Exploring the Impact of a Career Development Intervention on the Career Decision-Making Self-Efficacy and Goal Instability of First Generation College Students, Given Perceived Barriers

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EXPLORING THE IMPACT OF A CAREER DEVELOPMENT INTERVENTION ON THE CAREER DECISION-MAKING SELF-EFFICACY AND GOAL INSTABILITY OF FIRST GENERATION COLLEGE STUDENTS, GIVEN PERCEIVED BARRIERS

By

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I dedicate this dissertation to my husband, Peter, whose commitment to medical school and his own professional goals have inspired me to continue to pursue mine. When I started this program, we were just beginning to date, and after three years of a long-distance relationship, I am grateful to have him as my lifelong partner. I also dedicate this dissertation to my parents, Marci and Mel Melvin, who have always supported and encouraged me, even on tough days.
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ABSTRACT

Each year, the college student population becomes more diverse (National Center for Education Statistics, 2013), yet the career development field does not have a full understanding of how client factors, such as ethnicity, affect intervention outcomes (Whiston & Rahardja, 2008). This study focused on the career development of first generation college students, a traditionally more diverse subset of the university population who tend to struggle with the career decision making process more than their counterparts (Chen & Carroll, 2005; Hartley, 2009). The study’s aim was to determine whether completion of an online self-exploration intervention, the Self-Directed Search (SDS) Form R Internet version (Holland, Reardon, Latshaw, Rarick, & Schneider, 1999), would increase career decision-making self-efficacy and decrease goal instability levels in 100 first generation college students using a true experimental design. Additionally, this study considered whether initial perceived barriers would impact the intervention’s effectiveness. Goal instability was measured using the Goal Instability Scale (GIS; Robbins & Patton, 1985), career decision-making self-efficacy was measured using the Career Decision-Making Self-Efficacy Scale—Short Form (CDMSE-SF; Betz, Klein, & Taylor, 1996), and perceived barriers were measured using the Perception of Barriers Scale (POB; McWhirter, 1998).

A two-way MANOVA omnibus test was used to determine whether the intervention impacted career decision-making self-efficacy or goal instability levels, given initial perceived barriers. After completing the intervention, the treatment group showed no statistically significant differences in goal instability or career decision-making self-efficacy, given perceived barriers levels, when compared to the control group. However, both groups showed a statistically significant increase in goal instability and statistically significant decrease in career decision-
making self-efficacy. Because the entire sample showed this change, the change cannot be attributed to the intervention, but rather an external, unknown factor. Possible explanations for this outcome are discussed. Finally, in an exploratory analysis, career decision state showed a significant positive relationship with perceived barriers, meaning that individuals less certain about their career decision had higher levels of perceived barriers. The bivariate correlational analysis also revealed a positive relationship between career decision-making self-efficacy gain score and goal instability gain score. This relationship suggests that as career decision-making self-efficacy increases, goal instability decreases, and vice versa.
CHAPTER 1
INTRODUCTION

First generation college students (FGCS) are a unique subset of the university population not only because their parents did not attend college, but also because of their diverse demographic composition. This group is statistically significantly more likely to be comprised of ethnic or racial minority groups (Chen & Carroll, 2005), with English often spoken as a second language in the household (Bui, 2002). In addition, FGCS often have lower socioeconomic statuses (Bui, 2002; Inman & Mayes, 1999). Relative to their counterparts, first generation college students are more often married with dependents and older (Inman & Mayes, 1999; National Center for Education Statistics, 1998). Finally, FGCS have reported feeling less prepared for college (Bui, 2002) and have significantly lower retention rates at the collegiate level (Chen & Carroll, 2005; Ishitani, 2006).

Not only are FGCS more likely to leave postsecondary institutions without attaining a degree (Chen & Carroll, 2005; Ishitani, 2006), but also, this group seems to encounter difficulty during the career decision making process. For example, Chen and Carroll (2005) found that one-third of FGCS had not chosen a program of study at the beginning of their college career, but only 13% of their counterparts were undecided. Additionally, Roneferiti, (2012) found that FGCS status explained 59.7% of the variance in negative career thoughts [Adjusted $R^2=.597$, $F(1,103)=154.751$, $p<.05$].

