

AN INVESTIGATION OF BACKGROUND AND CONTEXTUAL VARIABLES
RELATED TO CAREER DECISION SELF-EFFICACY AND VOCATIONAL
OUTCOME EXPECTATIONS FOR COLLEGE WOMEN
WITH LEARNING DISABILITIES

by

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DISSERTATION ABSTRACT

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Title: An Investigation of Background and Contextual Variables Related to Career Decision Self-Efficacy and Vocational Outcome Expectations for College Women With Learning Disabilities

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The purpose of this study was to explore theoretically linked social cognitive factors that may predict career development outcomes for college women with learning disabilities ($N = 136$). Following Social Cognitive Career Theory (SCCT), I hypothesized that specific person inputs and background and contextual variables would be predictive of career decision self-efficacy and career outcome expectations. The specific model tested was whether the person input of GPA and contextual inputs of parent education level, perceived barriers, and perceived supports predicted career decision self-efficacy and vocational outcome expectations and whether these relationships were mediated by career education and exploration. These relationships represent early-occurring constructs within SCCT. I used Path Analysis to determine whether the experiences of college women with learning disabilities fit these early-occurring constructs within SCCT. Results demonstrated that the early-occurring constructs of the SCCT model did not fit

for this population. I conducted revised and exploratory post hoc models to achieve a better fit for the data. In the revised and exploratory models, one potentially important finding was that real world work experiences, such as paid work, volunteer work, and internship experience, may be of particular importance for the formation of career decision self-efficacy and career outcome expectations for college women with learning disabilities. Implications for practice and future research are discussed.

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CHAPTER I

RATIONALE

Research literature has continuously documented less successful postsecondary education and employment outcomes for young adults with learning disabilities (LD) when compared to their peers without disabilities (Benz, Lindstrom, & Yovanoff, 2000; Panagos & DuBois, 1999). Young adults with LD are more likely to be unemployed, earn lower wages, work fewer hours, and are less likely to engage in postsecondary education or training than young adults without disabilities (National Center on Secondary Education and Transition, 2004; Wagner, Newman, Cameto, Garza, & Levine, 2005). More specifically, women with LD have poorer employment and education outcomes than their male peers with disabilities (Trainor, 2007). Women with learning disabilities, when employed, tend to be employed in low-wage traditionally female occupations (Benz, Doren, & Yovanoff, 1998; Doren & Benz, 2001; Wagner, Newman, Cameto, Levine, & Marder, 2007) and have inadequate career maturity to be able to make appropriate vocational decisions (Panagos & DuBois, 1999). Although the literature base for understanding the unique needs of women with disabilities has been growing slowly over the last two decades, there is still a dearth of literature addressing the unique career development experiences and needs of women with LD (Lindstrom & Benz, 2002; Panagos & DuBois, 1999; Trainor, 2007).

In the following sections, I review literature relevant to career development for women, college students, and adolescents and adults with disabilities, applying constructs

and tenets of Social Cognitive Career Theory (SCCT: Lent, Brown, & Hackett, 1994), a framework that encompasses personal and environmental influences, to the career development of college women with learning disabilities. Subsequently, I describe the methods for the study, including the research question, procedures, and measures.

SCCT Overview

Social Cognitive Career Theory (SCCT) was developed by Lent et al. (1994) and is based on Albert Bandura's social cognitive theory. The key tenets of SCCT are that the course and outcomes of career development are based on self-efficacy, outcome expectations, and personal goals. Central to SCCT is the role of personal agency in the career decision process. Both external contextual influences and personal factors develop or constrain agency. An individual's background contextual influences (SES, community, discrimination, access to resources, etc), personal variables, known within SCCT as person inputs (disability, gender, ethnicity, etc.), and learning experiences all have a bidirectional impact on outcome expectations, self-efficacy expectations, and personal goals (Lent et al., 1994; Lent, Brown, & Hackett, 2000. Figure 1 provides a representation of the constructs of SCCT.

Further, SCCT asserts that exposure to learning experiences, such as academic and career-related experiences, are a function of environmental and personal factors. Development of social cognitive variables (self-efficacy beliefs and outcome expectations) is influenced by an individual's experiences and cognitive appraisals of experiences. Self-efficacy beliefs are personal convictions in one's ability to accomplish

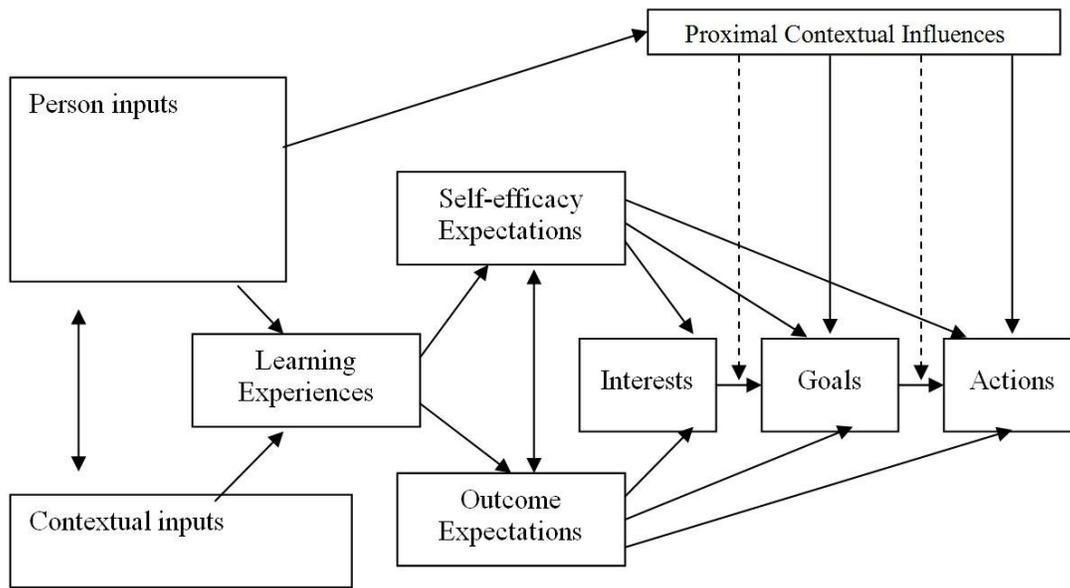


FIGURE 1. Social cognitive career theory's predicted relationship among variables.

specific types of activities. Self-efficacy is not a global trait; rather, an individual can possess self-efficacy for many different types of tasks. Self-efficacy beliefs and outcome expectations are related to the development of academic and career-related interests (Lent et al., 1994; Lent et al., 2000). An individual will develop interests in activities for which there are strong positive self-efficacy beliefs and will perceive desirable and probable outcomes as a result. Self-efficacy beliefs are based on one's own judgments about what one can do with his or her skills. Self-efficacy can be enhanced by (a) personal performance accomplishments, (b) vicarious learning, (c) social persuasion, and (d) physiological states and reactions (Bandura, 1997). As with self-efficacy, outcome expectations are specific to types of behaviors. Vocational outcome expectations are beliefs about the results of success in specific career decision behaviors and education.

However, even if an individual has high self-efficacy and outcome expectations, real or perceived barriers could impede the translation of self-efficacy and outcome expectations into career goals (Albert & Luzzo, 1999; Lent et al., 1994; Lent et al., 2000). Ideally, in the absence of barriers, interests form goals, which form actions toward career attainment. Positive results further influence self-efficacy and outcome expectations. If barriers to success are perceived as too difficult to overcome, a person will eliminate an occupational choice, even if success in related tasks has been achieved (Albert & Luzzo, 1999).

SCCT is a good model for conceptualizing career development for women with disabilities because of the integration of contextual factors across various systems of women's lives. Racism, sexism, gender role expectations, classism, and other forms of discrimination or oppression can be considered within the model. The influence of public policies on an individual (disability laws, access to economic resources for a family, funding in schools, federal grants to finance college education, etc.) and how that may factor into opportunities for an individual are also important components. An individual's family life and relationships with role models are all taken into account when the model is thoughtfully applied. Each of these factors is seen as having the potential to constrain personal agency. Attention should be paid not only to a person's disability, gender, and career interests, but also to the systemic oppression that a person may have experienced. For example, what could be thought of as a "perceived" barrier could be a very real experience of discrimination and access limitation encountered by a woman with a learning disability (Noonan et al., 2004).

Person Inputs

The ways that person inputs such as gender, disability status, age, and other factors influence career development are crucial to the tenets of SCCT. In this section, I provide a brief description of career development for college students, women, and people with disabilities.

College Student Career Development

College students are a diverse group with a wide range of experiences, developmental levels, and needs. Mauer and Gysbers (1990) determined four categories of concerns that college students have about choosing a career. The first of these categories is anxiety, or feeling undecided and confused about career exploration. The second is confidence, feeling uncertain about an occupation. The third is self-assessment; the student is not aware of his or her strengths and weaknesses. The fourth is occupational information; the student lacks knowledge about work and job responsibilities. Each of these categories of concern is important to consider in the career development of college students.

Pascarella and Terenzini (1991) conducted a 20-year study on how college affects students' career choice and development. Among their findings, they determined that students frequently change career plans. They also found that not only does college increase career options and potential for career advancement, but college increases occupational aspirations as well.

Understanding college student career development through the lens of SCCT suggests that many contextual factors influence students' beliefs about their potential success in college and in a career. Outcome expectations can be formed through previous learning experiences and are influenced by self-efficacy. Self-efficacy beliefs are constantly changing based on interactions with other people, one's environment, and one's own behaviors and learning experiences (Lent et al., 1994; Lent et al., 2000). Goals are formed based on previous experiences and outcome expectations. Therefore, positive learning experiences in college preparatory classes, exposure to college and careers, and an absence of barriers to college success are critical for student success in college and beyond (Gibbons & Shoffner, 2004).

Women's Career Development

The history of women's experiences with work in the United States has been dynamic. There was a time when women were not allowed to be employed, times when relatively few women worked outside the home, and in 2008, 59.5% of women in the U.S. over the age of 16 were participants in the labor force. Also in 2008, women comprised 46.5% of the total labor force in the United States (U.S. Department of Labor, 2008).

Women's career development is important to study because the majority of career development theories were created at a time when the workforce was predominantly male (Cook, Heppner, & O'Brien, 2002). Further, most career development theories were created for White, able-bodied men. Women's career development is complex in that it is

impacted by various societal and cultural influences, including early gender-role socialization, employment inequalities, and different kinds of family responsibilities. These influences have become barriers that can impede women's career development (Coogan & Chen, 2007).

Females continue to be socialized from an early age to prioritize home and family pursuits (Betz, 2005). Betz (1994) described the stereotypes that women should prioritize care for others, child rearing, and deferring to the career priorities of their husbands as the primary barriers to women's career development. Girls are less likely than boys to place an emphasis on pursuing a successful career, and girls are more likely to delay a career choice in order to start a family and maintain a home (Betz, 1994). Studies have shown that women's career aspirations progressively decrease through late adolescence and early adulthood. For example, boys and girls often start out at a young age with equally high career aspirations, and girls' aspirations decrease as they mature (Farmer, 1997). Young women with disabilities are more likely to limit themselves to the types of occupations they consider, usually selecting stereotypically female occupations (e.g., child care, food service, and personal service occupations), which tend to be lower paying than jobs that are nontraditional for females (Benz et al., 1998; Doren & Benz, 2001).

Careers are important for women not only for financial reasons but also for psychological benefits (Betz, 2005). Women as well as men need a variety of sources of satisfaction in their lives. According to Betz (2005), women who work outside of the home in meaningful employment experience higher levels of life satisfaction than women who do not have meaningful paid employment. Although homemaking and child rearing

are often sources of satisfaction for women, some women do not feel that they are able to fully develop their individual talents and abilities solely through these tasks (Betz, 2005). Meaningful, paid employment can be an important source of personal satisfaction, financial security, and social support for women, all of which can increase well-being (Barnett & Hyde, 2001).

Career Development for People With Disabilities

Career development for people with disabilities was largely ignored until the mid-1960's (Szymanski, Enright, Hershenson, & Ettinger, 2003). Some theorists believe that this was because people with disabilities had different experiences compared to the nondisabled population on which most theories were based. Historically, career choices have been highly constricted for this population (Szymanski et al., 2003). There is however, tremendous heterogeneity among people with disabilities, and disability should not be thought of as a construct that has the same effect on all individuals. Rather, disability is a socially defined construct that can be a risk factor in career development (Pledger, 2003). It has been argued that it is our culture rather than the impairment that is disabling to a person (Prilleltensky & Prilleltensky, 2003). Historically, people with disabilities have been excluded from mainstream education and skill-building opportunities, and have encountered discrimination, lack of accommodations in the workplace, and physical barriers to workplaces and transportation—all of which are societal problems that can limit career opportunities (Prilleltensky & Prilleltensky, 2003).

The process of career development can be challenging for young adults with disabilities (Lindstrom, Doren, Metheny, Johnson, & Zane, 2007; Ochs & Roessler, 2001; Wagner et al., 2005). Many adolescents with disabilities do not engage in experiences that lead to career maturity, and struggle not just with employment but also with independent living and social activities (Wagner, Blackorby, Cameto, Hebbeler, & Newman, 1993). Students with disabilities tend to be limited in early career exploration experiences and have limited opportunities to develop decision abilities; moreover, they can have a negative self-concept stemming from discrimination and negative or biased attitudes toward people with disabilities (Ochs & Roessler, 2001). School reform initiatives and other federal policies have had an impact on and are slowly improving the experiences of people with disabilities (Fabian & Liesener, 2005). However, despite increased efforts to improve transition-planning services for students with disabilities to enter the workforce, employment rates for young adults with disabilities are still lower than employment rates for young adults without disabilities (Newman, Wagner, Cameto, & Knokey, 2009; Wagner et al., 2005).

