions and connections are part of the student's program. Further, community colleges may need to focus on their relationships with students, but also their relationships with their partners, including secondary schools and agencies like vocational rehabilitation. The CareerConnect option for students was a partnership between the disability resource office and the local vocational rehabilitation office. This two pronged approach with two sets of requirements for checking in and following up may be what sets students up for success. This study did not disentangle the impact of the relationships and contacts made at the community college from those made at vocational rehabilitation. Learning more about the collaboration between

community college and this important partner may lead to stronger for impactful post-secondary outcomes for students with disabilities.

Another key partner in this study was the local education system. The study leads to more questions about secondary teachers. Specifically, teachers would greatly benefit from not only seeing vocational rehabilitation as a possible referral for graduating seniors but as a potential partner for teachers in transitioning students with disabilities to postsecondary education and beyond. Teachers or case managers in secondary schools need to know the local resources available in their community and utilize their network to ensure all possible resources are being offered to all students with disabilities. This knowledge should be disseminated to all future teachers and not just those who see themselves working in the field of special education.

One area where teachers need to partner with the community college and other agency collaboration is the area of advocacy. Efforts to enhance outcomes for students with disabilities in community college do not matter if there are no students choosing to access the opportunities. Collaboration between future teachers, local area disability offices of their local colleges or universities are relationships worth the effort (Ankeny & Lehmann, 2010).

Implications for Funding Structures

This study adds to the literature where the focus is on students with disabilities and interventions are examined. The study focused on programming that utilized federal legislation and dollars (WIOA, 2014) to leverage state community college funding to create programming directed at students with disabilities. The purpose of these additional supports was to assist in attending and completing academic goals. Without the funding stream through WIOA 2014 the type of programming examined in this study would not have been possible for the community college or the vocational rehabilitation agency to achieve alone.

Students with disabilities in Intervention One (ASI) participated the summer prior to enrolling in their first college semester. This may not have been sufficient time to receive lasting effects from the programming when looking at the four dependent academic variables. More research is needed to examine the reasons why students with disabilities depart community college. Equally as important is considering how programming can be done with fidelity. Specifically, can programming be replicated over time. The results of this study suggest that programming at the community college level for students with disabilities may be focused on long-term personalized programming. The only statistically significant relationship for this study was in Intervention Two (CareerConnect), between the number of contacts and semester-to-semester retention.

Future programming with additional supports such as case management and regular appointments throughout the academic term should be encouraged, but these are also costly. As noted by Tinto (1993) a student's connection to an institution of higher education can be strengthened by having connections within the institution. Intervention Two (CareerConnect) created the opportunity for a strengthening of the connection with the institution with mandatory monthly meetings. While students could come in more often seeking out services or just to connect; the stage was set for students with disabilities to be retained and they were at a statistically significant level for Intervention Two (CareerConnect). The impact on funding should be noted.

Grant funding that targets ineffective interventions may be detrimental. Funding for programming can be costly and at times a one-time opportunity and if outcomes are not met this can deter future investment in similar projects. Research such as this study are important in terms of isolating the variables that examine the impact of innovative programming on student

outcomes in a positive manner. Student retention has been researched but it is unknown if there is a connection as a full overview for students with disabilities has not been done. While Shuetz (2008), noted that while community colleges may have challenges in being open access institutions there may also be opportunities to connect with students as a retention tool. Transition to postsecondary education or community college is complex and rarely a linear process. The U.S. Department of Education's Institute of Education Sciences, specifically the What Works Clearinghouse (WWC) published a report of a systematic review of first year experience courses (2016). The WWC is the preeminent expert in signing off on if an intervention has been researched with fidelity, if it is evidence based, and the specific populations the intervention may be appropriate for. In the report WWC noted, that of the 12,091 no study met the criteria for the highest honor for design standards (U.S. Department of Education, 2016).

Further, community colleges and their partners have an important role in evaluating programs and disseminating the information to funding sources. Writing grant proposals that include outcome and evaluation data strengthen our understanding of what types of programming should occur for students with disabilities and what should be eliminated even if it is a long-standing tradition.

Future Research

Utilizing this study in looking at specific factors of further interest could include looking at demographic information such as first generation or low SES as there can be overlap in this population. Jenkins et al. (2013) noted that there can be additional pressure to the college experience if students from these first-generation or low SES backgrounds do not have supportive friends or family. Tinto (1993) noted connectedness to the institution as a retention

factor however what is needed for students with disabilities to feel they have allies on a community college campus should be explored.

Demographic information such as gender is available in thus can be further examined as Jenkins et al. (2013) noted that females tended to be affected by mental health concerns and have less satisfaction in their accomplishments. Analysis for both of the interventions were not cross-tabbed by gender as disability was the main focus of this study. Additional research to include qualitative narratives should be included when looking at the implications of demographic data and interventions for students with disabilities. Flink & Leonard (2019) make an argument that while there may be data on students with disabilities; the actual experiences of students with disabilities are missing in the literature. In order to advocate for changes or continued funding the voices of the students with disabilities need to be heard and that does not come across in numerical data. In their qualitative study Flink and Leonard (2019) noted that the students with disabilities that were interviewed lead to feedback on perceptions of belonging and access. This feedback could for example, be utilized in creating programming to increase awareness of disability services on campus by partnering with the advising office (Flink & Leonard, 2019).