The current study’s goal was to add to the literature regarding how to most effectively aid FGCS during the career decision making process, thus supporting the larger goal of retaining these students until degree completion. With a sample of 100 FGCS at a large public university, this study used a true experimental design to determine whether a widely used self-exploration
measure could decrease the goal instability and increase the career decision-making self-efficacy of FGCS. Additionally, this study considered whether initial levels of perceived barriers moderated the intervention’s effectiveness.

**Theoretical Framework**

This study drew from two theoretical perspectives. Because the study’s main research focus was career development, these theories are from within this field. The first theory was social cognitive career theory (SCCT; Betz & Hackett, 1981; Lent, 2013); it originated from social cognitive theory, created by Alfred Bandura (Lent, 2013). SCCT’s main focus is how environmental and contextual factors affect individuals. There are three cognitive-person variables that comprise the theory’s main foci: personal goals, self-efficacy beliefs, and outcome expectations (Lent, 2013). SCCT was directly related to this study through one of the study’s key dependent variables: career decision-making self-efficacy.

Social cognitive career theory was pertinent to this study because FGCS often contend with a myriad of contextual challenges such as more financial dependents (Inman & Mayes, 1999), a higher likelihood of lower parental income levels (Hertel, 2002), and lower levels of academic preparedness for the rigors of collegiate coursework (Chen & Carroll, 2005). According to SCCT, contextual challenges may affect self-efficacy beliefs (Bandura, 1977) as well as goal setting and goal attainment (Lent, Brown, & Hackett, 1994). To incorporate these contextual challenges and FGCS’ perceptions of them, perceived barriers—another variable related to SCCT—were measured in this study. A few examples of barriers in this measure include: discrimination based on ethnicity or gender, lack of academic preparedness, lack of childcare, lack of family support, and financial concerns (Luzzo & McWhirter, 2001).
The second theory germane to this study was John Holland’s RIASEC theory of career choice. This theory describes the interactions between individuals and environments and how these interactions result in career decisions (Holland, 1997). Through Holland’s parsimonious system of six personality types, individuals and work environments can be categorized, compared, and matched. The treatment intervention utilized in the current study, the Self-Directed Search (Holland, 1994), is a key assessment measure that operationalizes the theory’s core assumptions. While several outcome studies have tested the Self-Directed Search’s efficaciousness as an intervention among college students (Brown-Talbot & Birk, 1979; Dozier, Sampson, Lenz, Peterson, & Reardon, 2014; Krivatsky & Magoon, 1976; O'Neil, Price, & Tracey, 1979), none have focused on how participants’ ethnic and racial backgrounds may affect the SDS’s efficaciousness. Therefore, the current study contributed to the Self-Directed Search outcome literature because a large percentage of participants were members of racially and ethnically diverse groups.

Statement of the Problem

The career development field does not have a full understanding of how client factors affect intervention outcomes (Whiston & Rahardja, 2008). Client factors include individual characteristics, such as ethnicity, socio-economic status, sexuality, and gender. The lack of conclusive information regarding how to best serve clients based on characteristics such as ethnicity is problematic, because FGCS often face greater struggles when making career decisions and are often from diverse cultural and ethnic groups.

Fouad and Byars-Winston (2005) contended that career interventions for diverse populations require the use of unique processes and variables to be effective. They suggested that to be successful in counseling ethnic minority groups, counselors must work to understand the
cultural values of clients, the contexts in which they live, and the barriers and/or opportunities society has created for them. However, limited knowledge currently exists regarding which career interventions are efficacious with members of diverse ethnic or cultural groups (Brown, Yamini-Diouf, & Ruiz de Esparza, 2005; Byars-Winston & Fouad, 2006). Career counselors have limited empirical research to draw from when choosing appropriate and effective career interventions for ethnically diverse populations. This includes how to determine which interventions are effective, how to adjust them if necessary, and whether new intervention development is warranted.