Analyses from the National Longitudinal Transition Studies (Newman et al., 2009; National Longitudinal Transition Study 2 [NLTS2], 2005; Wagner, Newman, & Cameto, 2004; Wagner et al., 2005; Wagner et al., 2007) suggest that outcomes for youth with disabilities have improved since the enactment of the 1990 Individuals With Disabilities Education Act (IDEA). The IDEA mandated that Individualized Education Plans (IEPs) for students 16 years and older include a plan for transition to postsecondary life, including any services a student may need to prepare for postsecondary education,

employment, vocational training, and independent living. Over the last two decades, there have been many improvements for youth with disabilities: high school dropout rates have decreased, employment rates have increased, more youth with disabilities are being paid above minimum wage, and rates of students with disabilities entering postsecondary education are increasing (Newman et al., 2009; Newman, Wagner, Cameto, Knokey, & Shaver, 2010; Wagner et al., 2005). However, additional analyses have shown that females with disabilities have not experienced improved outcomes at the same rate as males with disabilities (Wagner et al., 2005). Females with disabilities are more likely than their male counterparts to be unemployed, earn lower wages, and work fewer hours. Although attendance rates for people with disabilities in postsecondary education are increasing, rates for women with disabilities are increasing more at 2-year colleges while rates for men with disabilities are increasing at both 2- and 4-year colleges (NLTS2, 2005).

Importance of Postsecondary Education

Adults with disabilities are more than twice as likely as adults without disabilities to live in poverty and be dependent on their families and/or government assistance (U.S. Department of Health & Human Services, 2001). Completion of postsecondary education has been shown to decrease poverty rates and reliance on public assistance. Additionally, postsecondary education has been shown to significantly improve one's ability to be engaged in satisfying and meaningful employment, independent living, and obtain higher wages (Stodden & Whelley, 2004; Stodden & Zucker, 2004). Postsecondary education

has become increasingly important to independent adult living (Zafft, Hart, & Zimbrich, 2004), as many jobs now require knowledge that is beyond on-the-job training. Carnevale and Fry (2001) reported that at least 56% of workers need at least some college to be qualified for their jobs. National data on individuals with disabilities who receive services through state vocational rehabilitation programs indicate that those who have obtained postsecondary education have higher earnings over time than those who have not obtained postsecondary education (Gilmore, Bose, & Hart, 2001). Although an increasing number of students with disabilities have been enrolling in postsecondary education (Mull, Sitlington, & Alper, 2001; Newman et al., 2009), women with LD are still proportionately underrepresented in postsecondary education, especially at 4-year institutions (Wagner et al., 2005).

Contextual Influences on Women With Disabilities

Based on relevant literature, contextual influences seemingly important to the career development of women with disabilities include the influence of family, family involvement and expectations, social class and parents' education level, perceived barriers, prior learning experiences, career exploration activities, and cognitive appraisal variables such as career self-efficacy and vocational outcome expectations. In this section, I address each of these relevant constructs.

Family Influences

Family context has been shown to be an important component of the career development process for youth. Whiston and Keller (2004) reviewed the literature and found that adolescent career development is influenced by two interdependent family contextual factors: family structure and family process. Family structure includes variables such as parents' education level, occupation, and socioeconomic status. Family process includes variables such as family relationships, parental aspirations, and family support and advocacy.

Few studies have examined the role that families have in influencing the career development of young adults with disabilities (Lindstrom et al., 2007). However, Lindstrom et al. (2007) investigated the influence of family structure and process variables on the career development and postschool employment outcomes of young adults with learning disabilities. In a qualitative study, they found that SES was related to initial career decision-making and vocational identity development, but that other family structure variables were not directly related to employment outcomes. Family process variables, including family relationships, involvement, support and advocacy, career aspirations, and intentional career-related activities interacted to influence career development in both positive and negative ways. Young adults of parents who were considered by the researchers to be *advocates* (i.e., parents who had positive family relationships, exhibited high involvement, support and advocacy, and participated in intentional career-related activities) had the best employment outcomes in terms of obtaining the highest wages. Parents who were considered *protectors* (i.e., those who had

positive relationships, exhibited high involvement but limited support and advocacy, as well as low career aspirations, and who did not participate in career-related activities) had children who were in lower wage/lower skills occupations or were unemployed. Young adults whose parents were *removed* (i.e., parents who had varied relationships, exhibited low involvement, low support and advocacy, and low or vague career aspirations, and who did not participate in career-related activities) had better outcomes than those with parents who were protectors. Many of the youth with families who were removed had high school transition specialists working with them to offer advocacy, support, and intentional career-related activities. The researchers speculated that the transition specialists may have filled the role of the uninvolved parents.

Family Involvement and Expectations

Research has shown that family involvement is an important predictor of academic success (Newman, 2005). Studies of elementary, middle, and high school students have indicated that when families are involved in a student's education, the result is higher achievement, higher motivation, increased rates of attendance, more course credits earned, and better preparation for class. Parents' expectations for their children's postsecondary education are an important influence on the students' attitudes and behaviors toward education. Parents' supportive actions toward their children's educational goals are also important in the pursuit of postsecondary education (Wagner et al., 1993). Parents' high education expectations can encourage their children's educational attainment (Catsambis, 2002). Parents' expectations for youth with

disabilities are related to accomplishments in many areas, including postsecondary education and more clearly defined future plans (Wagner et al., 1993). For many people with disabilities, the opinions and behaviors of family, friends, and significant others is an influential component of vocational aspirations and career planning (Rousso, 1993).

Data from the NLTS2 study (2005) indicate that parents' educational expectations for students with learning disabilities are lower than expectations for students with other types of disabilities. Between 49%-65% of students with orthopedic, speech, visual, and hearing impairments were expected by their parents to "definitely" pursue any type of postsecondary education, whereas, only 27% of students with learning disabilities were expected to pursue any type of postsecondary education. Less than 9% of students with learning disabilities were expected to complete a 2-year college degree and only 7% of students with learning disabilities were expected to complete a 4-year college degree. These data include males and females (Wagner et al., 2007).

SES, Social Class, and Parents' Educational Background

Historically, psychologists have not given adequate attention to the influence of social class on people's lives (Fouad & Brown, 2000). Vocational psychologists have given social class more attention than other types of psychologists, but the role of social class is still underemphasized, not thoroughly understood, and/or is measured in a simplistic, noncontextualized manner (Fouad & Brown, 2000). Various studies have shown that higher social class, which is typically defined by "occupational status" (Nakao

& Treas, 1994), is associated with higher occupational aspirations, higher educational attainment, and higher salaries (Blustein et al., 2002).

Blustein et al. (2002) conducted a qualitative study to better understand the impact of social class on the school-to-work transition. In this study, they found that young adults from higher SES backgrounds had higher occupational aspirations, were more likely to view work as a means of personal fulfillment and satisfaction, were more likely to engage in career exploration activities, and encountered fewer external barriers (e.g., education and resources) in pursuit of their vocational aspirations. Some examples of external resources to which higher SES students had greater access than lower SES students were higher quality schools, guidance counseling services, career planning services in the school, and support from parents for attending college. Students from the higher SES group received help from their parents that was instrumental in their career planning—e.g., job leads related to vocational interest, specific ideas about education and training, and advice about vocational options. Students from the lower SES group were less likely to receive instrumental career planning support from their parents. Students from the lower SES group were less likely to get help from friends or family in finding a job related to a career of interest. At the time of the study, participants from higher SES backgrounds were more likely than participants in the lower SES group to be engaged in self-exploration, education, training, or employment that would help them to achieve their vocational aspirations. The sum of these findings indicate that social class is an important factor in career exploration and planning most likely due to social, economic, and educational resources.

Analyses by Newman et al. (2010) of NLTS2 data showed that for students with disabilities, household income was related to students' enrollment in postsecondary education. Students from the highest income households were more likely to have enrolled in a 4-year university (35%) than students from the middle (13%) or lowest (9%) income categories. Parent education level was also related to students' enrollment in postsecondary education. Students who came from a family in which the head of household had at least a bachelor's degree were more likely to attend a 2- or 4-year college than their peers for whom the head of household did not complete high school (Wagner et al., 2005). Parent education level is related to college attendance in the general population as well. The likelihood of a student attending a 4-year college increases with an increased level of parent education (Choy, 2002). It is believed that parent knowledge about academic preparation, the college application process, knowledge of financial aid, and a general understanding of what to expect in college is advantageous to students' attainment of postsecondary education (Choy, 2002).

Perceived Barriers/Variables

Perceived career barriers are considered contextual factors within the SCCT model and are important for understanding career development, particularly for women (Lindley, 2005). Understanding an individual's self-efficacy for coping with barriers is important because self-efficacy affects the degree to which perceived barriers will impact career development. Coping efficacy determines the extent to which an individual will attempt to overcome perceived barriers to career development (Lent et al., 2000).

Studies have shown that perceived barriers can vary by gender and by ethnicity. Swanson and Tokar (1991) found that European American females perceived discrimination and child rearing to be a more salient barrier than did their male peers. Luzzo and McWhirter (2001) found that female college students perceive greater career-related barriers than their male peers. It was also found that ethnic minority college students perceive greater educational and career-related barriers than their European American peers. Although it seems that perceived barriers are an important aspect of career development for people with disabilities, a January 2011 search of ERIC, Education Abstracts, PsycINFO, and Academic Search Premier with the parameters “perceived barriers” and “disability” or “disabilities” did not yield any results relevant to career development. This suggests that there is a gap in the career development research literature for women with disabilities.

Prior Learning Experiences

Barriers in the Educational System

Postsecondary education is of crucial importance to career development and earning potential (Stodden & Whelley, 2004). Although the number of students with disabilities pursuing postsecondary education has more than tripled in the last 20 years (HEATH Resource Center, 1998), barriers still exist that make the transition from high school to college difficult for students with disabilities. Students with learning disabilities face the same challenges as their nondisabled peers but may also face additional challenges due to their disability. Students who do not understand their disability may not

understand how it affects their learning or how to talk about their disability (Aune & Ness, 1991). Students who struggled with academics in high school may not understand their learning strengths and abilities and may have a low academic self-efficacy. They may not have been taught learning strategies and study skills that are needed for college-level work (Getzel, 2005). Students with learning disabilities may not have taken college preparatory and prerequisite classes and may find that their postsecondary options are limited.

Even if students with disabilities have been prepared for postsecondary education, they are faced with the challenges that result from the differences in the legal rights and responsibilities of postsecondary schools from secondary schools (Wagner et al., 2005). In high school, students with disabilities are protected by IDEA, which mandates an IEP for the student to succeed in school. The school district is responsible to monitor compliance with the IEP. In postsecondary education, students with disabilities are protected by Section 504 of the Rehabilitation Act and the Americans With Disabilities Act, but it is the student's responsibility to navigate the system and seek out appropriate services for the supports they need (Wolanin & Steele, 2004). A student's awareness of his or her rights and responsibilities, knowledge of available services, self-awareness of needed supports, and self-advocacy skills are all important for success in postsecondary education (Wolanin & Steele, 2004). However, many students with disabilities do not understand their rights and responsibilities about accommodations in postsecondary education and are lacking the skills that are needed to navigate supports and services in college (Getzel, 2005).

Some women have barriers to postsecondary education separate from learning disabilities, such as familial, cultural, and other societal barriers that prevent them from pursuing postsecondary education (Hogansen, Powers, Geenen, Gil-Kashiwabara, & Powers, 2008; Rousso, 1993; Wehmeyer & Rousso, 2006). More specifically, through societal and cultural biases, males still tend to receive more attention in classrooms, preferential treatment, and greater allocation of resources (Rousso, 1993; Wehmeyer & Rousso, 2006). Additionally, inadequate preparation for postsecondary education, low family educational support, and subsequent completion of fewer college preparatory courses in high school are also significant barriers faced by many women (Rousso, 1993). Race also plays a role, with African American girls receiving less attention in schools than European American girls (American Association of University Women, 1999). White youth with disabilities are more likely than African American and Hispanic youth with disabilities to enroll in postsecondary education (Newman et al., 2010). In some families, education is considered less important for women who are expected to become wives and mothers (Betz, 2005). Girls remain underidentified for special education services, which can lead to much needed support for postsecondary school transition (Vogel, 1990; Wehmeyer & Schwartz, 2001). For some women, the combination of being female and having a disability can significantly prevent women from pursuing education beyond high school (Rousso, 1993).

Math and Science Background

Lack of mathematics background is a significant barrier to women's career development (Betz, 2005). Many colleges and universities require 4 years of high school math as a prerequisite to calculus or intermediate statistics, which are requirements for many undergraduate majors in fields such as business, economics, sciences, and computer sciences. Only arts and humanities majors typically do not require an academic background in math. Thus, traditionally female occupations do not require a math background, while nontraditionally female occupations do require a greater background in math. Females tend to avoid math courses in high school and college (Betz, 2005). Women also tend to have lower self-efficacy beliefs than men for occupations involving math (Betz, 2005). The sum of these findings suggests that a lack of self-efficacy for math and lack of math courses prior to and in college can limit career choices.