Studies utilizing mixed methodology, both qualitative and quantitative data, that looks at the demographic representation by disability category, race or ethnicity, and comparisons to the overall community college population is representative would be one area of suggested study. By having both the quantitative data that can support the qualitative or lived experiences studies could make recommendations to support policy or funding changes. If there are discrepancies further outreach needs to be done to ensure that students with disabilities are receiving the same opportunities to attend college. The interventions for such outreach would have substantiated evidence on where to begin in offering opportunities. In comparison to this study a mixed

methods research study would have specific criteria for any intervention(s) implemented. The study would require forethought and appropriate planning to ensure that fidelity would be maintained in the complete process. Specific interventions implemented could be associated with the specific students with disabilities, the type of disability, and any other demographic information noted as research variables. Creswell et al. (2011) published a guide for best practices when conducting a mixed methods study and would be essential in any study conducted using this methodology. When studying issues that are not linear or that delve into complex issues mixed methods offers researchers a way to intertwine, multiple tools when conducting investigations (Creswell et al., 2011). A nationwide transition study would be ideal in knowing how students with disabilities are currently doing and in light of recent world-wide pandemic.

Limitations

The first and most notable limitation was that the current study uses an ex post facto design. As an ex post facto study there is no way to verify treatment fidelity. Replication of the services that each intervention went through is not feasible as there were no controls in place to ensure instructors gave the same treatment to all students. The next limitation was that students had the option to participate in the interventions, and this can create generalization limitations and validity concerns. Students choosing to participate in the intervention group or groups can create a bias for the specific groups. This study did not look at the students with disabilities that chose to participate and their disability criteria. Thus, the students self-selecting is a limitation. Creating samples for this current study was not a linear process due to the subgroups and reliance on students to self-disclose and seek services. Students with disabilities decided to come into the disability services office for accommodations. After seeking accommodations from the DRC, students could then also choose to participate in any other programs or services offered on

campus. Student reasons for seeking or not seeking services are not known and could have had many contributing factors. These factors could have included stigma from secondary education (K–12), not knowing how to access services at a community college or postsecondary institution, or simply choosing to not seek services.

The programs were made possible through federal vocational rehabilitation funding and state community college funding, thus producing a limitation of interacting with this agency could be problematic for recreating similar programming. However, given limited research on students with disabilities at community colleges, this was important research regardless of limitations due to interagency collaboration issues. Studies such as the NLTS(2010) and NLTS-2 (2012) provided volumes of information but were based on stratified random selection leading to cohort information as far back as the 1980s (Blackorby & Wagner, 1996). The NLTS2 (2012) provided information on cohorts from 2000 until 2010 on a variety of student outcomes, but there was not an intervention being implemented; there was merely following of the cohorts. Limitations on sources of data for students with disabilities create barriers in creating best practices.

Conclusion

Individuals with disabilities are not equitably served when looking at services and supports to be able to fully integrate into careers or their communities. As such, legislation has been enacted to equal out opportunities for individuals with disabilities to enter the workforce and receive supports from state and federal agencies. Students with disabilities are present in postsecondary institutions and specifically in community colleges. Community colleges need evidence-based interventions so this population completes college with their peers. While previous studies have looked at outcomes for students with disabilities, no actual interventions

have been conducted. This study sought to look at the impact of two different interventions on academic factors for students with disabilities. This study was completed at a community college with students with disabilities across three different groups. Each group was composed of only students with disabilities choosing to seek out disability services and participate in additional programming or choosing not to. Intervention One (ASI) was a short-term precollege program for students with disabilities. Intervention One (ASI) did not have statistically significant relationships with any of the five academic dependent variables. Further research is recommended on the reasons why students chose not to continue. This study alone should not be sufficient to state that summer programming is not beneficial for students with disabilities. The criteria or methodology should be further researched with fidelity in order to make any specific decisions with this type of programming.

Intervention Two (CareerConnect) was a long-term case management program that combined college level supports with the local vocational rehabilitation agency supports. Intervention Two (CareerConnect) found a statistically significant correlation between the total number of contacts among this group and semester-to-semester retention. These findings bring to light the importance of having consistent contact with support personnel on a community college campus. This may not be a new finding in retention work, it is a new finding for students with disabilities specifically. This finding is important when looking at personnel allocated to disability services. Meetings with disability services on a continual basis should be a component that needs to be highlighted.

It is not sufficient to have students with disabilities know where the disability services office is to successfully transition into postsecondary education. Students with disabilities need to actively and continually engage with their community college disability support personnel.

The key detail of continual connection with the disability services office needs to be dispersed to local education systems and other partnering agencies. Thus, understanding how access to disability services occurs in postsecondary education and legislation covering students with disabilities after secondary education ends is necessary for students with disabilities, current educators, and future educators. Recent legislation calls for more collaborative partnerships with secondary schools and vocational rehabilitation agencies but it will be critical to add in community colleges as well.

References

- Abreu, M., Hillier, A., Frye, A., & Goldstein, J. (2016). Student experiences utilizing disability support services in a university setting. *College Student Journal*, 50(3), 323–328.
- Ankeny, E. M., & Lehmann, J. P. (2010). The transition lynchpin: The voices of individuals with disabilities who attended a community college transition program. *Community College Journal of Research and Practice*, 34(6), 477-496. DOI: 10.1080/10668920701382773
- Americans with Disabilities Amendments Act of 2008, PL 110-325, §3406 (2008).
- Armstrong, A. J. (2011). Sheltered Employment. In: Kreutzer J. S., DeLuca, J., Caplan, B. (eds) *Encyclopedia of Clinical Neuropsychology*. Springer, New York, NY. doi:10.1007/978-0-387-79948-3_427
- Arendale, D. R., & Lee, N. L. (2018). Academic bridge programs. In R. F. Flippo and T. W. Bean (Eds.). *Handbook of College Reading and Study Strategy Research* (3rd ed., pp. 227-237). New York, NY: Routledge.
- Barber, P. (2012). *College students with disabilities: What factors influence successful degree completion? A case study*. Disability and Work research report. New Brunswick, NJ: John J. Heldrich Center for Workforce Development. Retrieved from <https://unr.idm.oclc.org/login?url=https://www-proquest-com.unr.idm.oclc.org/scholarly-journals/disability-related-competencies-student-affairs/docview/2504869059/se-2?accountid=452>
- Barnhill, G. P. (2016). Supporting students with Asperger Syndrome on college campuses: Current practices. *Focus on Autism and Other Developmental Disabilities*, 31(1), 3–15. <https://doi.org/10.1177/1088357614523121>