**Social Significance of the Problem**

Each year, the United States of America is becoming more diverse. From 2000 to 2010, individuals who self-identified as White, non-Hispanic in the United States Census decreased from 69.1% to 63.7% (U.S. Census Bureau, 2011). As the United States population becomes more diverse, career counselors need to ensure that interventions employed with majority populations are effective with minority populations. At present, the career development field has limited knowledge regarding which interventions are effective for diverse groups of racial or ethnic minorities, given various presenting problems (Brown, et al., 2005; Brown & Ryan-Krane, 2000; Byars-Winston & Fouad, 2006).

Furthermore, the current study focused on career development among the college student population. As the general United States population is increasing in diversity, so is the college student population. The number of ethnic and culturally diverse students attending college has shown a significant increase from 1976 to 2012, with a 5.3% increase in Black students, an 11.4% increase in Hispanic students, and a 4.5% increase in Asian/Pacific Islander students.
(National Center for Education Statistics, 2013). Therefore, it is vital to examine the effectiveness of career interventions among ethnically or racially diverse college populations.

If commonly used career development interventions are not effective for members of culturally or ethnically diverse groups, then these methods could be viewed as unequal treatment for these individuals. Though career counselors may not know they are using inappropriate interventions, the effects of these interventions can be deleterious. For example, a college student from a minority group may decide to pursue a pre-dentistry program of study based on the results of a values card sort developed from a Eurocentric perspective. Given its Eurocentric focus, the card sort may fail to include values typical of the minority student’s cultural heritage; therefore, his career decision may be distorted because some of his core values were not available options. After investing two years of time and money pursuing a pre-dentistry track, he may become more aware of his true values, necessitating a career change. In contrast, a Caucasian client may also choose dentistry from the same card sort, which accurately depicts her values. In the same two-year time span, she is nearly done with her undergraduate coursework and has submitted applications for dental school.

**Purpose**

The current study’s aim was to determine whether a self-exploration measure, based on a widely accepted and researched career development theory, showed efficacy with a diverse population of first generation college students. This study achieved its objective by analyzing data from a sample of FGCS who represented diverse cultural and ethnic groups. The intervention was the completion of the Self-Directed Search Form R: Internet Version (Holland, Reardon, Latshaw, Rarick, Schneider, Shortidge, et al., 1999). Specifically, the study focused on the following outcome variables: career decision-making self-efficacy and level of goal
instability. Perceived barriers were measured to ascertain whether participants’ initial levels of perceived barriers moderated the intervention’s effectiveness. The study’s goals and relevant literature led to several research questions, described below.

**Research Questions and Analyses**

Given the current study’s purpose and the gaps in the literature that it sought to address, the following research questions were posed:

Research questions:

1. What are the effects of completing a self-exploration measure on goal instability in first generation college students?
2. What are the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students?
3. How does level of perceived barriers moderate the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy in first generation college students?
4. What are the relationships among gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers in first generation college students?

To address the research questions presented above, this study employed several statistical analyses. These analyses will be discussed in detail in chapter three; however, a brief overview will be presented here. The current study was a pretest-posttest, true experimental design with one treatment group and one control group. The treatment group completed the Self-Directed Search Form R: Internet Version (Holland, et al., 1999) as the intervention. This study measured treatment outcome with two dependent variables: (a) goal instability and (b) career decision-
making self-efficacy. One additional variable, perceived barriers, was employed to determine whether it moderated the effect of treatment.

To address the first three research questions, inferential statistics were performed to ascertain a multivariate treatment effect. Bivariate correlations of participant characteristics were then performed to address the final, exploratory research question. The next section will outline important terminology used in the study’s design.

**Operational Definitions of Terms**

- **career decision-making self-efficacy** – A type of self-efficacy that focuses on individuals’ confidence in their ability to do various activities associated with career decision making (Betz & Luzzo, 1996).

- **career intervention** – Any treatment performed in order to help individuals make better career related decisions or improve upon their career development (Spokane & Oliver, 1983).

- **counselor-free interventions** – Interventions that involve no counseling; for example, when a client views a DVD about non-traditional careers (Whiston, Brecheisen, & Stephens, 2003).

