A CAUSAL MODEL OF CAREER DEVELOPMENT AND QUALITY OF LIFE OF COLLEGE STUDENTS WITH DISABILITIES

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ABSTRACT

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Researchers have assumed that social cognitive factors play significant roles in the career development of transition youth and young adults with disabilities and those without disabilities. However, research on the influence of the career decision-making process as a primary causal agent in one's psychosocial outcomes such as perceived level of quality of life remains limited. Therefore, the purpose of the present study was twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. Serving as a theoretical framework for the current study was Social Cognitive Career Theory (SCCT). This theory provides a lens with which to explore the predictive utility of social cognitive variables related to college students with disabilities by focusing on the strength of an individual's beliefs, cognitive, and environmental systems.

Participating in the study were 386 college students with disabilities currently enrolled in 2-year and 4-year private/public colleges and universities in a Midwestern state. They completed demographic information, career decision self-efficacy, career decision-making outcome expectations, goals, perceived contextual supports, and quality of life measures. Based on an online, quantitative descriptive survey design, a series of statistical analyses including exploratory factor analysis, confirmatory factor analysis, descriptive statistics, Pearson correlations, and structural equation modeling was used to interpret results, answer the research

question and examine the hypothesis. Results showed that the structural model of career development and the quality of life of college students with disabilities adequately fit the data. They provide empirical support for the significant direct and indirect effects among the social cognitive variables and quality of life. The findings suggest that the obtained model predicts the quality of life of college students with disabilities from a combination of career decision selfefficacy, career decision-making outcome expectations, goals, and perceived contextual supports.

Data generated from the present study can be used to inform current practitioners in the career development and vocational rehabilitation fields as well as college students with disabilities and their families. The findings were discussed in light of process aspects of career development and overall quality of life and strengths and limitations of the study were provided. Implications for practice and future research are also discussed.

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CHAPTER 1

INTRODUCTION

Postsecondary education has become critically important for the one's career development and for improving employment outcomes in a rapidly changing national and global environment. Employment is a key driver of the one's identity and sense of achievement and also a critically important factor in providing avenues for social participation, economic wellbeing, and access to health care, and in improving the overall quality of life (Bishop & Chiu, 2011; Cocks, Thoresen, & Lee, 2015).

While the number of students with disabilities entering college has been steadily increasing, such students experience challenges which contribute to poor academic performance and outcome such as having a higher dropout rate (Rumrill, 2001), earning lower grades (Wehman, 2001), and taking longer to complete their degrees (Brinckerhoff, McGuire, & Shaw, 2002) than students without disabilities. Postsecondary educational opportunities make an enormous difference in the employability of individuals with disabilities (Stodden & Conway, 2003). Nevertheless, the outlook for post-graduation employment of college students with disabilities still remains limited compared to their peers without disabilities. Such limited academic achievement and employment outcomes further lead to long-term negative psychosocial outcomes. These can include (a) poor social and interpersonal networks, (b) lower levels of physical and psychological health, and (c) lower levels of community engagement (Sanford et al., 2011).

Despite their efforts to move towards productive adulthood, a number of college students with disabilities often encounter numerous barriers to the most basic human needs, creating a state of dependence with no real promise for achieving higher states of career functioning

(Strauser, 2014). Researchers have found that the ability to focus on career development for students with disabilities has been impacted such challenges as the direct impact of their disability on their learning, the amount of time required to compensate for a disability, and the lack of support and low expectations of others (Hitchings et al., 2001). A key factor in better career achievement for young adults with disabilities is certainly greater access to postsecondary education. However, researchers and practitioners must devote more attention to the issues and concerns this particular group has while going through the career decision-making process.

Statement of the Problem

More and more students with disabilities are transitioning into postsecondary education. This trend is due in large part to the passage of the Americans with Disabilities Act (ADA) in 1990 and the reauthorized Individuals with Disabilities Education Act (IDEA) amendment of 2004 (Beauchamp & Kiewra, 2004). In 2011-2012, the percentage of college students with disabilities comprised 11.1% of the postsecondary population (National Center for Education Statistics [NCES], 2016). More recently, the Workforce Innovation and Opportunity Act (WIOA, 2014) focuses on mitigating barriers to employment faced by individuals with disabilities, placing special attention on youth development. This legislation expands education and training options to help transition youth with disabilities prepare for and transition to postsecondary education and training so that they obtain and advance to economic selfsufficiency (Bird, Foster, & Ganzglass, 2014). For individuals with disabilities, the importance of educational attainment is also magnified in relation to their employment outcomes (Stodden & Conway, 2003), which greatly affect their quality of life and well-being.

Postsecondary outcomes for college students with disabilities. Students are benefitted by any type of postsecondary education. It allows them to explore their interests and shape their

educational and occupational goals by developing skills not gained in high school. Nonetheless, college students with disabilities are often at risk for poorer academic, employment, and psychosocial outcomes (Barkley, Murphy, & Fischer, 2008). Research has found that students with disabilities often find college life overwhelming (Smedema et al., 2015a). They report the poorer overall level of quality of life and well-being than their counterparts without disabilities. The lower level is due to increased levels of psychological distress (Blase et al., 2009) and low levels of self-esteem (Shaw-Zirt, Popali-Lehane, Chaplin, & Bergman, 2005).

Although postsecondary educational attainment is a notable achievement for students with disabilities, many are often disappointed with unfavorable employment outcomes after graduation (Bynner & Parsons, 2002; Koch, Hennessey, Ingram, Rumrill, & Roessler, 2006). In fact, the 2010 Harris survey conducted by the National Organization on Disability (NOD, 2010) found that college graduates with disabilities take almost twice as long to secure a job after graduation than their peers without disabilities. The National Longitudinal Transition Study-2 (NLTS2) used an eight-year period to follow up with youth and young adults with disabilities, looking at their educational, employment, and community engagement outcomes. The study results showed that their average hours of work, earnings, and overall employment status were relatively low compared to those without a disability (Sanford et al., 2011).

Impact on quality of life. The transition from school to work is a pivotal point in many students' lives. Indeed, it is related to their economic and psychosocial well-being (Gillies & Pedlar, 2003; Heckhausen, 2002), often determining the course of their future (Bynner & Parsons, 2002). Blustein (2006) highlighted the centrality of work in people's lives across a lifespan. Employment provides opportunities and satisfies the human need for acquisition of economic, social integration, support, and physical and psychological health. For individuals with a

disability, it has a significant positive impact on self-esteem, sense of identity, and self-worth. Being disconnected from the job market or not engaging in productive activity, on the other hand, contributes to increased social isolation and risk for experiencing negative physical and psychological health-related outcomes (Szymanski & Parker, 2003).

Beyond employment outcomes, work has a broad impact on the individual in terms of how he or she is able to function in their homes, participate in broader societal activities, and engage in community activities (Strauser, Jones, Chiu, Tansey, & Chan, 2015). Therefore, for college students with disabilities, providing support and resources that bridge the gap between their career decision-making processes and psychosocial adjustment is an important consideration for professionals in the field of career development.

Factors affecting career decision-making processes for college students with disabilities. Career development is the process of developing and refining career goals over time. This process is often complex and nonlinear (Lindstrom, Doren, & Miesch, 2011). Since career decision-making processes encompass both structural and long-term changes in career behavior (Herr & Cramer, 1992), it can be even more complicated and overwhelming for college students who are in transition from education to employment. A study elaborating on college students' career decision making processes found that most students choose a major based on following factors: family and peer influences, assumptions about introductory courses, and characteristics of the major rather than through an understanding of their own personal goals and values (Beggs, Bantham, & Taylor, 2008).

Evidence suggests that such irrational academic and career thoughts and decisions have been shown to be a result of developmentally delayed processes in career-related learning experiences (Benz & Halpern, 1993), career-decision making self-efficacy (Ochs & Roessler,

2001), and career maturity (Kendall, 1981). Such challenges and uncertainties are even more pronounced for students with disabilities, as their disabilities may have dramatic and negative impacts on their self-perceived abilities and career development options (Dipeolu, Reardon, Sampson, & Burkhead, 2002).

Even before reaching higher education, when students with disabilities are in high school their engagement in the Individualized Education Plan (IEP) process is limited. Thus, they are not fully socialized into actively engaging and advocating for themselves (Hitchings et al., 2001). Consequently, when they are in college, their limited self-knowledge and self-determination lead to their facing challenges in initiating, maintaining, and improving efforts in academic achievement and career development. Research has also indicated that they often have less time to explore possible career options, examine their strengths and weaknesses, and understand other factors that may influence their decision-making abilities (Dipeolu et al., 2002).

Theoretical Framework

A crucial first step to identifying gaps in the career preparation of this population is utilizing a model that provides a social-cognitive understanding of their career thoughts and the nature of their career development process. Lent, Brown, and Hackett (1994) developed a framework to aid in understanding the ways in which individuals form career interests, make educational and career goals, and perform in terms of academic and/or career endeavors. The framework is known as Social Cognitive Career Theory (SCCT). SCCT provides suggestions for helping individuals raise the level of their beliefs in their own effectiveness and their expectations of potential outcomes.

More recent SCCT models have focused on process aspects of career development to examine the means by which individuals help to regulate their affect, adapt to changing

circumstances, and direct their education and/or career goals (Lent, Ezeofor, Morrison, Peen, & Ireland, 2016). Lent and Brown (2013) developed the new SCCT model of career selfmanagement (CSM), emphasizing a wide array of adaptive career behaviors that people employ to adjust to and thrive within educational and work environments across the career lifespan. SCCT thus serves as the theoretical framework for the current study as it tries to understand the cognitive aspects of career decision making process and perceived contextual supports for students with disabilities in postsecondary education (see Figure 1).





In guiding research on career development, SCCT has often been used to study various groups including high school students and individuals of minority status such as ethnic minorities and women. It has limited empirical support, though, in applications to individuals with disabilities in postsecondary education (Sharf, 2010). In exploring the nature of individual career development, researchers have carried out extensive research on primary constructs (i.e., self-efficacy, outcome expectations, and goals). What calls for future research is the role of environmental supports and/or barriers relative to academic and career choice (Cardoso et al., 2013). SCCT constructs have also been shown to have a considerable impact on academic and

career relevant performance attainments (e.g., work participation, vocational identity, career choice). Yet has not been explored within this model is the influence of the career decision-making process as a primary causal agent in one's psychosocial outcomes.

Purpose of the Study

The purpose of the present study is twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. Figure 2 provides a graphical depiction of the hypothesized model of career development and the quality of life of students with disabilities in postsecondary education. In the present study, quality of life is seen as being influenced by the following four constructs of the career decision making process: (a) career decision self-efficacy; (b) career decision-making outcome expectations; (c) goals; and (d) perceived contextual supports.

Figure 2. Hypothesized Relationships among Career Decision Self-Efficacy, Career Decision-Making Outcome Expectations, Goals, Perceived Contextual Supports, and Quality of Life



The findings of the present study provide empirical support for the causal model of social cognitive career development among college students with disabilities. They have broad implications for a comprehensive understanding of critical factors of career development among students with disabilities in postsecondary education and the impact of such factors on their perceived level of quality of life. Ultimately, the findings will contribute to the collaborative intervention and service approaches to realizing more positive career developments for college students with disabilities.

The research question and hypothesis of interest in the present study were as follows:

Research Question: What is the effect of career decision self-efficacy, career decisionmaking outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities?

Hypothesis: For the research question, it is hypothesized that the hypothesized model will

adequately fit the data, and there will be significant correlations among career decision selfefficacy, career decision-making outcome expectations, goals, perceived contextual supports, and quality of life.

Definition of Terms

The following terms are defined for clarification:

Career development. Career development is perceived as a complex, multifaceted, lifelong behavioral, affective, and cognitive process of an individual's efforts to develop and maintain connections with productive activities such as education, paid work, and providing care to important family members and others of significance (Saunders, Peterson, Sampson, & Reardon, 2000; Strauser, 2014).

Career thoughts. Career thoughts are outcomes of one's thinking about assumptions, feelings, beliefs, attitudes, behaviors, plans, strategies related to career problem solving and decision making (Sampson, Peterson, Lenz, Reardon, & Saunders, 1999).

Dysfunction/irrational career thoughts. Dysfunctional career thoughts have been conceptualized as faulty self-efficacy beliefs, dysfunctional cognitions, dysfunctional self-beliefs, and self-defeating assumptions (Lustig, Zanskas, & Strauser, 2012). These dysfunctional or negative thoughts consequently lead to distorted, biased, and misinformed career beliefs, and result in self-defeating behaviors and experiences (Strauser, Lustig, Keim, Ketz, & Malesky, 2002).

Career decision self-efficacy. The concept of self-efficacy, developed by Albert Bandura (1997), refers to one's beliefs in one's capabilities to successfully perform a given behavior or class of behaviors (Betz & Taylor, 2001). Accordingly, career decision self-efficacy

refers to one's beliefs in her/his ability to organize and execute actions required to achieve a desirable action and performance concerning her/his education or career pursuit.

Career decision making outcome expectations. Outcome expectations refer to beliefs about the consequences of performing certain behaviors (Lent, 2005; Smith & Milson, 2011). In the career development context, outcome expectations are also defined as beliefs regarding the long-term consequences of success in specific educational or career decision-making behaviors (Ochs & Roessler, 2004).

Goals. A personal goal is defined as one's intention to engage in a particular activity or to produce a particular outcome (Bandura, 1986).

Contextual factors. Contextual supports and barriers are defined as environmental factors that persons perceive as having the potential, respectively, to aid or hinder their efforts to implement particular educational or occupational goals (Lent et al., 2001).

Quality of life. The World Health Organization (WHO, 1998) defines quality of life as "individuals' perceptions of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" (p. 2). Quality of life can be understood as how satisfied a person is with life in general and with particular aspects of life and is often expressed as a result of a person's internal assessment and subjective perception of some personally meaningful standards (Bishop & Feist-Price, 2002; WHO, 1998).

CHAPTER 2

LITERATURE REVIEW

The purpose of the present study was twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. Accordingly, the research question and hypothesis that were addressed:

What is the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities?

For the research question, it is hypothesized that the hypothesized model will adequately fit the data, and there will be significant correlations among career decision self-efficacy, career decision-making outcome expectations, goals, perceived contextual supports, and quality of life.

To provide a comprehensive review of career development for students with disabilities in postsecondary education and its impact on their psychosocial outcomes such as quality of life, a thorough literature review was conducted. The review begins with a description of the current state of transition of students with disabilities to postsecondary education and to employment. Additionally, the review includes college and career readiness issues and the importance of career development for college students with disabilities. This is followed by career development theories that have guided career guidance and counseling practice, specifically SCCT (Lent et al., 1994) as well as the evidence for its utility. Finally, the literature review concludes with a review of the impact of career decision-making processes on psychosocial

outcomes for college students with disabilities.

Transitioning to Postsecondary Education and Employment

Over the last two decades, the enrollment and graduation rates of students with disabilities in postsecondary education have been steadily increasing. National data show that the percentage of undergraduates who reported having a disability was 11% in 2011-12, compared with 9.3% in 1999-2000 (U.S. Department of Education, National Center for Education Statistics [NCES], 2016; Wolanin & Steele, 2004). The growth in the number of students with disabilities in postsecondary education differs in type of postsecondary education enrollment. A report from NLTS2 indicated that students attended two-year colleges at a rate similar to their peers without disabilities. However, only 7.6% students with disabilities attended four-year institutions, compared with 29.2% students from the general population (Newman, Wagner, Cameto, & Knokey, 2009).

Some differences exist in the percentages of undergraduates with disabilities by demographic characteristics such as age, race/ethnicity, dependency status, socioeconomic status, and marital status. Nonetheless, the increase in postsecondary options for individuals with disabilities has become an important educational trend. The National Longitudinal Transition Study 2 (NLTS2) also found that a postsecondary education is a primary post-high school goal for more than four out of five secondary school students who have transition plans (Cameto, Levine, & Wagner, 2004). Moreover, the global pool of highly educated and skilled employees is growing and will increase the forces of competition on business, industry, and even its employees by requiring more postsecondary education credentials. To meet this labor-market demand, a report from the Georgetown University Center on Education and the Workforce

indicated that the United States will need approximately 22 million new college graduates by 2018.

More recently, the Workforce Innovation and Opportunity Act (WIOA, 2014) amended the Rehabilitation Act of 1973 with the goal of increasing the Act's focus on services that promote successful transitions for transition-aged youth with disabilities. These services include labor market analysis, job-driven training, postsecondary education and training, and competitive employment (U.S. Department of Education, 2014). Such a movement has ultimately led to individuals with disabilities to pursue higher education and training that will be a beneficial option to improve not only their employment outcomes but also the quality of employment outcomes (O'Neill et al., 2015).

The importance of postsecondary education and training. College graduates who registered for campus disability-related access services reported that postsecondary education was a key driver of their academic success, which has resulted in a favorable employment picture for them (Fichten et al., 2012). Given the frequency of postsecondary attendance among young adults with disabilities, a great deal of research has found evidence that education attainment can be used as a means to improve employability as well as income. Individuals with postsecondary education and training have higher incomes and lower unemployment rates than those with only a high school diploma or less than a diploma (U.S. Department of Labor [USDOL], 2016). Specifically, census data show that the percentage of university graduates with disabilities employed in 2015 was 25.3%, compared to 75.9% for their peers without disabilities. Moreover, the median yearly earnings were \$49,900 for young adults with a bachelor's degree, \$30,000 for those with a high school credential, and \$25,000 for those lacking a high school credential (Kena et al., 2016). These findings show that completion of some level of higher education and

training leads directly to job opportunities as well as higher wage employment (Lindstrom et al., 2011; Prince & Jenkins, 2005).

In addition to the benefits of improving the quality of employment outcomes, postsecondary education and training can also address a number of nonacademic areas that assist college students with disabilities in their transition to adult life. Lindstrom et al. (2011) conducted a follow-up study covering a 7-10 year period of career development for transition youths and young adults with disabilities. They found that the demands of living and learning on campus offered an ideal environment for them to gain independence and self-advocacy skills. Other studies have also identified the critical role of postsecondary education as leading to (a) understanding and acceptance of their disability (Adelman & Vogel, 1990), (b) development of self-advocacy skills (McWhirter & McWhirter, 1990), and (c) increased self-efficacy (Luzzo, 1995).

Transition Outcomes for College Students with Disabilities

Still, compared to their peers without disabilities, many of these students are more likely to experience poorer academic achievement (Barkley et al., 2008) and employment outcome, and higher levels of psychological distress (Blase et al., 2009). These experiences often lead students with disabilities to experience a lower quality of life than their peers without disabilities.

Academic outcomes. Although it is a notable achievement for students with disabilities to graduate from college, transition outcomes remain poor. First, completion rates of college students with disabilities are lower than their general education peers (Getzel, 2008). The follow-up studies using NLTS2 data found that the majority of college students with disabilities failed to graduate or to receive a degree from their program up to eight years after high school (Whelley, Hart, & Zaft, 2002). For example, of students with disabilities in the 2005 cohort

working toward any type of postsecondary credential, only 40.7 percent graduated or received a degree, compared to 52.4 percent of the general education peers (American Institutes for Research [AIR], 2013). In regards to a four-year college degree, only 34.2 percent of students with disabilities were able to graduate within eight years, versus 51.2 percent of the general population (Newman et al., 2011).

The low completion rates of college students with disabilities are, some researchers believe, likely a result of limited study skills and test-taking strategies and of lower levels of academic adjustment than their peers without disabilities (Lewandowski, Lovett, Codding, & Gordon, 2008; Norwalk, Norvilitis, & MacLean, 2009). As a result, college students with disabilities who experience academic failure and adjustment difficulties are also more likely to be on academic probation than their peers without disabilities (Blase et al., 2009; Heiligenstein, Guenther, Levy, Savino, & Fulwiler, 1999).

Employment outcomes. Postsecondary education and training provide students with knowledge and enhanced skills that will assist them in the workforce. However, many of these students are disappointed when they discover that upon graduation they will not receive the jobs they aspired to (Bynner & Parsons, 2002; Fichten et al., 2012). Even less positive than this, according to both the original NLTS (1990) and the NLTS2 (2005), is the prospect of long-term competitive employment outcomes (Newman, Wagner, Cameto, Knokey, & Shaver, 2010). Students with disabilities were more likely to receive approximately \$10.40/hour, which averages to a dollar less per hour than their peers without disabilities (Newman et al., 2011).

The disparity in the employment rates for individuals with and those without disabilities is still significant. For individuals with disabilities, the rate is as low as 17.5 percent in contrast to 65.0 percent for those without a disability (USDOL, 2016). Conversely, the average

unemployment rate in 2011 for individuals with disabilities aged 16 to 65 was 16.2%, whereas the rate for those without disabilities was 8.8%. These data make it clear what a significant undertaking it is to ensure that students with disabilities complete their postsecondary education (AIR, 2013).

Psychosocial outcomes. As noted above, postsecondary students with disabilities often experience significant difficulties adjusting to college life. In primary and secondary schools, where parents, K-12 educators, and counselors make decisions and initiate services. Once students enter college, in contrast, they must independently identify their needs, make decisions, and advocate for themselves. Due to challenges presented by their disabilities as well as demands of college, students with disabilities face tougher challenges from not just an academic perspective but also employment and independent living perspectives than their counterparts without disabilities (Field, Sarver, & Shaw, 2003).

These challenges may increase the risk of poor psychosocial adjustment and overall wellbeing (Smedema et al., 2015b). As they adjust to the college environment then, students with disabilities may experience a higher rate of depressive symptoms (Rabiner, Anastopoulos, Costello, Hoyle, & Swartzwelder, 2008), greater psychological distress (Blase et al., 2009), lower levels of self-esteem (Shaw-Zirt et al., 2005), and turn out to have a lower level of life satisfaction and quality of life than their counterparts without disabilities. In fact, studies have shown that students with intellectual disabilities (ID), cognitive disabilities, and sensory disabilities reported lower emotional well-being and poorer health outcomes, indicating a critical need to address physical and mental health in young adults with disabilities (Shogren, Shaw, & Litte, 2016).

Barriers to Education and Career Readiness

Some students with disabilities have found success in postsecondary education and employment. However, the completion rates of education vary significantly as do the long-term employment outcomes after college (Newman et al., 2011). In an effort to better understand why there is a gap between college students with disabilities and their general education peers in educational attainment and employment, researchers have sought to identify the challenges against which students with disabilities struggle as they transition to adulthood.

First, significant gaps exist between expectations of student success in high school compared to expectations for college performance. Such expectation gaps hinder student transition from secondary to postsecondary education, and further decrease their chances of being adequately prepared for the rigors of higher education (Venezia, Kirst, & Antonio, 2003). Unlike secondary schools, there are different types of personal support networks in postsecondary education. Therefore, students with disabilities may experience a less protective environment in the college setting. For example, in a college environment, the degree of contact with academic advisors and other professors might be lower than these students had with teachers and counselors in high schools, and the level of support for academic success is not nearly the same as what it was in high schools. Additionally, services available at the secondary level are not available in the postsecondary setting. Thus when students enroll in college, they should address their needs and require specific accommodations without the assistance they had in high school (Fairweather & Shaver, 1990). Regarding this discrepancy between the high school experience and the postsecondary setting, Wolanin and Steele (2004) stated that the burden is on the high school to find and serve the student whereas the burden is on the student to find the appropriate services and navigate through their postsecondary education.