- Bellamy, G. T. (1985). Transition progress: Comments on Hasazi, Gordon, and Roe. *Exceptional Children*, 51(6), 474–477. doi.org/10.1177/001440298505100603
- Benz, M. R., Yovanoff, P., & Doren, B. (1997). School-to-work components that predict postschool success for students with and without disabilities. *Exceptional Children*, 63(2), 151-165. <https://unr.idm.oclc.org/login?url=https://www-proquest-com.unr.idm.oclc.org/scholarly-journals/school-work-components-that-predict-postschool/docview/201189001/se-2?accountid=452>
- Blackorby, J., & Wagner, M. (1996). Longitudinal postschool outcomes of youth with disabilities: Findings from the National Longitudinal Transition Study. *Exceptional Children*, 62(5), 399. <https://doi.org/10.1177/001440299606200502>
- Bureau of Labor Statistics, U.S. Department of Labor, *The Economics Daily*, Unemployment rate for people with a disability declines to 7.3 percent in 2019 at <https://www.bls.gov/opub/ted/2020/unemployment-rate-for-people-with-a-disability-declines-to-7-point-3-percent-in-2019.htm>.
- Brault M.W., & Moore, K. (2012). Americans with Disabilities: 2010, Household Economic Studies, Current Population Reports.2012.U.S. Department of Commerce Economics and Statistics Administration, U.S. Census Bureau Washington, DC. pp. 1-24.
- Braxton, J. M., Milem, J. F., & Anna, S. S. (2000). The influence of active learning on the college student departure process. *The Journal of Higher Education*, 71(5), 569–590. <https://doi.org/10.1080/00221546.2000.11778853>

- Brown, K. R., & Coomes, M. D. (2016). A spectrum of support: Current and best practices for students with autism spectrum disorder (ASD) at community colleges. *Community College Journal of Research and Practice, 40*(6), 465–479.
doi.org/10.1080/10668926.2015.1067171
- Brucker, D. L., Mitra, S., Chaitoo, N., & Mauro, J. (2015). More likely to be poor whatever the measure: Working-age persons with disabilities in the United States. *Social Science Quarterly, 96*(1), 273–296. <https://doi.org/10.1111/ssqu.12098>
- Cameto, R., Levine, P., & Wagner, M. (2004). *Transition planning for students with disabilities: A special report of findings from the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.
- Canton, C. (2017, March 3). Personal communication.
- Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Projections of jobs and education requirements through 2018*. Georgetown University Center on Education and the Workforce.
- Chen, J. L., Sung, C., & Pi, S. (2015). Vocational rehabilitation service patterns and outcomes for individuals with autism of different ages. *Journal of Autism and Developmental Disorders, 45*(9), 3015-3029. <http://dx.doi.org.unr.idm.oclc.org/10.1007/s10803-015-2465-y>
- Cohen, L., Manion, L., & Morison, K. (2000). *Research methods in education*. Routledge Falmer.
- Craig, A. J., & Ward, C. V. L. (2007). Retention of community college students: Related student and institutional characteristics. *Journal of College Student Retention: Research, Theory and Practice, 9*(4), 505–517. doi:10.2190/CS.9.4.f

Creswell, J. W., A. C. Klassen, V. L. Plano Clark, and K. C. Smith, and Working Group

Assistance. 2011. "Best Practices for Mixed Methods Research in the Health Sciences."

H. I. Meissner, pp. 27. Washington, DC: Office of Behavioral and Social Sciences

Research (OBSSR), National Institutes of Health (NIH).

https://www.csun.edu/sites/default/files/best_prac_mixed_methods.pdf

Crisp, G., & Mina, L. (2012). The community college. In A. Seidman (Ed.), *College student retention: Formula for student success* (2nd ed., pp. 147–166). Rowman & Littlefield.

Definitions. (n. d.). Grade point average. In *Dictionary.com*.

<https://www.dictionary.com/browse/grade-point-average?s=t>

Definitions. (2015). Academic Skills Institute. Mesina, O. [Unpublished Grant submitted for State of Nevada Vocational Rehabilitation]. Truckee Meadows Community College.

Definitions. (2015). CareerConnect Program. Mesina, O. [Unpublished grant submitted to State of Nevada Vocational Rehabilitation]. Truckee Meadows Community College.

Definitions. (2020). Within-Semester-Retention. Mesina, O. University of Nevada

Definitions. (2020). Program completion/graduation. Mesina, O. University of Nevada

Dunn D. (2013) Public Law 94-142. In F. R. Volkmar (Ed.), *Encyclopedia of autism spectrum disorders*. Springer. https://doi.org/10.1007/978-1-4419-1698-3_393

DuPaul, G. J., Franklin, M. K., Pollack, B. L., Stack, K. S., Jaffe, A. R., Gormley, M. J.,

Anastopoulos, A. D., & Weyandt, L. L. (2018). Predictors and trajectories of educational functioning in college students with and without attention-deficit/hyperactivity disorder.