- **first generation college student** – A college student with parents (or guardians) that did not complete education more advanced than high school levels (Choy, 2001).

- **goal instability** – A lack of goal directedness and/or orienting goals as well as a reluctance to work (Robbins & Patton, 1985).

- **perceived barriers** – Within individuals or their environments, conditions or events that hinder career progress (Swanson & Woitke, 1997; McWhirter, 2013).
CHAPTER 2
THE LITERATURE REVIEW

In the following section, literature relevant to this study will be reviewed. First, literature focused on first generation college students will be presented. Then, key theories used to anchor the study will be introduced. These include social cognitive career theory (SCCT; Betz & Hackett, 1981; Lent, 2013) and John Holland’s theory of career choice (Holland, 1997). The social cognitive career theory section will also include a dependent variable for the current study: career decision-making self-efficacy. After reviewing pertinent theories, this literature review will discuss two key variables, perceived barriers and goal instability. Because goal instability stems from Kohut’s theory of self-psychology (Robbins & Patton, 1985), this theory will also be briefly covered. Finally, the efficaciousness of career development interventions in general, including those that are computer or web-based, will be discussed.

First Generation College Students

This section provides information on first generation college students (FGCS) and their college experience. In this review, a first generation college student is a college student with parents (or guardians) whose education did not exceed a high school level (Choy, 2001). However, other definitions are used throughout the literature. The National Center for Education Statistics (1998) defined FGCSs as undergraduate students whose parents did not earn any college credits in one study, and in another study, the National Center for Education Statistics, (2001) defined this group as students with parents who did not earn a bachelor’s degree or higher. The latter definition implies that the FGCS category includes college students whose parents earned an Associate’s degree or some college credits. Soria and Gorny (2012) use the terms conservative and liberal to describe the varying degrees of first generation college student
definitions. Conservative FGCS definitions refer to students whose parents’ highest educational attainment levels include no post-secondary coursework, and liberal definitions refer to first generation students college students as students whose parents’ highest levels of degree attainment are less than a bachelor’s degree. The present study will adopt the conservative definition, in which parents or legal guardians did not complete any postsecondary coursework (Choy, 2001). Focus areas of this first generation college student literature review will include: the demographic composition of FGCS, their college experience, and relevant career decision-making factors.

**Demographics.** Before understanding the college experience and career development of first generation college students (FGCS), one should have an understanding of who comprises this group. Relative to the overall population of college students, FGCS have a unique demographic composition. They are more likely to have lower income levels and be classified in a lower socioeconomic status (Bui, 2002; Chen & Carroll, 2005; Engle & Tinto, 2008; Inman & Mayes, 1999). In a sample of 130 freshmen undergraduate students, Hertel (2002) found that, as compared with second generation college students, FGCS reported statistically significantly lower parental income levels. FGCS also are more likely to be from diverse cultural and ethnic backgrounds (Bui, 2002; Chen & Carroll, 2005). They also tend to be less acculturated to the majority culture than college students whose parents attended a postsecondary institution (Nepper Fiebig, Braid, Ross, Tom, & Prinzo, 2010), and English is more likely to be their second language (Bui, 2002). FGCSs also tend to be married, female, older, and with dependents (Inman & Mayes, 1999; National Center for Education Statistics, 1998; Saenz, Hurtado, Barrerra, Wolf, & Yeung, 2007; US Department of Education, 2001). Boyett (2010) used a sample of 694 community college students enrolled in online course work to demographically compare FGCS
to their peers. The differences between these groups were similar to other literature focused on this area. The first generation group was statistically significantly different compared to the non-first generation group in that more were female, older, and had dependents.

In regards to academic readiness for college, FGCS seem to be less prepared overall. Bui (2002) compared 64 FGCS’s SAT scores to 68 students whose parents had at least a bachelor’s degree and 75 students whose parents had some college. The results indicated that the FGCS group’s SAT scores were significantly lower (Bui, 2002). Chen and Carroll (2005) found that relative to college students whose parents had earned at least a bachelor’s degree or had some college, FGCS had statistically significantly lower scores on senior achievement measures, lower collegiate entrance exam scores, and lower rates of completing advanced mathematics coursework during secondary school. Upon entering college, FGCS’ lack of preparedness continued to be apparent. In a national sample of 7,400 students (Chen & Carroll, 2005) and from a sample of 694 online community college students (Boyett, 2010), the majority of FGCS had to complete remedial coursework.