It is in such an environment that postsecondary students with disabilities should acquire the self-determination, persistence, and motivation to successfully navigate the college experience and find career success. Researchers have highlighted the importance of selfdetermination as a key driver to positive outcomes for youth with disabilities, indicating that engaging in self-determination behaviors (i.e., decision making, self-advocacy, and goal setting) enable them to take control of their lives and assume the role of successful adults (Field, Martin, Miller, Ward, & Wehmeyer, 1998; Karvonen, Test, Wood, Browder, & Algozzine, 2004).

Other studies found that factors contributing to the lack of persistence and retention of college students with disabilities include the issue of adapting to an entirely new set of challenges (Getzel, 2008). Adapting to new challenges may ultimately preclude such students from taking ownership of and successfully managing their learning in educational and career opportunities. For example, once barriers or challenges are perceived, people often alter their career decision-making processes, such that they plan to pursue career paths that present the least resistance (Flores & O'Brien, 2002). The consequence of career decision-making processes is to be left with a limited range of career choices. A study has shown the tendency in ethnic-racial minority groups; that is, they narrow their occupational choices when confronted by barriers while making career decisions (Tracey & Hopkins, 2001).

Another study (Lusk & Fazarro, 2010) indicated the effects of psychosocial factors (i.e., disability, personal attributes, coping, perceived contextual supports and barriers) on career development for students with learning disabilities. The study noted the impact of disability on self-imposed restrictions such as taking the path of least resistance or maintaining a state of familiarity. Glover-Graf and Janikowski (2001) also found that students who have a disability intend to work with people having the same disability. This way, they are likely to encounter

fewer attitudinal barriers in the workplace. Further, the consequences of perceived contextual barriers related to education and career development are likely to be salient for college students with disabilities meaning that such perceptions effect both student self-efficacy and overall career decision-making processes (Lent, Brown, & Hackett, 2000; Luzzo & McWhirter, 2001).

Navigating the Career Development of College Students with Disabilities

Since work is related to both economic and psychosocial well-being (Blustein, 2006; Strauser et al., 2015), the transition from school to the workforce is a pivotal point in many students' lives (Gillies & Pedlar, 2003). While this period of transition can present opportunities for growth and increased social mobility for some, it can also be a time for decline and downward mobility for others (Heckhausen, 2002). More specifically, career developmental delays represent a potential cause of poor transition outcomes for young adults with disabilities. Such delays are manifested through deficiencies in (a) career-related learning experiences (Benz & Halpern, 1993), (b) job related self-knowledge (Capella, Roessler, & Hemmerla, 2002), and (c) career decision self-efficacy beliefs (Ochs & Roessler, 2001). A qualitative study found that university graduates with disabilities who do not receive proper career guidance and support during the transitional periods of their lives may become stuck inside a transition (Gillies, 2012). This finding suggests that career development and support services within a university environment can better prepare students with a disability for the transition from school to work and for a new life within their community.

Career development process. Career development is a multifaceted and life-long behavioral, affective, and cognitive process of an individual's efforts to develop and maintain the connection with productive activities including education, employment, and other various areas of life (Strauser, 2014). Super also stated that the process of career development is a continuous

process of developmental experiences that emphasize the role of self-concept in the development of an individual's career choice and adaptation (Savickas, 1997). This process consists of the following three phases: (a) awareness of person-environment fit; (b) acquisition (job seeking and placement); and (c) maintenance (Sampson, Reardon, Peterson, & Lenz, 2004; Saunders at al., 2000; Strauser, 2014).

According Super's theory (1980), transition youth (ages 15-24) are encouraged to explore their career choices by trying out careers through classes, work experiences, and leisure activities. Within this exploration stage, postsecondary education plays a key role in crystalizing the career choices that can often set the tone for the rest of an individual's working life (Hennessey, 2004). The college years can further help students make career choices as well as develop knowledge and skills that match their aspirations (Super, 1980).

Barriers to career exploration. Despite advances in improving the career readiness of students through college experiences, students with disabilities are, from a career development standpoint, often already far behind their counterparts without disabilities. Evidence indicates that the non-normative career growth experiences of children with disabilities are contributed to by the following factors: (a) over-protectiveness on the part of caregivers and family members (Livneh, Martz, & Wilson, 2001) and (b) the general lack of pre-career content in an elementary education (Wehman, 2001). Accordingly, many children with disabilities often do not form early career identities or self-concepts such as the role of worker that could guide their subsequent exploration and establishment efforts (Moran, McDermott, & Butkus, 2001). Such missed opportunities for career identity formation in the growth stage can have a negative impact on students with disabilities during the exploration stage.

Super, Savickas, and Super (1996) argued that when people make the transition to adult career roles they can encounter difficulties if they have not successfully met the challenges of the exploration phase and that this interferes with later career adjustment and advancement outcomes. In order to establish themselves in a career, adolescents must first successfully respond to challenges in the exploration stage. The initial stage involves crystallizing vocational preferences through (a) thinking about fields and levels of work, (b) making tentative career choices, and (c) committing to obtaining the education or training needed for the selected occupation (Super et al., 1996).

Once students with disabilities move to postsecondary education from high school, they continue to under-explore their career options. Moreover, many college students with disabilities are not even fully aware of the impact that their disabilities may have in terms of their career development (Hitchings, Luzzo, Retish, Horvath, & Ristow, 1998). Hitchings et al. (1998) found that, in addition to all of this, college students with disabilities have few opportunities to take part in career-related activities, which are so impactful on career development. In fact, college students with disabilities rarely participate in career-related student or professional organizations (Getzel, Stodden, & Briel, 2001). Further, they are less likely to participate in part-time employment if receiving Supplemental Security Income (Burgstahler, 2001; Wehman, 2001). Consequently, such failure of college students with disabilities to engage in career-related activities on their difficulties in transitioning into the workforce (Ochs & Roessler, 2004).

Factors affecting career development of young adults with disabilities. Szymanski and Parker (2003) highlighted the fact that career decision-making and employment opportunities unfold over time and are influenced by multiple variables such as individual,

family, school, and community factors. First, at the individual level, certain variables (i.e., selfesteem, self-efficacy, and career expectations) significantly contribute to higher wage employment, and further career satisfaction over time (Wehmeyer & Schwartz, 1997). In fact, a number of studies have shown the importance of career decision self-efficacy (Lindstrom et al., 2011) and career outcome expectations as significant predictors of career exploratory intentions in both special and general education samples (Ochs & Roessler, 2004). Studies also found the gender differences in self-esteem and self-confidence for young adults with learning disabilities (Lindstrom & Benz, 2002; Lindstrom et al., 2011). They indicated that young women with learning disabilities with high levels of personal determination and motivation achieve selfidentified career goals more often when compared to those who report low levels of personal determination and motivation.

At the environmental level, family support, advocacy, and intentional career-related activities play a key role in shaping career goals and employment outcomes (Blustein et al., 2002). Newman (2004) found the important relationship among family expectations for positive postschool outcomes, self-efficacy, and achievement for young adults with disabilities, indicating low expectations from family have a significant impact on their academic self-efficacy and in turn, their academic achievement. Furthermore, along with postsecondary education, individuals with disabilities, who completed some type of vocational training, significantly improve their chances of securing employment and achieving greater levels of financial independence (Flannery, Yovanoff, Benz, & McGrath Kato, 2008).

Taken together, there is still a great deal to be done to help more students with disabilities to complete their postsecondary education and find successful employment that leads to independence and a high quality of life. By equipping them with the knowledge and skills to

fulfill their individual potential, they may benefit from opportunities to explore self-knowledge (i.e., self-efficacy, self-esteem), careers of interests and goals, so that they can be well prepared to make effective career decisions (Hitchings et al., 2001). This can be done with more structured planning and proper career guidance at the postsecondary level.

Application of Career Development Theory

Career development theories provide the foundation for rehabilitation practitioners' ability to understand current vocational behavior of individuals with disabilities, and conceptualize and explain different aspects of the career development process (Super, 1980; Szymanski & Hershenson, 2005). Recognizing the complexity of the career development process, theories have provided rehabilitation practitioners and researchers an important framework necessary for interventions and research to help individuals facilitate effective career choices (Strauser, Wong, & O'Sullivan, 2012). Career development theories ultimately support maximizing an individual's ability to function independently (Ritter et al., 2014).

Theoretical framework of the social cognitive career theory (SCCT). The theoretical foundation underlying the current study is SCCT, developed by Lent and colleagues (1994). SCCT, initiated in the 1980s, is based on Bandura's (1986) general Social Cognitive Theory (SCT) that focuses on the interaction of the environment, personal factors, and actual behavior. SCCT is a relatively new theory in which Lent et al. (1994) expanded the scope of Bandura's work to focus on the development of the individual within the context of education and career. These researchers also incorporated the work of Hackett and Betz (1981) and attempted to merge common aspects of theoretical frameworks previously developed and refined by other noted career theorists to create an inclusive system more capable of fully clarifying the individual career development process (Lent, Brown, & Hackett, 2002).

Among the various vocational and career development theories across disciplines, SCCT is a dominant framework for understanding, explaining, and predicting the processes through which people develop educational and vocational interests, make choices, and achieve varying levels of success and stability in their education and career pursuits (Lent et al., 2000). The three basic SCCT models were developed as a means to understand the ways in which (a) academic and career interests are developed, (b) academic and career choices are implemented, and (c) varying levels of academic and career success and stability are achieved (Lent, 2005). More recently, Lent and Brown (2013) have developed the new SCCT model of CSM, that focuses on process aspects of career development, such as the means by which people help to regulate their affect, adapt to changing circumstances, and direct their own education and/or career goal behavior. Lent and colleagues (2016) applied the CSM model to career exploration and decision-making outcomes in college students to examine the ways in which variables aligned with the CSM model jointly predict career exploration goals and decisional outcomes.

In order to explain these interrelated aspects of career development, SCCT emphasizes the interaction among three personal variables that enable the exercise of agency in academic and career development. The three variables are self-efficacy beliefs, outcome expectations, and personal goals (Lent, 2005). Besides the three personal variables, other pertinent variables included in the SCCT models are personal inputs (i.e., demographic characteristic), learning experience, interests, supports/barriers, actions, and performance (Lent et al., 1994).

SCCT proposes that a wide range of personal and contextual factors contribute to a person's learning experiences that serve as a basis for developing self-efficacy and outcome expectations (Choi et al., 2012). These self-efficacy and outcome expectations give rise to interests, goals, career development performance, and outcomes. Furthermore, contextual

influences, such as perceived social supports and barriers, can also affect the influence of selfefficacy on an individual's interests, goals, and performance (Choi et al., 2012).

Blustein (1999) described SCCT as "one of the most influential theoretical perspectives in career development" (p. 349). The major constructs of SCCT have been shown to have considerable impact on academic and career development for students of minority status, women, and adolescents. However, despite the difficulties that postsecondary students with disabilities have often had with career growth and exploration activities, there has been little empirical research to date that applies SCCT specifically to college students with disabilities.

Further, Strauser and colleagues (2015) raised the concern that career development and vocational rehabilitation research have not explicitly focused on how the interaction of contextual factors impact an individual's career development. Therefore, in the current study, besides the three fundamental constructs outlined by Lent et al. (1994), the investigator will also examine how the relationship between perceived contextual supports and career decision making processes impact psychosocial outcomes by measuring their perceived level of quality of life (see Figure 2).

Career decision self-efficacy. Self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). In SCCT, self-efficacy refers to an individual's personal beliefs about his or her capabilities to perform particular behaviors or a certain course of action required to manage prospective situations (Lent et al., 1994). Accordingly, SCCT proposes that people are likely to become interested in, choose to pursue, and perform better at activities at which they have strong self-efficacy beliefs.
In the context of career development, Betz and Hackett (1981) proposed two unique domains of career self-efficacy: the content and process domains of career decision-making. While the content domain of career self-efficacy refers to self-efficacy in specific career fields, such as math, writing, or science, the process domain of career self-efficacy refers to selfefficacy in using the necessary strategies for navigating decision-making processes (Choi et al., 2012). Such strategies for navigating career decision-making processes include evaluating career-related abilities and skills, gathering occupational information, selecting occupational goals, and making plans to implement career goals (Betz & Taylor, 2001).

SCCT has been a useful framework for helping researchers understand the role of career self-efficacy in career behaviors. A substantial body of research using the SCCT framework indicates that personal self-efficacy beliefs play a major role in career development and pursuits (Gushue & Whitson, 2006; Lent, 2005). Career decision self-efficacy, in particular, has been recognized as an important predictor of career indecision (Betz & Luzzo, 1996). Findings also showed that career decision self-efficacy is positively related to career adjustment (Betz & Luzzo, 1996), career decision-making attitudes and skills (Luzzo, 1995), and career exploration behaviors (Betz & Voyten, 1997). Other studies also demonstrated the positive relationship between career decision self-efficacy and psychological variables such as internal locus of control (Taylor & Popma, 1990) and self-esteem (Betz & Klein, 1996). A more recent Choi et al.'s (2012) meta-analytic study also found that career decision self-efficacy yields moderate to large bivariate correlations with vocational identity, peer support, and vocational outcome expectations.

Focusing on individuals with a disability, Enright (1996) found that disability has a negative impact on the self-efficacy of career decision-making by limiting the individuals'

opportunity to receive positive reinforcement regarding their abilities. Studies have found that students with disabilities in postsecondary education tend to have significantly lower levels of self-efficacy than their peers without disabilities. This result is consistent with the evidence that self-efficacy plays a key role as a significant factor in career decision-making for this population (Luzzo, Hitchings, Retish, & Shoemaker, 1999). Therefore, in the proposed study, the investigator will focus on a measure of process-domain, career decision self-efficacy. The investigator will examine this in terms of how college students with disabilities perceive their ability to explore their career options, make appropriate career decisions, and execute their career goals.

Career decision-making outcome expectations. Outcome expectations refer to beliefs about the consequences of performing certain behaviors (Lent, 2005). For example, if individuals perceive that they are competent at a particular task and they enjoy the outcomes from that task, then they will sustain interest in the activity. In the career development context, outcome expectations are defined as beliefs regarding the long-term consequences of success in specific educational or career decision-making behaviors (Ochs & Roessler, 2004). Lent et al. (2008) highlighted the importance of outcome expectations as an essential predictor of vocational behaviors when individuals face circumstances that restrict their ability to make choices.

While the sources of self-efficacy beliefs have been examined empirically (Lopez & Lent, 1992), no similar studies have focused on the sources of outcome expectations (Fouad & Guillen, 2006). Instead, there is a substantial body of research examining relationships between outcome expectations and other constructs within SCCT. Lent and colleagues (1996) noted that outcome expectations are affected by self-efficacy; individuals who develop high self-efficacy are more

likely to develop more positive outcome expectations than those who have low self-efficacy. These same researchers also found the level of outcome expectations as a mediator variable between self-efficacy and career intentions, and theorized that self-efficacy influences intentions through outcome expectations. That is, individuals who are not confident in their ability to locate occupational information might expect to experience little success when trying to locate information and thus not form an intention to locate information (Ochs & Roessler, 2004). Other studies have also indicated that the relationship between self-efficacy and intentions was more attributable to the indirect path through outcome expectations than to a direct path (Fouad & Guillen, 2006). On the other hand, based on a multivariate test, Betz and Voyten (1997) found that outcome expectations for career were more likely related to career exploratory intentions than career decision-making self-efficacy. Moreover, studies have found that the magnitude of the path from outcome expectations to interests and intentions was higher than predicted by SCCT (Fouad & Guillen, 2006).

Although studies have shown mixed results regarding the relationship among selfefficacy, outcome expectations, and other constructs of SCCT, these findings suggest that both self-efficacy and outcome expectations are central to the development of individuals' career interests and perceived range of available career information and options (Lent, 1995). In Ochs and Roessler's (2004) study, the authors examined the extent to which a theoretical model explains such career-decision behavior and how it varied between high school students with learning disabilities and their peers without disabilities. They found a similar pattern of relationships across populations suggesting that the constructs are relevant to understanding and facilitating the career development process. This result was consistent with the aforementioned finding in which both career decision self-efficacy and career outcome expectations contributed

significantly to exploratory intentions in both the special and general education samples. Thus, this study will examine the beliefs of college students with disabilities concerning their expected career outcomes upon performing career goals.

Goals. A personal goal is defined as one's intentions to engage in a particular activity or to achieve long-term outcomes (Bandura, 1997; Lent et al., 1994). Betz and Voyten (1997) further operationalized goals in the career development context as an individual's intention to engage in career exploratory behaviors. Some examples of career exploratory behaviors are (a) planning to talk to people about career options, (b) making a commitment to learn more about career related activities and skills, and (c) acquiring requisite education (Betz & Voyten, 1997). As individuals set certain goals, it helps to mobilize and sustain their own educational and vocational behaviors. In SCCT, there are two types of personal goals: (a) choice content goals, which are the types of activities and career an individual wishes to pursue; and (b) performance goals, which are the level or quality of performance the individual plans to achieve within a chosen endeavor (Lent, 2005).

In regard to the relationship between goals and other constructs, social cognitive theory places great emphasis on personal goals, viewing them as the key to motivating one's behavior. SCCT further purports that one's choice and performance goals are tied to both self-efficacy and outcome expectations. In other words, individuals tend to set goals that are consistent with their views of their beliefs, capabilities, and outcome expectations. Lent and colleagues (1994) suggested that having strong self-efficacy together with positive outcome expectations is likely to nurture career goals. Accordingly, in SCCT, the process of academic and career interests being translated into goals, and goals into choice and/or actions, is further influenced by individual's perceived supports and/or barriers (Brown & Lent, 1996).

Contextual factors. Lent and colleagues (1996) also recognized contextual factors that individuals experience exist within a context of various circumstances. More specifically, contextual factors refer to environmental factors that influence an individual's academic and career-related interests, choice of action, and performance outcomes (Garriott, Flores, & Martens, 2013). These environmental factors can support the individual's choice or be barriers to obtaining a desired academic or career objective (Sharf, 2010).

In recognition of the importance of studying social-contextual factors that facilitate or impede career development, researchers have applied this concept to diverse populations, including high-achieving women (e.g., Richie et al., 1997) and transition youth (e.g., Blustein, Philips, Jobin-Davis, Finkelberg, & Roarke, 1997). These studies concluded that individuals credit their environments, and especially their significant others with having a great deal of influence on their selection and pursuit of a particular career path. In relation to students at the college level, Lent and colleagues (2002) investigated the perceived influences on college student selection and implementation of career choices in different college environments, and identified a diverse array of contextual supports and barriers. Several barriers to career choice pursuit frequently mentioned by college students include financial concerns, personal difficulties (e.g., problems adjusting to college, depression, time management problems), ability consideration (e.g., problems with academic progress or perceived ability), role conflicts, excessive education requirements, negative school/work experiences, and work condition/reinforces. In regard to critical support factors for choice pursuit, students mostly mentioned social support or encouragement, personal strengths, direct experience with careerrelevant tasks, role models/mentors, and expected outcomes.

According to SCCT, whether or not the supports and/or barriers are perceived accurately

or not is less important than how such perceived supports and/or barriers influence self-efficacy. For college students with disabilities, even if they have well-developed career interests, and high levels of self-efficacy and outcome expectations, they may restrict educational/career choice and interest based on their perceived barriers (Lent et al., 1996). If individuals attribute their educational/career barriers to external, uncontrollable and stable forces, then their personal agency suffers. They will likely then restrict their choices due to an inaccurate set of selfefficacy or outcome expectations (Albert & Luzzo, 1999). Indeed, Lent and his colleagues (2001) examined the role of contextual supports and barriers in the choice of math/science education options for general college students. A model developed by these researchers portraying supports and barriers linked to choice indirectly via their impact on self-efficacy produced a better fit with the data than did a model specifying supports and barriers as directly linked to choice. These SCCT's views of contextual factors are also consistent with Bandura (2000), indicating that contextual influences such as economic and family conditions affect behavior distally and proximally through their impact on people's sense of efficacy, aspiration, and affective self-regulatory factors (Lent et al., 2001).

In summary, these findings suggest the value of including not only personal but also contextual factors within theoretical accounts of the career development process (Lent et al., 2002). Nonetheless, little research has examined hypotheses involving the interplay of these variable factors, and thus Lent and colleagues have put emphasis on the need for further study of the role of contextual factors in the academic- and career-choice making of students representing diverse cultures. Therefore, in the proposed study, the investigator will focus on the interplay between personal attributes (i.e., career decision self-efficacy and career decision-making outcome expectations) and contextual factors, particularly perceived supports that influence the

ability to maximize opportunities to achieve those goals that ultimately lead to greater quality of life.

Evidence for the utility of SCCT. SCCT has received much attention in the career development and vocational rehabilitation filed due to its applicability to the educational and career development of diverse populations. SCCT has been also used to conceptualize and direct attention to how social barriers (e.g., race, ethnicity, culture, gender, socioeconomic status, age, disability) affect educational and/or vocational choices/decisions.

A body of career counseling and career development literature and meta-analytic studies focused on SCCT have found that self-efficacy and certain other social cognitive variables were significant predictors of students' interests, persistence, and performance (Cardoso et al., 2013). Among the various SCCT constructs, several conclusive themes have also emerged on their relationships (Lent, 2004). Based on the review of meta-analytic studies, Lent (2004) concluded that the relationship between career decision making ability and career interest is mediated by self-efficacy. Moreover, self-efficacy and outcome expectations also relate to career choice both directly and indirectly through their linkage to career interests. Further, career choice, goals, and actions are all strongly predicted by both self-efficacy and outcome expectations. Finally, contextual factors, particularly environmental supports and barriers, are related to career choice, goals, and actions, with barriers most significantly impacting self-efficacy, which in turn affects career interest and choice.

SCCT has also been applied to women (Betz & Hackett, 1981; Hackett & Lent, 1992; Raiff, 2004) and underrepresented minority students' decisions pertaining to academic and career choice (Gushue & Whitson, 2006; Lent, Paixão, da Silva, & Leitão, 2010; Turner et al., 2006). Other exemplary research studies have been conducted among high school and college students

without disabilities in relation to STEM careers such as computer science, technology, engineering, and math (Ali & Saunders, 2008; Lent et al., 2008).

With a focus on disability, SCCT has also been applied to the educational pursuits of students with learning disabilities and other types of intellectual disability (Wehmeyer, 1994). Some studies that involved high school students with disabilities examined relationships among career self-efficacy, career interests, and outcome expectations for students who have learning disabilities (Ochs & Roessler, 2004; Panagos & DuBois, 1999). Punch, Creed, and Hyde (2005) examined career development in adolescents who were hard-of-hearing and found hearing-related barriers as a unique aspect of the study, indicating that supporting students with specific disability-related barriers would enhance their career development.