Career Education and Exploration Activities

SCCT states that experiences directly influence self-efficacy beliefs and outcome expectations (Lent et al., 1994; Lent et al., 2000; Ochs & Roessler, 2004). In order to transition to adult career roles and achieve career maturity, young adults need to successfully complete career exploration activities, such as learning about career opportunities, thinking about types of work, learning about education and training that is needed for selected occupations, and making tentative career choices (Super, Savickas, & Super, 1996). Career decision tasks include assessing career-related abilities and skills, gathering occupational information, selecting occupational goals, and making plans to

implement a career goal (Betz & Luzzo, 1996). Vicarious learning experiences (e.g., job shadows and appropriate role models) can also be an important component in developing career maturity and self-efficacy (Panagos & DuBois, 1999). A lack of career-related learning experiences; job-related knowledge, and career decision self-efficacy beliefs can result in poor transition outcomes for youth with disabilities (Benz & Halpern, 1993; Ochs & Roessler, 2004).

Career-related learning and work experiences during high school have been shown to improve postschool employment (Benz et al., 2000; Lindstrom, Benz, & Doren, 2004; Rabren, Dunn, & Chambers, 2002). However, young women with disabilities are less likely than their male peers to engage in vocational training or work experience during high school, especially in training or coursework that is more likely to lead to higher skill occupations (Doren & Benz, 1998; Lindstrom & Benz, 2002; Luecking & Fabian, 2000; Van Beaver, Kohler, & Chadsey, 2000). Young women with disabilities who have career goals for nontraditional female occupations often have difficulties in gaining support for preparatory experiences or training during high school (Hogansen et al., 2008). For successful transition planning, students should be involved in creating their goals, and actively participate in career planning and work experience that is tailored to the student's career interests (Hogansen et al., 2008). Gender and cultural expectations should be taken into consideration for all students. Hogansen et al. (2008) found that among ethnic minority students it is especially important to talk with students and families about gender expectations, cultural traditions, and family background so that career planning can be culturally congruent and successful for the student.

Cognitive Appraisal Variables

Career Self-Efficacy

Career self-efficacy is an individual's belief in performing a self-evaluation, gathering occupational information, selecting a goal, and making plans to implement a career (Betz & Luzzo, 1996). Self-efficacy beliefs have an important role in motivating behavior (Bandura, 1997). They are an important component of SCCT and may be even more important for students with LD (Panagos & DuBois, 1999). A study by Panagos and DuBois (1999) revealed that self-efficacy beliefs were a significant predictor of interest in corresponding career areas for students with LD. The extent to which students with LD believe themselves capable of pursuing a career in a particular area is an important factor in contributing to interest and motivation for vocational exploration in that area (Panagos & DuBois, 1999). Low self-efficacy for completing relevant career-related education and training significantly limits the interests of students with LD, even for careers for which they have potential aptitude. Panagos and DuBois (1999) speculated that for students with LD, the lack of a strong interest in a particular career area results from lack of confidence rather than lack of aptitude. It has been suggested that specific self-efficacy enhancing experiences could remedy a student's lack of confidence and therefore increase interest in additional career areas. (Panagos & DuBois, 1999).

Three of the four sources of self-efficacy (performance accomplishments, vicarious learning, and verbal persuasion; Bandura, 1997) may be especially important in the development of career self-efficacy among students with LD (Panagos & DuBois,

1999). There is evidence that students with LD may have a greater tendency to internalize experiences of failure, attributing them to ability, which means they may be more likely than their peers without disabilities to limit career interests as a result of diminished self-efficacy beliefs (Panagos & DuBois, 1999). Therefore, in order to generate interest in a particular career, vocational experiences need to include components that enhance a student's belief in his or her ability to complete relevant training and education for that career (Panagos & DuBois, 1999). Vicarious learning experiences (e.g., watching someone perform a job or talking to people about a job) and verbal persuasion (e.g., a student being told that she has the ability to do or learn a certain job) are also important for development of career self-efficacy among students with LD (Panagos & DuBois, 1999). However, emotional arousal (i.e., a student reflecting on whether she might feel nervous, afraid, or frustrated while learning or doing a certain job) was not a significant source of career self-efficacy for students with LD (Panagos & DuBois, 1999).

Vocational Outcome Expectations

Vocational outcome expectations are beliefs that career decision behaviors and actions will lead to one's desired results (Lent et al., 1994). Outcome expectations influence intentions (Lent et al., 1994) and motivate behavior (Bandura, 1997). Ochs and Roessler (2004) found that career decision self-efficacy and career outcome expectations were both predictors of career exploration intentions for both special education and general education samples of high school students. In the special education sample, outcome expectations were an even stronger predictor of career exploration intentions,

while career decision self-efficacy was a stronger predictor of career exploration intentions among the general education sample. Betz and Voyten (1997) found gender differences for the role of career outcome expectations. For female undergraduates, career outcome expectations were the sole predictor of career exploration intentions. For male undergraduates, both career and academic outcome expectations were significant predictors of career exploration intentions.

Understanding how career outcome expectations lead to career exploratory intentions and behaviors is important because of the crucial role that career exploration activities have in the development of career maturity (Super et al., 1996). Outcome expectations are important to understand for students with disabilities because parents and teachers tend to have lower career-related expectations for this population (Benz & Halpern, 1993). Also, Wehmeyer (1993) found that students with LD and other disabilities have lower vocational expectations with regard to status, pay, and working conditions.

In summary, self-efficacy beliefs and outcome expectations are important components in career development for students with LD, and in particular for girls and women with learning disabilities. In addition to assessing for aptitudes and abilities within this population, career research for men and women with LD should include studying career exploration activities that directly foster career-related self-efficacy beliefs and outcome expectations (Panagos & DuBois, 1999).

Implications for Research

The review of the literature presented here offers clear support for the need for future research on the career development of students with learning disabilities. Panagos and DuBois (1999) argue that the constructs central to SCCT should be explored among students with learning disabilities and, moreover, that there is a clear need to better understand the differential vocational outcomes and career development processes of individuals with learning disabilities in association with various demographic characteristics, such as race and sex. Ochs and Roessler (2001) also purport that research is needed to determine the efficacy of career-related assessment and instructional efforts in helping students with disabilities achieve levels of career maturity and postschool outcomes equivalent to their peers without disabilities. Furthermore, Hogansen et al. (2008) emphasize the critical importance of studying the unique transition experiences of ethnic minority students with disabilities to facilitate and inform better practice and successful outcomes for traditionally underserved groups.

At the same time, there are relatively few studies that specifically investigate the career development needs of women with LD (Doren & Benz, 1998). Given the traditionally poor postsecondary employment and educational outcomes for this population and the recommendations of previous research, this is a very neglected and important area of study that requires further research attention. In particular, the ways in which the variables of SCCT interact to influence career maturity and the career decision process for women with LD seem to be a much needed area of study, and methods for increasing self-efficacy beliefs and career outcome expectations in order to improve

career outcomes for students with LD are especially important to understand (Panagos & DuBois, 1999).

Conclusion

Despite improvements in transition services for students with disabilities, postschool employment and education outcomes are still poor for this population in comparison to their peers without disabilities. Females with disabilities tend to have poorer post-school outcomes than males with disabilities (Wagner et al., 2005). Career development for women with disabilities is an important area of focus to try and change this disparity (Lindstrom & Benz, 2002). And because of its consideration of the direct effects and interactions of cognitive and contextual factors, SCCT is a good model for conceptualizing career development for women with disabilities.

The literature on career development for college women with learning disabilities suggests several potential factors that could be important in predicting social-cognitive-related constructs of career development for this population. Career self-efficacy and vocational outcome expectations are important to foster for successful career development and maturity (Ochs & Roessler, 2004). Parent expectations for education and career attainment, levels of support, and involvement in career exploration activities have been documented as an important component of career development for youth with disabilities (Lindstrom et al., 2007; Wagner et al., 2005). Other family factors such as parent education level, occupation, and SES have been shown to influence educational and career attainment for their children with LD as well. Furthermore, prior educational

experiences are important to understand for women with LD. For example, lack of coursework or negative experiences with math and science can limit career choices. Research has shown that this is particularly true for women (Betz, 2005). Career exploration classes and activities in high school and/or college, including vicarious learning experiences, can help develop career maturity for young adults (Ochs & Roessler, 2004). Additionally, because perceived barriers can impede career-efficacy even when an individual has aptitude for a particular career, barriers are an important area to explore. Coping efficacy is also important because coping can impact the degree to which barriers impede career development.

In sum, each of the variables of SCCT has a potentially important role to play in the process of career development for women with LD. Although there is limited literature specific to women with LD, some studies have shown that some SCCT variables (e.g., self-efficacy beliefs, outcome expectations) significantly predict career exploration activities. As such, more research to explore SCCT and contextual influences such as ethnicity and social class with women with LD is clearly needed.

Purpose of Study

While the number of women with LD who are attending postsecondary education has increased in recent years, the career outcomes for this group have continued to be relatively poor. More focused research in this area and with this population is clearly needed. Because I am studying a sample of women who are already in college, and therefore have developed some interests and goals, and have already taken action, I

decided to focus on the background and contextual factors that are correlated with career decision self-efficacy and vocational outcome expectations. The formation of self-efficacy beliefs and outcome expectations are especially important to understand for students with learning disabilities (Panagos & DuBois, 1999). The purpose of this current study, therefore, was to explore the background and contextual variables related to career decision self-efficacy and vocational outcome expectations for college student women with learning disabilities, utilizing Social Cognitive Career Theory. In brief, in this study I investigated whether the experiences of college women with learning disabilities fit the early-occurring constructs of the SCCT model. Figure 2 presents the constructs in the manner predicted.

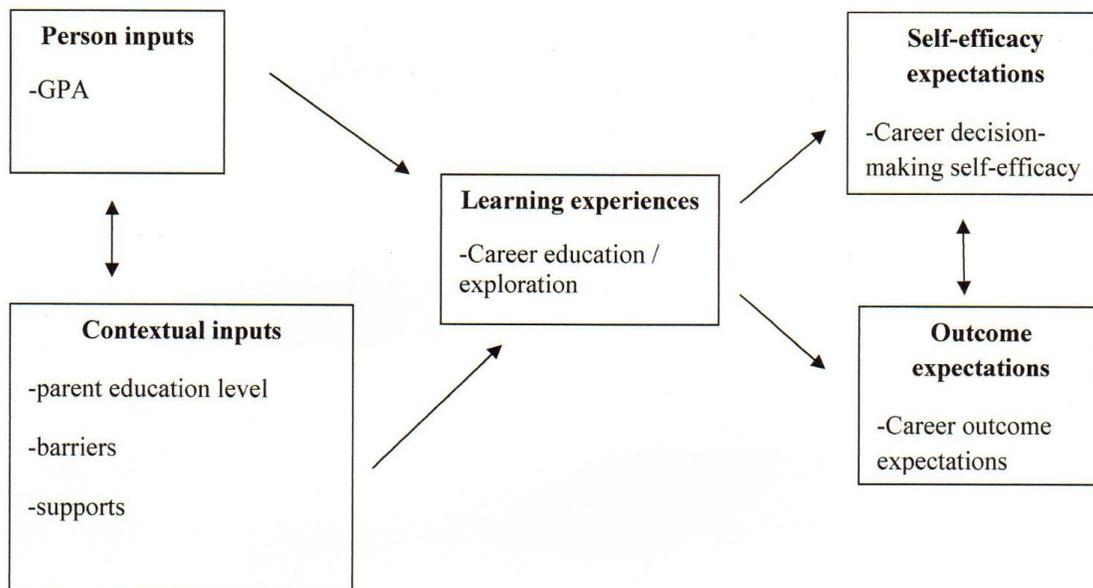


FIGURE 2. Conceptual model of predicted relationships among SCCT variables in the study.

The following research question was examined: Do the data for this sample of women with learning disabilities fit this predicted model? Stated more specifically, based on SCCT, do person inputs and contextual inputs predict self-efficacy expectations and outcome expectations and are these relationships mediated by career education and exploration?

CHAPTER II

METHODS

Participants

Participants were female undergraduate students from community colleges, 4-year colleges, and universities who reported having a diagnosed learning disability. A total of 166 surveys were collected online. If a participant indicated that she either did not have a diagnosed learning disability or was “not sure” whether she had a diagnosed learning disability, her data were not included in the sample. One participant who indicated “other” for gender was not included. Participants who completed the survey in less than 5 minutes, left one or more entire scales blank, or had large amounts of missing data were not included. This resulted in a final full sample of 136.

The mean age for the sample was 27.74 ($Md = 23.00$, $Mode = 22$, $SD = 10.25$). The self-identified ethnicity of the participants was 10.3% ($n = 14$) Black or African American, 83.1% ($n = 113$) White or European American, 6.6% ($n = 9$) Hispanic/Latina/Chicana, 2.2% ($n = 3$) Asian or Asian American, 5.9% ($n = 8$) Native American or Alaskan Native, 7.4% ($n = 10$) Multiethnic, 0.7% ($n = 1$) Pacific Islander, and 0.7% ($n = 1$) Middle Eastern. Participant year in college was as follows: 13.2% freshman, 21.3% sophomore, 16.2% junior, 25% senior, 11.8% graduated from college, 5.1% graduate student (See Table 1).