Journal of Postsecondary Education and Disability, 31(2), 161–178.

http://libres.uncg.edu/ir/uncg/f/A_Anastopoulos_Predictors_2018.pdf

Education for All Handicapped Children [EAHCA]. (1975). Retrieved

- Fabian, E. S., & Liesener, J. J. (2005). *Promoting the Career Potential of Youth with Disabilities*. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (p. 551–572). John Wiley & Sons, Inc..
- Fairweather, J. S., & Shaver, D. M. (1990). Making the Transition to Postsecondary Education and Training. *Exceptional Children*, 57(3), 264-270. <https://doi.org/10.1177/001440299105700309>
- Flannery, K. B., Yovanoff, P., Benz, M. R., & Kato, M. M. (2008). Improving employment outcomes of individuals with Disabilities through short-term postsecondary training. *Career Development for Exceptional Individuals*, 31(1), 26-36. <https://doi.org/10.1177/0885728807313779>
- Fleming A. P., & McMahon R. J. (2012). Developmental context and treatment principles for ADHD among college students. *Clinical Child and Family Psychology Review*, 15(4), 303–329. doi:10.1007/s10567-012-0121-z
- Fleming, A. R., Oertle, K. M., Plotner, A. J., & Hakun, J. G. (2017). Influence of social factors on student satisfaction among college students with disabilities. *Journal of College Student Development*, 58(2), 215–228. <https://doi.org/10.1353/csd.2017.0016>
- Flexer, R. W., Daviso, A. W., Baer, R. M., McMahan Queen, R., & Meindl, R. S. (2011). An Epidemiological model of transition and postschool utcomes. *Career Development for Exceptional Individuals*, 34(2), 83–94. <https://doi.org/10.1177/0885728810387922>
- Flink, P., & Leonard. T. (2019). Students with disabilities: Experiences attending a two-year community college. *Community College Journal of Research and Practice*, 43(12), 891-903. doi:10.1080/10668926.2018.1554514

- Getzel, E. E., (2014). Fostering self-determination in higher education: Identifying evidence-based practices. *Journal of Postsecondary Education and Disability*, 27(4), 381-386.
- Getzel, E. E. (2008). Addressing the persistence and retention of students with disabilities in higher education: Incorporating key strategies and supports on campus. *Journal of Exceptionality*, 16(4), 207–219. doi:10.1080/09362830802412216
- Gobbo, K., & Shmulsky, S., (2012) Classroom Needs of Community College Students with Asperger's Disorder and Autism Spectrum Disorders. *Community College Journal of Research and Practice*, 36(1), 40-46. doi: 10.1080/10668920903381813
- Gordon, M., & Keiser, S. (Eds.). (1998). *Accommodations in higher education under the Americans With Disabilities Act (ADA): A no-nonsense guide for clinicians, educators, administrators, and lawyers*. Guilford.
- Gregg, N. (2007). Underserved and underprepared: Postsecondary learning disabilities. *Learning Disabilities Research and Practice*, 22(4), 219–228. <https://doi.org/10.1111/j.1540-5826.2007.00250.x>
- Gregg, N. (2012). Increasing access to learning for the adult basic education learner with learning disabilities: Evidence-Based accommodation research. *Journal of Learning Disabilities*, 45(1), 47–63. doi:10.1177/0022219411426855
- Hasazi, S. B., Gordon, L. R., & Roe, C. A. (1985). Factors associated with the employment status of handicapped youth exiting high school from 1979 to 1983. *Exceptional Children*, 51(6), 455–469. <https://doi.org/10.1177/001440298505100601>
- Heumann, J. E., & Warlick, K. R. (2000). *Questions and answers about provisions in the*

Individuals With Disabilities Act Amendments of 1997 related to students with disabilities and state and district-wide assessments. Office of Special Education Programs.

- Hong, B. S. S. (2015). Qualitative analysis of the barriers college students with disabilities experience in higher education. *Journal of College Student Development, 56*(3), 209-226. doi:10.1353/csd.2015.0032
- Horn, L., and Berkthold, J. (1999). *Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes.* National Center for Education Statistics, U.S. Department of Education, Statistical Analysis Report No. 1999-187. Washington, DC: U.S. Government Printing Office.
- Individuals with Disabilities Education Act of 1990, Pub. L. No. 101-476, 104. Stat. 1142.
- Individuals with Disability Education Act Amendments of 1997 [IDEA]. (1997). Retrieved from <https://www.congress.gov/105/plaws/publ17/PLAW-105publ17.pdf>
- Jamelske, E. (2009). Measuring the impact of a university first-year experience program on student GPA and retention. *Higher Education, 57*(3), 373-391. <http://dx.doi.org.unr.idm.oclc.org/10.1007/s10734-008-9161-1>
- Javitz, H. S., & Wagner, M. (1990). *The National Longitudinal Transition Study of Special Education Students: Report on Sample Design and Limitations, Wave 1* (1987).
- Jenkins, S. R., Belanger, A., Connally, M. L., Boals, A., & Durón, K. M. (2013). First-generation undergraduate students' social support, depression, and life satisfaction. *Journal of College Counseling, 16*(2), 129–142. doi:10.1002/j.2161-1882.2013.00032.x
- Ji, E., Schaller, J., Pazey, B., & Glynn, K. (2015). Education and employment outcomes from

RSA data file for transition-age African-American, White, and Hispanic youth with learning disabilities. *Journal of Applied Rehabilitation Counseling*, 46(3), 15–24.

10.1891/0047-2220.46.3.15

Johnson, G., Zascavage, V., & Gerber, S. (2008). Junior college experience and students with learning disabilities: Implications for success at the four-year university. *College Student Journal*, 42(4), 1162–1168.