Despite the SCCT's applicability to diverse populations for education and career development, a limited number of studies have been identified that involved individuals with various types of disabilities (Keim & Strauser, 2000; Sharf, 2010). In addition, there is a need to better understand the role of environmental support and barriers relative to academic and career choices (Cardoso et al., 2013). Berry and Domene (2015) conducted a qualitative study of supports that postsecondary students with mobility or sensory impairments perceived as being most effective in assisting them to attain their career aspirations. The authors identified a wide range of individuals and important internal resources as being important sources of support in helping them to reach their goals. Chambers, Rabren, and Dunn (2009) also indicated the importance of evaluating supports and/or barriers in relation to outcomes and the transition from education to adult life that provide important program effectiveness information and can be used for systems change within schools and community.

While environmental variables have not been fully studied by SCCT, this theory provides guidance for helping individuals make academic and career choices by helping them raise the level of their belief in their own effectiveness and their expectations of potential outcomes and goals (Sharf, 2010). According to the purpose of the current study; evaluating the general compatibility (i.e., goodness of fit) of the hypothesized model with the data and determining the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities, SCCT provides a lens to explore the predictive utility of social cognitive variables related to college students with disabilities by focusing on the strength of individual's beliefs, cognitive, and environmental systems.

Studies utilizing SCCT have primarily focused on student academic performance and career pursuits as outcomes. The literature documenting career pursuits, especially self-efficacy in job-searching skills and job attainment from adults with disabilities, has consistently demonstrated the need for career intervention. Recent studies have also stressed the importance of career pursuits in establishing a good quality of life (Bluestein, 2006; Strauser, 2014). However, given its importance as a developmental phenomenon for individuals, studies are virtually nonexistent on college students with disabilities who are in the midst of school-to-work transitions, as are studies concerning how career-related self-efficacy and outcome expectations affect their quality of life (psychosocial outcomes) beyond career pursuits. Therefore, it is crucial to understand the components that make up an individual's career experience as career pursuits are closely tied to meeting the basic needs and increasing both physical and psychological well-being (Strauser et al., 2015).

Interplay of Career Development and Quality of Life

Quality of life has been studied in many disciplines such as sociology, the medical sciences, and psychology. It has also received much attention as a central position in theory development, disability policy, and evaluation of interventions and rehabilitation services (Catalano et al., 2010; Chan, Rubin, Lee, Miller, & Chen, 2003; Kosciulek, 1999). Such an emphasis is due in part to the positive psychology movement, which seeks to understand and augment positive and adaptive aspects of the human experience rather than focusing on deficits and limitations (Seligman & Csikszentmihalyi, 2000). Accordingly, researchers have begun to focus on subjective well-being of individuals with disabilities, including constructs such as life satisfaction and quality of life as outcomes of their research (Chou et al., 2013).

Definition of quality of life. Quality of life is an obvious concern of paramount importance, while at the same time it is a very broad subjective concept that is difficult to conceptualize (Peruniak, 2010). Thus, although there is general agreement on the multidimensional nature of quality of life (Chow, Lo, & Cummins, 2005), its meanings and applications vary based on context in a variety of fields (Bradford, Rutherford, & John, 2002; Fleming, 2012). The World Health Organization (WHO, 1998) defined the quality of life as "individuals' perceptions of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" (p. 2). Quality of life implies satisfying individual's needs and interests, choice of values, and aspirations in different areas and in different stages of life.

Quality of life is conceptualized as a multidimensional construct that encompasses a number of objective and subjective life domains. While objective indicators of quality of life consist of measurable items such as health, income, housing, education, employment, friendship,

and physical functioning (Chapin, Miller, Ferrin, Chan, & Rubin, 2004; Kosciulek, 1999), subjective life domain include the concept of self-report attitudes, perceptions, and aspirations (Kosciulek, 1999). In addition, Felce (1997) suggested the quality of life can be conceptualized as a three-element model in which personal values, life conditions, and subjective wellbeing/personal satisfaction interact to determine the quality of life (Catalano et al., 2010).

The importance of quality of life to career development. As mentioned above, the quality of life perspective has been increasingly recognized as the overarching outcome in rehabilitation practice, and is seen as the ultimate rehabilitation goal for individuals with disabilities (Bishop & Fiest-Price, 2002; Crewe, 1980; Livneh, 2001). Moreover, as there is an implicit belief that the work significantly contributes to the individual's quality of life (Peruniak, 2010), it is worthy of attention as a general and integrative concept that complements more specialized outcomes in career development. Strauser and his colleagues (2015), however, have documented that current career-related research places too much emphasis on the career development domain factors and constructs, including career readiness, vocational identity, career maturity, and job seeking skills and/or job attainments as the most preferred outcomes. While job-related outcomes for individuals with disabilities can be improved through career guidance and support, they may not have the same quality of life as that experienced by their peers without disabilities (Strauser et al., 2015).

Career development is the enhancement of career, and the enrichment of human potential in creating a pattern of relationships between life roles, within the parameters of place, and over a lifetime (Peruniak, 2010). More specifically, making an effective career decision is a cognitive and emotion-based process that requires an individual to use a variety of personal and psychological resources (Szymanski, 2000). Yet it can be stressful and evoke a variety of

negative emotions that give rise to multiple types of dysfunctional career-related thought and behavior (Sampson et al., 2004; Strauser, Lustig, & Çiftçi, 2008). Dysfunctional career behaviors further result in decreased life satisfaction and subjective well-being. In fact, many often change their jobs, and do not enjoy friendships or social interaction, and in turn experience lower levels of physical and psychological health. Therefore, in order to make effective career decisions, potentially influencing the improved quality of life outcomes, it is important to set and progress toward personal goals, engage in valued activities, cope with emotional distress, and interact with those in their social support system. These processes enable persons to contribute to their own career growth, organize and make meaning lives, and ultimately, enhance their own subjective well-being and quality of life (Lent & Brown, 2008).

CHAPTER 3

METHOD

The purpose of the present study was twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. Chapter 3 provides the details of the study research design, research question and hypothesis, sample size, participants, procedures for recruiting participants, descriptions of the instruments including psychometric properties, and a summary of data analysis.

Research Design

Within the hypothesized model of career development and the quality of life, an online, quantitative descriptive survey design was used to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. The hypothesized structural relationships among variables related to career decision-making processes and quality of life presented in Figure 2 were examined using the structural equation modeling (SEM) procedure.

Research Question and Hypothesis

The research question and hypothesis in this study were as follows:

What is the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities?

For the research question, it is hypothesized that the hypothesized model will adequately fit the data, and there will be significant correlations among career decision self-efficacy, career

decision-making outcome expectations, goals, perceived contextual supports, and quality of life.

Sample Size

The adequate sample size for SEM is generally recommended at least 5 to 10 cases per parameter (Kline, 2011). That is, samples with fewer than 100 participants are small, those with 100 to 200 participants are medium, and those with more than 200 participants are large. Other researchers also noted minimum sample size requirements, indicating that sample size should exceed 100 observations regardless of other data characteristics to avoid problematic solutions and obtain acceptable fit concurrently (Nasser & Wisenbaker, 2003; Quintana & Maxwell, 1999).

For the proposed study which has five latent variables (career decision self-efficacy, career decision-making outcome expectations, goals, perceived contextual supports, and quality of life), the minimum sample size of 200 (n = 200) was considered for the study, considering the following statistical conditions: the general rule of thumb for sample size by model complexity is that minimum sample size = (# latent variables) * 10 or 20 or 30, given there exists a strong or moderate or weak effect size, respectively (Muthén & Muthén, 1998-2012; Wolf, Harrington, Clark, & Miller, 2013). That is, for n = 200, it would be sufficient to reach minimum statistical power of .80, if the effect size (i.e., overall model fit, $R^2 = .60$ to .80, under complete data following normal distribution) is assumed to be weak to moderate (given that Type I Error = .05 and root mean square error of approximation; RMSEA < .06).

Participants

The target population for the present study was college students with varying types of disabilities. The inclusion criteria for participating in the present study were: (a) age 18 and above; and (b) currently enrolled in either 2-year or 4-year institutions. Participants were recruited from 2-year and 4-year public and private institutions in a Midwestern state with

disability-related resource centers that arrange educational accommodations and support for college students with documented disabilities on campus. The disability support service programs at the institutions were contacted to disseminate the study announcement and recruit potential study participants. The study announcement was disseminated via the disability support services programs listserv and similar method or outlet.

A total of 54 institutions were contacted and 15 agreed to distribute the study participant recruitment announcement. Seven institutions declined to participate in the study and 32 institutions did not respond to study inquiries. The study survey was sent by email to students with documented disabilities by each disability-related resource center. A total of 595 surveys were returned. Of these 595, 428 participants completed the survey while 167 participants ended their participation before the completion of the survey. Of the 428 total surveys completed, there were 41 participants who did not meet the study criteria or did not complete the perceived quality of life questionnaire. Further, after the data screening and preliminary analysis of initial dataset, one participant was excluded from the final dataset due to being the extreme value. Accordingly, a total of 386 college students with disabilities were included in the final sample.

Regarding a response rate, the total number of the college students with disabilities across all institutions was not available to the researcher, thus the percentage of responses was not provided in the present study.

Participant characteristics. Sample characteristics of interest on which data were collected including age, gender, race/ethnicity, marital status, disability type, year in school, current grade point average (GPA), international student status, academic major, institution type, employment status, living arrangement, current source of financial supports, and career

development activities they participated in during college years. Table 1 shows participant demographics.

Of the 386 college students with disabilities who responded to the survey, the mean age of the participants was 21.95 (SD = 6.12). Specifically, 29.3% (n = 113) were between 18 and 19 years old, 42.0% (n = 162) were between 20 and 21, 16.6% (n = 64) were between 22 and 23, 3.1% (n = 12) were between 24 and 25, and 9.0% (n = 35) were 26 years old and above. Regarding gender, 27.7% (n = 107) of the participants were male, 70.5% (n = 272) were female, and 1.8% (n = 7) reported other (e.g., gender fluid, genderqueer, non-binary, and transgender). Regarding race/ethnicity, 3.9% (n = 15) of the participants reported that they were African American/Black, 3.1% (n = 12) Asian, 2.1% (n = 8) Hispanic/Latino, 0.3% (n = 1) Native American, 0.3% (n = 1) Native Hawaiian or Other Pacific Islander, 82.1% (n = 317) White/Caucasian, 0.3% (n = 1) other (e.g., West Indian), 6.5% (n = 25) multiracial, and 1.6% (n= 6) of the participants preferred not to respond. Regarding marital status, 91.7% (n = 354) of the participants reported being single, 6.0% (n = 23) married or with a partner, 1.3% (n = 5) separated or divorced, and 1.0% (n = 4) preferred not to respond. Regarding disability type, 11.7% (n = 45) of the participants reported having a learning disability, 11.1% (n = 43) ADHD, 2.1% (n = 8) ASD, 0.8% (n = 3) visual disability, 1.8% (n = 7) brain injury, 3.9% (n = 15)Deaf/hard of hearing, 1.8% (n = 7) mobility disability, 16.3% (n = 63) psychiatric disability, 8.0% (n = 31) chronic health, 3.6% (n = 14) other type of disability, and 38.3% (n = 150) of the participants reported having more than one disability. Regarding current school year, 2.9% (n =11) of the participants were in their 1st year of community college, 3.1% (n = 12) were in 2nd year of community college, 16.8% (n = 65) were freshman undergraduate students, 20.5% (n = 79) were sophomore undergraduate students, 24.4% (n = 94) were junior undergraduate students,

31.9% (n = 123) were senior undergraduate students, and the rest of the participants (0.5%; n = 2) reported as other (e.g., transfer student). The majority of the participants were full-time students, 87.0% (n = 336), and 12.7% (n = 49) were part-time students. The mean GPA of the participants was 2.06 (SD = 0.95) with a range of not applicable to above 3.50. In terms of international student status, the majority of students were domestic students (97.4%; n = 376) while 2.3% (n = 9) were international students.

Regarding types of institution, 6.0% (n = 23) of the participants were attending a 2-year community college, 66.3% (n = 256) a 4-year public college/university, and 27.7% (n = 107) a 4-year private college/university. In relation to current employment status, 4.9% (n = 19) of the participants reported full-time paid employment, 46.1% (n = 178) reported part-time (less than 30 hours/week), 2.9% (n = 11) of the participants were self-employed, and 4.4% (n = 17) were having non-paid work such as volunteers in community. Further, 13.0% (n = 50) of the participants were not employed but seeking work while 24.9% (n = 96) were not seeking work at the time of survey completion. The rest of the participants (3.9%; n = 15) reported as other (e.g., mostly part- and full-time during the summer only).

For living arrangement status, 18.7% (n = 72) of the participants were living at home with parents, relatives, or guardians, 38.1% (n = 147) were living in a residential hall, 2.1% (n =8) were living in a Fraternity/Sorority house, 36.5% (n = 141) were living at own/other's home/apartment. 4.7% (n = 18) of the participants indicated other, such as on-campus apartment, international Christian community church, and student organizations. Regarding financial sources for their studies, 24.7% (n = 95) reported using their own personal resources. 35.7% (n =137) of the participants indicated that their family members were the primary source of financial help, 20.8% (n = 80) shared the financial response with their family member. In addition, 2.1% (n = 8) reported state vocational rehabilitation (VR) agency and the department of veteran affairs (VA) as the primary source of financial help and 5.0% (n = 19) indicated others such as spousal tuition waiver, scholarships, Free Application for Federal Student Aid (FAFSA), and the Tuition Incentive Program (TIP). The remainder of the participants (11.7%; n = 45) indicated multiple financial sources.

Lastly, in relation to career development activities students have participated in during college, a total of 9.1% (n = 34) of the participants received career counseling services, 3.6% (n = 14) had resume/cover letter development support, 1.8% (n = 7) had social media profile development support such as LinkedIn, 0.5% (n = 2) participated in training related to interviewing skills, 0.8% (n = 3) participated in an activity job search skills, 0.3% (n = 1) had support for informational interviewing, 3.9% (n = 15) had a job shadowing experience, 1.6% (n = 6) had professional networking experience, and 6.2% (n = 24) had either internship or job fair experiences, with 1.0% (n = 4) reporting other (e.g., maintaining relationship with professors for future career recommendations, attending a pre-health round-table event, etc.). A total of 62.2% (n = 240) students participated in more than one career development activity addressed above, and 9.1% (n = 35) of the students reported that they participated in no career development activities.

Variable	Frequency (n)	Percent (%)	Mean (M)	SD
Age			21.95	6.12
18 to 19	113	29.3		
20 to 21	162	42.0		
22 to 23	64	16.6		
24 to 25	12	3.1		
26 and above	35	9.0		

Table 1. Participant Characteristics Related to Personal and Social Factors

Table 1 (cont'd)

Gender		
Male	107	27.7
Female	272	70.5
Other	7	1.8
(Gender Fluid, Genderqueer,		
Non-Binary, and Transgender)		
Prefer not to respond	0	0
Race/Ethnicity		
African American/Black	15	3.9
Asian	12	3.1
Hispanic/Latino	8	2.1
Native American/American	1	0.3
Native Hawaiian or other Pacific	1	0.3
Islander		
White/Caucasian	317	82.1
Other	1	0.3
Multiracial	25	6.5
Prefer not to respond	6	1.6
Marital Status		
Single	354	91.7
Married/With a partner	23	6.0
Separated/Divorced	5	1.3
Prefer not to respond	4	1.0
Disability Type		
Learning	45	11.7
ADHD	43	11.1
ASD	8	2.1
Visual	3	0.8
Brain Injury	7	1.8
Deaf/Hard of Hearing	15	3.9
Mobility	7	1.8
Psychiatric	63	16.3
Chronic Health	31	8.0
Other	14	3.6
Multiple	150	38.3
School Year		
1 st year in Community College	11	2.9
2 nd year in Community College	12	3.1
Undergraduate Freshman	65	16.8
Undergraduate Sophomore	79	20.5
(28-55 earned credits)		

Table 1 (cont'd)

Undergraduate Junior (56-87	0.4	24.4		
earned credits)	94	24.4		
Undergraduate Senior (88-120	123	31.9		
earned credits)	•	o F		
Other	2	0.5		
Enrollment Status	226	07.0		
Full-Time Student	336	87.0		
Part-Time Student	49	12.7		0 0 -
GPA Average		24.4	2.06	0.95
Above 3.50	121	31.4		
3.00 - 3.49	145	37.6		
2.00 - 2.99	105	27.2		
1.00 - 1.99	9	2.3		
Below 1.0	1	0.3		
Not applicable	5	1.3		
International Student Status				
Yes	9	2.3		
No	376	97.4		
Academic Major				
Advertising	4	0.26		
Agriculture and Natural	3	0.78		
Resources				
Art	25	6.48		
Business	33	8.55		
Computer Science	14	3.63		
Criminal Justice	3	0.78		
Education	22	5.70		
Engineering	37	9.59		
English	9	2.33		
Family Development	5	1.30		
Human Medicine	42	10.88		
Human Resources	2	0.52		
Kinesiology	11	2.85		
Hospitality Business	2	0.52		
Nursing	10	2.59		
Political Science	7	1.81		
Psychology	22	5.70		
Social Work	19	4.92		
Therapeutic Recreation	7	1.81		
Undecided	4	1.04		
Other	105	27.20		
Type of Institution Attending				
2-year Community College	23	6.0		
2-year Community College	23	6.0		

Table 1 (cont'd)

4-year Public	256	66.3
College/University		
4-year Private	107	27.7
College/University		
Current Employment Status		
Full-time paid employment	19	4.9
Part-time (Less than 30	178	46.1
hours/week)		
Self-Employment	11	2.9
Non-paid work (e.g., volunteer,	17	4.4
charity)		
Not employed-seeking work	50	13.0
Not employed-not seeking work	96	24.9
Other	15	3.9
Living Arrangement		
Living at home with parent(s),	72	18.7
relative(s), or guardian(s)		
Living in a residential hall	147	38.1
Living in a Fraternity/Sorority	8	2.1
house		
Own/Other's home/apartment	141	36.5
Other	18	4.7
Financial Source(s)		
Personal response	95	24.7
Family member	137	35.7
Shared with family member	80	20.8
Professional agency (e.g., state	8	2.1
VR, VA)		
Other	19	5.0
Multiple	45	11.7
Career Development Activities		
Career Counseling	34	9.1
Resume/Cover Letter	14	3.6
Development		
Social Media Profile	7	1.8
Development (e.g.,		
Interviewing Skills	2	0.5
Job Search Skills	3	0.8
Informational Interviewing	1	0.3
Job Shadowing	15	3.9
Professional Networking	6	1.6
-		

Table 1 (cont'd)

Internship/Job Fair	24	6.2	
Other	5	1.0	
Multiple	240	62.2	
None	35	9.1	

Note. ADHD = Attention Deficit Hyperactivity Disorder; ASD = Autism Spectrum Disorder; VA = veteran affairs; VR = vocational rehabilitation; Missing n = 1 for enrollment; missing n = 1 for international student status; missing n = 2 for current sources of financial supports.

Procedures

The procedure for the study began with recruitment effort for potential participants of the study by reaching out to potential disability support service programs at college and universities. The researcher used a list of current MI-AHEAD (Michigan Association on Higher Education and Disability) postsecondary members, contacted 54 institutions via email and phone, and obtained agreement and approval from 15 institutions to distribute the study participant recruitment announcement. Following the receipt of approval from the Michigan State University Institutional Review Board (IRB), official invitation letters were sent via email to potential disability service centers to request for research collaboration. Electronically distributed introductory letters included the purpose of the study, inclusion criteria, the research method, incentives for participation, and contact information of the researcher. Of the 54 institutions contacted, 25 replied. Of those 25, 15 institutions opted to distribute the study participant recruitment announcement. The researcher sent them a copy of the IRB approval letter from Michigan State University (MSU), a flyer, a brief summary of the study, and the web-based survey link.

In addition, the researcher worked with appointed staff from each disability support service program regarding access and accommodations for the web-based survey to determine

the most effective and convenient way for the potential participants to participate.

Data was collected via the web-based survey site. MSU's Qualtrics software was used to develop and disseminate the online survey. Participants were able to anonymously complete the survey in a location of their choosing. Informed consent procedures were followed in a written document that appears as part of the online survey. Potential study participants were informed that their participation is voluntary that the data collected will remain anonymous and confidential. In addition, participants were informed of the opportunity to obtain a \$10 Amazon online gift card via online by signing up and providing contact information upon completing and returning the survey. The researcher contacted the first 100 participants who completed the online survey and sent them a \$10 Amazon online gift card one month after closing the survey.

All data for the current study was kept completely confidential. No names or identifiers were used. All research materials and raw data were treated confidentially and not provided to others aside from the dissertation chair and committee members if necessary. Additionally, the data was entered in a password protected word document and/or spreadsheet and stored in a password protected server, which only the researcher has access to. The online and downloaded data is expected to be kept for a minimum of three years after closing the study.

Pilot

Prior to data collection, the survey was piloted with several individuals to gather feedback on web accessibility, clarity, readability, and ease of use of the instrument and to ascertain an estimated length of time that the survey will take. A total of six individuals, program faculty, students with disabilities, a doctoral student, and a MSU technology coordinator, participated in the pilot. Alterations were made to the informed consent and instruments according to suggestions.

Instrumentation

The survey includes six sections that represent social cognitive variables and quality of

life as the variables of interest: (a) demographic information; (b) career decision self-efficacy; (c)

career decision-making outcome expectations; (d) goals; (e) perceived contextual supports; and

(f) quality of life. Table 2 contains information on each of the variables/constructs, instruments,

and domains.

Variables/Constructs	Instruments	Domains
Career Decision Self-Efficacy (CDSE)	Career Decision Self Efficacy- Short Form (CDSE-SF; 25-item; Betz, Klein & Taylor, 1996; Betz & Taylor, 2001)	 Accurate self-appraisal Gathering occupational information Goal selection Making plans for the future Problem solving
Career Decision- Making Outcome Expectations (CDMOE)	Career Decision Making Outcome Expectation (CDMOE; 9-item; Betz & Voyten, 1997)	Academic outcome expectationsCareer outcome expectations
Goals	Goal Setting Scale (19-item; Howard, Ferrari, Nota, Solberg, & Soresi, 2009)	Goal setting and pursuitUse of resourcesChallenges
Perceived Contextual Supports	Career Supports Questionnaire (CSQ; 15-item; Lent et al., 2001)	 Social support and encouragement Instrumental assistance Access to role models/mentors Financial resources
Quality of Life	Quality of Life Inventory (QOLI; 32-item; Frisch, 1994)	 Internal and external factors based on 16 areas of life (Health, Self-Esteem, Goals and Values, Money, Work, Play, Learning, Creativity, Helping, Love, Friends, Children, Relatives, Home, Neighborhood, & Community)

Table 2. Variables/Constructs, Instruments, and Domains

The following is a description of each survey section, including the variables/constructs of interest, description of instruments being used to measure variables, sample items, and evaluation and psychometric information where applicable.