TABLE 1. Demographic Information for the Sample

Variable	<i>M</i>	<i>SD</i>	Participants	
			<i>n</i>	%
Age	27.83	10.25		
Age diagnosed with learning disability	18.50	10.83		
Gender				
Female			136	100
Race/ethnicity				
Black or African American			14	10.3
White or European American			113	83.1
Hispanic/Latino/Chicano			9	6.6
Asian or Asian American			3	2.2
Native American or Alaskan Native			8	5.9
Pacific Islander			1	.7
Middle Eastern			1	.7
Multiethnic			10	7.4
Year in college				
Freshman			18	13.2
Sophomore			29	21.3
Junior			22	16.2
Senior			34	25
Graduated from college			16	11.8
Graduate student			7	5.1
Diagnosed with a learning disability				
Yes			136	100
Secondary disability?				
Yes			74	56.1
No			39	29.5
Not sure			19	14.4
If yes, please specify (responses indicate all that apply):				
ADD/ADHD			46	66.2
Emotional/mental health			57	41.9
Physical disability			10	7.4
Traumatic brain injury			3	2.2
Other			23	17.5

Only participants who indicated being diagnosed with a learning disability were included in the study. Within the sample, 56.1% also indicated having a secondary disability, the two most common of which were ADD/ADHD (66.2%) and emotional/mental health (41.9%; see Table 1). Because the mean age at which the learning disability was diagnosed was 18.5 in this sample, it is not surprising that the majority of participants (64%) indicated not having received special education services in high school. See Table 2 for a more detailed description of the high school experiences of this sample.

The majority of students in the sample (80.9%) were registered with disability services at their postsecondary schools. It should be noted, however, that much of the recruitment for this study took place through Disability Services offices. See Table 2 for more specific data about the supports and services utilized by the sample. The majority of participants in the sample hoped to complete graduate-level education (41.9% hoped to complete a master's degree and 26.5% hoped to complete a doctoral degree). When asked to specify what level of education they realistically believed they would complete, the responses were slightly lower (33.1% believed they will complete a master's degree and 17.6% believed they will complete a doctoral degree; see Table 2).

Procedure

Participants for the study were recruited through Disability Services (DS) offices at universities and community colleges following approval from Institutional Review

TABLE 2. High School and College Experiences

Variable	Participants	
	<i>n</i>	%
Special education services in high school?		
Yes	48	35.3
No	87	64.0
Not sure	1	.7
IEP in high school?		
Yes	33	24.4
No	96	71.1
Not sure	6	4.4
If IEP, did you attend meeting?		
Yes	28	51.9
No	23	42.6
Not sure	3	5.6
If attended, did you help set transition goals?		
Yes	21	42.9
No	22	44.9
Not sure	6	12.2
Parents attend IEP meetings?		
Yes	29	50.9
No	25	43.9
Not sure	3	5.3
Vocational rehab services in high school?		
Yes	7	5.1
No	121	89.0
Meet with transition specialist in high school?		
Yes	15	11.0
No	117	86.0
Vocational or tech class in high school?		
Yes	17	12.5
No	119	87.5
Take career planning or exploration class in high school?		
Yes	36	26.5
No	100	73.5

TABLE 2. (Continued)

Variable	Participants	
	<i>n</i>	%
Parents help plan for college?		
Helped research colleges	54	39.7
Helped with applications	64	47.1
Attended college visits	76	55.9
Helped connect with disability services	34	25.0
Helped connect with other campus resources	24	17.6
Did not help me plan	51	37.5
Registered for Disability Services in college?		
Yes	110	80.9
No	23	16.9
Not sure	3	2.2
If yes, which do you use?		
Testing accommodations	98	72.1
Tutors	31	22.8
Orientations	8	5.9
Note taking	54	39.7
Other	33	24.3
Vocational rehab services in college?		
Yes	21	15.8
No	112	84.2
Career planning/exploration class in college?		
Yes	41	30.1
No	95	69.9
Met with career counselor in college?		
Yes	65	47.8
No	71	52.2
Used online career exploration tool or software?		
Yes	63	46.3
No	73	53.7

TABLE 2. (Continued)

Variable	Participants	
	<i>n</i>	%
Overall GPA right now?		
3.5-4.0	37	27.2
3.0-3.49	45	33.1
2.5-2.99	42	30.9
2.0-2.49	3	2.2
1.5-1.99	7	5.1
Below 1.5	2	1.5
Chosen college major?		
Yes	121	89.0
No	15	11.0
Highest ED you HOPE to complete?		
Some community college	2	1.5
Associate's degree	3	2.2
Some 4-year college	8	5.9
Bachelor's degree	25	18.4
Post-bac degree	5	3.7
Master's degree	57	41.9
Doctoral degree	36	26.5
Highest ED you think will be able to complete?		
Some community college	3	2.2
Associate's degree	4	2.9
Some 4-year college	11	8.1
Bachelor's degree	36	26.5
Post-bac degree	13	9.6
Master's degree	45	33.1
Doctoral degree	24	17.6

Boards (IRB) at each institution. Some institutions sent an email to the entire population of female students with documented learning disabilities who had registered with Disability Services. Other DS offices posted recruitment flyers and recruited students in

person. Participants were also recruited through a transition program in Oregon, on a national website specific to women with disabilities, and by flyers posted throughout the University of Oregon College of Education. Participants were also informed that they could forward the recruitment email to other female college students with learning disabilities.

Data were collected in the form of an online questionnaire. Eligibility criteria were as follows: (a) a college student currently enrolled or graduated within the previous academic term, (b) female, and (c) a documented learning disability. Each participant was offered the opportunity to submit contact information to receive a \$15.00 Target gift card as compensation for their participation.

Recruitment materials included (a) a brief description of the study, including eligibility criteria and approximate length of completion time; (b) a statement of the participation incentive; (c) a statement that the online survey was 508 compliant, meaning that it was compatible with screen readers if participants chose to use them; and (d) the website address of the online survey. The first page of the online survey was the informed consent statement, to which participants had to indicate “I agree” to continue with the survey. Within the informed consent statement, participants were given a brief description of the study, were shown how to obtain the monetary incentive, and were informed that they could decline or discontinue participation at any time during the survey without negative consequence. Participants were also given contact information for me, my advisor, and the University of Oregon Office for the Protection of Human Subjects. The online survey was compatible with screen readers for participants who chose to use them.

Measures

All measures for this study are presented in the Appendix. In Table 3, I also provide a list of the constructs and associated measures for this study.

TABLE 3. Description of Study Constructs and Measures

Construct	Measure	Items	Purpose	Variable type
		<i>N</i>		
Person inputs, background contextual factors, learning experiences	Demographics/Background Questionnaire	35	Describe person inputs, background contextual variables and learning experiences	Nominal/ continuous
Support	Family of Origin Career Development Support	10	Measure of supports	Continuous range = 1 to 3
Perceived barriers	Perception of Barriers Scale (modified for disability)	33	Measure perception of barriers	Continuous range = -2 to +2
Career decision self-efficacy	Career Decision Self-Efficacy Scale – Short Form (CDSE-SF)	25	Measure self-efficacy	Continuous range = 1 to 5
Career outcome expectations	Vocational Outcome Expectations Revised Scale	12	Measure outcome expectations	Continuous range = 1 to 5

Demographic Information

Participants were asked to complete a demographics questionnaire that obtained information such as their sex, age, ethnicity, disability status and type, and year in college. In addition, participants were asked to indicate their chosen academic major, along with other demographic contextual variables.

Predictor Variables

Person Inputs, Background Contextual Variables, Learning Experiences

Person inputs, background contextual variables, and learning experiences were assessed on a demographics and background questionnaire. Participants were asked about their GPA, parents' level of education completed, what type of support they received for the college exploration and application process; what type of career exploration activities they have engaged in, when, and with whom; whether they have received special education and/or vocational rehabilitation services; and whether they receive accommodations for their disability in college.

Participant GPA

Participants provided ranges of GPA that were coded numerically from 1-6, with higher codes indicating higher ranges of GPA.

Highest Education of Parent or Guardian

Scores were coded numerically from 1-6, with some high school having a score of 1, and doctoral degree having a score of 6. Each participant was given the score of the parent with the highest education. For example, if someone's father completed high school (which would be a score of 2) and her mother completed a master's degree (which would be a score of 5), her highest education of parent/guardian score would be 5. Some participants provided information regarding the highest education of parents and/or

guardians that was not consistent with open-response comments. For example, one participant entered mother's education as high school, but then stated that her mother had completed college. Also, if the participant provided narrative that would suggest a particular parent's score should not be used (e.g., father had a college degree but the participant never knew him and was raised by her grandmother), then the grandmother's highest level of education was used. Three responses were changed to make them consistent with written comments.

Career Education/Exploration

This variable was defined as the number of career education/exploration activities engaged in by the participant.

Perception of Barriers

The Perception of Barriers (POB) Scale is a 33-item, 5-point Likert-type measure developed by McWhirter (1992) to measure high school students' perceptions of educational and career barriers. Luzzo and McWhirter's (2001) version of the POB scale was modified by Corrigan in 2001 to assess perception of barriers on the basis of disability rather than ethnicity, which was the focus of the original scale. Sample modified items include "In my future career I will probably be treated differently because of my disability" and "My disability is currently a barrier to my educational aspirations." In this study, the scale was coded as strongly disagree = -2, disagree = -1, not sure = 0, agree = 1, and strongly agree = 2. Corrigan reported a Cronbach's alpha value of $\alpha = .89$

for Career-Related Barriers, $\alpha = .91$ for Educational-Related Barriers, and full-scale reliability of $\alpha = .93$. The alpha values for the present sample were $\alpha = .90$ for both Career and Education-Related Barriers, and the alpha score for the full scale was $\alpha = .95$.

Perceived Family Support

Perceptions of support for career development were assessed using a 10-item scale. An original five-item scale was created by Way and Rossman (1996) and modified by Metheny (2009). Way and Rossman's original five items reflected financial, emotional, and influential types of support. Response options included "no support," "a little support," or "considerable support." Sample items are "To what extent has the family you grew up in given you financial support for your education and training?" and "To what extent has the family you grew up in given you information and contacts that helped you with your occupational choice?" Metheny (2009) added five items to reflect appraisal, emotional, and informational support. The added items were written in a format similar to the original items. Sample items include "To what extent has the family you grew up in helped you understand your strengths and/or talents?" and "To what extent has the family you grew up in encouraged you to pursue your goals and/or plans for the future?" Higher total scores reflect higher levels of perceived support from the family of origin. Metheny reported an alpha value of $\alpha = .85$ for a sample of college students. For the purpose of this study, I simplified the response choices to "none," "a little," or "a lot." The alpha value for the present study was $\alpha = .93$.

Outcome Variables

Career Decision Self-Efficacy

The Career Decision Self-Efficacy Scale (CDSE) was developed by Taylor and Betz (1983) specifically for administration to groups of college students. It is based on SCCT and is meant to measure the degree of belief that a person has in being able to complete educational tasks, exploration, and goal-setting with regard to career decisions. The scale was constructed based on Crites' (1978) five career choice competencies: accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving. The CDSE has been shown to be effective for both research purposes and career counseling with college students (Betz & Luzzo, 1996). Betz, Klein, and Taylor (1996) shortened the CDSE from 50 items to 25 items, creating the CDSE-Short Form (CDSE-SF). The CDSE-SF is a 25-item, 5-point Likert-type measure (from "1 = no confidence at all" to "5 = complete confidence"), whose 25 items loaded onto the CDSE original five subscales of self-appraisal, occupational information, goal selection, planning, and problem solving. The five factors are represented by five items each. Sample items include "How much confidence do you have that you could make a plan of your goals for the next five years?" and "How much confidence do you have that you could determine what your ideal job would be?" An analysis of the psychometric properties of the CDSE-SF revealed coefficient alpha values of $\alpha = .73$ to $\alpha = .83$ for the subscales and an overall alpha value of $\alpha = .94$ (Betz et al., 1996). The alpha value for the present sample was $\alpha = .96$.

Vocational Outcome Expectations

The Vocational Outcome Expectations Revised Scale (VOE-R; McWhirter & Metheny, 2010) is a 12-item, 4-point Likert-type scale (from “1 = strongly disagree” to “4 = strongly agree”) that was developed to assess the effects of high school career education on social cognitive variables. Sample items include, “My career planning will lead to a satisfying career for me” and “I will be successful in my chosen career/occupation.” The Cronbach’s alpha was reported by Metheny (2009) to be $\alpha = .92$ for a sample of college students. The alpha value for the present sample was $\alpha = .94$.

Scale Reliability

The alpha reliability coefficients for the different scale scores are given in Table 4. In general, reliability coefficients above .70 are deemed to be acceptable. The combined as well as the two separate perceived barriers scales, family support, career decision self-efficacy, and career outcome expectations all showed excellent reliability. See Table 4 for means and standard deviations of the scale scores.

TABLE 4. Means, Standard Deviations, and Reliability Coefficients for Scale Scores

Scale	<i>M</i>	<i>SD</i>	Alpha
Perceived barriers	-0.43	0.05	.95
Perceived barriers: education	-0.56	0.06	.90
Perceived barriers: career	-0.21	0.07	.90
Family support	1.33	0.05	.93
Career decision self-efficacy	2.84	0.06	.96
Career outcome expectations	1.10	0.06	.94

Analysis Strategy

Data were first examined for missing values and outliers, and to assess whether relevant statistical assumptions had been met. Preliminary examination of the data included descriptive statistics for each variable and examination of the correlation matrix between all measured variables. Descriptive statistics were also used to describe the sample.