Ju, S., Zeng, W., & Landmark, L. J. (2017). Self-Determination and academic success of students with disabilities in postsecondary education: A Review. *Journal of Disability Policy Studies*, 28(3), 180–189. <https://doi.org/10.1177/1044207317739402>

Karp, M. M., Hughes, K. L., & O’Gara, L. (2010). An exploration of Tinto’s integration framework for community college students. *Journal of College Student Retention: Research, Theory and Practice*, 12(1), 69–86. doi:10.2190/CS.12.1.e

Kim, W. H., & Lee, J. (2016). The effect of accommodation on academic performance of college students with disabilities. *Rehabilitation Counseling Bulletin*, 60(1), 40–50. <https://doi.org/10.1177/0034355215605259>

Kimbark, K., Peters, M., & Richardson, T. (2016). Effectiveness of the student success on persistence, retention, academic achievement, and student engagement. *Community College Journal of Research and Practice*, 41(2), 124-138. <https://doi.org/10.1080/10668926.2016.1166352>

Knight, W., Wessel, R. D., & Markle, L., (2018). Persistence to graduation for students with disabilities: Implications for performance-based outcomes. *Journal of College Student Retention: Research, Theory & Practice*, 19(4), 362-380. doi:

10.1177/1521025116632534

Kortering, L. J., Braziel, P. M., & McClannon, T. W. (2010). Career ambitions: A comparison of youth with and without SLD. *Remedial and Special Education, 31*(4), 230–240.

<https://doi.org/10.1177/0741932508324404>

Kraus, L. (2015). *2015 disability statistics annual report*. University of New Hampshire.

Kutscher, E. L. & Tuckwiller, E. D., (2019). Persistence in higher education for students with disabilities: A mixed systematic review. *Journal of Diversity in Higher Education, 12*(2),

136-155. <http://dx.doi.org/10.1037/dhe0000088>

Lawson, D. L., Gould, S. A., & Conley, M. L., (2016). McDaniel step ahead: A summer transitional program for first year college students with disabilities. *Journal of Postsecondary Education and Disability, 29*(3), 299–302.

<https://files.eric.ed.gov/fulltext/EJ1123805.pdf>

Lee, I. H., Rojewski, J. W., Gregg, N., & Jeong, S. O. (2015). Postsecondary education persistence of adolescents with specific learning disabilities or emotional/behavioral disorders. *The Journal of Special Education, 49*(2), 77–88.

doi:10.1177/0022466914524826

Levine, P., Marder, C., & Wagner, M. (2004). *Services and supports for secondary school students with disabilities. A special topic report from the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.

Lightner, K. L., Kipps-Vaughan, D., Schulte, T., & Trice, A. D. (2012). Reasons university students with a learning disability wait to seek disability services. *Journal of Postsecondary Education & Disability, 25*, 145–159.

<https://files.eric.ed.gov/fulltext/EJ994283.pdf>

- Lindstrom, L. E., Flannery, K. B., Benz, M. R., Olszewski, B., & Slovic, R. (2009). Building employment training partnerships between vocational rehabilitation and community colleges. *Rehabilitation Counseling Bulletin*, 52(3), 189–201.
doi.org/10.1177/0034355208323946
- Mamboleo, G., Johnson, E. T., Bengtson, K., Tang, X., Wu, J., Yaghmaian, R., Kaya, C., & Chan, F. (2017). Vocational rehabilitation services tailored to employment status of prime working-age adults with HIV/AIDS. *Journal of Rehabilitation*, 83(3), 28-36.
<https://unr.idm.oclc.org/login?url=https://www-proquest-com.unr.idm.oclc.org/scholarly-journals/vocational-rehabilitation-services-tailored/docview/1951486913/se-2?accountid=452>
- Mamiseishvili, K., & Koch, L. C. (2011). First-to-second-year persistence of students with disabilities in postsecondary institutions in the United States. *Rehabilitation Counseling Bulletin*, 54(2), 93–105. doi:10.1177/0034355210382580
- Mamiseishvili, K., & Koch, L. C., (2012). Students with disabilities at 2-year institutions in the United States: Factors related to success. *Community College Review*, 40(4), 320–339.
doi:10.1177/0091552112456281
- Melguizo, T., Witham, K., Fong, K., & Chi, E. (2017). Understanding the relationship between equity and efficiency: Towards a concept of funding adequacy for community colleges. *Journal of Education Finance*, 43(2), 195–216.
<https://www.semanticscholar.org/paper/Understanding-the-Relationship-between-Equity-and-a-Melguizo-Witham/19c81203a1da5b4d3d704ad4426007d15a9d68f9>
- Morningstar, M. E., Frey, B. B., Noonan, P. M., Ng, J., Clavenna-Deane, B., Graves, P., & Williams-Diehm, K. (2010). A preliminary investigation of the relationship of transition

preparation and self-determination for students with disabilities in postsecondary educational settings. *Career Development and Transition for Exceptional Individuals*, 33(2), 80–94. <https://doi.org/10.1177/0885728809356568>

- Mullin, C. M. (2010, June). *Rebalancing the mission: The community college completion challenge* (Policy Brief 2010-02PBL). American Association of Community Colleges.
- National Student Clearinghouse Research Center (2018). *National, Persistence, Postsecondary, Snapshot Report*. National Student Clearinghouse. <https://nscresearchcenter.org/wp-content/uploads/SnapshotReport33.pdf>
- National Longitudinal Transition Study 2. (2005). *Facts from NLTS2: High school completion by youth with disabilities*. SRI International.
https://ies.ed.gov/ncser/pdf/NLTS2_selfdeterm_11_23_05.pdf
- Newman, L. A., & Madaus, J. W. (2015). An analysis of factors related to receipt of accommodations and services by postsecondary students with disabilities. *Remedial and Special Education*, 36(4), 208–219. <https://doi.org/10.1177/0741932515572912>
- Newman, L. A., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2010). *Comparisons across time of the outcomes of youth with disabilities up to 4 years after high school. A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.
- Newman, L. A., Wagner, M., Knokey, A. M., Marder, C., Nagle, K., Shaver, D., & Wei, X. (with Cameto, R., Contreras, E., Ferguson, K., Greene, S., & Schwarting, M.). (2011). *The post-high school outcomes of young adults with disabilities up to 8 years after high school: A report from the National Longitudinal Transition Study-2 (NLTS2)*. SRI

International.