Demographic information. A demographic questionnaire form was developed to obtain relevant demographic information about the participants in the following areas: age, gender, race/ethnicity, marital status, year in school, enrollment status, GPA, international student status, academic major, institution type, employment status, living arrangement, and source of financial support. In addition to the demographic information about participants, disability related and career development related questions (if applicable) were collected: information about the individual's knowledge of their disability (type of disability or chronic health conditions) and information about the participants' previous and current experience with the on and off-campus career development activities they participated in during college years. The demographic questionnaire is included in Appendix A. The demographic information form was used to collect data for describing sample demographic characteristics.

Career decision self-efficacy. In the present study, career decision self-efficacy was measured by the Career Decision Self Efficacy-Short Form (CDSE-SF) scale (Betz et al., 1996; Betz & Taylor, 2001). The CDSE-SF measures an individual's degree of belief that he or she can successfully compete tasks necessary to making career decisions. Taylor and Betz (1983) developed the original Career Decision Self-Efficacy Scale, a 50-item measure within the five subscales: (a) accurate self-appraisal; (b) gathering occupational information; (c) goal selection; (d) making plans for the future; and (e) problem solving. A short form of the CDSE (CDSE-SF), a 25-item self-administered form, was additionally developed by eliminating five of the ten items from each of the five CDSE scales (Betz et al., 1996). Examples of items are: 'Select one major

from a list of potential majors you are considering'; 'Determine the steps you need to take to successfully complete your chosen major'; 'Decide what you value most in an occupation'; and 'Identify employers, firms, and institutions relevant to your career possibilities' (See Appendix B).

Due to its easier administration, high reliability, and valid score results (Betz & Taylor, 2012), in the present study, the CDSE-SF form was used with the 5-point scale with response categories ranging from 1 to 5 (i.e., 1 = no confidence at all, 2 = very little confidence, 3 = moderate confidence, 4 = much confidence, and 5 = complete confidence). Following the confirmatory factor analysis (CFA) result, the current study eliminated 10 questions that were suggested by modification indices, or whose factor loadings were low. A total score reflecting self-efficacy is calculated by summing the ratings for the 25 items yielding a range from 25 to 125. The total score can be used to identify those students who might potentially be "at risk" in terms of overall career decision self-efficacy. In the present study, estimated sub-scale scores (observed variables) were used as an approximation to the latent variable of career decision self-efficacy.

The CDSE has been validated across multiple studies using multiple methodologies. In the development of original CDSE, it was validated in a sample of 346 college students, 156 students attending a private liberal arts college and 193 students attending a large state university (Betz & Taylor, 2012). This same group of 346 college students was also used to validate the CDSE-SF. Initial consistency reliability coefficients (Cronbach's alpha) ranged from .86 to .89 for the subscales and reported .97 for the total score (Betz et al., 1996). A test-retest reliability coefficient for the scale was also reported .83 (Luzzo, 1993). The internal consistency reliability coefficient for the CDSE-SF was reported to be .94 and the subscale alphas ranged from .73

to .83 (Betz, Harmon, & Borgen, 1996). In a subsequent study, Betz, Hammond, and Multon (2005) reported that the new version of the CDSE with a five-point response set yielded scores as reliable as those obtained with the original 10-point response set (Betz & Taylor, 2012). For instance, among a sample of 220 African American college students, subscale alpha coefficient values ranged from .78 and to .85 using the CDSE-SF with the five-point response set (Chaney, Hammond, Betz, & Multon, 2007). Likewise, the reliability coefficients obtained in these previous reliability studies indicate that both versions of the CDSE are highly reliable (Betz & Taylor, 2012). In relation to validity of the CDSE-SF, scores for the CDSE-SF have been linked to career indecision and reported that relationships of the CDSE-SF to Career Indecision ranging from -.19 to -.66 for Indecision and from -.03 to -.76 for Certainty (Betz et al., 1996; Walker, 2010). In the current study, the internal consistency of the CDSE-SF (Cronbach's alpha) ranged from .71 to .81 for the subscales and reported .93 for the total score of the CDSE-SF.

Career decision-making outcome expectations. In the current study, career decisionmaking outcome expectations were measured by the Career Decision Making Outcome Expectation (CDMOE) scale. The CDMOE, developed by Betz and Voyten (1997), is a brief, 9item self-administered measure used to assess beliefs about the long-term consequences of success in specific educational or career decision-making behaviors. It consists of two subscales, academic and career outcome expectations, and thus in the present study, both academic and career outcome expectations scale scores were used for data analysis purposes.

First, the academic outcome expectation subscale (AOE) is a 5-item subscale that assesses beliefs regarding the importance of educational performance to career options and success (Betz & Voyten, 1997). Sample items from the AOE subscale are: 'If I try hard enough, I will get good grades'; 'If I get good grades, then I will be able to have the career of my choice'.

Next, the career outcome expectation subscale (COE) is a 4-item subscale that assesses beliefs regarding the importance of career-decision behaviors to career options and decision-making (Betz & Voyten, 1997). Examples of the COE subscale include: 'If I learn more about difference careers, I will make better career decisions'; 'If I know about the education I need for different careers, I will make a better career decision' (See Appendix C). Items are rated on a five-point scale that ranges from *strongly disagree* (1) to *strongly agree* (5). A total score reflecting outcome expectations is calculated by summing the ratings for the 9 items yielding a range from 9 to 45. In the present study, estimated sub-scale scores (observed variables) were used as an approximation to the latent variable of career decision-making outcome expectations.

In the development of the CDMOE, internal consistency reliability coefficients for the scales were reported .77 and .79, respectively (Betz & Voyten, 1997). Ochs and Roessler (2001) indicated the coefficient alpha for the academic subscale reported .81 and .74 for the special education and general education students respectively. The coefficient alpha for the career subscale yielded .82 and .75 (Ochs & Roessler, 2001). Betz and Voyten (1997) also found that the CDMOES-COE significantly correlated with career decision-making self-efficacy (r = .31 to .53 for females and males respectively), and exploratory intentions (r = .50 for both females and males) in accordance with SCCT. In the current study, Cronbach's alpha of the CDMOE was ranged from .81 to .83 for the subscales and reported .83 for the total score of the CDMOE.

Goals. In this study, goals were measured by the Goal Setting Scale (Howard et al., 2009). The Goal Setting Scale is a 19-item self-report scale designed to measure activities related to educational and occupational goal attainment, perceptions related to achieving one's goals, and to identify potential challenges that may impede goal pursuits (Howard et al., 2009). Development of this measure was based on Selection, Optimization, and Compensation (SOC)

theory (Baltes, 1997). The Goal Setting Scale is divided into three subscales: Goal Setting and Pursuits, Use of Resources, and Challenges. Sample items include: 'I rank my goals in terms of importance'; 'I like to create a step-by-step plan to achieve my goals'; and 'I am not sure whether I will have the resources needed to achieve my goals' (See Appendix D). Following the CFA result, the current study eliminated seven questions that were suggested by modification indices, or whose factor loadings were low. In addition, for the present study, only items from the Goal Setting and Pursuit and the Use of Resources subscales were used in the final model of career development and quality of life of college students with disabilities suggested by the SEM results.

Respondents are asked to respond to each statement using a Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses with higher scores indicate active selection and optimization strategies core to one's goal striving efforts, active use of social and learning supports, and greater perception of obstacles to goal attainment (Howard et al., 2009). A total score reflecting goal setting is calculated by summing the ratings for the 19 items yielding a range from 19 to 95. In the current study, estimated sub-scale scores (observed variables) were used as an approximation to the latent variable of goals.

Internal consistency (Cronbach's alpha) reported by Howard et al. (2009) for each of the subscales; Goal Setting and Pursuit, Use of Resources, and Challenges was .93, .82, and .76, respectively. Solberg, Howard, Gresham, and Carter (2012) also reported adequate internal consistency for each of the subscales as follows: Goal Setting and Pursuit ($\alpha = .95$), Use of Resources ($\alpha = .86$), and Challenges ($\alpha = .77$). Further, internal consistency for the overall scale was .95, and positive scores indicated that students perceived themselves as being more engaged setting goals and seeking opportunities to learn skills needed to achieve those goals (Solberg et

al., 2012). For the current study, Cronbach's alpha for each subscale: Goal Setting and Pursuit, Use of Resources, and Challenges were .87, .66, and .67, respectively. The internal consistency for the overall scale was .84.

Perceived contextual supports. In the current study, perceived contextual supports were measured by the Career Supports Questionnaire (CSQ) (Lent et al., 2001). The CSQ was adapted from Lent et al.'s (2001) career support instrument based on a series of studies examining SCCT. Lent et al. (2001) have indicated that university students articulate both barriers and support to pursuing their career choices. Lent and colleagues (2002) also found eight primary areas of support mentioned by university students, with each student mentioning an average of three forms of support. In order of frequency, areas indicated as key forms of support for pursuing a career were social support/encouragement, personal strengths, direct experience with career relevant tasks, role models/mentors, expected outcomes and rewards, financial resources, goal setting, and self/career exploration activities.

On the basis of these findings, Lent and colleagues (2001) generated sets of items to measure perceived contextual supports. They divided support items into four conceptual clusters: (a) social support and encouragement (e.g., "feel that your family members support this decision"); (b) instrumental assistance (e.g., "have friends or family members who would help you with career-related problems"); (c) access to role models or mentors (e.g., "have access to a 'mentor' who could offer you advice and encouragement"); and (d) financial resources (e.g., "have enough financial support from your family to pursue this academic major") (See Appendix E).

The CSQ asks respondents to indicate on a 5-point scale how likely they would be to encounter a certain form of support when pursuing their career plan ("*Not at all likely to*

encounter" = 1 to "*Extremely likely to encounter*" = 5). A total score from 15 items is calculated by summing the ratings for the 15 items yielding a range from 15 to 75 and responses with higher scores indicate greater perceptions of encountering career support. For the current study, following the CFA result, the study eliminated one question that was suggested by modification indices, or whose factor loadings were low. Additionally, in the current study, estimated subscale scores (observed variables) were used as an approximation to the latent variable of perceived contextual supports.

The internal consistency (Cronbach's alpha) of the CSQ reported by Lent et al. (2001) was .88. The coefficient alpha of the CSQ in a study (Raiff, 2004), examining the perceived career barriers of female college students, was .87. For the present study, the internal consistency of the CSQ ranged from .83 to .86 for the subscales and was .90 for the total score of the CSQ.

Quality of life. In the current study, quality of life was measured by the Quality of Life Inventory (QOLI) (Frisch, 1994). The QOLI was developed to be a readily usable assessment tool grounded in positive psychology. It is a 32-item self-report measure that provides a total raw score as well as weighted satisfaction ratings for the 16 individual areas of life. The 16 areas addressed in the QOLI include Health, Self-Esteem, Goals and Values, Money, Work, Play, Learning, Creativity, Helping, Love, Friends, Children, Relatives, Home, Neighborhood, and Community (Frisch, 1994). Each area is measured with two items, the first asking the respondent to indicate importance of the construct on a three-point scale ranging from 0 (*not important*) to 2 (*extremely important*), and the second requiring the respondent to indicate level of current satisfaction on a six-point scale ranging from -3 (*very dissatisfied*) to +3 (*very satisfied*). Examples of the 32 items are: 'How important is self-esteem to your happiness?';

'How satisfied are you with your self-esteem?'; 'How important is work to your happiness?'; 'How satisfied are you with your work?'; ' How important is your community to your happiness?'; 'How satisfied are you with your community?' (See Appendix F).

The weighted satisfaction ratings are calculated by multiplying the subject's Satisfaction rating for a particular area of life by the Importance rating for the same area (Frisch, 1994). The raw score is the average of the weighted satisfaction ratings. The weighted satisfaction ratings for each area of life ranges from -6 (*extreme dissatisfaction*) to 6 (*extreme satisfaction*). Negative scores indicate dissatisfaction with an area of life and positive scores denote satisfaction or fulfillment. The numerical value (1, 2, 3, 4, or 6) of a weighted satisfaction rating indicates the degree of satisfaction or dissatisfaction with an area (with 6 indicating the highest degree of satisfaction possible and 1 indicating the lowest degree of satisfaction or dissatisfaction possible and 1 indicating the lowest degree of satisfaction possible). For the current study, the raw score of the QOLI was used as an approximation to the variable of perceived quality of life.

The development of the QOLI was conducted via factor analysis, measures of internal consistency, correlation analysis, and discriminant validity (Carlson, 2013; Frisch, 1994). First, the factor analytic procedures with results from a clinical sample of 217 indicated that the 16 scales loaded into a two-factor solution: self-oriented and other-oriented (McAlinden & Oei, 2006). It led to statistical support to what is generally known about a person's quality of life, that it is influenced by both internal and external factors (Carlson, 2013). While internal factors included the subscales of health, self-esteem, goals and values, learning, work, play, creativity, and helping, the external factors included the subscales of neighborhood, home, community, children, love, money and relatives. The friend subscale loaded into both self and other factors (McAlinden & Oei, 2006).

Reliability of the QOLI was examined using both a two-week test-retest and computing a coefficient alpha (Carlson, 2013). The test-retest study included a subgroup of the normative sample numbering 55 participants, indicating a weak reliability coefficient of .73 (Frisch, 1994) whereas internal consistency analyses yielded a coefficient alpha of .79 using the sum of the weighted satisfaction ratings instead of the raw score (Carlson, 2013). Given the fact that the process for computing the raw score is not the same for all individuals, Frisch (1994) supported using the weighted score. The correlation between the sum of the weighted scales and the QOLI raw score was .99 (Carlson, 2013).

Lastly, validity coefficients for the QOLI T-scores with scores from the Satisfaction With Life Scale and the Quality of Life Index were .56 and .75 respectively (Carlson, 2013). In addition, predictive and treatment validity has been supported in work with college students (Frisch et al., 2005), older adults with generalized anxiety disorder (Bourland et al., 2000), patients with anxiety and depression (McAlinden & Oei, 2006), and with inpatient psychiatric patients (Angstman, Schuldberg, Harris, Cochran, & Peterson, 2009).

Data Analysis

The online, quantitative descriptive survey design with a series of descriptive statistics, exploratory factor analysis (EFA), CFA, and SEM procedure was utilized to interpret results, answer the research question and examine the hypothesis. The data was downloaded from MSU Qualtrics' database and imported into Statistical Package for Social Science 21.0 (SPSS) and Mplus 6.1 software. Prior to full data analysis, initial data analyses involved data cleaning and screening processes that include importing data, naming variables, checking accuracy, recoding, examining missing data and checking for the normality of the distribution of scores for the measures and the presence of possible outliers (Mahalanobis distances).

Data analysis included several approaches to confirm the model and address the research question. First, using the SPSS 21.0, descriptive statistics and frequencies were computed on the sample demographic characteristics for the following variables: (a) age; (b) gender; (c) race/ethnicity; (d) marital status; (e) disability type; (f) year in school; (g) enrollment status; (h) GPA; (i) international student status; (j) current or intended major; (k) type of institution; (l) employment status; (m) living arrangement; (n) source of financial support; and (o) type of career development activities they participated in during college years. Table 3 shows a description of research question and hypothesis and data analytic techniques. Table 3. Research Question, Hypothesis, and Data Analytic Techniques

Research Question	Hypothesis		Data Analytic Techniques
What is the effect of	It is hypothesized that the	1.	SEM procedure:
career decision self-	hypothesized model will	1)	Conduct EFA and CFAs to
efficacy, career	adequately fit the data, and		check the validity of the
decision-making	there will be significant		measures
outcome expectations,	correlations among career	2)	Conduct descriptive statistics,
goals, and perceived	decision self-efficacy, career		test for internal consistency
contextual supports on	decision-making outcome		reliability for each measure, and
the quality of life of	expectations, goals,		run the Pearson correlations
college students with	perceived contextual	3)	Evaluate the general
disabilities?	supports, and quality of life.		compatibility of the
			hypothesized model presented
			in Figure 2
		4)	Measure direct and indirect
			effects of social cognitive
			career variables on the quality
			of life: career decision self-
			efficacy, career decision-
			making outcome expectations,
			goals, perceived contextual
			supports, and quality of life

Note. CFA = Confirmatory Factor Analysis; EFA = Exploratory Factor Analysis; SEM = Structural Equation Modeling.

Using Mplus 6.1, SEM was used to establish construct validity (by assessing the loading

of variables onto their specified latent construct in a measurement model) prior to testing the

structural model (Kline, 2005). EFA with geomin rotation was used to test if the items on the CSQ measure theoretical construct of interests. EFA provides information to determine if the items could be better explained by fewer factors that held common item interrelationships and significant loadings (Raykov & Marcoulides, 2006). In addition, the measures used in the study: CDSE-SF, CDMOE, Goal Setting Scale, and CSQ were also tested using CFA and maximum likelihood (ML) estimation. CFA is a strategy for analyzing an a priori measurement model in which the factors and indicators are explicitly stated (Kline, 2005). CFA analyses restrict items to load onto only one latent construct (item loadings are set to 0 onto all other constructs), in contrast to EFAs—where items may freely cross-load onto multiple constructs (Muthén & Muthén, 1998-2012). Item loadings in CFA are also more precise because they are less contaminated by measurement error in CFA than in EFAs; shared measurement error between items can then be identified and estimated in CFA (Kline, 2005). Following the EFA and CFA analyses, using the SPSS 21.0, the descriptive statistics and internal consistencies for the identified exogenous and endogenous variables were examined.

Lastly, a modeling session was conducted and a command file was computed (a) to evaluate the general compatibility of the hypothesized model in Figure 1 with the data; and (b) to test the hypothesized relationships among the previously described measures, specifically direct and indirect effects among variables. Path analysis and SEM are a widely used approach to examining patterns of causation among a set of variables when it is not feasible or ethical to randomly vary such conditions within the normal environment (Polit, 1996). Additionally, SEM allows researchers: (a) to make theoretically based predictions; (b) to evaluate how well the model reproduced the observed patterns of empirical relationships; and (c) to test the unique contribution of each variable within the model (Muthén & Muthén, 1998-2012; Raykov &

Marcoulides, 2006). SEM involves two steps: testing the efficacy of the measurement of the variables within the model and then testing the hypothesized paths between the variables (Muthén & Muthén, 1998-2012).

In order to examine the validity of the hypothesized model in applying to college students with disabilities, the following fit indices suggested by Hoyle and Panter (1995) were used: (a) the Chi-square goodness-of-fit statistics; (b) Comparative Fit Index (CFI), at or above .90 indicating adequate-to-good fit; (c) Tucker-Lewis Index (TLI), at or above .90 indicating adequate-to-good fit; (d) Root Mean Square Error of Approximation (RMSEA), with values less than .06 reflecting good fit; and (e) standardized root mean square residual (SRMR), with values less than .06 reflecting good fit. The modeling session conducted the data against the hypothesized model and a process model selection and further model modification (or minimization) continued until the model converged to a final model of best fit for the data (Muthén & Muthén, 1998-2012; Raykov & Marcoulides, 2006).

Summary

To address the research question, participants were presented with a 115-item survey with sections on (a) demographic information; (b) career decision self-efficacy; (c) career decision-making outcome expectations; (d) goals; (e) perceived contextual supports; and (f) quality of life. Participants were recruited from 2-year and 4-year public and private institutions in a Midwestern state, contacted through the disability-related resource centers. Using a series of analyses including descriptive, EFA, CFA, Pearson correlations, and SEM, data was analyzed to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities.
CHAPTER 4

RESULTS

The purpose of the current study was twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities. Prior to conducting statistical analysis, the raw data for the current study was subject to a data screening process. A total of 386 college students with disabilities were included for further analyses in the present study. A series of statistical analyses including EFA, CFA, descriptive, Pearson correlations, and SEM was conducted. This chapter provides descriptions of the process of screening data and statistical analyses conducted to investigate the research question and hypothesis.

Data Entry and Missing Data

The survey data was downloaded from MSU's Qualtrics' database and imported into SPSS 21.0 and Mplus 6.1 software. The data was proofread against the original data to check that all the items have been entered correctly. Recoding procedures were also conducted prior to the main data analyses. The current study included the following five measures: Career Decision Self-Efficacy Short-Form (CDSE-SF), Career Decision-Making Outcome Expectations (CDMOE), Goal Setting Scale, Career Supports Questionnaire (CSQ), and Quality of Life Inventory (QOLI). One of the measures, the Goal Setting Scale was used to assess activities related to educational and occupational goal attainment and perceptions related to achieving one's goals and to identify potential challenges that may impede goal pursuits. The Goal Setting Scale consists of positively-keyed and negatively-keyed items. Given the fact that one of the

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subscales (i.e., challenges) of the Goal Setting Scale has negatively-keyed items, there was a need for those four items (i.e., item 13, 14, 15, & 16) to be reverse coded which means the more challenges individuals have the less goal capacities they possess or more difficulties they had during setting and pursuing goals.

The researcher examined all 595 responses for missing data, and discarded 208 individuals (35.0%) who did not meet the criteria (e.g., graduate students) or did not answer the questions regarding their perceived quality of life. Missing data proportions were minimal, ranging between 0 and 2.3% across all items, and thus the full information maximum likelihood (FIML) was used to handle the missing values. FIML is an efficient missing data remedy to maximize available data points and avoid loss of statistical power (Enders, 2010).

Screening and Preliminary Analysis of Initial Dataset

Prior to proceeding with the main analyses, careful consideration and necessary resolutions of any issues are fundamental to an honest analysis of the data, which in turn protects the integrity of inferential statistic (Tabachnick & Fidell, 2007). Therefore, in the current study, descriptive statistics, the Kolmogorov-Smirnov statistics, histograms, Q-Q plots, and boxplots were generated to assess the normality of the distribution of scores for the five measures (i.e., CDSE-SF, CDMOE, Goal Setting Scale, CSQ, & QOLI) for the sample and to review for the presence of possible outliers.

First, upon review of the results of the Kolmogorov-Smirnov statistic for the distribution of scores for CDSE-SF, in this case, the Sig. value was .05, indicating no violation of the assumption of normality. The Kolmogorov-Smirnov statistic assesses the normality of the distribution of scores and a non-significant result (p > .05) indicates normality (Pallant, 2013). The CDSE-SF had a mean of 94.22 (SD = 16.96), and a median of 94.0, indicating a negative

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skew of -.35. The kurtosis value indicated the distribution is rather peaked at .28. There were no extreme points, but three outliers were found. These outliers were located within the range of possible scores for that variable. The investigator proceeded to review these three participants' raw data and found that these three answered low (i.e., 1s, 2s or 3s) across all items. According to the descriptive results, the two mean values (i.e., M = 94.22, SD = 16.96 and 5% trimmed M = 94.66) were very similar. If the trimmed mean and mean values are very different, these data points need to be further investigated (Pallant, 2013). Given this, and the fact that the values are not too different from the remaining distribution, these cases were retained in the data file.