An SEM path analysis was then conducted to determine the fit of the data with the Social Cognitive Career Theory model. The exogenous (independent) variables in the path were POB, parent education level, perceived support, and career education and exploration. The endogenous (dependent) variables in the path model were CDSE and COE. Amos 7.0 was used to examine the overall fit of the data to the model, and maximum likelihood estimation to calculate path coefficients and model fit indices.

Figure 3 presents the path model of the predicted relationships in the study.

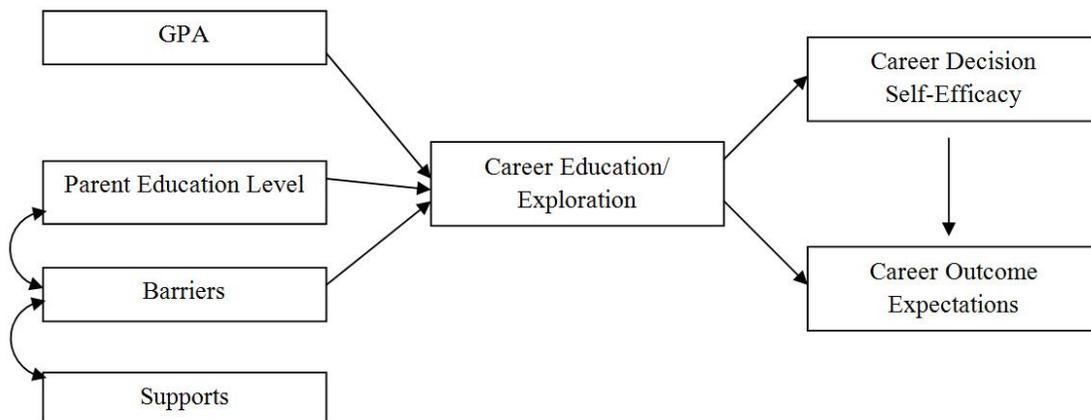


FIGURE 3. Path model of predicted relationships among SCCT variables in the study.

CHAPTER III

RESULTS

Participants

The number of participants who completed the online survey included 166 people, which resulted in a final usable sample for this study of $N = 136$ participants. This number resulted from the subsequent elimination of some original participants who did not complete the survey, did not indicate a female gender, or did not indicate having been diagnosed with a learning disability. Additionally, during the online data collection there was a random computer glitch that prevented an additional 13 participants from finishing all of the items near the end of the survey. Four of these were missing responses from all items on one scale and so were removed from the sample. Because the missing data mechanism was random, the missing data for the remaining nine participants were addressed with multiple imputation (Little & Rubin, 2002) enabled by the Amelia package in R (version 2.8.1). Given the relatively small sample size and the large amount of missing data for these subjects, the imputation algorithm was not able to generate robust estimates for these subjects. These nine respondents were then eliminated. An additional six participants quit the survey early, leaving all items on a given scale unanswered. So, in the end, 19 participants were removed because of large amounts of missing data that could not be imputed. Imputation was run for an additional two subjects with relatively small amounts of missing data (2.5% missing) and so these two participants were retained. The final sample size in analyses was 136.

Statistical Assumptions and Analytic Approach

Structural equation modeling (SEM) was used to test the primary research question in this study. The statistical assumptions that underlie SEM are multivariate normality, linear assumptions between variables, and the absence of outliers and multicollinearity. Nonnormal distributions and outliers can bias correlations and result in biased model parameters (Tabachnik & Fidell, 2001). The Pearson index was used to assess skewness because it is preferred for inferential use (Glass & Hopkins, 1996). If the skewness value is twice the size of the standard error of the skewness, it can be considered significant. Examination of univariate histograms and skewness parameters revealed significant negative skewness for the career decision self-efficacy (Skewness = $-.53$, $se = .21$) and career outcome expectations scale scores (Skewness = -1.51 , $se = .21$). Strong skewness can affect measures of central tendency as well as correlations with other variables. A square function was used to transform these distributions closer to normality. All skewness and kurtosis values for the other continuous variables were nonsignificant.

To assess the linearity assumption, bivariate scatterplots were examined to look for nonlinear relations between variables. All of the relations between the primary study variables were roughly linear in nature and there were no severe outliers identified. Variables used in SEM should not be too highly correlated, which could result in multicollinearity (e.g., $r > 0.95$). There were no correlations high enough to warrant concern between variables that were modeled together (see Table 5; r 's = $-.40$, $-.63$).

TABLE 5. Correlations Between Primary Study Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Support	1										
2. Parent Ed	.40**	1									
3. GPA	.05	.10	1								
4. Barriers	-.28**	-.11	-.001	1							
5. Ed Barriers	-.31**	-.17	-.08	.91**	1						
6. C Barriers	-.13	.01	.12	.80**	.48**	1					
7. Ed/Expectation	.07	-.10	.21*	-.01	-.03	.04	1				
8. Career RW	.14	.04	.28**	.02	-.01	.05	.49**	1			
9. Career Oth	.01	-.13	.11	-.02	-.03	.02	.91**	.08	1		
10. CDSE	.21*	-.09	.17	-.40**	-.35**	-.33**	.15	.29**	.04	1	
11. COE	.15	-.03	-.02	-.40**	-.32**	-.39**	.06	.04	.04	.63**	1

Note. $N = 136$. 1. Support = Perceived family support; 2. Parent Ed = Highest parent education; 3. GPA = Grade point average; 4. Barriers = Full scale career and education-related barriers; 5. Ed Barriers = Education-related barriers; 6. C Barriers = Career-related barriers; 7. Ed/Exp = Career education/exploration; 8. Career RW = Real World career education/exploration activities (job/internship/volunteer experience); 9. Career Oth = Other career education/exploration activities (met with a career counselor/career classes/etc.); 10. CDSE = Career decision self-efficacy; 11. COE = Career outcome expectations.

* $p < .05$. ** $p < .01$.

SEM is based on covariances and correlations and these estimates become less stable when they are derived from small sample sizes. This can affect the precision of the estimated effects in the model. There is no consensus on how large the sample size needs to be to use SEM, but several methodologists have offered guidelines. For example, Mitchell (1993) has stated that there should be 10-20 times as many participants as variables in the SEM. Stevens (1996) advanced the tenet that there should be at least 15 cases per measured variable. In this study, the primary hypothesized model has seven measured variables. Thus, a sample of 105-140 should be the minimum. By these measures, the present sample size of 136 surpasses the minimum required for stable parameter estimates.

When evaluating structural equation models it is important to assess how well the hypothesized model fits the observed data. There are numerous fit indices that could be reported. Kline (2005) recommends providing a set of indices that differ in how they are estimated (e.g., whether they are dependent on sample size or not). First, the overall fit can be assessed by comparing the reproduced (inferred from the model) and empirical correlation matrices with a χ^2 test. The χ^2 test should be nonsignificant for a well-fitting model. However, the χ^2 test is affected by sample size and can indicate poor fit (i.e., a significant result) even when the overall fit is quite good. This is particularly problematic with very large sample sizes. For this reason, fit is also assessed by any number of fit indices that account for the influence of sample size. The CFI (good fit > .90) and RMSEA (very good fit < .05) are reported with the models below (Kline, 2005). The RMSEA has a unique set of properties, including a correction for model complexity (i.e.,

it is a parsimony-adjusted index) and adjustments for sample size. The CFI is a comparative fit index that assesses how much better the target model is compared to a baseline model (normally an independence model where all parameters are fixed at 0). Given that the model provides a good fit to the observed data, the individual model parameters (e.g., correlations and structural regression coefficients) can be interpreted.

Model Testing

The purpose of this study was to test a significant portion of the SCCT model in a sample of female college students with LD. More specifically, my primary research question was whether person inputs and contextual inputs predict self-efficacy expectations and outcome expectations mediated through career education and exploration. See Table 5 for correlations of the primary study variables that were used for model testing.

All of the models reported below were also tested with the two different types of barriers (education and career). The substantive conclusions remained the same for each of the barrier types.

Model 1

The results for the initial hypothesized model are presented below (see Figure 4). All fit indices suggest a poor fit between the model and observed data, $\chi^2(11, N = 136) = 45.56, p < .001, CFI = .69, RMSEA = .15$. Thus, the individual parameter estimates will not be interpreted further. One potential cause of the poor fit may be the nature of the

career education/exploration variable. The career education/exploration variable is composed of two different types of activities (“real world” versus other classroom type activities), which may have different effects in the model. Below, the real world (Model 2) and other activities (Model 3) are tested in separate models.

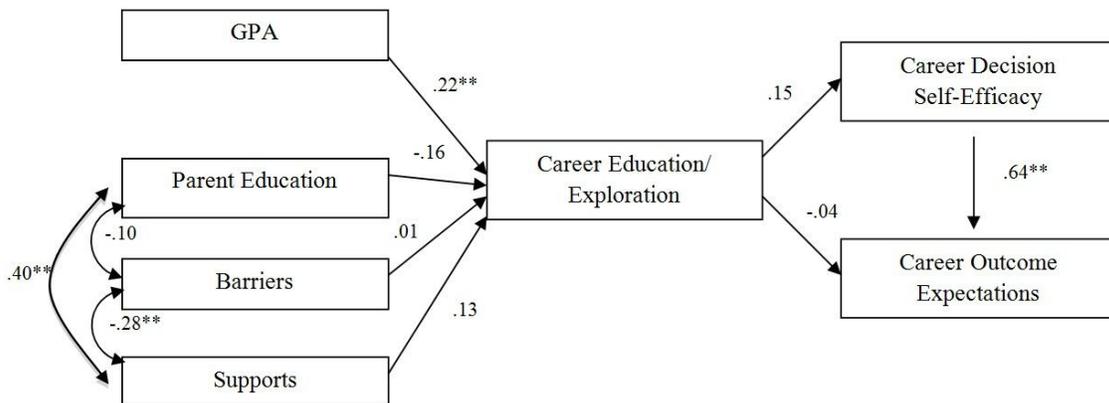


FIGURE 4. Standardized effects for initial hypothesized model (Model 1).
 $*p < .05$. $**p < .01$.

Model 2

This model is identical to Model 1 except that the career education/exploration variable is made up of the real world activities only (see Figure 5). All fit indices suggest a poor fit between the model and observed data, $\chi^2(11, N = 136) = 44.24, p < .001$, CFI = .74, RMSEA = .15. Thus, individual parameter estimates were not interpreted further.

Model 3

This model is identical to Model 1 except that the career education/exploration variable is made up of the other classroom-type activities only (see Figure 6). All fit

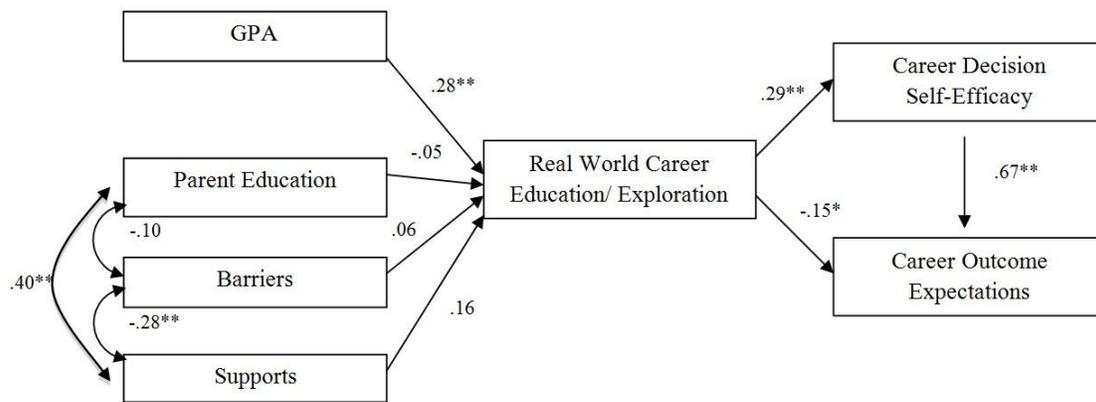


FIGURE 5. Standardized effects for Model 2. * $p < .05$, ** $p < .01$.

indices suggest a poor fit between the model and observed data, $\chi^2(11, N=136)= 47.80$, $p < .001$, CFI=.65, RMSEA=.16. Thus, the individual parameter estimates were not interpreted further.