According to the research literature, FGCS are less likely to begin college directly after high school. In a national sample of 7,400 students, only 59% of potential FGCS began college coursework two years after high school graduation. This contrasts sharply with students whose parents had graduated with a bachelor’s degree or higher; 93% of these students had begun college coursework within two years of high school graduation. Even students with parents that had completed some college coursework had higher college attendance rates—75% of this group had begun college (Choy, 2001). Boyett (2010) had similar results: significantly more FGCS had delayed entry into college versus their counterparts.
A National Center for Education Statistics study (1998) indicated that when FGCS began a postsecondary program, they were more likely to enroll part-time or to attend private, for-profit or public, two-year institutions. They were also less likely to attend selective institutions relative to their counterparts (Pascarella, Pierson, Wolniak, & Terenzini, 2004). Several key attributes that FGCS considered when deciding on a postsecondary institution may explain the reasons why they chose part-time enrollment or two year institutions. These attributes include: the ability to obtain financial aid, live at home, quickly complete courses, and simultaneously maintain employment while attending school (National Center for Education Statistics, 1998).

Along with types of institutions, motivators for attending college seem to vary among FGCS. When given a survey to complete in which participants rated 16 reasons for attending college, a sample of 64 FGCS reported that they decided to pursue college so they could financially help their families, bring honor to their families, or gain status and respect (Bui, 2002). This is in contrast to the 65 students whose parents had at least a bachelor’s degree; these 65 students listed their primary reasons for attending college as: their siblings or other relatives were going or went to college, and they wanted to move out of their parent’s home (Bui, 2002). In a survey of 221 Latino/a college students from 5 institutions across the state of Oregon, 75% of which were first generation, students ranked their significant others according to the level of support and encouragement they received. Results indicated that participants’ mothers acted as the most motivating figure for pursuing higher education relative to fathers, friends, and teachers. (Meza Discua, 2011). Overall, the trend seems to be that family is an important motivator for FGCS to pursue higher education.
Research not only shows that the path to college varies for this population, but also shows that their overall college experience differs. The next section will discuss the research related to FGCS’s college experience.

**College experience.** In addition to demographic distinctions, first generation college students (FGCS) have reported different college experiences than students whose parents attended college. One area where differences have been noted relates to the academic performance of FGCS. In a sample of 7,400 students nationwide, FGCS earned significantly fewer academic credits, had significantly lower GPAs, and were significantly more likely to repeat courses or withdraw from them (Chen & Carroll, 2005). They also reported that they committed more time to studying than other students (Bui, 2002). Using event history modeling, Ishitani (2006) analyzed a group of 4,427 college students from the National Education Longitudinal Study and determined that FGCS were significantly less likely to graduate in 4 or 5 years and 1.3 times more likely to leave an institution of higher learning.

Not only do FGCS struggle more academically, but Bui (2002) found that they feel less prepared for college and fear failure more often than their counterparts. FGCS’ levels of expected college success seem to be an important indicator of adjustment. In a sample of 192 freshmen at a private liberal arts school, 33% of which were FGCS, higher levels of college self-efficacy upon entering college significantly predicted higher levels of college adjustment at the end of their first year (Ramos-Sanchez & Nichols, 2007).