For the CDMOE scores, the Kolmogorov-Smirnov statistic showed a significant result, p = .00, suggesting violation of the assumption of normality. The CDMOE had a mean of 36.36 (SD = 5.15) and a median of 36.0, indicating a negative skew of -.13 and negative kurtosis of -.51. If the skewness is more than 1.0 or less than -1.0, the distribution is likely skewed and it could be important to consider transforming the data (Pallant, 2013). In this case, the CDMOE distribution did not violate this general rule but the assumption for the normality of the data was not fully complete. It was also found that there was the presence of the one outlier. The outlier was located within the range of possible scores for that variable. The two mean values (i.e., M = 36.36, SD = 5.15 and 5% trimmed M = 36.47) were very similar. Accordingly, the outlier was not removed in the final dataset.

For the Goal Setting Scale scores, the Kolmogorov-Smirnov statistic showed a significant result, p = .05, indicating no violation of the assumption of normality. However, the Goal Setting Scale had a mean of 62.16 (SD = 10.46) and a median of 63.0, presenting a negative skew of -.17 and negative kurtosis of -.21. In addition, there were no identified outliers.

The distribution of scores for the CSQ was reasonably normal. According to the Kolmogorov-Smirnov statistic results, a non-significant result, p = .14, indicated normality. The CSQ had a mean of 54.15 (SD = 11.22) and a median of 54.0. The skewness value was negatively skewed at -.42 and the kurtosis was peaked at .38. The boxplot showed five identified outliers. The investigator proceeded to review these five participants' raw data and found that these five answered low (i.e., 1s or 2s) across all items. However, due to the similarity between the mean value, M = 54.15; SD = 11.22, and 5% trimmed mean value, M = 54.51, these cases were retained in the final dataset.

Lastly, for the QOLI scores, following the Kolmogorov-Smirnov statistic results, a nonsignificant result, p = .13 was found, indicating normality. The QOLI had a mean of 1.88 (*SD* = 1.8) and a median of 1.9, indicating a negative skew of -.38 and a positive kurtosis value of 1.15. Further, in the current study, the boxplot indicated six identified outliers and one extreme point. These outliers were located within the range of possible scores for that variable, however they mostly answered low across all items. Notably, the one participant's raw data, that showed the extreme point in the boxplot, was excluded from further data analyses. As a result, the complete data was lowered to 386 participants in total.

Exploratory Factor Analysis (EFA)

The Career Supports Questionnaire (CSQ) was a modified version of original Lent et al.'s (2001) career support instrument based on a series of studies examining SCCT. Although the modifications were primarily wording changes, EFA was conducted to determine whether the CSQ measured the theoretical constructs of interest. Specifically, EFA on the 15 items with geomin rotation in Mplus 6.1 was used to verify if items included in the CSQ could be explained by the proposed factors, such as social support and encouragement, instrumental assistance,

access to role models and mentors, and financial resources as described in Lent et al.'s (2001) study. Geomin is an oblique type of rotation that allows the factors to be correlated (Tabachnick & Fiddell, 2007). Tabachnick and Fiddell (2007, p. 646) argue that "Perhaps the best ways to decide between orthogonal and oblique rotation is to request oblique rotation (e.g., direct oblimin or promax) with the desired number of factors and look at the correlations among factors...if factor correlations are not driven by the data, the solution remains nearly orthogonal." The authors also suggest the oblique rotation if the factor correlation matrix for correlations around .32. According to correlations between the factors in the present study, each correlation exceeded .32: .43 between factor 1 and factor 2; .46 between factor 1 and factor 3; and .36 between factor 2 and factor 3. Since correlations exceed the Tabachnick and Fiddell threshold of .32, the solution remained nearly geomin (oblique) in the current study.

As noted above, the original factor structure proposed by Lent et al. (2001) consists of the four factors (i.e., social support and encouragement, instrumental assistance, access to role models and mentors, and financial resources). However, in the current study, with the requirement of eigenvalue greater than 1 and scree plot, three factors were extracted. Factor loadings for the three factors after the geomin rotation were 6.27, 1.66, and 1.50. Additionally, the percentages of variance explained were 41.79%, 11.04%, and 9.94% respectfully. Therefore, there was a need for a slight modification of naming factors based on dominant items. All items in this analysis had primary loadings over .30. Only one item had a cross-loading above .30 (i.e., item 7: "Get encouragement from your fiends for pursuing your career."), however this item had a strong primary loading of .52 on factor 1. Accordingly, all the 15 items were retained. The factor loading matrix for this final solution is presented in Table 4.

Overall, the EFA analysis indicated that three distinct factors were underlying college

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students with disabilities responses to the CSQ items. Each factor comprised the expected regulation items. Factor 1 accounted for 41.79% of the variance and comprised the six informational support items (eigenvalue = 6.27). Factor 2 accounted for 11.04% of the variance and comprised the four instrumental support items (eigenvalue = 1.66). Factor 3 accounted for 9.94% of the variance and comprised the four financial resources items (eigenvalue = 1.50). All items loaded above .30 on their primary factor.

Item	Factor 1	Factor 2	Factor 3
1. Feel accepted by others (i.e., classmates,	.52	.11	.04
protessors, etc.) 2 Have access to a role model in your field (i.e.	79	- 04	001
someone you can look up to and learn from by	•12	.01	.001
observing)	22	05	
3. Be able to afford the cost of advanced training in your field	.22	05	.72
4. Feel supported for your decision from	.05	.80	.02
important people in your life (i.e., family,			
5 Feel that there are people "like you" in your	.50	05	08
field			
6. Get helpful, career-related assistance from a	.82	02	.03
7 Get encouragement from your fiends for	52	32	- 06
pursuing your career	•54	.02	00
8. Get helpful assistance from your advisor at	.60	.09	02
school about pursuing your chosen career	20	07	47
9. Be able to receive financial of other resources to allow you to pursue your career	.20	.07	.4 /
10. Feel that your family members support your	02	.90	03
career decision			
11. Have friends or family who could help you with eareer related problems	.25	.32	.21
12. Have enough money saved up to be able to	.05	.02	.79
persevere and get established in your career			••••
13. Feel that close friends or relatives would be	.21	.66	.01
proud of you for making your career decision	02	01	001
advice and encouragement	.82	.01	.001
15. Have enough financial support from family to	04	.16	.72
pursue your career			
% of explained variance	41.79	11.04	9.94
Eigenvalue	6.27	1.66	1.50

Table 4. Factor Loadings for Career Supports Questionnaire (CSQ) with Geomin Rotation

Note. Factor loadings >|.30| are in boldface. Factor 1 = informational support; Factor 2 = instrumental support; Factor 3 = financial resources.

Confirmatory Factor Analyses (CFAs)

A series of CFA was conducted using Mplus 6.1 with ML estimation to confirm and examine the details of an assumed factor structure of each measurement used in the present study (i.e., CDSE-SF, CDMOE, Goal Setting Scale, and CSQ) (see Figure 3-6). Multiple goodness-offit indices were considered when assessing the model as a more through examination of fit indices can provide different information for evaluation a model (Browne & Cudeck, 1993). The following indices were used in the present study: the Chi-square goodness-of-fit statistics, CFI, TLI, RMSEA, and SRMR. Values were adequate to good if they met the following criteria (Hoyle & Panter, 1995): CFI and TLI (\geq .90), RMSEA (\leq .06), and SRMR (\leq .06). The researcher also checked whether all standardized factor loadings were within acceptable range (values > .50) recommended by Hair, Black, Babin, Anderson, and Tatham (2006). The following is a description of each CFA result of the measurements.

Career decision self-efficacy short-form (CDSE-SF). First, the five-factor measurement models for the CDSE-SF did not fit the observed data well, $x^2(265) = 1104.23 p$ < .001, CFI = .84, TLI = .82, RMSEA = .09, and SRMR = .06. However, all factor loadings were within an acceptable range (> .54). Excluding ten items that were suggested by modification indices, or whose factor loadings were low (i.e., "Use the Internet to find information about occupations that interest you." "Select one major from potential majors you are considering." "Accurately assess your abilities." "Determine the steps you need to take to successfully complete your chosen major." "Determine what your ideal job would be." "Prepare a good resume." "Change majors if you did not like your first choice." "Make a career decision and then not worry whether it was right or wrong." "Change occupations if you are not satisficed with the one you enter." "Talk with a person already employed in a field you are interested in."), the model fit the observed data much better $x^2(80) = 333.21 p < .001$, CFI = .92, TLI = .90, RMSEA = .09 with a confidence interval of .08 and .10, and SRMR = .05. At the conceptual level, some items could be difficult for the study participants to answer due to ambiguity and bias. Another possibility is that because approximately 56.3% of the participants were either junior or senior, asking them whether they change majors if they do not like their choice could be hard for them to come to terms with the fact that they already spent all of these years on the majors they thought they liked.

Standardized factor loadings and residual variances of items are presented in Table 5 and all factor loadings were within an acceptable range (> .61). The three items of Self-Appraisal ($\alpha = .78$), the three items of Occupational Information ($\alpha = .76$), and the three items of Goal Selection ($\alpha = .81$), the three items of Planning ($\alpha = .75$), and the three items of Problem Solving ($\alpha = .71$), showed acceptable reliabilities.

Career decision-making outcome expectations (CDMOE). The researcher conducted the CFA on the hypothesized model where the 9 items were loaded on each latent factor of the CDMOE. The results supported the hypothesized model. Each fit statistic met the criteria for a good fitting model: $x^2(26) = 64.17 p < .001$, CFI = .97, TLI = .96, RMSEA = .06 with a confidence interval of .04 and .08, SRMR = .04. Standardized factor loadings and residual variances of items are presented in Table 5 and all factor loadings were moderate to strong (ranging from .49 to .83). No post-hoc modifications were indicated from the analysis because of the good-fit indexes, and the residual analysis did not indicate any problems.

Goal setting scale. The CFAs were conducted for three-factor measurement models for the Goal Setting Scale. The results showed that the model did not fit the observed data well, $x^2(149) = 700.09 \ p < .001$, CFI = .79, TLI = .76, RMSEA = .10, and SRMR = .08. All factor

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loadings were mild to strong (ranging from .25 to .75). Excluding seven items that were suggested by modification indices, or whose factor loadings were low (i.e., "I am doing things now that will help me prepare for my next education/career opportunity." "I am focusing on what I need to do to be successful in school." "I seek out other learning/training opportunities to increase my skills." "I have trouble deciding what exactly I want to do." "I have a number of plans for after college to fall back on if the one I prefer doesn't work out." " My family plays an important role in helping me plan for my life after college." "My school provides me with support in planning for my life after college."), the model fit the observed data much better $x^2(51) = 163.99 p < .001$, CFI = .93, TLI = .91, RMSEA = .08 with a confidence interval of .06 and .09, and SRMR = .07. Standardized factor loadings and residual variances of items are presented in Table 5 and all factor loadings were moderate to strong (ranging from .50 to .83). The seven items of Goal Setting and Pursuit (α = .87), the two items of Use of Resources (α = .66), and the three items of Challenges (α = .67), showed acceptable reliabilities.

Career supports questionnaire (CSQ). Lastly, the three-factor measurement model of the CSQ showed mixed results of fit indices: $x^2(87) = 353.10 \ p < .001$, CFI = .90, TLI = .88, RMSEA = .09, and SRMR = .07. However, all factor loadings were within an acceptable range (> .55). Excluding the item whose factor loading was lowest (i.e., "Have friends or family who could help you with career-related problems."), the model fit the data slightly better, $x^2(74) = 280.96 \ p < .001$, CFI = .92, TLI = .90, RMSEA = .09, and SRMR = .06. Standardized factor loadings and residual variances of items are presented in Table 5 and all factor loadings were within an acceptable range (> .56). The seven items of Informational Support (α = .86), the three items of Instrumental Support (α = .86), and the four items of Financial Resources (α =

.83), showed good reliabilities. Following the CFA results, a summary of items included in the final model is presented in Table 6.

Figure 3. Confirmatory Factor Analysis of the Career Decision Self-Efficacy-Short Form (CDSE-SF)



Note. The values in the figure are standardized coefficients. For clarity, means and residual variances are omitted.

Figure 4. Confirmatory Factor Analysis of the Career Decision-Making Outcome Expectations (CDMOE)



Note. The values in the figure are standardized coefficients. For clarity, means and residual variances are omitted.

Figure 5. Confirmatory Factor Analysis of the Goal Setting Scale



Note. The values in the figure are standardized coefficients. For clarity, means and residual variances are omitted.

Figure 6. Confirmatory Factor Analysis of the Career Supports Questionnaire (CSQ)



Note. The values in the figure are standardized coefficients. For clarity, means and residual variances are omitted.

Variable	Item	Factor	Residual			
		Loadings	Variances			
CDSE-SF						
Self-Appraisal	Self-Appraisal 14	.76	.42			
II	Self-Appraisal 18	.70	.50			
	Self-Appraisal 22	.74	.46			
Occupational	Occupational Information 10	.68	.53			
Information	Occupational Information 15	.67	.56			
	Occupational Information 23	.77	.40			
Goal Selection	Goal Selection 6	.71	.49			
	Goal Selection 11	.78	.40			
	Goal Selection 20	.80	.36			
Planning	Planning 3	.67	.56			
-	Planning 21	.76	.42			
	Planning 24	.69	.53			
Problem Solving	Problem Solving 4	.66	.57			
C C	Problem Solving 8	.61	.62			
	Problem Solving 25	.74	.46			
CDMOE						
CDMOE		40	70			
Academic Outcome	Academic Outcome	.49	./0			
Expectations	Expectations 1	77	4.1			
	Academic Outcome	.//	.41			
	Expectations 2	02	21			
	Academic Outcome	.83	.31			
	Expectations 3	75	4.4			
	Academic Outcome	./5	.44			
	Expectations 4	70	51			
	Academic Outcome	.70	.31			
Caroor Outcomo	Expectations 5	66	57			
Expectations	Expectations 6	.00	.57			
Expectations	Expectations o	74	15			
	Expostations 7	./4	.43			
	Career Outcome	73	16			
	Expectations 8	.75	.40			
	Career Outcome	75	11			
	Expectations 9	.15	.++			
	Expectations 3					
Goal Setting Scale						
Goal Setting and	Goal Setting and Pursuit 1	.61	.63			
Pursuit						
Goal Setting Scale Goal Setting and Pursuit	Goal Setting and Pursuit 1	.61	.63			

 Table 5. CFAs: Standardized Factor Loadings and Residual Variances

Table 5 (cont'd)

	Goal Setting and Pursuit 2	.69	.53
	Goal Setting and Pursuit 3	.71	.50
	Goal Setting and Pursuit 4	.71	.50
	Goal Setting and Pursuit 5	.72	.48
	Goal Setting and Pursuit 6	.65	.57
	Goal Setting and Pursuit 7	.83	.31
Use of Resources	Use of Resources 11	.68	.54
	Use of Resources 12	.74	.46
Challenges	Challenges 13	.76	.42
-	Challenges 14	.72	.48
	Challenges 16	.50	.75
CSQ	-		
Informational Support	Informational Support 1	.60	.65
	Informational Support 2	.76	.43
	Informational Support 5	.57	.68
	Informational Support 6	.81	.34
	Informational Support 7	.65	.58
	Informational Support 8	.64	.59
	Informational Support 14	.81	.34
Instrumental Support	Instrumental Support 4	.86	.27
	Instrumental Support 10	.86	.27
	Instrumental Support 13	.76	.42
Financial Resources	Financial Resources 3	.83	.32
	Financial Resources 9	.63	.61
	Financial Resources 12	.79	.38
	Financial Resources 15	.73	.47

Note. CDMOE = Career Decision-Making Outcome Expectations; CDSE-SF = Career DecisionSelf-Efficacy Short-Form; CSQ = Career Support Questionnaire.

Measures	Items
CDSE-SF	
Self-	5. Accurately assess your abilities.
Appraisal	
	9. Determine what your ideal job would be.
	14. Decide what you value most in an occupation.
	18. Figure out what you are and are not ready to sacrifice to achieve your career goals.
	22. Define the type of lifestyle you would like to live.
Occupational	
Information	1. Use the internet to find information about occupations that interest you.
	10. Find out the employment trends for an occupation over the next ten years.
	15. Find out about the average yearly earnings of people in an occupation.
	19. Talk with a person already employed in a field you are interested in.
	23. Find information about graduate or professional schools.
Goal	2. Select one major from potential majors you are considering.
Selection	
	6. Select one occupation from a list of potential occupations you are considering.
	11. Choose a career that will fit your preferred lifestyle.
	16. Make a career decision and then not worry whether it was right or wrong.
	20. Choose a major or career that will fit your interests.
Planning	3. Make a plan of your goals for the next five years.
	7. Determine the steps you need to take to successfully complete your chosen major.
	12. Prepare a good resume.
	21. Identify employers, firms, and institutions relevant to your career possibilities.
	24. Successfully manage the job interview process.
Problem	4. Determine the steps to take if you are having academic trouble with an aspect of your chosen
Solving	major.

 Table 6. List of the Items included in the Hypothesized Model (CFA Results)

	8 Parsistantly work at your major or garger goal even when you get frustrated
	12 Change majors if you did not like your first choice
	17. Change encounctions if you are not actisfied with the one you enter
	17. Change occupations if you are not satisfied with the one you enter.
	25. Identify some reasonable major or career alternatives if you are unable to get your first choice.
CDMOE	
Academic	
Outcome	
Expectations	1. If I try hard enough, I will get good grades.
	2. If I do well in school, then I will be better able to achieve my future goals.
	3. If I get good grades, then I will be able to have the career of my choice.
	4. Doing well in school also means that I will do better with the rest of my life.
	5. If I get a good grade point average, then I will be able to get into more career fields.
Career Outcome	
Expectations	6. If I learn more about difference careers, I will make better career decisions.
Ĩ	7. If I know my interests and abilities then I will be able to choose a good career.
	8. If I know about the education I need for different careers, I will make a better career decision.
	9. If I spend enough time gathering information about careers, I can learn what I need to know to make a good decision.
Goal Setting Scale	
Goal Setting	
and Pursuit	1. I generally like to have at least three long-term goals (next 5 to 10 years) for my future.
	2. I like to identify short-term goals (next 3 to 6 months) that will help me achieve my long-term
	goals (next 5 to 10 years).
	3. I rank my goals in terms of importance.
	4. I set timelines to meet my short-term goals.
	5. I like to create a step-by-step plan to achieve my goals.
	6. I consider the importance of my goals by thinking about positives (Pros) and negatives (Cons).
	7. I carefully plan out ways to successfully achieve my goals.
	8. I am doing things now that will help me prepare for my next educational /career opportunity.

Table 6 (cont'd)

		0. Lam facusing an what I need to do to be guagageful in school
		9. I and focusing on what I need to do to be successful in school.
	II	To. I seek out other rearring/training opportunities to increase my skins.
	Use of	
	Resources	11. To reach my goals, I actively seek out support and guidance from others.
		12. I try and get the most I can from every learning opportunity.
		17. I have a number of plans for after college to fall back on if the one I prefer doesn't work out (for example in my life, school, career).
		18. My family plays an important role in helping me plan for my life after college (for example in my life, school, career).
		19. My school provides me with support in planning for my life after college (for example in my life, school, career).
	Challenges	13. I am worried about the future and whether I will be able to achieve my goals
	Chanenges	14. I am not sure whether I will have the resources needed to achieve my goals
		15. I have trouble deciding what exactly I want to do (for example in my life school career)
		16. It is hard for mo to get motivated to actively nursue my goals
CSO		To. It is hard for the to get motivated to actively pursue my goals.
CSQ	Informational	
	Support	1 Feel accented by others (i.e. classmates professors atc.)
	Support	2. Have access to a role model in your field (i.e., someone you can look up to and loarn from by
		2. Have access to a role model in your neid (i.e., someone you can look up to and learn nom by observing)
		5. East that there are needed "like you" in your field
		6. Cot holnful geroor related essistance from a monter
		7. Cot anonuragement from your friends for pursuing your appear
		7. Get encouragement from your friends for pursuing your career
		8. Get helpful assistance from your advisor at school about pursuing your chosen career
		14. Have access to a mentor who could oller you advice and encouragement
	Instrumental	
	Support	4. Feel supported for your decision from important people in your life (i.e., family, professors) 10. Feel that your family members support your career decision
		11. Have menes of family who could help you with career-related problems

Table 6 (cont'd)

Financial	13. Feel that close friends or relatives would be proud of you for making your career decision					
Resources	3. Be able to afford the cost of advanced training in your field					
	9. Be able to receive financial or other resources to allow you to pursue your career					
	12. Have enough money saved up to be able to persevere and get established in your career					
	15. Have enough financial support from family to pursue your career					
Note. Items included i	n the final model are in boldface. CDMOE = Career Decision-Making Outcome Expectations; CDSE-SF =					

Career Decision Self-Efficacy Short-Form; CSQ = Career Support Questionnaire.

Descriptive Statistics, Internal Consistencies, and Correlations

Following the EFA and CFA analyses, the descriptive statistics and internal consistencies for the identified exogenous and endogenous variables were conducted (Table 7). First, the mean of total score of the CDSE-SF of the current sample was 56.69 (SD = 10.6) with minimum total scores of 16 and maximum total scores of 75, indicating that those college students with disabilities who participated in the study showed moderate to high level of confidence in completing tasks necessary to making career decisions. The means of each subscale of the CDSE-SF were 11.58 for Self-Appraisal (SD = 2.38), 11.32 for Occupational Information (SD =2.60), 11.72 for Goal Selection (SD = 2.44), 10.96 for Planning (SD = 2.62), and 11.13 for Problem Solving (SD = 2.36). The internal consistency of the CDSE-SF (Cronbach's alpha) ranged from .71 to .81 for the subscales and reported .93 for the total score of the CDSE-SF.

The mean of total score of the CDMOE was 36.34 (SD = 5.14) with minimum total scores of 22 and maximum total scores of 45, reflecting moderate level of beliefs about the long-term consequences of success in specific educational or career decision-making behaviors. The means of each subscale of the CDMOE were 19.60 (SD = 3.77) for Academic Outcome Expectations and 16.74 (SD = 2.31) for Career Outcome Expectations. The internal consistency of the CDMOE (Cronbach's alpha) ranged from .81 to .83 for the subscales and reported .83 for the total score of the CDMOE.

The mean of total score of the Goal Setting Scale was 40.45 (SD = 7.64) with minimum total scores of 18 and maximum total scores of 60. The study participants responded to the items indicating that students were moderately engaged setting goals and seeking opportunities to learn skills needed to achieve their goals. The means of each subscale of the Goal Setting Scale were 25.03 (SD = 5.56) for Goal Setting and Pursuit, 7.91 (SD = 1.55) for Use of Resources, and 7.51

(SD = 2.76) for Challenges. The internal consistency (Cronbach's alpha) for each of the subscales: Goal Setting and Pursuit, Use of Resources, and Challenges were .87, .66, and .67, respectively. The internal consistency for the overall scale was .84.