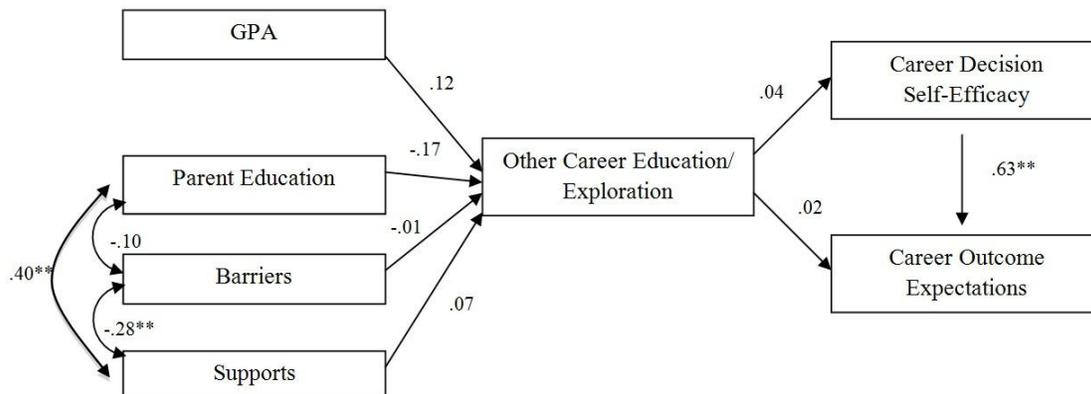


FIGURE 6. Standardized effects for Model 3. * $p < .05$. ** $p < .01$.

Exploratory Modeling

An exploratory modeling approach was used to find the best fitting model for the observed data. This process involved adding and removing correlations and structural paths to achieve a good fitting model. The adjustments to the model were based on both empirical (e.g., strong empirical correlations, suggestions for improving model fit from statistical software or modification indices, etc.) and theoretical rationale. The career education/exploration variable composed of the real world activities only was used for exploratory modeling because it showed the strongest relations with career decision self-efficacy and career outcome expectations. There is also a theoretical reason to prefer this variable in that performance accomplishments, vicarious learning, and verbal persuasion are especially important sources of self-efficacy for students with LD and that students with LD may incorporate these sources of self-efficacy in vocational training or workplace settings (Panagos & Dubois, 1999).

The final model can only be interpreted as a tentative model on the phenomenon given the exploratory nature of the model adjustment (Kline, 2005). This model should be replicated in future research. However, these results can still provide the first (tentative) model in this domain and be used as a guide for future research.

The model adjustment was based on four main observations: (a) the zero-order correlations suggested a direct relation between perceived barriers and career decision self-efficacy, as well as supports and career decision self-efficacy; (b) supports and perceived barriers were not strongly related to career education/exploration, suggesting

that these paths should be removed; (c) perceived barriers showed a strong zero-order correlation with career outcome expectations, suggesting that a direct path should be added; and (d) highest parent education was not strongly related to any other variables except supports, which implies that this variable should be removed completely or entered as a predictor of supports. Including parent education level as a predictor of support would make sense theoretically, given that parent education level is believed to be related to education attainment of children because of knowledge and supports that parents can offer about college (Choy, 2002) and careers (Blustein et al., 2002). In all three models, the modification indices indicated that a path should be added from perceived barriers to career decision self-efficacy. These adjustments resulted in two different models: one with and one without highest parent education included as a predictor of supports.

The results from the first model without highest parent education as a predictor of supports are presented in Figure 7 and Table 6. All fit indices suggest an excellent fit between the model and observed data, $\chi^2(7, N = 136) = 6.59, p = .47, CFI = 1.0, RMSEA < .001$.

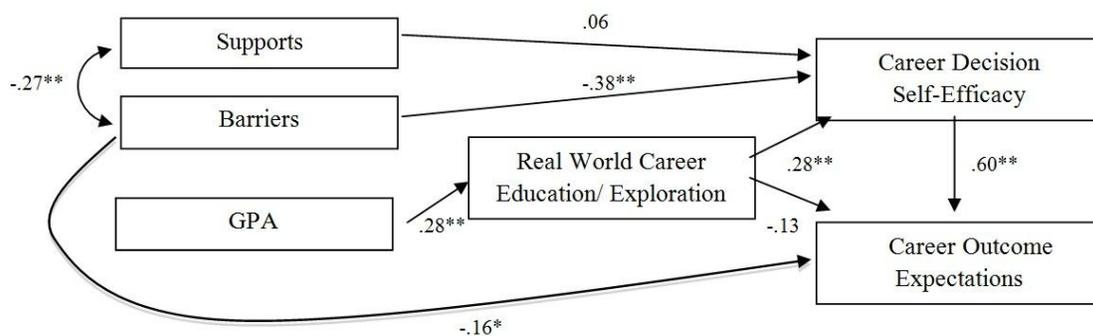


FIGURE 7. Effects for exploratory model without highest parent education included. $*p < .05$. $**p < .01$.

Significant direct effects were observed in the model. Higher participant GPA was associated with greater career education/exploration ($\beta = .28$). Fewer perceived barriers ($\beta = -.38$) and more career education/exploration ($\beta = .28$) were associated with greater career decision self-efficacy. Finally, fewer perceived barriers ($\beta = .16$) and greater career

TABLE 6. Parameter Estimates for Exploratory Modeling Without Highest Parent Education

	Unstandardized estimates	Standardized estimates	SE	t-value
Structural paths				
Career educ/exp ON GPA	0.19	0.28	0.06	3.41**
CDSE ON Career educ/exp	887.19	0.28	236.54	3.75**
CDSE ON Supports	27.15	0.06	32.27	0.84
CDSE ON Barriers	-44.65	-0.38	9.04	-4.94**
COE ON Barriers	-1.42	-0.16	0.63	-2.26*
COE ON CDSE	0.05	0.60	0.006	8.16**
COE ON Career educ/exp	-30.49	-0.13	16.24	-1.88
Correlations				
Barriers WITH Support	-34.70	-0.27	11.17	-3.12

Note. * $p < .05$. ** $p < .01$.

decision self-efficacy ($\beta = .60$) were associated with more positive career outcome expectations. These standardized weights can be interpreted as standard deviation (*SD*) changes in a DV for each *SD* change in the predictor. For example, the direct effect of GPA can be interpreted as follows: For 1 *SD* change in GPA, we would expect a .28 *SD* change in career education/exploration.

Overall, 8% ($R^2 = .08$) of the variance in career education/exploration was explained by participant GPA, 25% ($R^2 = .25$) of the variance in career decision self-efficacy was explained by supports, perceived barriers, and career education/exploration, and 44% ($R^2 = .44$) of the variance in career outcome expectations was explained by perceived barriers, career education/exploration, and career decision self-efficacy.

In addition to examining direct structural paths and the total amount of variance explained in the model, indirect or mediational effects are also of interest. An indirect effect is the effect of one variable on another mediated through one or more other variables. GPA had a significant indirect effect on career outcome expectations ($\beta = .05$, $p = .008$) mediated through career education/exploration and career decision self-efficacy. In addition, perceived barriers also had an indirect effect on career outcome expectations mediated through career decision self-efficacy ($\beta = -0.23$, $p < .001$).

The second exploratory model included highest parent education as a predictor of supports (see Figure 8 and Table 7). All fit indices suggest a very good fit between the model and observed data, $\chi^2(11, N = 136) = 15.27$, $p = .17$, CFI = .97, RMSEA = .05. The overall results of the model are substantively identical except for the significant direct path from highest parent education to supports ($\beta = .40$), which explained 16% ($R^2 = .25$) of the variance in the supports variable.

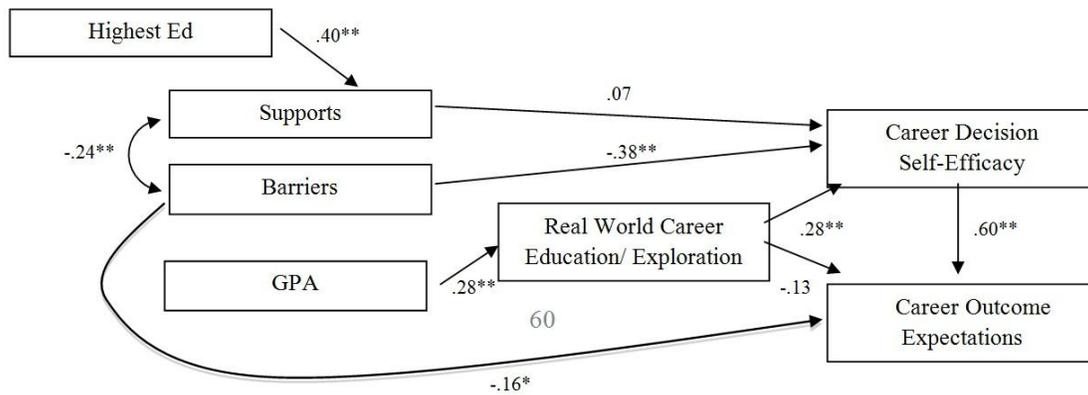


FIGURE 8. Standardized effects for exploratory model with highest parent education included. * $p < .05$. ** $p < .01$.

TABLE 7. Parameter Estimates for Exploratory Model With Highest Parent Education

	Unstandardized estimates	Standardized estimates	SE	t-value
Structural paths				
Career educ/exp ON GPA	0.19	0.28	0.06	3.41**
CDSE ON Career educ/expectation	887.19	0.28	236.54	3.75**
CDSE ON Supports	27.15	0.07	32.27	0.84
CDSE ON Barriers	-44.65	-0.38	9.04	-4.94**
COE ON Barriers	-1.42	-0.16	0.63	-2.26*
COE ON CDSE	0.05	0.60	0.006	8.16**
COE ON Career educ/expectation	-30.49	-0.13	16.24	-1.88
Supports ON Highest Education	1.75	.40	0.35	5.05**
Correlations				
Barriers WITH Support	-34.70	-0.27	11.17	-3.12

Note. * $p < .05$. ** $p < .01$.

Summary

In the hypothesized model (Model 1), GPA, parent education level, perceived barriers, and perceived supports were included as potential predictors of career decision self-efficacy and career outcome expectations, mediated by career education and exploration. In Model 1, the paths from GPA to career education/exploration and from career decision self-efficacy to career outcome expectations were significant. There were also significant correlations between barriers and supports, and between parent education and supports. In Models 2 and 3, the career exploration/education variable was divided to include real world work experiences (Model 2) and other career learning experiences (Model 3). In Model 2, the path from GPA to real world work experiences held as significant and there were significant paths from work experiences to career decision self efficacy. In Model 3, there were no significant paths from the predictor variables to the other learning experiences or from learning experiences to the outcome variables.

Subsequently, exploratory modeling was used to find the best fitting model for this data. In the exploratory models, only the real world work experiences were used for the career education/exploration variable. In the first exploratory model, parent education was not included, as it was not a significant predictor of outcome variables in the hypothesized model. In the first exploratory model, there was a significant path from perceived barriers to career decision self-efficacy and from real world career education/exploration to career decision self-efficacy. There was also a significant path from GPA to career education/exploration. In the second exploratory model, the

aforementioned paths were significant, and highest parent education was included as a significant predictor of perceived supports.

CHAPTER IV

DISCUSSION

The purpose of this study was to better understand the career development experiences of female college students with learning disabilities. Specifically, I wanted to explore background, contextual, and learning experiences as they relate to career decision self-efficacy and career outcome expectations and determine whether the data would fit the early-occurring constructs of the SCCT model for this population.

Study findings were mixed. While findings did not fully support the proposed model, they provided a clearer understanding of some of the key relationships in the SCCT model for this specific population, which has been much understudied in the research literature. The initial hypothesized model was not a good fit for the data. There were only two significant paths in the hypothesized model—from GPA to career education/exploration and from career decision self-efficacy to career outcome expectations—but the overall model was not a good fit. In subsequent models, the career education/exploration variable was split into two components: (a) real world work experiences, and (b) other types of career learning experiences. Adding nuance and specificity to subsequent models in this way demonstrated that the real world work experiences component of career education/exploration was a significant predictor of career decision self-efficacy, while other types of career learning (such as classes, online tools, and meetings with career counselors) were not.

Two exploratory models were then developed in an attempt to find the best fitting model for the data. Both of these exploratory models were good fits for the data, one that included parent education level and one model that did not. In the second of these two exploratory models, parent education level was included as a significant predictor of perceived supports. In this model there was a significant direct path from perceived barriers to career decision self-efficacy, a significant path from real world career education/exploration to career decision self-efficacy, and a significant path from GPA to career education/exploration. In all models tested, there was a significant path from career decision self-efficacy to career outcome expectations.

In the following paragraphs, I discuss in detail the findings from the initial hypothesized model, the two revised hypothesized models, and the two exploratory models. I present my discussion related to the relevant variable and constructs in each model. Additionally, I discuss strengths and limitations of this study and implications for practice and research.

Influence of Person Inputs

Grade Point Average

Because each participant in the study was a female with a learning disability, I did not input that data into the model. I utilized GPA as the person input in this particular model. There was a significant positive relationship between GPA and career education/exploration in the initial hypothesized model and in subsequent models that included the real world career education/exploration variable. There was not a significant

path from GPA to the other career learning experiences variable. A March 2011 search of ERIC, Education Abstracts, PsycINFO, and Academic Search Premier, with the parameters “GPA” and “employment” or “GPA” and “career development,” revealed articles focused on the effect of employment on GPA or cognitive development rather than the effect of GPA on employment. Several studies have examined the relationship between student employment and GPA, with somewhat mixed results, but with most studies drawing the conclusion that working while attending college full time, regardless of the number of hours worked, does not seem to have an adverse effect on GPA (High, 1999). In a 3-year longitudinal study, Pascarella, Edison, Nora, Hagedorn, and Terenzini (1998) examined the effects of employment during college on cognitive development. They found some differences based on year in school, number of hours worked, and whether the employment was on or off the college campus, but the general finding was that 15-20 hours of work per week, regardless of location, did not negatively impact cognitive growth. The relationship between GPA and employment history for women with LD could be an area for further exploration.