Oertle, K. M., & Bragg, D. D. (2014). Transitioning students with disabilities: Community college policies and practices. *Journal of Disability Policy*, 25(1), 59–67.

doi.org/10.1177/1044207314526435

Oertle, K. M., & Seader, K. J., (2015). Research and practical considerations for rehabilitation transition collaboration. *Journal of Rehabilitation*, 81(2), 3-18.

Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, 75(3), 249–284. [doi:10.1353/jhe.2004.0016](https://doi.org/10.1353/jhe.2004.0016)

Pectu, S. D., Van Horn, M. L., & Shogren, K. A. (2017). Self-determination and the enrollment in and completion of postsecondary education for students with disabilities. *Career Development and Transition for Exceptional Individuals*, 40(4), 225–234.

<https://doi.org/10.1177/2165143416670135>

Perea, B. (2020). Using smaller credentials to build flexible degree completion and career pathways. *New Directions for Community Colleges*, 2020(189) 23–37.

[doi:10.1002/cc.20395](https://doi.org/10.1002/cc.20395)

Prevatt, F. (2016). Coaching for college students with ADHD. *Current Psychiatry Reports*, 18(12), 1-7. doi.org/10.1007/s11920-016-0751-9

doi.org/10.1007/s11920-016-0751-9

Raue, K., & Lewis, L. (2011). *Students with disabilities at degree-granting postsecondary institutions* (NCES 2011–018). U.S. Department of Education, National Center for Education Statistics.

- Reinschmiedt, G. H., Sprong, M. E., Dallas, B., Buono, F. D., & Upton, T.D. (2013). Postsecondary students with disabilities receiving accommodations: A survey of satisfaction & subjective well-being. *Journal of Rehabilitation, 79*(3), 3–10.
- Rosenbaum, J. E. (2018). Disabilities and Degrees: Identifying Health Impairments that Predict Lower Chances of College Enrollment and Graduation in a Nationally Representative Sample. *Community College Review, 46*(2), 145-175. <https://doi.org/10.1177/0091552118762630>
- Roux, A. M., Shattuck, P. T., Rast, J. E., Rava, J. A., Edwards, A. D., Wei, X., McCracken, M., & Yu, J. W. (2015). Characteristics of two-year college students on the autism spectrum and their support services experiences. *Autism Research and Treatment, 2015*. <https://doi.org/10.1155/2015/391693>
- Saddler, S., Tyler, T. G., Maldonado, C., Cleveland, R., & Thompson, L. K. (2011). Connecting dropouts to career pathways. *Reclaiming Children and Youth, 20*(2), 37–39. https://www.academia.edu/18714116/Connecting_Dropouts_to_Career_Pathways
- Sanford, C., Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2011). *The post-high school outcomes of young adults with disabilities up to 6 years after high school. Key findings from the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.
- Schuetz, P. (2008). A theory-driven model of community college student engagement. *Community College Journal of Research and Practice, 32*(4-6), 305–324.

doi:10.1080/10668920701884349

Schwartz, S., & Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. American Association of University Professors. doi.org/10.2307/40250027

Seidman, A. (Ed.). (2012). *College student retention: formula for student success* (2nd ed.). Rowman & Littlefield.

Shaw, S. F., & Dukes, L. L. (2013). Transition to Postsecondary Education: A Call for Evidence-Based Practice. *Career Development and Transition for Exceptional Individuals*, 36(1), 51–57. doi.org/10.1177/2165143413476881

Shmulsky, S., & Gobbo, K., (2013) Autism Spectrum in the College Classroom: Strategies for Instructors. *Community College Journal of Research and Practice*, 37(6), 490-495. doi:10.1080/10668926.2012.716753

Smedema, S. M., Chan, F., Yaghmaian, R. A., DaSilva Cardosos, E., Muller, V., Keenan, J., Dutta, A., & Ebener, D. J. (2015). The relationship of core self-evaluations and life satisfaction in college students with disabilities: Evaluation of a mediator model. *Journal of Postsecondary Education and Disability*, 28, 341-358.

Slupe, G. T. (2014). Factors influencing high school students to pursue a youth apprenticeship. Retrieved from the University of Minnesota Digital Conservancy, <https://hdl.handle.net/11299/163289>.

Spring, J., (2009). *Globalization of Education*. New York: Taylor & Francis Group, LLC.

SRI International. (2000). *National Longitudinal Transition Study 2 (NLTS2): Study design, timeline, and data collection plan*. Author.

www.nlts2.org/studymeth/nlts2_design_timeline2.pdf

Stark, J. H. (1982). Tragic choices in special education: The effect of scarce resources on the