The mean of the total score of the CSQ was 50.41 (SD = 10.48) with minimum total scores of 14 and maximum total scores of 70, showing slightly positive perceptions about encountering career support. The means of each subscale of the CSQ were 25.65 (SD = 6.06) for Informational Support, 12.41 (SD = 2.74) for Instrumental Support, and 12.35 (SD = 4.02) for Financial Resources. The internal consistency of the CSQ (Cronbach's alpha) ranged from .83 to .86 for the subscales and reported .90 for the total score of the CSQ that suggests good internal consistency for this scale with the current sample. Lastly, the QOLI had the mean of 1.90 (SD = 1.76), with minimum scores of -4 and maximum scores of 6, suggesting that college students with disabilities who responded to the items had a moderate level of quality of life. Overall, these results are only from the observed means using descriptive statistics, so more rigorous statistical tests using inferential statistics should be conducted.

Variable	Score	Score	M	SD	Min.	Max.	Cronbach's
	Range	Range					Alpha
	(Manual)	(Sample)					
CDSE-SF (Total)	25-125	15-75	56.69	10.58	16	75	.93
Self-Appraisal	5-25	3-15	11.58	2.38	3	15	.78
Occupational	5-25	3-15	11.32	2.60	3	15	.76
Information							
Goal	5-25	3-15	11.72	2.44	3	15	.81
Selection							
Planning	5-25	3-15	10.96	2.62	3	15	.75
Problem	5-25	3-15	11.13	2.36	4	15	.71
Solving							
CDMOE (Total)	9-45	9-45	36.34	5.14	22	45	.83

Table 7. Descriptive Statistics of Variables included in the Hypothesized Model

Table 7 (cont'd)

Academic	5-25	5-25	19.60	3.77	7	25	.83	
Outcome								
Expectations								
Career	4-20	4-20	16.74	2.31	8	20	.81	
Outcome								
Expectations								
Goal Setting Scale	19-95	12-60	40.45	7.64	18	60	.84	
(Total)								
Goal Setting	10-50	7-35	25.03	5.56	7	35	.87	
and Pursuit								
Use of	5-25	2-10	7.91	1.55	2	10	.66	
Resources					-			
Challenges	4-20	3-15	7.51	2.76	3	15	.67	
CSQ (Total)	15-75	14-70	50.41	10.48	14	70	.89	
T 0 1				6.0.6	_		0.6	
Informational	-	7-35	25.65	6.06	7	35	.86	
Support			10.41		•		0.6	
Instrumental	-	3-15	12.41	2.74	3	15	.86	
Support		4.00	10.05	4.00		•	0.2	
Financial	-	4-20	12.35	4.02	4	20	.83	
Kesources			1.00	170	4	ſ		
QULI (Kaw)	-0-6	-0-6	1.90	1./6	-4	6	-	

Note. CDMOE = Career Decision-Making Outcome Expectations; CDSE-SF = Career Decision Self-Efficacy Short-Form; CSQ = Career Support Questionnaire; QOLI = Quality of Life Inventory.

Table 8 presents the correlation matrix for the scales used in the present study. A twotailed Pearson correlation analysis was conducted to examine the correlations among the variables. Statistically significant correlations were identified between the exogenous and endogenous variables. First, all five subscales of the CDSE-SF that measures career decision self-efficacy had significant positive correlations with quality of life (Self-Appraisal: $\gamma = .40$, n= 386, p < .001; Occupational Information: $\gamma = .30$, n = 385, p < .001; Goal Selection: $\gamma = .41$, n = 386, p < .001; Planning: $\gamma = .44$, n = 385, p < .001; Problem Solving: $\gamma = .44$, n = 385, p< .001). This result indicates that college students with disabilities who were more confident in evaluating the accuracy of their self-appraisal, gathering occupational information, selecting goals, making plans for the future, and solving problems perceived better quality of life.

Two subscales of the CDMOE that measure Academic Outcome Expectations and Career Outcome Expectations had significant, but weak positive relationships with quality of life (i.e., $\gamma = .28, n = 386, p < .001, \gamma = .27, n = 386, p < .001$, respectively), indicating that college students with disabilities with a more positive outlook for their academic and career outcomes had a higher level of quality of life.

All three subscales of the Goal Setting Scale also had significant positive correlations with the quality of life (Goal Setting and Pursuit: $\gamma = .39$, n = 386, p < .001; Use of Resources: $\gamma = .37$, n = 386, p < .001; Challenges: $\gamma = .41$, n = 386, p < .001). This result indicates that college students with disabilities who were more actively to select and optimize strategies core to their goal striving efforts and to use of social and learning supports, and had greater perceptions of obstacles to goal attainment showed a higher level of quality of life.

All three subscales of the CSQ also had significant, moderate positive correlations with the QOL (Informational Support: $\gamma = .59$, n = 386, p < .001; Instrumental Support: $\gamma = .50$, n = 386, p < .001; Financial Resources: $\gamma = .52$, n = 386, p < .001). This result indicates that college students with disabilities who had greater perceptions of encountering career supports such as social supports and career-related assistance from family, friends, and other important people and financial supports when pursuing their career plans showed a better perceived quality of life.

In addition to the relationships between exogenous and endogenous variables, significant correlations were also identified between exogenous variables. First, positive correlations were observed between career decision self-efficacy and career decision-making outcome expectations

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variables. Each subscale of the CDSE-SF was positively correlated with the subscales of the CDMOE, $\gamma = .26$, p < .001 (the correlation between Self-Appraisal and Academic Outcome Expectations), $\gamma = .42$, p < .001 (the correlation between Self-Appraisal and Career Outcome Expectations), $\gamma = .29$, p < .001 (the correlation between Occupational Information and Academic Outcome Expectations), $\gamma = .35$, p < .001 (the correlation between Occupational Information and Academic Outcome Expectations), $\gamma = .35$, p < .001 (the correlation between Occupational Information and Career Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Goal Selection and Academic Outcome Expectations), $\gamma = .41$, p < .001 (the correlation between Planning and Academic Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Planning and Career Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Planning and Academic Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Planning and Academic Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Planning and Academic Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Planning and Academic Outcome Expectations), $\gamma = .33$, p < .001 (the correlation between Problem Solving and Academic Outcome Expectations), and $\gamma = .40$, p < .001 (the correlation between Problem Solving and Career Outcome Expectations).

The CDSE-SF also had the significant positive correlations with all three subscales of the Goal Setting Scale: $\gamma = .47$, p < .001 (the correlation between Self-Appraisal and Goal Setting and Pursuit), $\gamma = .40$, p < .001 (the correlation between Self-Appraisal and Use of Resources), $\gamma = .31$, p < .001 (the correlation between Self-Appraisal and Challenges), $\gamma = .31$, p < .001 (the correlation between Self-Appraisal and Pursuit), $\gamma = .36$, p < .001 (the correlation between Occupational Information and Goal Setting and Pursuit), $\gamma = .27$, p < .001 (the correlation between Occupational Information and Challenges), $\gamma = .47$, p < .001 (the correlation between Goal Selection and Goal Setting and Pursuit), $\gamma = .42$, p < .001 (the correlation between Goal Selection and Goal Setting and Pursuit), $\gamma = .42$, p < .001 (the correlation between Goal Selection and Goal Setting and Pursuit), $\gamma = .42$, p < .001 (the correlation between Goal Selection and Use of Resources), $\gamma = .33$, p < .001 (the correlation between Goal Selection and Use of Resources), $\gamma = .33$, p < .001 (the correlation between Goal Selection and Use of Resources), $\gamma = .33$, p < .001 (the correlation Between Goal Selection and Use of Resources), $\gamma = .33$, p < .001 (the correlation Between Flanning and Challenges), $\gamma = .47$, p < .001 (the correlation Between Flanning and Challenges), $\gamma = .47$, p < .001 (the correlation Between Flanning and Challenges), $\gamma = .47$, p < .001 (the correlation Between Flanning and Goal Setting and Pursuit), $\gamma = .47$, p < .001 (the correlation Between Flanning and Use of Resources), $\gamma = .47$, p < .001 (the correlation Between Flanning and Challenges), $\gamma = .47$, p < .001 (the correlation Between Flanning and Use of Resources), $\gamma = .47$, p < .001 (the correlation Between Flanning and Use of Resources), $\gamma = .47$, p < .001 (the correlation Between Flanning and Use of Resources), $\gamma = .47$, p < .001 (the correlation Between Flanning Resources), $\gamma = .47$, p < .001 (the

Resources), $\gamma = .37$, p < .001 (the correlation between Planning and Challenges), $\gamma = .46$, p < .001 (the correlation between Problem Solving and Goal Setting and Pursuit), $\gamma = .47$, p < .001 (the correlation between Problem Solving and Use of Resources), and $\gamma = .35$, p < .001 (the correlation between Problem Solving and Challenges).

There were significant correlations between the subscale of the CDSE-SF and the subscales of the CSQ, $\gamma = .44$, p < .001 (the correlation between Self-Appraisal and Informational Support), $\gamma = .28$, p < .001 (the correlation between Self-Appraisal and Instrumental Support), $\gamma = .29$, p < .001 (the correlation between Self-Appraisal and Financial Resources), $\gamma = .34$, p < .001 (the correlation between Occupational Information and Informational Support), $\gamma = .22$, p < .001 (the correlation between Occupational Information and Instrumental Support), $\gamma = .31$, p < .001 (the correlation between Occupational Information and Financial Resources), $\gamma = .42$, p < .001 (the correlation between Goal Selection and Informational Support), $\gamma = .32$, p < .001 (the correlation between Goal Selection and Instrumental Support), $\gamma = .29$, p < .001 (the correlation between Goal Selection and Financial Resources), $\gamma = .48$, p < .001 (the correlation between Planning and Informational Support), $\gamma =$.27, p < .001 (the correlation between Planning and Instrumental Support), $\gamma = .31$, p < .001 (the correlation between Planning and Financial Resources), $\gamma = .51$, p < .001 (the correlation between Problem Solving and Informational Support), $\gamma = .32$, p < .001 (the correlation between Problem Solving and Instrumental Support), and $\gamma = .34$, p < .001 (the correlation between Problem Solving and Financial Resources).

Moreover, the subscales of the career decision self-efficacy had moderate to strong positive correlations with each other: $\gamma = .56$, p < .001 (the correlation between Self-Appraisal and Occupational Information), $\gamma = .72$, p < .001 (the correlation between Self-Appraisal and

Goal Selection), $\gamma = .64$, p < .001 (the correlations between Self-Appraisal and Planning), $\gamma = .66$, p < .001 (the correlations between Self-Appraisal and Problem Solving), $\gamma = .61$, p < .001 (the correlations between Occupational Information and Goal Selection), $\gamma = .67$, p < .001 (the correlations between Occupational Information and Planning), $\gamma = .63$, p < .001 (the correlations between Occupational Information and Planning), $\gamma = .63$, p < .001 (the correlations between Goal Selection and Problem Solving), $\gamma = .62$, p < .001 (the correlations between Goal Selection and Planning), $\gamma = .62$, p < .001 (the correlations between Goal Selection and Planning), $\gamma = .62$, p < .001 (the correlations between Goal Selection and Planning), $\gamma = .77$, p < .001 (the correlations between Planning and Problem Solving).

Regarding the correlations between the career decision-making outcome expectations and goals variables, Academic Outcome Expectations were positively correlated with Goal Setting and Pursuit ($\gamma = .32, p < .001$) and Use of Resources ($\gamma = .36, p < .001$) but not significantly correlated with Challenges ($\gamma = .08, p = .124$). Career Outcome Expectations were also positively correlated with Goal Setting and Pursuit ($\gamma = .38, p < .001$) and Use of Resources ($\gamma = .45, p < .001$) but not significantly correlated with Challenges ($\gamma = .09, p = .065$). This result indicates that college students with disabilities with a more positive outlook for their academic and career decision making outcomes were more likely to select and optimize goal-setting strategies and to use of social and learning supports.

Regarding the correlations between the career decision-making outcome expectations and perceived contextual supports variables, Academic Outcome Expectations were positively correlated with Informational Support ($\gamma = .41, p < .001$), Instrumental Support ($\gamma = .29, p < .001$), and Financial Resources ($\gamma = .22, p < .001$). In addition, positive correlations were observed between Career Outcome Expectations and Informational Support ($\gamma = .32, p < .001$), Instrumental Support ($\gamma = .32, p < .001$), Instrumental Support ($\gamma = .29, p < .001$), This

result indicates that college students with disabilities with a more positive outlook for their academic and career decision making outcomes had a better perception of contextual supports. In addition, the subscales of the CDMOE (i.e., Academic Outcome Expectations, Career Outcome Expectations) also had a positive correlation with each other, $\gamma = .39$, p < .001.

Each subscale of the Goal Setting Scale was positively correlated with the subscales of the CSQ, $\gamma = .36$, p < .001 (the correlation between Goal Setting and Pursuit and Informational Support), $\gamma = .25$, p < .001 (the correlation between Goal Setting and Pursuit and Instrumental Support), $\gamma = .27$, p < .001 (the correlation between Goal Setting and Pursuit and Financial Resources), $\gamma = .46$, p < .001 (the correlation between Use of Resources and Informational Support), $\gamma = .32$, p < .001 (the correlation between Use of Resources and Instrumental Support), $\gamma = .26, p < .001$ (the correlation between Use of Resources and Financial Resources), $\gamma = .29$, p < .001 (the correlation between Challenges and Informational Support), $\gamma = .26$, p < .001 (the correlation between Challenges and Instrumental Support), and $\gamma = .29$, p < .001 (the correlation between Challenges and Financial Resources). This result indicates that college students with disabilities who perceived themselves as being more engaged in setting goals and seeking opportunities to learn skills needed to achieve the goals had a greater perception of contextual supports. In addition, three subscales of the Goal Setting Scale had weak to moderate positive correlations with each other, ranging from $\gamma = .46$, p < .001 (the correlations between Goal Setting and Pursuit and Use of Resources), $\gamma = .24$, p < .001 (the correlations between Goal Setting and Pursuit and Challenges), to $\gamma = .25$, p < .001 (the correlations between Use of Resources and Challenges).

Lastly, there were moderate positive correlations between the subscales of the CSQ: $\gamma = .53$, p < .001 (the correlation between Informational Support and Instrumental Support), $\gamma = .47$,

p < .001 (the correlation between Informational Support and Financial Resources), and $\gamma = .40$,

p < .001 (the correlation between Instrumental Support and Financial Resources).

		_		_	
Table 8	Two-tailed	Pearson	Correlations	among '	Variables
			00110110110		

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Career Decision Self-Efficacy														
1. Self-Appraisal	-													
2. Occupational Information	.56**	-												
3. Goal Selection	.72**	.61**	-											
4. Planning	.64**	.67**	.71**	-										
5. Problem Solving	.66**	.63**	.62**	.77**	-									
Career Decision-Making Outcome Expectations														
6. Academic Outcome Expectations	.26**	.29**	.33**	.31**	.38**	-								
7. Career Outcome Expectations	.42**	.35**	.41**	.33**	.40**	.39**	-							
Goals														
8. Goal Setting and Pursuit	.47**	.31**	.47**	.47**	.46**	.32**	.38**	-						
9. Use of Resources	.40**	.36**	.42**	.47**	.47**	.36**	.45**	.46**	-					
10. Challenges	.31**	.27**	.33**	.37**	.35**	.08	.09	.24**	.25**	-				
Perceived Contextual Supports														
11. Informational Support	.44**	.34**	.42**	.48**	.51**	.41**	.32**	.36**	.46**	.29**	-			
12. Instrumental Support	.28**	.22**	.32**	.27**	.32**	.29**	.29**	.25**	.32**	.26**	.53**	-		
13. Financial Resources	.29**	.31**	.29**	.31**	.34**	.22**	.15**	.27**	.26**	.29**	.47**	.40**	-	

Table 8 (cont'd)

Quality of Life

 14. Quality of Life
 .40**
 .30**
 .41**
 .44**
 .28**
 .27**
 .39**
 .37**
 .41**
 .59**
 .50**
 52**

 $*p \le .05. **p \le .01.$

Research Question: What is the effect of career decision self-efficacy, career decisionmaking outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities?

Structural Equation Modeling (SEM)

To answer this question, using Mplus 6.1, the SEM analyses were conducted to test the hypothesized structural relationships among constructs depicted in Figure 1. The SEM procedure specifies the indicators predicted to define each latent variable and specifies the predicted causal paths among these variables.

Initial model fit evaluation. Model fit indices suggested that the hypothesized structural model was an adequate fit to the data, $x^2(71) = 271.16 \ p < .001$, CFI (.92) and TLI (.90) were at and above the .90 cutoff, RMSEA value (.09) was above the .06 cutoff with a confidence interval of .08 and .10, and SRMR (.05) was below the .06 cutoff. The results of these goodness-of-fit indices for the hypothesized model are presented in Table 9.

Indices	Values	Description
Chi square statistics	271.16, <i>df</i> = 71, <i>p</i> < .001	Not adequate
CFI	.92	Good fit
TLI	.90	Adequate fit
RMSEA	.09 (Confidence Interval = $.08$ to $.10$)	Mediocre fit
SRMR	.05	Good fit

Table 9. Summary of the Various Indices in the Hypothesized Model

Note. CFI = comparative fit index; TLI = tucker-lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual

The CFI ranges from zero to one with higher values indicating better fit. A rule of thumb for this index is that a value at or above .95 is indicative of very good fit while a value at or above .90 may be interpreted as an adequate-to-good fit (Hoyle & Panter, 1995). The results of the CFI (.92) and the TLI (.90) in the present study indicate that the hypothesized model represents an adequate-to-good fit to the data. According to Browne and Cudeck (1993), the RMSEA values $\leq .05$ can be considered as a good fit, values between .05 and .08 as an adequate fit, and values between .08 and .10 as a mediocre fit, whereas values > .10 are not acceptable. Although there is general agreement that the value of the RMSEA for a good model should be less than .05, Hu and Bentler (1999) suggested the RMSEA of less than .06 as a cutoff criterion. In the present study, RMSEA was .09 with a confidence interval of .08 and .10, suggesting that the model represents a mediocre fit to the data. Lastly, a rule of thumb is that the SRMR should be less than .06 for a good fit, while values smaller than .10 may be interpreted as acceptable (Hu & Bentler, 1999). Thus, the result of the SRMR (.05) in this study suggests that the model represents a good fit to the data.

Structural model. The structural model is described graphically in Figure 7; only significant relations between latent constructs and the covariates are displayed for clarity. Table 10 also provides a summary of all path coefficient results for the hypothesized model. Most of the structural path coefficients are significant at $p \le .01$ level. The results suggest that the structural paths in the hypothesized model are generally consistent with SCCT, with a minor exception. The career decision-making outcome expectation was not found to have a direct effect on goals in the present study. Accordingly, the non-significant structural path from career decision-making outcome expectation to goals suggests that this path needs to be respecified in the final structural model.

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Figure 7. Hypothesized Model of Career Development and Quality of Life of College Students with Disabilities: Structural Path Coefficients



Note. Standardized regression coefficients are depicted for each path.

Table 10. Overview of Structural Model Paths: Direct and Indirect Effects

Path	Unstandardized Estimate	SE	Unstandardized Estimate/SE	Standardized Estimate
Direct effects	2000000			200000
Perceived Contextual Supports → Career Decision Self-Efficacy	.57**	.06	9.93	.64**
Perceived Contextual Supports → Career Decision-Making Outcome Expectations	.27**	.07	3.77	.41**
Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations	.31**	.07	4.65	.42**
Career Decision Self-Efficacy → Goals	.24**	.06	3.84	.32**
Career Decision-Making Outcome Expectations →Goals	.15	.12	1.27	.15
Perceived Contextual Supports →Goals	.41**	.07	6.07	.62**
Goals → Quality of Life	2.67**	.27	10.06	.71**
Indirect effects Perceived Contextual Supports →Goals →Quality of Life	1.1**	.20	5.51	.44**
 Perceived Contextual Supports → Career Decision Self-Efficacy → Goals → Quality of Life 	.36**	.09	4.11	.14**
Perceived Contextual Supports → Career Decision-Making Outcome Expectations → Goals → Quality of Life	.11	.08	1.37	.04
Perceived Contextual Supports → Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations → Goals → Quality of Life	.07	.06	1.23	.03
Career Decision Self-Efficacy → Goals → Quality of Life	.62**	.16	4.04	.22**
Career Decision-Making Outcome Expectations →Goals →Quality of Life	.40	.31	1.31	.11
Table 10 (cont'd)

Career Decision Self-Efficacy →Career Decision-Making Outcome Expectations →Goals →Quality of Life	.12	.10	1.23	.04
Perceived Contextual Supports →Career Decision Self-Efficacy →Goals	.13**	.03	3.9	.2**
Perceived Contextual Supports → Career Decision-Making Outcome Expectations → Goals	.04	.03	1.3	.06
Perceived Contextual Supports →Career Decision Self-Efficacy →Career Decision-Making Outcome Expectations →Goals	.03	.02	1.21	.04
Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations → Goals	.05	.04	1.2	.06
Perceived Contextual Supports → Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations	.18**	.04	4.5	.27**

 $p \le .05. **p \le .01.$

Final structural model. As mentioned above, contrary to the hypothesis, career decision-making outcome expectation was found not to have a significant direct effect on goals. This result suggested post-hoc modifications to respecify the path in the structural model. One possibility of the non-significant structural path from career decision-making outcome expectations to goals could be due to non-significant, weak correlations between two variables. For instance, regarding the correlations between the career decision-making outcome expectations (academic and career outcome expectations) and goals (goal setting and pursuit, use of resources, and challenges), both academic and career outcome expectations had weak relationships with challenges, $\gamma = .08$, p = .124; $\gamma = .09$, p = .065, respectively. Excluding the factor structure of challenges from goals, the final model fit the observed data slightly better,

 $x^{2}(59) = 236.34 p < .001$, CFI (.93) and TLI (.90) were at and above the .90 cutoff, RMSEA value (.09) was above the .06 cutoff with a confidence interval of .08 and .10, and SRMR (.05) was below the .06 cutoff. The results of goodness-of-fit summary for the hypothesized and the final model are presented in Table 11. Overall, the parameter estimates for the structural paths in the final structural model were all statistically significant. The career decision-making outcome expectation was also found to have a significant direct effect on goals. The model depicted in Figure 8 was determined to be the final structural model.

Model	Chi square statistics	CFI	TLI	RMSEA	SRMR
Hypothesized	271.16, <i>df</i> = 71,	.92	.90	.09	.05
Model	<i>p</i> < .001			(Confidence Interval	
				= .08 to $.10)$	
Final Model	236.34, df = 59,	.93	.90	.09	.05
	<i>p</i> < .001			(Confidence Interval	
				= .08 to .10)	

Table 11. Goodness-of-Fit Summary for the Hypothesized and the Final Model

Note. CFI = comparative fit index; TLI = tucker-lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual

Direct effects. Perceived contextual supports, particularly focusing on career supports, were significant predictive of three variables: career decision self-efficacy, career decision-making outcome expectations, and goals (standardized coefficients = .64, .40, and .57, p < .001 respectively). That is, greater perceptions of encountering contextual supports (e.g., social supports and career-related assistance from significant others and financial supports) have direct effects on career decision self-efficacy, career decision-making outcome expectations, and goals. Career decision self-efficacy predicted both career decision-making outcome expectations (standardized coefficients = .43, p < .001) and goals (standardized coefficients = .25, p < .001) as expected. This result indicates that higher levels of career decision self-efficacy are associated with more positive outcome expectations as well as being more engaged in setting goals and

seeking opportunities to learn skills needed to achieve the goals. Career decision-making outcome expectations also significantly predicted goals (standardized coefficients = .30, p < .001). Finally, goals significantly predicted quality of life (standardized coefficients = .68, p < .001).