Influence of Contextual Inputs

Parent Education Level and Perceived Support

I hypothesized that there would be a significant relationship between parent education level and career education/exploration. Results did not support this hypothesis. The coefficient for the path between parent education level and career education/exploration was not statistically significant in any of the models, meaning that

parent education level did not have a direct effect on career education and exploration in the present sample. This finding is particularly surprising given that Blustein et al. (2002) found that students from higher SES families were more likely to engage in career exploration activities than students from lower SES families. In that study, SES was defined by parental occupation, which is often correlated with parent education level. Similarly, Way and Rossman (1996) found that SES directly contributed to family variables such as parent involvement in school, and involvement in the career development process. Lindstrom et al. (2004) found that parental occupational patterns influenced the career aspirations and expectations for women with learning disabilities. So the findings of the present study are a bit perplexing, and have not led us to find similar relationships between parent SES and career education and exploration for college women with a learning disability. One possible explanation for this could be that engagement in work was related to SES rather than career exploration. Lindstrom et al. (2007) found that for students from lower SES families, early career-related decisions were sometimes influenced by perceived or real need to contribute financially to the family.

Another reason why parent education level was not related to career education/exploration may be related to the issue of family salience. That is, participants' current family of procreation may differ from their family of origin in meaningful ways, and may also serve as a more meaningful reference point for participants' attitudes and beliefs. Way and Rossman (1996), for example, studied the influences of both family of origin SES and current family SES on transition readiness (career maturity and selected

work effectiveness skills) for adult learners at 2-year colleges. They found that the current family SES, rather than family of origin SES, was directly related to transition readiness. The present sample was comprised of adult learners in postsecondary education, some of whom were older than the "average" college student. It could be that for many women in this study, some current family factors were much more relevant to them than family of origin factors in influencing their career education and exploration process. At the least, findings herein suggest that future research should explore the factors that contribute to career exploration activities for women with learning disabilities who also have current families.

In the hypothesized and subsequent models, there was a significant correlation between parent education level and perceived supports. In the second exploratory model, parent education level was included as a potential predictor of perceived support. In this model, there was a significant direct path from parent education level to perceived family support, indicating that higher levels of parent education were correlated with their children perceiving higher levels of support. I hypothesized that there would be a significant, positive relationship between perceived family support and career education/experiences. Results did not support this hypothesis in any of the models.

The finding that perceived support did not have an impact on career education/exploration was surprising, given that many studies have shown the importance of family support on career development. Whiston and Keller (2004) found in their review that family support was a significant theme throughout the literature, having a positive impact on career development. Studies have found that both emotional and

instrumental support were important for young adults in the school-to-work transition process (Blustein, Phillips, Jobin-Davis, Finkelberg, & Roarke, 1997; Phillips, Blustein, Jobin-Davis, & White, 2002). One possible explanation for this finding is that adult learners in the Way and Rossman (1996) study varied in perceived family support for career development based on whether they were married or had children. Adult participants who were married were more likely to feel supported in their career development by their present families than adults who were not married. Participants with children were more likely to feel greater present family career development support than participants without children. The mean age of participants in the present study was 28. So, similar to the previous finding discussed, it is possible that perceptions of current family support were more salient for these participants than reflections on perceived family of origin support, and the relevance and reference to current family influenced the relationships of variables in a manner that I did not predict. At the same time, even though parent education level was not a significant predictor of the outcome variables in the study, it seemed theoretically important to leave it in the model. In the exploratory model, parent education level is a predictor of perceived supports. Perceived support is inversely related to perceived barriers, and barriers are significantly related to career decision self-efficacy. Also, as stated above, the importance of family support has been well documented in the literature.

Studies have shown that parent education level is related to SES (Nakao & Treas, 1994), which is related to occupational aspirations and the career development process. Children who have grown up in households with higher SES and higher parent

educational backgrounds are more likely to engage in career exploration activities and pursue higher levels of postsecondary education (Blustein et al., 2002). Analyses of NLTS2 data have also shown that students from higher SES families are more likely to engage in postsecondary education or be employed after high school (Newman et al., 2009). It has also been shown that parent support toward educational goals is important in the pursuit of postsecondary education (Wagner et al., 1993). Teaching parents how to provide support to their children through the education and career development process might be an important intervention for this population. Lindstrom et al. (2007) found that parents who provided appropriate support and advocacy were able to provide positive influence on the career development processes of their adult children with learning disabilities. Whiston and Keller (2004) also found that parental support, advocacy, and aspirations have a positive impact on the career development process for adolescents.

Perceived Barriers

Regarding my hypothesis related to perceived barriers, in both the initial and exploratory models, higher perceived barriers did not have a direct effect on career education/experiences. On the other hand, in the exploratory model, perceived barriers did predict career decision self-efficacy and career outcome expectations, by suggesting that college women with LD who perceive having fewer education and career-related barriers also have higher levels of career decision self-efficacy and higher career outcome expectations. This finding illustrates that perceived barriers have a direct influence on career decision-self efficacy and career outcome expectations for this population, and

might be an important point of intervention. The relationship between perception of barriers and self-efficacy is important to understand because self-efficacy may affect the degree to which perceived barriers will impact career development (Lent et al., 2000). This is consistent with the literature in that perceived barriers may impede a career path even if a person has high self-efficacy and positive outcome expectations for that particular career (Brown & Lent, 1996). However, the specific ways that perceived barriers impact career development is an area in which additional research is needed (Lent et al., 2000; Lindley, 2005). Lent et al. (2000) also called for further research on understanding the contextual barriers for diverse populations (e.g., disability status) within the context of SCCT. Because outcome expectations are particularly important for the development of career exploration intentions for women (Betz & Voyten, 1997) and for students with disabilities (Ochs & Roessler, 2004), it is also important to better understand the relationship between perceived barriers and outcome expectations in future research. Findings here support the potential importance of these relationships.

Career Education/Exploration

In the initial hypothesized model, there was not a significant relationship between higher career education/exploration and either higher career decision self-efficacy or higher career outcome expectations. But dividing the variables in career education/exploration in the subsequent model tested appeared to make a difference and also provided more interpretable findings. Career education/exploration was split into two different variables: "real world experiences" (comprised of paid work, volunteer, and

internship experiences, etc.) and "learning experiences" (comprised of meeting with a career counselor, having technical training, a career exploration class, use of online career tools, informational interview or job shadow; etc.). In the revised models, the "real world experiences" did have a significant direct effect on career decision self-efficacy, but not on career outcome expectations. The "learning experiences" component did not have a significant effect on either outcome variable. What this finding implies is that exposure to real world experiences, such as direct work experiences, internships, volunteer experiences, service learning activities, and so forth, may be more important for the formation of career decision self-efficacy than other types of learning experiences. For female students struggling with learning disabilities as well as gender-normed expectations about the world of work, this may be even more important. For example, Lindstrom et al. (2004) found that paid employment during high school helped young women with LD overcome gender- and disability-related barriers to meaningful postschool employment. They found that work experience was an important predictor of postschool employment related to interests and goals for young women with LD. Furthermore, Lindstrom et al. (2004) found that for women with learning disabilities, work experiences in high school expanded career choices and helped women "define and refine" their career goals. They also found that positive contributions at work built work-related skills, confidence, and self-esteem for women with LD. So the findings here about real world experiences confirm and are consistent with these previous findings as well.

There is a call within the literature to investigate better ways to design career exploration activities that directly promote career-related self-efficacy beliefs for students

with LD (Panagos & DuBois, 1999). Studies have shown that self-efficacy beliefs are important predictors of interest and motivation for particular career areas (Lent et al., 1994; Panagos & DuBois, 1999). At the same time, other learning experiences, such as career counseling and classroom interventions, continue to be important for women with LD. Lindstrom et al. (2004), for example, found that career counseling and exploration could be very beneficial for women with LD in their career development process. However, they also found that sex-stereotyped career counseling restricted career exploration opportunities for some of the participants in their study. Future research should more fully address the ways that learning experiences impact the formation of career-related self-efficacy beliefs and outcome expectations.

Career Decision Self-Efficacy and Outcome Expectations

Consistent with SCCT, there was a significant, positive relationship between career decision self-efficacy and career outcome expectations for this sample. This suggests that women in this sample who experience high levels of career decision self-efficacy also experience positive outcome expectations for their careers (Lent, 2005; Lent et al., 1994). This is an important finding, because self-efficacy could be high but outcome expectations low, based on negative expectations or experiences—e.g., discrimination (Lent, 2005). Parents and teachers tend to have lower career-related expectations for students with disabilities (Benz & Halpern, 1993), and parents tend to have lower education-related expectations for students with learning disabilities than for students with other types of disabilities (NLTS2, 2005). These lowered expectations have

bearing on the career and educational outcomes of students with disabilities (Wagner et al., 1993).

Outcome expectations are important because they influence intentions (Lent et al., 1994) and motivate behavior (Bandura, 1997). Betz and Voyten (1997) found that career outcome expectations were predictive of exploratory intentions for undergraduate women. Ochs and Roessler (2004) found that career outcome expectations were a stronger predictor of exploratory intentions among special education students, while CDSE was a stronger predictor of exploratory intentions among general education students.

Strengths and Limitations

This study makes an important contribution to the career development literature and to research about women with learning disabilities. Results indicate that perceived barriers have a correlation with career decision self-efficacy and career outcome expectations for this population of women. Results also highlight that for female college students with LD, real world work experiences may be more important than classroom-based or individual interventions for the formation of their career decision self-efficacy. Because self-efficacy expectations and outcome expectations seem to be of particular importance for this population, Panagos and DuBois (1999) have called for more studies that investigate career-related experiences that foster career self-efficacy and outcome expectations. In a way, this study also responds to the call for additional research to examine the unique experiences and needs of women with learning disabilities (Doren &

Benz, 1998; Ochs & Roessler, 2001; Panagos & DuBois, 1999). College women with learning disabilities are an increasing population but we have little explicit knowledge about their career development process. This study provides a snapshot of the services and supports that women with LD have utilized prior to and during college, and fills a gap in the literature. At the same time, the findings of this study demonstrate that there is much more to learn regarding the experiences of women with learning disabilities.

This study also held some limitations. One limitation was that the majority of conclusions are based upon an exploratory model that was fit post hoc. Results should be interpreted with caution because post hoc models may tend to be overfit to a particular sample and may not be generalizable to other samples. A second limitation is that the sample consisted of largely European American women, and so finding generalizations are limited. This is unfortunate, as previous studies have called for greater research attention to the unique experiences of ethnic minority students with disabilities (e.g., Hogansen et al., 2008; Panagos & Dubois, 1999). Moreover, findings may vary greatly depending on the ethnocultural group experiences of the participants. For example, although not specific to a disability population, Luzzo and McWhirter (2001) found that ethnic minority college students perceived more career and education related barriers than their European American peers. The fact that this study was specific to college students means that it was more likely to include European American students than ethnic minority students, based on percentages of ethnic minority students enrolled in postsecondary education. Additional research will be necessary to determine whether the findings of this study hold for a more diverse sample and for different ethnocultural

groups of college women with learning disabilities. Third, although recruitment extended nationally, the majority of recruitment efforts were focused in one state in the Pacific Northwest, so future research should conduct a similar study to this study with a more nationally representative sample as well. Also, this may help attend to the natural self-selection limitations that occur with any study that uses online data collection. For example, participants in this study may have more interest in their own career development or may have been more motivated for the monetary incentive than nonrespondents. Fortunately, because surveys completed in less than 5 minutes were eliminated from the sample, I increased the likelihood of including participants who answered survey items appropriately.

A final limitation of this study is that it relied solely on self-report data from one time point that was reflective of the past. Participants were asked to reflect back to experiences during high school. So, the findings from this study could be further supported by the inclusion of longitudinal data following students from high school to college. The study could also be improved by including more multisource data, or by the inclusion of multiple reporters, such as collecting data from parents or caregivers about supports and expectations during the college planning and career development process. Additionally, data about adult learners' present families could be very important to collect. As noted by Way and Rossman (1996), they found differences in perceptions of support based on marital and parental status of their study participants. Inclusion of these types of data from their diverse sources could strengthen our ability to test the current model by allowing us to make clearer conclusions about causation among the variables

(from longitudinal data) and by allowing us to verify the construct validity of our constructs (from multiagent or multisource data). Such data would also support future intervention efforts that could be developed as a result of this model.

Implications for Research

The present study makes an important contribution to research literature on career development for women with LD, and it also highlights the need for additional research in the field. The revised exploratory model that was fit post hoc in this study should be tested a priori in another study. The revised path model created in this study needs to be tested a priori with a more diverse sample to ensure that the model is not indicative of the experiences of these particular participants. Additionally, a longitudinal study would strengthen the exploratory post hoc model that was fit from these data and the implications that have been drawn from it.

Future research should examine different types of learning experiences for this population. It could be that in trying to measure career-related learning experiences, I did not capture other relevant learning experiences—e.g., experiences with teachers, peers, or other family members—that may impact the career decision self-efficacy and career outcome expectations for college women with LD. Future research should also assess other contextual experiences that may fit the SCCT model for this population. For instance, examining this model based on students who have been diagnosed with specific types of learning disabilities may shed more specific light on the patterns tested herein. The results of this study indicate that actual work experiences, rather than classroom-

based and individual interventions, are related to career decision self-efficacy. Future research should test this finding and do so by assessing learning experiences in different and more nuanced ways and should study participants of different ages and within different family structures, such as still a part of family of origin versus students who are partnered or parenting.