- implementation of Pub. L. No. 94-142. *Connecticut Law Review*, 14(3), 477–530.
- https://opencommons.uconn.edu/cgi/viewcontent.cgi?article=1049&context=law_papers
- Stewart, S., Lim, D., & Kim, J. (2015). Factors Influencing College Persistence for First-Time Students. *Journal of Developmental Education*, 38(3), 12-20.
- Talbert, P.Y. (2012). Strategies to increase enrollment, retention, and graduation rates. *Journal of Developmental Education*, 36, 22–36.
- The Rehabilitation Act of 1973, PL 93-112, § 87, Stat. 355 (1973).
- The White House, Office of the Press Secretary. (2009, July 14). *President's remarks in Warren, Michigan today and a fact sheet on the American Graduation Initiative* [Press release].
- <https://obamawhitehouse.archives.gov/realitycheck/the-press-office/excerpts-presidents-remarks-warren-michigan-and-fact-sheet-american-graduation-init>
- Timmerman, L. C., & Mulvihill, T. M. (2015). Accommodations in the College Setting: The Perspectives of Students Living with Disabilities. *Qualitative Report*, 20(10), 1609–1625.
- Tinto, V. (1986). Theories of Student Departure Revisited. In *Higher Education: Handbook of Theory and Research*, Vol. 2, edited by J.C. Smart, 359-384. New York: Agathon Press.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago.
- Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599-623.
- Tinto, V., & Engle, J. (2008). *Moving beyond access: College success for low-income, first-generation students*. <https://files.eric.ed.gov/fulltext/ED504448.pdf>
- Tinto, V., and Love, A. G. (1995). *A Longitudinal Study of Learning Communities at LaGuardia Community College*. University Park, PA: National Center on Postsecondary Teaching,

Learning, and Assessment.

- Tinto, V., & Russo, P. (1994). Coordinated studies programs: Their effect on student involvement at a community college. *Community College Review*, 22, 16–25.
- U.S. Bureau of Labor Statistics. (2019). *Persons with a disability: Labor force characteristics 2019* (USDL-20-0339). https://www.bls.gov/news.release/archives/disabl_02262020.pdf
- U.S. Census Bureau. (2016). *2015 current population survey annual social and economic supplement parallel survey*. <https://www.census.gov/newsroom/press-releases/2016/cb16-tps12.html>
- U.S. Department of Education. (2014, May 05). *Projects with Industry*. <https://www2.ed.gov/programs/rsapwi/index.html>
- U.S. Department of Education. (2015). *Focusing Higher Education on Student Success* [Factsheet]. <https://www.ed.gov/news/press-releases/fact-sheet-focusing-higher-education-student-success>
- U.S. Department of Education. (2020a). *Federal Pell grants are usually awarded only to undergraduate students*. Federal Student Aid. <https://studentaid.gov/understand-aid/types/grants/pell>
- U.S. Department of Education. (2020b). *How financial aid works*. Federal Student Aid. <https://studentaid.gov/h/understand-aid/how-aid-works>
- U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, What Works Clearinghouse. (2016). *First Year Experience Courses*. https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_firstyear_102116.pdf

- U.S. Department of Education, National Center for Education Statistics. (1999). *Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes* (NCES 1999–187). <https://nces.ed.gov/pubs99/1999187.pdf>
- U.S. Department of Education, Office for Civil Rights. (2011). *Students with disabilities preparing for postsecondary education: Know your rights and responsibilities*. <https://www2.ed.gov/about/offices/list/ocr/transition.html>
- U.S. Department of Labor, Bureau of Labor Statistics. (2021). *Persons with a disability: Labor Force Characteristics-2020*. Author. <https://www.bls.gov/news.release/pdf/disabl.pdf>
- U.S. Department of Labor, Employment and Training Administration. (2016). *Wagner-Peyser Act state by state PY 2015 performance*. Author.
- U.S. Department of Labor, Employment and Training Administration. (2016). *The Workforce Innovation and Opportunity Act final rules*. Author.
- U.S. Department of Labor, Wage and Hour Division. (2008). *Fact Sheet #39: The Employment of Workers with Disabilities at Subminimum Wages* [Fact sheet]. <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/whdfs39f.pdf>
- Wachen, J., Pretlow, J., & Dixon, K. G. (2018). Building College Readiness: Exploring the Effectiveness of the UNC Academic Summer Bridge Program. *Journal of College Student Retention: Research, Theory & Practice*, 20(1), 116–138.
doi:10.1177/1521025116649739
- Wagner, M., & Cox, R., (2001). *Parents' reports of students' involvement with vocational rehabilitation agencies in the first years after secondary school (NLTS-2)*. SRI International.

- Wagner, M., & Davis, M. (2006). How are we preparing students with emotional disturbances for transition for adulthood? Findings from the National Longitudinal Transition Study-2. *Journal of Emotional and Behavioral Disorders, 14*(2), 86–98.
doi:10.1177/10634266060140020501
- Wagner, M., Newman, L., Cameto, R., Levine, P., and Marder, C. (2003). *Going to school: Instructional contexts, programs, and participation of secondary school students with disabilities*. Menlo Park, CA: SRI International. Available from http://www.nlts2.org/reports/2003_12/index.html
- Wagner, M., Newman, L., Cameto, R., & Levine, P. (2005). *Changes over time in the early postschool outcomes of youth with disabilities. A report of findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2)*. SRI International.
- Wagner, M., Newman, L., & Shaver, D. (1989). *The Report on procedures for the first wave of data collection (1987)*. SRI International.
- Wagner-Peyser/Labor Exchange Act of 1933, as amended by the Workforce Investment Act of 1998 and Workforce Innovation and Opportunity Act of 2014 (2014).
- Wehman, P., Chen, C. C., West, M., & Cifu, G. (2014). Transition planning for youth with traumatic brain injury: Findings from the National Longitudinal Transition Survey-2. *NeuroRehabilitation, 34*(2), 365–372. <https://doi.org/10.3233/NRE-131029>
- Wehmeyer, M., & Schwartz, M. (1997). Self-Determination and Positive Adult Outcomes: A Follow-up Study of Youth with Mental Retardation or Learning Disabilities. *Exceptional Children, 63*(2), 245–255. <https://doi.org/10.1177/001440299706300207>
- Wehmeyer, M. L., & Ward, M. (1995). The spirit of the IDEA mandate: Student involvement in

transition planning. *Journal of Vocational Special Needs Education*, 17(3), 108–111.