Indirect effects. The mediated or indirect effects from perceived contextual supports to quality of life were significant via goals (standardized coefficients = .39, p < .001). Similarly, the indirect effects from perceived contextual supports to quality of life were significant via career decision self-efficacy and goals (standardized coefficients = .11, p = .002). The indirect effects of perceived contextual supports to quality of life were also significant via career decision-making outcome expectations and goals (standardized coefficients = .08, p = .017). The indirect effects of perceived contextual supports to quality of life were significant via career decision self-efficacy, career decision-making outcome expectations, and goals (standardized coefficients = .06, p = .032). These indirect effects suggest that higher levels of career supports are associated with higher levels of career decision self-efficacy and career decision-making outcome expectations and active engagement in goal setting and pursuits, which, in turn, are associated with higher levels of perceived quality of life.

In addition to the indirect effects of perceived contextual supports to quality of life via other variables, the indirect effects of both career decision self-efficacy and career decision-making outcome expectations to quality of life were also significant via goals (standardized coefficients = .17, p < .001, standardized coefficients = .21, p < .001, respectively). The indirect effect of career decision self-efficacy to quality of life via career decision-making outcome expectations and goals was also found to be significant (standardized coefficients = .09, p=.032). Additionally, the indirect effects of perceived contextual supports to goals via career decision

self-efficacy was found to be significant (standardized coefficients = .16, p < .001) as well as the indirect effects of perceived contextual supports to goals via career decision-making outcome expectations (standardized coefficients = .12, p = .019). The indirect effect of perceived contextual supports to goals via career decision self-efficacy and career decision-making outcome expectations was also found to be significant (standardized coefficients = .08, p = .034). The indirect effects from career decision self-efficacy to goals via career decision-making outcome expectations were also significant (standardized coefficients = .13, p = .034). The indirect effects of perceived contextual supports to career decision-making outcome expectations were also significant (standardized coefficients = .13, p = .034). The indirect effects of perceived contextual supports to career decision-making outcome expectations were also significant (standardized coefficients = .13, p = .034). The indirect effects of perceived contextual supports to career decision-making outcome expectations via career decision self-efficacy were significant as expected (standardized coefficients = .27, p < .001). A summary of all path coefficient results for the final structural model is presented in Table 12.

Finally, 46% of the variance in quality of life was accounted for by goals. Career decision self-efficacy was predicted by perceived contextual supports, and 40% of the variance associated with career decision self-efficacy was accounted for by perceived contextual supports. Career decision-making outcome expectations were predicted by perceived contextual supports and career decision self-efficacy, and 56% of the variance associated with career decision-making outcome expectations was accounted for by these two predictors. Perceived contextual support was predicted by career decision self-efficacy, career decision-making outcome expectations, and goals, and 99% of the variance associated with perceived contextual support was accounted for by these three predictors.

Figure 8. Final Structural Model of Career Development and Quality of Life of College Students with Disabilities: Structural Path Coefficients



Note. Standardized regression coefficients are depicted for each path.

Table 12. Overview of Final Structural Model Paths: Direct and Indirect Effects

Path	Unstandardized Estimate	SE	Unstandardized Estimate/SF	Standardized Estimate
Divect offects	Lotiniate		LStillate/SL	Listillate
Perceived Contextual Supports → Career Decision Self-Efficacy	.56**	.06	9.95	.64**
Perceived Contextual Supports →Career Decision-Making Outcome Expectations	.26**	.07	3.76	.40**
Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations	.31**	.07	4.70	.43**
Career Decision Self-Efficacy →Goals	.18**	.06	2.93	.25**
Career Decision-Making Outcome Expectations →Goals	.30*	.13	2.36	.30**
Perceived Contextual Supports →Goals	.37**	.07	5.50	.57**
Goals →Quality of Life	2.59**	.26	9.82	.68**
Indirect effects Perceived Contextual Supports →Goals →Quality of Life	.96**	.20	4.92	.39**
Perceived Contextual Supports →Career Decision Self-Efficacy →Goals →Quality of Life	.27**	.09	3.09	.11**
Perceived Contextual Supports →Career Decision-Making Outcome Expectations →Goals →Quality of Life	.20*	.09	2.37	.08*
Perceived Contextual Supports → Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations → Goals → Quality of Life	.14**	.06	2.14	.06*
Career Decision Self-Efficacy →Goals →Quality of Life	.48**	.16	3.04	.17**
Career Decision-Making Outcome Expectations →Goals →Quality of Life	.79*	.32	2.48	.21**

Table 12 (cont'd)

Career Decision Self-Efficacy →Career Decision-Making Outcome Expectations →Goals →Quality of Life	.25*	.12	2.14	.09*
Perceived Contextual Supports →Career Decision Self-Efficacy →Goals	.10**	.04	2.98	.16**
Perceived Contextual Supports →Career Decision-Making Outcome Expectations →Goals	.08*	.04	2.28	.12*
Perceived Contextual Supports →Career Decision Self-Efficacy →Career Decision-Making Outcome Expectations →Goals	.05*	.03	2.07	.08*
Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations→Goals	.10*	.05	2.06	.13*
 Perceived Contextual Supports →Career Decision Self-Efficacy → Career Decision-Making Outcome Expectations 	.17**	.04	4.54	.27**

 $*p \le .05. **p \le .01.$

CHAPTER 5

DISCUSSION

The purpose of this study was twofold: (a) to evaluate the general compatibility (i.e., goodness of fit) of the hypothesized model with the data; and (b) to determine the effect of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports on the quality of life of college students with disabilities using SCCT as a framework. To accomplish this, based on the online, quantitative descriptive survey design, data was collected from college students with disabilities currently enrolled in 2-year and 4-year private/public colleges and universities in a Midwestern state. This work has explored the hypothesized structural relationships among variables related to career decision-making processes and quality of life. This has been done using a series of statistical analyses including EFA, CFA, descriptive statistics, Pearson correlations, and SEM procedure. This chapter provides a discussion of the findings from the present study; it also reviews the limitations and points out the implications for practice and future research.

Discussion of the Findings

Measurement considerations. Prior to the discussion of the research findings, the CFA results from testing the factor structure of each measurement used in the present study produced several issues that warrant discussion. The CDSE-SF that measures career decision self-efficacy with a 25-item scale was developed by eliminating 5 of the 10 items from each of the five CDSE original scales (Betz et al., 1996). However, in the present study, the CFA results showed that the five-factor measurement models for the CDSE-SF fit the observed data rather poorly. For the CFA, Hair et al. (2006) suggested "standardized loading estimates should be 0.5 or higher, and ideally 0.7 or higher" (p. 779). Although all factor loadings were within an acceptable range

(> .54), the researcher had to exclude 10 items that were suggested by modification indices, or whose factor loadings were low. In multiple cases, the number of factors of the CDSE-SF and the items per factor also varied from study to study, making it difficult to comprehend the dimensions of career decision self-efficacy. In fact, Török, Tóth-Király, Bőthe, and Orosz (2016) examined the dimensionality of the CDSE-SF and also found the best model fit. This fit included a general CDSE factor covering 15 items and the original five specific factors (self-appraisal, occupational information, goal selection, planning, and problem solving) covering three items each. On the basis of the mixed results from multiple studies (e.g., Makransky, Rogers, & Creed, 2014; Miller, Roy, Brown, Thomas, & McDaniel, 2009) and the current findings, although the CDSE-SF is a reliable measure, caution should be used to interpret the results, as multiple items were loaded on multiple factors.

Second, while the results of the model estimation of the hypothesized model suggested that most of the structural paths were generally consistent with SCCT, in the present study there was a non-significant structural path from career decision-making outcome expectations to goals. Thus the path had to be respecified in the final structural model. One possible explanation concerns statistically non-significant, weak relationships between the variables—career decisionmaking outcome expectations and challenges, which is one of the subscales of the Goal Setting Scale ($\gamma = .08, p = .124; \gamma = .09, p = .065$, respectively). Another possibility is a mediocre estimation of the true factor structure of the Goal Setting Scale. The Goal Setting Scale is a 19item instrument that measures activities related to educational and occupational goal attainment as well as the perception of obstacles blocking the path to one's goals. As described above, this measurement is comprised of three subscales: Goal Setting and Pursuits, Use of Resources, and Challenges. An EFA conducted on the scale for a random sample of 300 U.S. pre-college

students (Howard, Lindwall, Olson, Schindler, & Jones, unpublished manuscript) suggested a three-factor structure of the Goal Setting Scale; the CFA on the same sample indicated that the three-factor structure provided a mediocre estimation of the true factor structure presented in the data. Although Solberg, Gresham, and Howard (2011) noted that the subscale scores can be utilized and interpreted in future analyses, caution should be used when interpreting findings based on subscales due to their not meeting the conservative threshold established previously. Thus, in the final structural model, the factor structure of Challenges from the variable goals was excluded. Hence, the model fit the observed data slightly better than the initial model estimation of the hypothesized model. The career decision-making outcome expectation was also found to have a significant direct effect on goals.

Overall, factor analyses produced somewhat mixed indications regarding some of the items of the CDSE-SF and the number of the factors as well as the items per factor of the Goal Setting Scale, suggesting that there may be need to further clarify some aspects of the measurements. The mixed results also necessitate a further examination of the participants' interpretations of the items and whether these are congruent with those of other individuals and the concept that is being measured.

Interplay among social cognitive and perceived contextual support variables. The present study has focused on the structural relationships among particular domains of social cognitive variables and their contribution to how college students with disabilities perceive their quality-of-life levels. To help guide this focus, the work has drawn on SCCT (Lent et al., 1994; 2000) and previous research on transition youth and young adults with disabilities (e.g., Cardoso et al., 2013; Dutta et al., 2015; Ochs & Roessler, 2004; Panagos & DuBois, 1999; Punch et al., 2005) and those without disabilities (e.g., Hui & Lent, 2017; Lent et al., 2002; 2008; 2010; 2016).

The current findings advance the literature in career development and vocational rehabilitation areas in several ways.

Consistent with other studies that have extended the SCCT model to other samples, the current findings also suggest that social cognitive predictors are relevant to the experiences of college students with disabilities. The obtained structural model in the current study provides empirical evidence suggesting that an adequate fit to the data is offered by the model predicting quality-of-life levels from a combination of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports.

The cognitive variables offered utility in predicting academic or career goals. Specifically, career decision self-efficacy contributed to goals both directly and through career decision-making outcome expectations. Prior research has similarly found empirical support for either an indirect path (Betz & Voyten, 1997) or for both direct and indirect paths from selfefficacy to goals (Huang & Hsieh, 2011; Jantzer, Stales, & Rottinghaus, 2009). This finding suggests that college students with disabilities who have higher levels of career decision selfefficacy exhibit more of a sense of certainty in the planning of future life events as well as their outcomes. Hence, they set and pursue their desired goals. Together, career decision selfefficacy and career decision-making outcome expectations are seen as promoting goals related to pursuing one's academic life and/or careers.

Viewed from the perspective of the SCCT model and previous research on the relation between social cognitive variables and the academic- and career-choice making (Lent et al., 2002; Raiff, 2004), the authors point to the need for further study of the role of contextual factors in the academic- and career-choice making of students representing diverse cultures. The present study extends previous research to a more diverse population—college students with varying types of

disabilities. Lent and his colleagues (2002) also suggested that supports and barriers were distinct constructs. In the present study, the focus was solely career support so as to examine college students' perception of support for planning their academic and career goals and the impact of such support on the perceived level of quality of life.

Consistent with previous literature (Lent et al., 2001; 2002; 2016), the current study also found that perceived contextual supports play a significant role in fostering career decision selfefficacy, career decision-making outcome expectations, goals, and quality of life of college students with disabilities. The results also show that the relation of support from family, friends, role models, and mentors to goals was largely mediated by career decision self-efficacy and/or career decision-making outcome expectations. For instance, the structural model indicated that college students with disabilities who have greater perceptions of encountering social support and encouragement and career-related assistance from family, friends, class peers, advisors, role models, and mentors might be confident in their ability to evaluate self, gather occupational information, plan for future events, and solve problems, and expect to experience success, and thus set and pursue their goals. These findings suggest that perceived contextual support from significant others and access to resources may assist college students with disabilities as they negotiate their career decision self-efficacy and expectations about outcomes. This could thereby provide them with a pathway to their desired goals. The findings also suggest that, ultimately, the process of this career decision-making process greatly affects these students' quality of life and well-being. Consider when college students with disabilities are engaged in the pursuit of their goals; their level of career decision self-efficacy and career decision-making outcome expectations may be shaped not just by financial support but also by social and professional support and encouragement from significant others such as family, friends, class

peers, role models and mentors. In other words, when college students with disabilities are assisted and encouraged to access resources and get helpful academic and/or career assistance, they may more strongly believe in their own abilities. These abilities may include those of organizing and executing actions necessary to achieve a desirable result. On the other hand, even if they have high levels of career decision self-efficacy and positive expectations about their outcomes, they may restrict their decisions regarding educational/career goals based on their perceived barriers. When they attribute their education/career barriers to external factors, then their personal agency suffers (Lent et al., 2002). Thus, an inaccurate set of expectations about their career decision self-efficacy and/or outcome is likely to restrict the range of their decisions (Albert & Luzzo, 1999).

The current findings also indicate that perceived contextual supports directly encourage students' engagement in goal setting and pursuit. This result suggests that support can be useful even when students with disabilities have poor engagement in goal setting and pursuit and do not actively seek out learning opportunities to achieve their goals. Overall, it is evident from the current study and previous research that certain types of support play more important roles in the development of educational/career goals and ultimately, the quality of life of college students with disabilities than those types do in the lives of other students.

The addition of quality of life to the social cognitive model. In the prediction of the perceived level of quality of life, this study expected certain qualities to be important—career decision self-efficacy, career decision-making outcome expectations, perceived contextual supports, and goals. The present study found significant direct and indirect relations of the social cognitive predictors to goals that are generally consistent with theoretical expectations. Moreover, it is noteworthy that the current study empirically supported the relations among the

social cognitive variables and their joint relations to one's perceived level of quality of life.

As noted already, research has highlighted the centrality of work in people's lives across lifespans (Blustein, 2006). Indeed, work has a broad impact on individuals' quality of life in terms of how they are able to function in their homes, participate in broader societal activities, and engage in community activities (Strauser et al., 2015). This study highlights idea that the perceived level of quality of life of college students with disabilities is both directly and indirectly influenced by personal cognitive and contextual factors.

The obtained model indicated that goals directly affected the perceived level of quality of life of college students with disabilities. This result suggests that college students with disabilities who are likely to engage in goal setting and pursuit and use of resources to accomplish the tasks necessary to achieve goals may perceive a better quality of life. Also, several statistically significant mediated or indirect effects of perceived contextual supports to quality of life via personal cognitive variables such as career decision self-efficacy, career decision-making outcome expectations, and goals were found in the final structural model. Additionally, both career decision self-efficacy and career decision-making outcome expectations also significantly predicted the quality of life of college students with disabilities via goals.

Individual well-being measured by life satisfaction and/or quality of life has been linked to having an approach to a goal-oriented life (MacLeod, 2012). Research has also found evidence showing the strength of the goal-well-being link, including such factors as goal content, goal orientation, and organization. Consistent with theoretical and empirical research support (MacLeod, 2012), the current findings also suggest that goal-setting methodology could help college students with disabilities achieve significant improvements in their personal and

professional lives. That is, those who have a goal-based orientation and a tendency towards goal planning and goal setting may sense themselves having a higher quality of life. Goal setting is essential not only to personal and professional engagement in valued activities but also to cope with emotional stress and promote interaction with those in their natural and professional support system (MacLeod, 2012). Consequently, these processes may enable college students with disabilities to contribute to their own career growth, make meaning in their lives, and enhance their quality of life.

Strengths and Limitations of the Study

Previous research has used the earlier SCCT model as a conceptual framework for examining how personal learning experience, self-efficacy, outcome expectations, goals, interests, and contextual factors influence career choice, actions, and performance for college students with disabilities (e.g., Cardoso et al., 2013; Dutta et al., 2015), but there is very little applied research on how these factors influence quality of life of this population. Moreover, few studies have been designed specifically to test the predictions of the new SCCT model of CSM for individuals with disabilities, particularly college students with disabilities. The present study extends the literature on the career development of college students with disabilities. Indeed, it provides empirical evidence suggesting that the obtained model predicts quality of life of college students with disabilities from a combination of career decision self-efficacy, career decisionmaking outcome expectations, goals, and perceived contextual supports.

Although this study has several strengths, its findings should be interpreted in light of its limitations. First, it should be noted that the current study used a convenience sample of college students with disabilities in a Midwestern state. The majority of study participants (94.1%; n = 363) were drawn from 4-year institutions whereas only 5.9 % (n = 23) of the participants were

drawn from 2-year institutions. Those enrolled in 2-year community colleges may have similar or different perceptions of career decision-making based on their needs, expectations of others, support, and resources available from their institution environment. In addition, in the current study, 38.3 % (n = 150) of the students reported having more than one disability condition. Previous research has found that the ability to focus on career development for students with disabilities has been impacted by such challenges as the direct effect of their disability on their learning, the amount of time required to compensate for a disability, and the lack of support and low expectations of others (Hitchings et al., 2001). Accordingly, their experience and perceptions of their self-efficacy, outcome expectations, goals, and even their perceived level of quality of life might vary by their disability conditions. Together, the sample does not represent the entire population of college students with disabilities. Hence, efforts to generalize the current findings to all young adults with disabilities or all college students with disabilities should be made with caution. Given these sample limitations, additional care should be taken when considering in particular the implications of the findings for college students with disabilities. It would be valuable to replicate theses results in a larger student sample and to extend this research to other higher education sites and college students with disabilities representing diverse cultures

Another limitation is related to the research design. The current study relied on selfreport measures, using as the primary data source a web-based survey. Social desirability bias (Edwards, 1953) refers to the tendency to answer self-report items in such a way as to deliberately or unconsciously represent oneself in a favorable light. Various factors may motivate the study participants to provide responses that they believe are more socially desirable than a truthful answer and the beliefs of the participants about the purpose of the research.

Therefore, such response bias should be carefully considered when interpreting the findings of the current study.

Third, it is not a simple task to have college students with disabilities to think about how their beliefs have shaped their decision-making and what steps they have taken to plan and achieve their desired academic and/or career goals and rate its impact on their quality of life. While the aim of the current study is to determine how these projections impact their career decision-making ability to pursue a career plan and consequently, their level of quality of life, the lack of context for experiencing some of these supports may mean their answers would change after graduation. Therefore, for this population, a future longitudinal study ought to examine the relationships among perceived career decision self-efficacy, career decision-making outcome expectations, and career supports and barriers and its impact on career decision-making as well as quality of life a few months after graduation.

Another possible limitation is the validity and reliability of the instruments used in the present study. The CDSE-SF that measures career decision self-efficacy with a 15-item scale was used in the structural model suggested by the CFA results. Although the CDSE-SF is a reliable measure, the CFA results in the current study and previous studies have shown the mixed results regarding the number of factors as well as items. Due to fewer items being used to measure individuals' career decision self-efficacy in the present study, the internal consistency for each subscale of the CDSE-SF was also lower than the internal consistency of the original CDSE-SF scale with a 25-item scale. Additionally, the CFA and reliability Cronbach's alpha tests results indicated questionable internal consistency for the two subscales of the Goal Setting Scale that measured goals in the present study (i.e., Cronbach's alpha = .66 for the Use of Resources subscale; Cronbach's alpha = .67 for the Challenge subscale). Although the current

study's analyses have provided validity and reliability evidence, caution should be used in interpreting results and evaluating the findings. In fact, a more thorough analysis should be used to further justify the integrity of the measurements. Despite these limitations, the findings have some interesting implications for the areas of career development and rehabilitation counseling practice and future research.

Implications

SCCT has received much attention in the career development and vocational rehabilitation fields thanks to its applicability to the educational and career development of populations drawn from diverse cultures. In a sample of college students with various types of disabilities, the current study provides additional empirical support for the applicability of the new SCCT's model, CSM. The obtained model links career decision-making process to quality of life in college students with disabilities. This model, in recognition of the importance of career pursuits in establishing a good quality of life (Blustein, 2006; Strauser, 2014), converges with postulates of the psychology of work and empirical work linking career development and psychosocial outcomes among college students with disabilities. Specifically, the results of the present study indicate that pursuit of educational/career goals is directly and indirectly facilitated by an enhanced belief in career decision self-efficacy, positive expectations about career decision-making outcomes, and social and professional support, encouragement, and assistance and that pursuit of desired educational/career goals is likely to affect the one's perceived quality of life. The implications of these findings for practice and future research are discussed.

Implications for practice. First, the current findings suggest that students' career goals may be cultivated via interventions that enhance students' career decision self-efficacy and expectations about career decision-making outcomes. Interventions should be designed to focus

on strengthening students' beliefs in their abilities to achieve necessary tasks relevant to their academic and career goals; these interventions should help them to identify and maintain supporting systems and resources. Such interventions might also include educational and extracurricular activities as part of their support programs/services that allow college students with disabilities (a) to explore self- and occupational knowledge and skills related to a broad range of career domains, (b) to develop short- and long-term plans, and (c) to improve problem-solving skills for overcoming barriers. Further, where practicable, continuing efforts should be made to encourage college students with disabilities to develop appropriate goal strategies, set meaningful and obtainable goals, and utilize resources from learning opportunities and support systems so that, after graduation, they can have a satisfying career life.

Second, the findings suggest the potential value of focusing on career decisional support as a target of career counseling for the population of college students with disabilities. Provision of career decisional support may be furthered by assisting these students in identifying individuals in their natural support systems or in potential mentoring networks who can provide added assistance with career information gathering and decision making. For example, the peer or senior mentoring relationship allows students for direct assistance with personal, career and professional development as well as psychological growth. Moreover, on the basis of the collaborative learning perspective, students working in pairs on tasks necessary for achieving goals are also likely to benefit due to the learning opportunity for reflection and development of alternative points of view and diverse problem-solving strategies (McClain & Sampson, 2013). Such approach also helps students understand causations of the existence or occurrence of career barriers and challenges that they often encounter when making career decisions. In this study, informational supports such as access to a role model in the field and to a mentor who could

offer them advice and encouragement, and career-related assistance from a advisor and/or a mentor were more likely to be strongly loaded on students' perceived contextual supports compared to financial resources and general social support (i.e., emotional support and encouragement) from families, close friends and/or relatives for making career decisions and pursuing their desired careers. Without acknowledging that those personal and professional support networks and resources are available, college students with disabilities may experience more difficulties in making decisions and taking action to achieve their goals. Such a lack of exposure to sufficient career information and experience may cause them to take a pessimistic attribution style in making career decisions. That is, they may not know what type of profession to pursue or to be inadequately prepared for their desired career. Consequently, it may result in decreased life satisfaction and subjective well-being. Therefore, for those who have limited access to needed resources, it is important for practitioners to help students explore ways to gain access to the resources within the family or in other support networks.