Finally, the later occurring constructs in the SCCT model should also be tested for college women with learning disabilities. Because of the additional survey completion time that participants were likely to need, I felt it was practical to not have too many items on the research survey, to reduce the likelihood of survey exhaustion.

Implications for Practice

SCCT is a widely utilized model in both research and practice among vocational psychologists, career counselors, and other professionals who study career development. Although the data for this population did not completely fit the SCCT model, this study provided important information about experiences that are correlated with career decision self-efficacy and outcome expectations for college women with LD. For instance, based on the model developed and tested in this study, prevention and intervention efforts should focus on reducing perceived career- and education-related barriers. Professionals working with this population should be mindful that what might seem like a “perceived” barrier could be a real barrier of discrimination or access (Noonan et al., 2004).

The results of this study also suggest that family support is inversely correlated with perceived barriers. Therefore, family support, as conceptualized in this study,

involves not only financial means, but also information sharing, emotional support, encouragement with goals, help with school work and applications, maintenance support, expression of pride, and availability to talk about problems. Interventions could encourage increasing family support for adolescents and college students. Family members might need to be educated about how to provide appropriate support to their students. Whiston and Keller (2004) found that parents can facilitate career development by providing support, information, and open communication. Previous studies have shown that parents can learn through workshops how to help their children with career issues (Kush & Cochran, 1993; Palmer & Cochran, 1988). In the revised exploratory model, a higher level of parent education was related to higher levels of perceived family support. Families in which parents or guardians did not attend college may need more education about how to support their children in the career development process. Providers should be mindful to keep interventions affordable and accessible to all families. Providers should also consider implications for nontraditional students for whom the family of origin may be less salient—e.g., students who are older than average, partnered, or parenting.

This study also highlights the importance of real world work experiences for the formation of career decision self-efficacy and career outcome expectations. Paid work experiences, volunteer or service learning activities, and internship experiences all relate to career decision self-efficacy. Similarly, Panagos and DuBois (1999) found that for students with LD, performance accomplishments are particularly important for the development of self-efficacy beliefs. Perhaps the experience of performance

accomplishments on the job is responsible for the development of career decision self-efficacy in this population. Work experience during high school has been associated with more successful transitions for students with disabilities (Benz et al., 2000; Sitlington, Clark, & Kolstoe, 2000). Intervention efforts should encourage such real world experience, which has been shown to increase work-related skills and confidence, and expand career options for women with LD (Lindstrom et al., 2004).

Conclusion

This is an important study for better understanding the career development experiences of college women with LD, through the lens of SCCT. Although the data did not fit the original proposed model, subsequent exploratory models give some insight into some of the background and contextual factors that contribute to career decision self-efficacy and career outcome expectations for this population. One interesting finding from this study is that real world career education and exploration (paid, volunteer, or internship work) experiences, but not other types of learning experiences, appear to contribute to career decision self-efficacy for this group. Grade point average was a predictor of real world career experiences in this study. Participants who perceived fewer education- and career-related barriers had higher levels of career decision self-efficacy and career outcome expectations. Consistent with SCCT, career decision self-efficacy was found to be correlated with career outcome expectations. Lastly, higher levels of parent education were found to be predictive of perceived family support, which was in turn correlated with fewer perceived barriers. These findings are an important

contribution to the career development literature for college women with LD, a growing population in postsecondary education environments. Practitioners and researchers should consider the ways in which this population may and may not fit the constructs of the SCCT model.

APPENDIX

MEASURES

Demographics and Background Questionnaire

Note: Comment boxes were available for each question in the Demographics and Background Questionnaire

1. Gender

Female [] Trans [] Other []

2. Age

3. What is your ethnicity?

Black/African American []
White/European American []
Hispanic/Latino(a)/Chicano(a) []
Asian or Asian American []
Native American or Alaskan Native []
Pacific Islander []
Middle Eastern []
Multiracial/Multiethnic []

4. Year in college (or credit equivalent)

Freshman [] Sophomore [] Junior [] Senior []
Graduated from college [] Graduate student [] Other []

5. Have you been diagnosed with a learning disability?

Yes [] No [] Not sure []

6. At approximately what age were you diagnosed? ____ Not sure []

7. Do you have a secondary disability?

8. If yes, please indicate your secondary disability (please mark all that apply)

ADD/ADHD
Emotional/Mental Health
Physical disability
Traumatic Brain Injury
Other (please specify)

Family Background Information

1. While you were in high school, what was the HIGHEST level of education completed by your parents/guardians? Answer for only as many parents/guardians as you had.

Mother

Father

Other parent/guardian 1

Other parent/guardian 2

Some high school [] high school []

2-year college or technical school [] 4-year college []

master's degree [] doctoral degree [] not sure []

Please specify each other parent/guardian indicated above.

High School Experiences

1. Did you receive special education services in high school?
Yes [] No [] Not sure []
2. Did you have an Individualized Education Plan (IEP) in high school? If no, skip to #6 on this page.
Yes [] No [] Not sure []
3. If you had an IEP, did you attend your IEP meetings?
Yes [] No [] Not sure []
4. If yes, did you participate in helping set transition goals?
Yes [] No [] Not sure []
5. Did your parents or guardians attend IEP meetings?
Yes [] No [] Not sure []
6. Did you have a 504 Plan in high school?
Yes [] No [] Not sure []
7. Did you receive vocational rehabilitation services in high school?
Yes [] No [] Not sure []
8. Did you meet with a transition specialist in high school?
Yes [] No [] Not sure []
9. Did you take a vocational or technical training class in high school?
Yes [] No [] Not sure []

10. How did your parents help you plan for college? Check all that apply
- Helped research colleges []
 - Helped with applications (e.g. filling out financial aid forms, reviewed essays, etc. []
 - Attended college visits []
 - Helped me connect with the disability services office []
 - Helped me connect with other campus resources []
 - Did not help plan for college []
 - Other (please specify) []

College Experiences

1. Are you registered with disability services at your college?
Yes [] No [] Not sure []
2. If yes, which services do you utilize? Check all that apply
Testing accommodations []
Tutors []
Orientations []
Note taking []
Other (please specify) [] _____
3. Have you received vocational rehabilitation services while in college?
Yes [] No [] Not sure
4. Have you taken a career planning or exploration class while in college?
Yes [] No [] Not sure
5. Have you met with a career counselor?
Yes [] No [] Not sure
6. Have you used an online career exploration tool or career exploration software?
Yes [] No [] Not sure
7. What is your overall college GPA right now?
3.5-4.0 [] 3.0-3.49 [] 2.5-2.9 [] 2.0-2.49 []
1.5-1.9 [] below 1.5 []
8. Have you chosen a college major?
Yes [] No []

If yes, what is your major?

The next two questions are about what you HOPE could happen and what you EXPECT to complete.

9. What is the highest level of education that you HOPE to complete (or wish you could complete)?

Some community college classes

Complete an associate's degree (a community college degree)

Complete some 4-year college or university classes

Complete a bachelor's degree (a 4-year college or university degree)

A post-bac degree (e.g., a teaching certificate after college) or complete some graduate classes

Complete a master's degree

Complete a doctoral degree (Ph.D., M.D., J.D., etc.)

10. What is the highest level of education that you really think you will be able to complete?

Some community college classes

Complete an associate's degree (a community college degree)

Complete some 4-year college or university classes

Complete a Bachelor's degree (a 4-year college or university degree)

A post-bac degree (e.g. a teaching certificate after college) or complete some graduate classes

Complete a master's degree

Complete a doctoral degree (Ph.D., M.D., J.D., etc.)

Career Experiences

1. How have your parents helped you learn about careers?

Talked about careers with me []

Set up job shadows or informational interviews (to follow someone around at his/her job or talk with someone about his/her job []

Assistance with resumes or interview preparation []

Did not help me learn about careers []

Other (please specify)

2. Have you conducted informational interviews (asked someone about his or her job) or been on a job shadow (follow someone around and learn about his or her job)?

Yes [] No [] Not sure []

3. Have you decided on a career?

Yes, definitely [] I am pretty sure []

I have some ideas [] I have no idea []

4. Do you have paid work experience?

Yes [] No []

5. Do you have volunteer work experience?

Yes [] No []

6. Have you had an internship or service learning experience?

Yes [] No []

Family of Origin Career Development Support

Directions: Please answer the following questions about the family you grew up in.

1= none, 2 = a little, 3 = a lot

To what extent has the family you grew up in . . .

- | | | | |
|---|---|---|---|
| 1. given you financial support for your education and training? | 1 | 2 | 3 |
| 2. given you information and contacts that helped you with your occupational choices? | 1 | 2 | 3 |
| 3. given you emotional support for your educational training? | 1 | 2 | 3 |
| 4. given you maintenance support (time and study space, help with school work, college applications, etc.)? | 1 | 2 | 3 |
| 5. shown an interest in and/or participated in your education? | 1 | 2 | 3 |
| 6. helped you understand your strengths and/or talents? | 1 | 2 | 3 |
| 7. encouraged you to pursue your goals and/or plans for the future? | 1 | 2 | 3 |
| 8. been available if you want to talk about a problem? | 1 | 2 | 3 |
| 9. been helpful when you have questions about educational or career-related issues? | 1 | 2 | 3 |
| 10. expressed pride in your educational or career-related accomplishments? | 1 | 2 | 3 |

Vocational Outcome Expectations Scale

Directions: Please respond to each question by marking your answers along the 4-point scale shown below:

	Strongly disagree			Strongly agree
1. My career planning will lead to a satisfying career for me.	1	2	3	4
2. I will be successful in my chosen career/occupation.	1	2	3	4
3. The future looks bright for me.	1	2	3	4
4. My talents and skills will be used in my career/occupation.	1	2	3	4
5. I have control over my career decisions.	1	2	3	4
6. I can make my future a happy one.	1	2	3	4
7. I will get the job I want in my chosen career.	1	2	3	4
8. My career/occupation choice will provide the income I need.	1	2	3	4
9. I will have a career/occupation that is respected in our society.	1	2	3	4
10. I will achieve my career/occupational goals.	1	2	3	4
11. My family will approve of my career/occupation choice.	1	2	3	4
12. My career/occupation choice will allow me to have the lifestyle that I want.	1	2	3	4

Career Decision Self-Efficacy – Short Form

The Career Decision Self-Efficacy Scale (CDSE-SF; Betz & Taylor, 2001; Betz, Klein, & Taylor, 1996; Taylor & Betz, 1983) is a 25-item scale which utilizes a 5-point, Likert-type response scale with response options ranging from *no confidence at all* (scored as 1) to *complete confidence* (scored as 5). Respondents are asked to rate each of a series of statements reflective of career-related decision-making tasks. Sample tasks are “Determine what your ideal job would be,” “Prepare a good resumé,” and “Choose a career that will fit your lifestyle.”

The CDSE-SF is a copyrighted measure. The CDSE materials and rights to use may be purchased from Nancy E. Betz. Interested parties may obtain more information about the instrument from the following:

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Perceived Barriers

Each of the statements below begins with, "In my future career, I will probably. . .," or a similar phrase. Please respond to each statement according to what you **think (or guess)** will be true for you.

"In my future career, I will probably . . ."	Strongly Agree		Not Sure		Strongly Disagree
1. be treated differently because of my sex.	A	B	C	D	E
2. be treated differently because of my disability.	A	B	C	D	E
3. experience negative comments about my sex (such as insults or rude jokes).	A	B	C	D	E
4. experience negative comments about my disability (such as insults or rude jokes).	A	B	C	D	E
5. have a harder time getting hired than people of the opposite sex.	A	B	C	D	E
6. have a harder time getting hired than people who do not have a disability.	A	B	C	D	E
7. experience discrimination because of my sex.	A	B	C	D	E
8. experience discrimination because of my disability.	A	B	C	D	E
9. have difficulty finding quality daycare for my children.	A	B	C	D	E
10. have difficulty getting time off when my children are sick.	A	B	C	D	E
11. have difficulty finding work that allows me to spend time with my family.	A	B	C	D	E
12. have difficulty finding work that provides adequate health care benefits.	A	B	C	D	E

For each item below, start the sentence with “Currently, a barrier to my education is . . .”

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
13. money problems	A	B	C	D	E
14. family problems	A	B	C	D	E
15. not being smart enough	A	B	C	D	E
16. negative family attitudes about college	A	B	C	D	E
17. not fitting in at college	A	B	C	D	E
18. lack of support from teachers	A	B	C	D	E
19. not being prepared enough	A	B	C	D	E
20. not knowing how to study well	A	B	C	D	E
21. not having enough confidence is	A	B	C	D	E
22. lack of support from friends to pursue my educational aspirations	A	B	C	D	E
23. my gender is	A	B	C	D	E
24. people's attitudes about my gender	A	B	C	D	E
25. my disability is	A	B	C	D	E
26. people's attitudes about my disability	A	B	C	D	E
27. childcare concerns are	A	B	C	D	E
28. lack of support from my "significant other" to pursue education is	A	B	C	D	E
29. my desire to have children is	A	B	C	D	E
30. relationship concerns are	A	B	C	D	E
31. having to work while I go to school	A	B	C	D	E
32. lack of role models or mentors	A	B	C	D	E
33. lack of financial support	A	B	C	D	E

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