Weis, R., Dean, E. L., & Osborne, K. J. (2016). Accommodation Decision Making for Postsecondary Students With Learning Disabilities: Individually Tailored or One Size Fits All? *Journal of Learning Disabilities*, 49(5), 484-498.

<https://doi.org/10.1177/0022219414559648>

What is the Carnegie Unit?. (2014, August 4). In *Carnegie Foundation for the Advancement of Teaching*. Retrieved from <https://www.carnegiefoundation.org/faqs/carnegie-unit/>

Whitney, J., Langley-Turnbaugh, S., Lovewell, L., & Moeller, B. (2012). Building relationships, sharing resources, and opening opportunities: A STEM learning community builds social capital for students with disabilities. *Journal of Postsecondary Education and Disability*, 25(2), 131–144.

Wolfe, L. E., Brown, J. T., Volkmar, F. R., & Kukiela, B. G. R. (2009). *Students with Asperger syndrome: A guide for college personnel*. Autism Asperger Pub. Co.

Workforce Innovation and Opportunity Act of 2014, Pub. L. 113-128 (2014).

Workforce Investment Act of 1998, Pub. L. 105-220 (1998).

Yeo, R., Moore, K. (2003). Including disabled people in poverty reduction work: “Nothing about us, without us.” *World Development*, 31(3), 571–590. [https://doi.org/10.1016/s0305-750x\(02\)00218-8](https://doi.org/10.1016/s0305-750x(02)00218-8)

Yu, M., Novak, J. A., Lavery, M. R., Vostal, B. R., & Matuga, J. M. (2018). Predicting college completion among students with disabilities. *Career Development and Transition for Exceptional Individuals*, 41(4), 234–244. <https://doi.org/10.1177/2165143417750093>

Appendix A

Steps to Enroll for Intervention Two (CareerConnect) Students

STEPS TO ENROLL FOR CAREERCONNECT STUDENTS

These Steps to Enroll for New CareerConnect Students were developed to support your success If
you are seeking a degree and have never been to college, including you must complete these steps
before you can register for classes.

If you have any questions, please contact us


DONE?	
<input type="checkbox"/>	1. APPLY FOR ADMISSION- Complete Application for Admission and view important dates and deadlines. If you have questions, contact the Admissions and Records office
<input type="checkbox"/>	2. COMPLETE FINANCIAL AID APPLICATION (FAFSA) www.fafsa.gov Get help with your college expenses by completing the online FAFSA application. If you have questions, contact the Financial Aid office.
<input type="checkbox"/>	3. REGISTER WITH THE DISABILITY RESOURCE CENTER Please fill out the registration online
<input type="checkbox"/>	4. TAKE A PLACEMENT TEST The ACCUPLACER is a computerized placement exam that provides information about your academic skills in math, English and reading.
<input type="checkbox"/>	5. MEET WITH CAREERCONNECT A referral will be sent to the CareerConnect coordinator to establish enhanced services such as: Individualized tutoring, academic mentoring, assistive technology evaluations, workplace readiness preparation and work experience/internships.

TESTING PLACEMENT OPTIONS

Students may use ACT and/or SAT scores, and/or the ACCUPLACER for English and math placement. The highest valid scores within the past twenty-four (24) month period will determine course placement for students. Official ACT and SAT scores must be requested from the ACT and SAT websites below.

ACT: www.actstudent.org/scores/scodes/
The ACT college code to send your official scores

SAT: sat.collegeboard.org/scores/send-sat-scores
The SAT college code to send your official scores



Appendix B

Roadmap Intervention Two (CareerConnect)



TMCC
CAREER
CONNECT
Building Independence through Employment

ROADMAP

NAME:

1. INTAKE AND ELIGIBILITY PHASE

- VR Counselor sent referral to CC Coordinator
- Assign to a CC Specialist's case load
- (optional) Completed an aptitude battery and career exploration
- PARTICIPANT receives "Steps to Enroll" page and begins completing tasks
- PARTICIPANT completed the DRC registration and meets with a DRC specialist
- PARTICIPANT completes AT assessment with AT specialists

2. ENROLLMENT PHASE

- PARTICIPANT completes FAFSA (unless attending MDWS or non-credit class)
- Student meets with an academic adviser (and VR counselor) to select/enroll in classes
- PARTICIPANT's Vocational Goal (approved by RC)
- PARTICIPANT signed service agreement
- PARTICIPANT's Grade level (e.g. Freshman, Sophomore)

3. PROFESSIONAL DEVELOPMENT PHASE

- (ongoing) PARTICIPANT meets with CC Specialist on a regular basis for review, progress and evaluation
- (ongoing) PARTICIPANT checks in with the DRC every semester for service letters (accommodations)
- (ongoing) CC Specialist sends student (client) updates to VR counselor on monthly basis
- Student develops an educational plan with the academic adviser
- Student begins professional development with Career Center staff
- Attends "Am I Career Ready" assessment/skills development with Career Center staff
- Student attends Job Readiness course or individual workshops
- Resume Interview Skills LinkedIn Networking
- Student registers with "CareerLink" (TMCC's Job Board)
- Student attends Job Fair and Networking Breakfast
- Student discusses Work Experience opportunities with Career Center staff

4. WORK EXPERIENCE AND FOLLOW UP STAGE

- PARTICIPANT actively seeks employment and/ or work experience
- PARTICIPANT reports when he/she is hired and completes "Verification of Employment" with CC Specialist
- CC provides follow-up services with 30, 60, 90 day check-ins (Sends report to BVR)