Lastly, the results of the present study indicate that 62.2% of college students with disabilities had some type of career development activity experiences whereas 9% did not. The current study was of course not focused on examining what type of career development activities college students with disabilities had participated in during college or how such activities affected their career decision-making processes. However, it is worth noting that making sure career-related services are available to college students with disabilities sooner and monitoring and acknowledging their progress in career development may foster a smooth transition into the workforce after graduation and thus to a better quality of life.

Implications for future research. The current findings would be strengthened with replication in various settings with samples that are representative of the general population of

college students with disabilities. Thus, several additional directions for future research might be suggested.

First, the current study targeted college students with disabilities enrolled in 2-year and/or 4-year private/public colleges and universities. The study explored their beliefs in career decision self-efficacy, career decision-making outcome expectations, and perceived contextual supports; moreover it examined how such career decision-making processes have shaped their pursuit of career goals and affected quality of life. The process of career development is a continuous process of developmental experiences (Savickas, 1997). A career is a process that evolves over time and that incorporates experiences from many facets of an individual's life. An individual's career experiences would also bring its own unique challenges. Indeed, the individual may have to seek different assistance and support based on his or her needs. Therefore, it is suggested that a follow-up longitudinal study focus on the interplay, across a period of time, of the variables studied in the present study. Such a study could determine whether students' perceptions, actual career decision making, and psychosocial outcomes change throughout the career development process or whether their perceptions of those remain stable over time. Such data would extend the focus of the present study and its impact on all aspects of the model

Second, the present study examined only a single aspect of SCCT's contextual construct, career support. Lent et al. (2000) suggested that contextual influences such as environmental support and barriers, which are two distinct constructs, deserve examination alongside each other. Measuring only career support may not capture the full picture of the contextual influences on career development and quality of life of college students with disabilities. Accordingly, it would be beneficial to assess additional barriers or challenges that college students with

disabilities often encounter in making career decisions and how their abilities to cope with those barriers could affect their quality of life.

Third, in the current study, the primary variables of the SCCT model (i.e., career decision self-efficacy, career decision-making outcome expectations, and goals) and perceived contextual supports were included to examine the effect of these variables on the perceived level of quality of life of college students with disabilities. Beneficial implications for this population could also be provided from further research extending the current findings by examining the relationships with other pertinent variables of the new SCCT's model, CSM, such as personality, decisional actions, and other demographic variables not included in the present study.

Lastly, the career decision-making process is a cognitive and emotion-based process that requires individuals to use personal and psychological resources (Blustein, 2006). In this study, those variables examined in the structural model were sorely focused on the cognitive aspects of career decision-making. Therefore, future studies could also consider adding elements of the emotion-based process to the model, elements such as confusion, decision anxiety, stress, and coping.

Overall, given the consistency between the current findings and previous studies of the career development of college students without disabilities, there may be needs for the normalization of the career development interventions and activities that apply to all students regardless of disability. That is, all students need access to high-quality career development services on and off campus, exposure to the world of work focusing on strengthening career decision self-efficacy and emphasizing long-term consequences in career decision-making behaviors, learning opportunities to develop skills, and access to resources and supports that can help them for a successful and meaningful transition into the workforce.

Conclusions

As career is a critically important factor in providing avenues for physical and psychological well-being and community involvement, and in improving overall quality of life, the findings of the present study support and expand upon literature on the career development and quality of life of college students with disabilities. The study provides empirical evidence suggesting that the structural model predicts quality of life of college students with disabilities from a combination of career decision self-efficacy, career decision-making outcome expectations, goals, and perceived contextual supports. For college students with disabilities, providing structured pathways to guide them toward their desired educational/career goals would help them make more efficacious career decisions, which in turn would improve their quality of life and well-being. New ideas for the direction of career development and quality of life practice and research have been suggested based on the significant relationships that emerged in the present study. APPENDICES

APPENDIX A.

Demographic Questionnaire: 15-item

Instructions: Please answer all questions. Check or mark the appropriate box/space for each question or type your response. Your survey responses will be strictly confidential and complete anonymity is assured.

1. What is your age (years)?

2. What is your gender?

Male

Female

____ Not listed (please specify): _____

Prefer not to respond

3. What is your race/ethnicity (Check all that apply)?

- _____ African American/Black
- _____ Asian
- _____ Hispanic/Latino
- Native American/American Indian
- _____Native Hawaiian or other Pacific Islander
- _____ White/Caucasian

____ Not listed (please specify):_____

- _____ Prefer not to respond
- 4. What is your marital status?
- _____ Single
- _____ Married/With a partner
- _____ Separated/Divorced

_____ Widowed

_____ Prefer not to respond

5. Please indicate the type of disability that you have (Check all that apply):

- _____ Learning Disability
- Attention Deficit and Hyperactive Disorders (ADHD)
- Autism Spectrum Disorders (e.g., Autistic Disorder, Asperger's, PDD-NOS)
- _____Blindness/Visual Impairment
- _____ Brain Injury
- ____ Deaf/Hard of Hearing
- _____ Mobility Disabilities

Psychiatric Disabilities (e.g., Schizophrenia, Depression, Anxiety, Bipolar Disorder, etc.)

Chronic Health Conditions (e.g., Lupus, Chronic Pain, Multiple Sclerosis, Crohn's Disease, etc.)

Other Disability (Please specify):

6. What is your current year in school?

- _____ First year in community college
- Second year in community college
- _____ Undergraduate Freshman (less than 28 earned credits)
- _____ Undergraduate Sophomore (28-55 earned credits)
- _____ Undergraduate Junior (56-87 earned credits)
- Undergraduate Senior (88-120 earned credits)
- Not listed (Please specify):

7. Are you enrolled as a:

- Full-time student
- _____ Part-time student
- 8. What is your current grade point average (GPA)?
- _____ Above 3.50
- 3.00-3.49
- 2.00-2.99
- _____1.00-1.99
- ____Below 1.00
- Not applicable

9. Are you an international student?

____Yes

10. What is your current or intended major? (Please fill in):

- 11. What is the type of institution you are attending?
- _____ 2-year community college
- _____ 4-year public college/university
- 4-year private college/university
- ____ Other (Please specify): _____
- 12. What is your current employment status?
- _____ Full time paid employment (more than 30 hours/week)
- _____ Part-time (less than 30 hours/week)
- _____ Self-employment
- _____ Non-paid work such as volunteer/charity
- _____ Not employed- seeking work
- _____ Not employed- not seeking work
- Other (please specify):
- 13. What is your current living arrangement?
- _____ Living at home with parent(s), relative(s), or guardian(s)
- Living in a residential hall
- Living in a Fraternity/Sorority house

Own home/apartment Other (Please specify):

14. What is your current source(s) of financial support for your studies? (Check all that apply) _____ I am primarily responsible.

Another family member is primarily responsible.

_____ I share responsibility with another family member.

A professional agency is primarily responsible (e.g., state vocational rehabilitation agency).

Other (please specify):

15. What career development activities that you have participated in during college? (Check all that apply)

____ Career counseling

Resume/Cover Letter development

Social media profile development (e.g., LinkedIn)

Interviewing skills

Job search skills

Informational interviewing

_____ Job shadowing

Professional networking

Internships/Job Fair

____ Other (Please specify): _____

None

APPENDIX B.

Career Decision Self-Efficacy Scale Short Form: 25-item

Instructions: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by selecting your answer according to the following 5-point continuum.

1	2	3	4	5
NO COFIDENCE	VERY LITTLE	MODERATE	MUCH	COMPLETE
AT ALL	CONFIDENCE	CONFIDENCE	CONFIDENCE	CONFIDENCE

HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

1. Use the Internet to find information about occupations that interest you.

- 2. Select one major from potential majors you are considering.
- 3. Make a plan of your goals for the next five years.
- 4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major.
- 5. Accurately assess your abilities.
- 6. Select one occupation from a list of potential occupations you are considering.
- 7. Determine the steps you need to take to successfully complete your chosen major.
- 8. Persistently work at your major or career goal even when you get frustrated.
- 9. Determine what your ideal job would be.
- 10. Find out the employment trends for an occupation over the next ten years.
- 11. Choose a career that will fit your preferred lifestyle.
- 12. Prepare a good resume.
- 13. Change majors if you did not like your first choice.
- 14. Decide what you value most in an occupation.
- 15. Find out about the average yearly earnings of people in an occupation.
- 16. Make a career decision and then not worry whether it was right or wrong.

- 17. Change occupations if you are not satisfied with the one you enter.
- 18. Figure out what you are and are not ready to sacrifice to achieve your career goals.
- 19. Talk with a person already employed in a field you are interested in.
- 20. Choose a major or career that will fit your interests.
- 21. Identify employers, firms, and institutions relevant to your career possibilities.
- 22. Define the type of lifestyle you would like to live.
- 23. Find information about graduate or professional schools.
- 24. Successfully manage the job interview process.
- 25. Identify some reasonable major or career alternatives if you are unable to get your first choice.

APPENDIX C.

Career Decision-Making Outcome Expectations: 9-item

Instructions: For each statement below, please read carefully and indicate your beliefs about the long-term consequences of success in specific educational or career decision-making behaviors by selecting your answer according to the following 5-point continuum.

12345STRONGLYDISAGREENEUTRALAGREESTRONGLYDISAGREEAGREEAGREEAGREE

1. If I try hard enough, I will get good grades.

2. If I do well in school, then I will be better able to achieve my future goals.

3. If I get good grades, then I will be able to have the career of my choice.

4. Doing well in school also means that I will do better with the rest of my life.

5. If I get a good grade point average, then I will be able to get into more career fields.

6. If I learn more about difference careers, I will make better career decisions.

7. If I know my interests and abilities then I will be able to choose a good career.

8. If I know about the education I need for different careers, I will make a better career decision.

9. If I spend enough time gathering information about careers, I can learn what I need to know to make a good decision.

APPENDIX D.

Goal Setting Scale: 19-item

Instructions: For each statement below, please read carefully and indicate your perceptions about your educational and occupational goal attainment and obstacles to achieving your goals by selecting your answer according to the following 5-point continuum.

12345STRONGLYDISAGREENEUTRALAGREESTRONGLYDISAGREEAGREEAGREE

- 1. I generally like to have at least three long-term goals (next 5 to 10 years) for my future.
- 2. I like to identify short-term goals (next 3 to 6 months) that will help me achieve my long-term goals (next 5 to 10 years).
- 3. I rank my goals in terms of importance.
- 4. I set timelines to meet my short-term goals.
- 5. I like to create a step-by-step plan to achieve my goals.
- 6. I consider the importance of my goals by thinking about positives (Pros) and negatives (Cons).
- 7. I carefully plan out ways to successfully achieve my goals.
- 8. I am doing things now that will help me prepare for my next educational /career opportunity.
- 9. I am focusing on what I need to do to be successful in school.
- 10. I seek out other learning/training opportunities to increase my skills.
- 11. To reach my goals, I actively seek out support and guidance from others.
- 12. I try and get the most I can from every learning opportunity.
- 13. I am worried about the future and whether I will be able to achieve my goals.
- 14. I am not sure whether I will have the resources needed to achieve my goals.
- 15. I have trouble deciding what exactly I want to do (for example in my life, school, career).
- 16. It is hard for me to get motivated to actively pursue my goals.
- 17. I have a number of plans for after college to fall back on if the one I prefer doesn't work out (for example in my life, school, career).
- 18. My family plays an important role in helping me plan for my life after college (for example in my life, school, career).
- 19. My school provides me with support in planning for my life after college (for example in my life, school, career).

APPENDIX E.

Career Supports Questionnaire: 15-item

Instructions: A "support" is a factor that can help you pursue and, later progress in your education, job or career. For each of the common forms of support listed below, answer the question, "How likely would it be that you would encounter this type of support?" by selecting your answer according to the following 5-point continuum.

1	2	3	4	5
NOT AT ALL		MODERATELY		EXTREMLY
LIKELY		LIKELY		LIKELY
TO EXPERIENCE		TO EXPERIENCE		TO EXPERIENCE

In pursuing your career of choice, how likely would you be to...

- 1. Feel accepted by others (i.e., classmates, professors, etc.)
- 2. Have access to a role model in your field (i.e., someone you can look up to and learn from by observing)
- 3. Be able to afford the cost of advanced training in your field
- 4. Feel supported for your decision from important people in your life (i.e., family, professors)
- 5. Feel that there are people "like you" in your field
- 6. Get helpful, career-related assistance from a mentor
- 7. Get encouragement from your friends for pursuing your career
- 8. Get helpful assistance from your advisor at school about pursuing your chosen career
- 9. Be able to receive financial or other resources to allow you to pursue your career
- 10. Feel that your family members support your career decision
- 11. Have friends or family who could help you with career-related problems
- 12. Have enough money saved up to be able to persevere and get established in your career
- 13. Feel that close friends or relatives would be proud of you for making your career decision
- 14. Have access to a mentor who could offer you advice and encouragement
- 15. Have enough financial support from family to pursue your career

APPENDIX F.

The Quality of Life Inventory: 32-item

Instructions: This survey asks you to describe how important certain parts of your life (such as work and health) are and how satisfied you are with them.

<u>Important</u> means how much this part of your life adds to your overall happiness. You can say how important something is by picking one of three choices: "Not Important" (0), "Important" (1), or "Extremely Important" (2).

<u>Satisfied</u> means how well your needs, goals, and wishes are being met in this area of your life. You can say how satisfied you are by picking one of six choices from "Very Dissatisfied" (-3) to "Very Satisfied" (+3).

Special definitions are used for words like "money", "work", and "play." Keep these definitions in mind as you answer the questions. Answer every question, even if it does not seem to apply to you. It is your feelings and opinions that are important, so there is no right or wrong answers. Just give the answers that best describe you.

HEALTH is being physical fit, not sick, and without pain or disability.

1. How import	1. How important is HEALTH to your happiness?						
0		1	2				
NOT IMPO	RTANT	IMPORTANT	EXTREMLY IMPORTANT				
2. How satisfied are you with your health?							
-3	-2	-1	+1	+2	+3		
VERY DISSATISFIED	SOMEWHAT D	A LITTLE DISSATISFIED	A LITTLE SATISFIED	SOMEWHAT	VERY SATISFIED		

SELF-ESTEEM means liking and respecting yourself in light of your strengths and weaknesses, successes and failures, and ability to handle problems.

3. How important is SELF-ESTEEM to your happiness?

4. How satisfied are you with your SELF-ESTEEM?

GOLS and VALUES are your beliefs about what matters most in life and how you should live, both now and in the future. This include your goals in life, what you think is right or wrong, and the purpose or meaning of life as you see it.

- 5. How important are GOALS and VALUES to your happiness?
- 6. How satisfied are you with your GOALS and VALUES?

MONEY is made up of these things. It is the money you earn, the things you own (like a car or furniture), and believing that you will have the money and things that you need in the future.

- 7. How important is MONEY to your happiness?
- 8. How satisfied are you with the MONEY you have?

WORK means your career or how you spend most of your time. You may work at a job, at home taking care of your family, or at school as a student. WORK includes your duties on the job, the money you earn (if any), and the people you work with. (If you are unemployed, retired, or can't work, you can still answer these questions.)

- 9. How important is WORK to your happiness?
- 10. How satisfied are you with your WORK? (If you are not working, say how satisfied you are about not working.)

PLAY is what you do in your free time to relax, have fun, or improve yourself. This could include watching movies, visiting friends, or pursuing a hobby like sports or gardening.

- 11. How important is PLAY to your happiness?
- 12. How satisfied are you with the PLAY in your life?

LEARNING means gaining new skills or information about things that interest you. LEARNING can come from reading books or taking classes on subjects like history, car repair, or using a computer.

- 13. How important is LEARNING to your happiness?
- 14. How satisfied are you with your LEARNING?

CREATIVITY is using your imagination to come up with new and clever ways to solve everyday problems or to pursue a hobby like painting, photography, or needlework. This can include decorating your home, playing the guitar, or finding a new way to solve a problem at work.

- 15. How important is CREATIVITY to your happiness?
- 16. How satisfied are you with your CREATIVITY?

HELPING means helping others or helping to make your community a better place to live. HELPING can be done on your own or in a group like a church, a neighborhood association, or a political party. HELPING can include doing volunteer work at a school or giving money to a good cause. HELPING means helping people who are not your friends or relatives.

- 17. How important is HELPING to your happiness?
- 18. How satisfied are you with the HELPING you do?

LOVE is a very close romantic relationship with another person. LOVE usually includes sexual feelings and feeling loved, cared for, and understood. (If you do not have a LOVE relationship, you can still answer these questions.)

- 19. How important is LOVE to your happiness?
- 20. How satisfied are you with the LOVE in your life? (If you are not in a LOVE relationship, say how satisfied you feel about not having a LOVE relationship.)

FRIENDS are people (not relatives) you know well and care about who have interests and opinions like yours. FRIENDS have fun together, talk about personal problems, and help each other out. (If you have no FRIENDS, you can still answer these questions.)

- 21. How important are FRIENDS to your happiness?
- 22. How satisfied are you with your FRIENDS? (If you have no FRIENDS, say how satisfied you are about having no FRIENDS.)

CHILDREN mean how you get along with your child (or children). Think of how you get along as you care for, visit, or play with your child. (If you do not have CHILDREN, you can still answer these questions.)

- 23. How important are CHILDREN to your happiness? (If you have no CHILDREN, say how important having a child is to your happiness.)
- 24. How satisfied are you with your relationship with your CHILDREN? (If you have no CHILDREN, say how satisfied you are about not having children.)

RELATIVES means how you get along with your parents, grandparents, brothers, sisters, aunts, uncles, and in-laws. Think about how you get along when you are doing things together like visiting, talking on the telephone, or helping each other out. (If you have no living RELATIVES, blacken the 0 ["Not Important"] mark for question 25 and do not answer questions 26.)

- 25. How important are REALTIVES to your happiness?
- 26. How satisfied are you with your relationship with RELATIVES?

HOME is where you live. It is your house or apartment and the yard around it. Think about how nice it looks, how big it is, and your rent or house payment.

27. How important is your HOME to your happiness?

28. How satisfied are you with your HOME?

NEIGHBORHOOD is the area around your home. Think about how nice it looks, the amount of crime in the area, and how well you like the people.

29. How important is your NEIGHBORHOOD to your happiness?

30. How satisfied are you with your NEIGHBORHOOD?

COMMUNITY is the whole city, town, or rural are where you live (it is not just your neighborhood.) COMMUNITY includes how nice the area looks, the amount of crime, and how well you like the people. It also includes places to go for fun like parks, concerts, sporting events, and restaurants. You may also consider the cost of things you need to buy, the availability of jobs, the government, schools, taxes, and pollution.

- 31. How important is your COMMUNITY to your happiness?
- 32. How satisfied are you with your COMMUNITY?

End of the survey. Thank you very much for your time and participation!

Please click "NEXT" below and you will be directed to the new survey to collect your email address for receiving a \$10 Amazon online gift card. This information will not be associated with the responses of this primary survey. Recipients will be notified by Monday, April 3.
APPENDIX G.

Research Participant Information and Consent Form

STUDY TITLE: A Causal Model of Career Development and Quality of Life of College Students with Disabilities

1. PURPOSE OF RESEARCH

You are being asked to participate in this web-based survey study of career development and quality of life of college students with disabilities. Researchers are required to provide the necessary information to inform you about the research study, to convey that participation is voluntary, to explain risks and benefits of participation, and to empower you to make an informed decision. You should feel free to ask the researchers any questions you may have. Your participation in this study will take about 15 - 20 minutes of your time.

2. WHAT YOU WILL DO

All that will be required of you is that you take the time to complete this web-based survey. There are six parts and a total of 115 questions to answer. You can save your selected answers by pushing the next button. Further, you have the option to save your responses and log out and return to the survey where you left off. However, you will be unable to go back and change your answers once you have submitted them since no identifying information will be included with your responses.

3. POTENTIAL BENEFITS

Your participation in this study may generate data useful for a comprehensive understanding of the effect of career decision-making processes on the quality of life of college students with disabilities. In addition, it is anticipated that the findings from this study will have potential to contribute to collaborative intervention service approaches that promote positive career development among college students with disabilities.

4. POTENTIAL RISKS

There are no foreseeable risks associated with participation in this study. Your comments will remain confidential. Consent forms will be collected online before starting the survey.

5. PRIVACY AND CONFIDENTIALITY

The data for this study will be kept confidential. All information gathered in this study will be used only for research purposes and be accessible only by the researchers. All data will be collected on the web using the web-survey service program, Qualtrics, and will be kept strictly confidential. No names or identifiers will be revealed for non-research purposes. The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain confidential. All research materials will be treated

confidentially and will be stored in a locked file cabinet and/or password protected computer. In any event, the researchers will take multiple precautions to protect the identity and confidentiality of all participants in the study. Neither your name nor any other identifying information will be used in presentation or in any written products resulting from the study.

6. YOUR RIGHTS TO PARTICIPATE, SAY NO, OR WITHDRAW

Your participation is completely voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You have the right to say no. You may choose not to answer specific questions or to stop participating at any time. There is no consequence for withdrawal or incomplete participation.

7. COSTS AND COMPENSATION FOR BEING IN THE STUDY

There are no costs associated with your participation in this research study. <u>By fully completing</u> the survey, the first 100 participants will receive a \$10 Amazon online gift card to thank you for your participation in this research study. Therefore, you can only participate once in the survey. After responding all the survey questions, you will be directed to the new survey to provide only your email address (no name) for receiving the gift card. This information will not be associated with the responses of this primary survey. Recipients will be notified by Monday, April 3.

8. CONTACT INFORMATION

You may ask any questions about the research at any time. If you have concerns or questions about this study, such as scientific issues or how to do any part of it, please contact the researchers: Jina Chun at (608) 658-1597, or email: chunji1@msu.edu, or regular mail at: Michigan State University, 401D Erickson Hall, East Lansing, MI 48824 or Dr. John Kosciulek at (517) 353-9443, or email: jkosciul@msu.edu, or regular mail at: Michigan State University, 438 Erickson Hall, East Lansing, MI 48824.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at (517) 355-2180, Fax 517-432-4503, or e-mail <u>irb@msu.edu</u> or regular mail at 207 Olds Hall, MSU, East Lansing, MI 48824.

* If you are using a screen reader, please ensure that you are using the latest version of screen reader.

Thank you.

Please save and/or print a copy of this consent document for your records.

Clicking the "NEXT" button below means that you voluntarily agree to participate in this research study.

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