First generation college students’ social experiences seem to be different as well. Among 130 freshmen, some first generation and some second generation, Hertel (2002) found that the first generation college group reported lower levels of perceived support from friends who were enrolled in college than friends who were not. During their freshmen year, FGCS also reported
lower levels of social adjustment but the same levels of overall adjustment, academic adjustment, and personal-emotional adjustment. Bui (2002) had similar results when comparing 64 FGCS to 68 college students whose parents completed some college and 75 students whose parents had earned at least a bachelor’s degree. In this sample, FGCS were significantly more likely to report knowing less about the social environment and to report perceiving the college environment as less supportive. Furthermore, Pascarella, et al. (2004) found that FGCS were significantly less likely to participate in athletics, extracurricular activities, volunteer work, or outside-of-course peer interactions in a study of 1,058 participants from 18 institutions. One factor that may play a role in engagement levels is that FGCS have a lower likelihood of living on-campus. In a stratified random sample of 1,127 undergraduate students nationwide, Pike and Kuh (2005) found that lower social engagement levels among FGCS showed a statistically significant ($p < 0.01$) direct relationship to living off campus.

While several studies found evidence that FGCS reported being less socially adjusted to college, Nepper Fiebig et al. (2010) found that FGCS status statistically significantly predicted lower levels of need for social and emotional support from relatives ($b = -0.21$, $p < .001$). If FGCS report lower levels of social adjustment and view social support from family as unnecessary, then other means for aiding FGCS in adjusting socially to college could possibly be a useful initiative for higher education institutions. There is some literature supporting the effectiveness of programs aimed at FGCS’ college adjustment. Folger, Carter, and Chase (2004) engaged a group of 50 FGCS who reported low levels of social motivation, academic motivation, and general coping in a 6-week intervention. This intervention consisted of 90-minute, weekly group meetings of 6-10 participants to discuss topics such as academics, college resources, relationships, and other issues of interest. When compared with the 44-member control group
who also indicated low scores in social motivation, academic motivation, and general coping; the FGCS intervention group had statistically significantly higher cumulative first year GPAs \( t(92) = 4.91, p = 0.0001 \) and higher retention rates, with the treatment group having a 89% retention rate and the control group having a 39% retention rate. The retention rates may indicate better levels of adjustment.

First generation college students also seem to have differing responsibilities outside of the classroom. For example, in a sample of 1,058 participants from 18 institutions, Pascarella et al. (2004) found that FGCS reported working more hours per week. Boyett (2010) had similar findings in a sample of 694 community college students. The FGCS in this group were significantly more likely to have jobs in addition to attending school \( \chi^2(2, n = 702) = 8.94, p < 0.05 \) and were significantly more likely to work more hours per week \( \chi^2(5, n = 702) = 12.33, p < 0.05 \). Bui (2002) also found that FGCS reported statistically significantly higher levels of worry regarding financial aid and/or finances for school \( F(2, 203) = 7.03, p < .01 \), when comparing this group to their counterparts whose parents either had some college or had earned at least a bachelor’s degree.

Research suggests that first generation college students’ college experiences vary significantly when compared to students who are not first generation. To more closely examine the research literature’s findings regarding FGCS’ college experiences, Staley-Abney (2011) conducted a qualitative study using phenomenological inquiry to determine whether nine first year FGCS reported similar experiences relative to the literature. The findings revealed that although their family had not attended college and could not directly relate to their college experiences, eight of the nine students reported receiving support, encouragement, and motivation from their family. Similar to the results of other studies reviewed, all students
reported having financial concerns, and all either were looking for a part-time job or already had one. Their motivation for attending college also aligned with the research literature: all reported that financial stability and a desire to support their families were significant motivators.

Overall, research data seem to indicate that FGCS struggle in both social and academic areas. The fact that these students often do not live on campus and have jobs off campus may add to their lack of engagement. The additional time requirements of commuting and maintaining employment creates an even greater challenge for these students, who often require remedial coursework and more hours of studying to excel. If FGCS already have significant time constraints and lower levels of engagement, then the career decision making process may be another obstacle for them. The next section will further discuss career decision making trends and challenges among first generation college students.

**Career decision making.** In regards to career decision making, FGCS students may struggle more than other college students. One key aspect of career decision making during college is successfully choosing a program of study. Chen and Carroll (2005) examined transcripts from data collected through the Postsecondary Education Transcript Study (PETS) and used a total sample of about 7400 students, 1554 of which were first generation college students. After comparing FGCS to their counterparts, Chen and Carroll (2005) found that choosing a program of study seems to be more challenging for FGCS. Of all FGCS, 33% had not chosen a major after entering college; whereas, only 13% of students with college educated parents had not done so.

If FGCS do indeed struggle more with choosing a program of study (Chen & Carroll, 2005), it may be useful for them to engage with their postsecondary institution’s available career or academic advising services. However, one study found evidence that FGCS may not be aware
of both the formal and informal career development resources available. In a sample of 58 African-American business majors, 83% of which were first generation college students, most reported not knowing about post-graduation career opportunities or internships offered through the university. Additionally, most reported that they were unaware of the career information professors could offer them (Parks-Yancy, 2012).

One factor that seems to affect FGCS’ career decision making is lower educational aspirations. With a sample of 1,127 undergraduate students nationwide who completed the College Student Experiences Questionnaire, 39% of them first generation college students, Pike and Kuh (2005) used multigroup structural equation modeling to compare first generation and second generation students’ college experiences. Their results indicated that FGCS had significantly lower educational aspirations than second generation college students ($p < 0.01$) and this directly related to lower engagement levels (Pike & Kuh, 2005). Choy (2001) found that only 55% of prospective FGCS expected to complete at least a bachelor's degree, yet 91% of prospective college students whose parents had graduated from college expected to do the same. In a sample of 272 seventh-grade students, Gibbons and Borders (2010) had similar findings when comparing 103 prospective first generation college students with 162 of their peers whose parents had attended college. Significantly fewer prospective FGCS expected to graduate from college than the comparison group whose parents had at least some college. Among a sample of 694 community college students, Boyett (2010) also found that those who were first generation had lower educational aspirations—they were significantly less likely to report striving for a graduate degree and more often reported that they were hoping to complete an associate’s degree or lower.
Perception of educational barriers may affect educational aspiration levels. In a sample of 186 Mexican American secondary school students, perception of educational barriers best predicted educational aspirations relative to other variables, such as generational level (when their family immigrated from Mexico), gender, or parental education level (Ojeda & Flores, 2008). Furthermore, among a group of 219 Hispanic-American community college students, FGCS reported having higher levels of perceived educational barriers (Nepper Fiebig et al., 2010).

Another factor that may affect educational aspirations is acculturation to the majority culture. In a sample of 105 Mexican American secondary school students, a statistically significant variance in educational goals was accounted for by Anglo-oriented acculturation and problem-solving appraisal. In other words, perceptions of effective problem-solving abilities and Anglo-oriented acculturation significantly predicted higher educational aspirations (Flores, Ojeda, Huang, Gee, & Lee, 2006).

Dysfunctional career thoughts is another variable related to career decision making difficulties, and FGCS may have higher levels of such thoughts. Roneferiti (2012) used the Career Thoughts Inventory to measure dysfunctional career thought levels in a sample of 105 undergraduate students and found that 59.7% of the variance in dysfunctional career thoughts was explained by first generation status. However, another study of 243 undergraduate students, 34% of which were first generation, found no differences between the two groups in regards to career indecision or negative career thoughts (Hartley, 2009).

Based on the research reviewed, FGCS appear to differ on many significant fronts relative to students whose parents attended college. They have a unique demographic composition and may encounter a number of obstacles in pursuit of a college education.
Additionally, their experience once in college seems to be uniquely challenging in a myriad of areas—academics, social life, and career decision making. This study’s main focus is a career development intervention’s effect on FGCS. Having a firm grasp on this study’s theoretical basis is necessary to understand its components. The next section will outline widely accepted and applied career development theories, the social cognitive career theory and John Holland’s theory of career choice.

**Social Cognitive Career Theory (SCCT)**

This section covers the social cognitive career theory because several of its main constructs can help to clarify how first generation college students approach the career decision making process. First, key theoretical assumptions will be presented then theoretical constructs will be discussed. Additionally, career decision-making self-efficacy will be directly addressed, as it is a dependent variable in the current study.

**Theoretical assumptions.** Social cognitive career theory (SCCT; Betz & Hackett, 1981; Lent, 2013) focuses on how environments and experiences affect individuals. It describes the interaction between three cognitive-person variables: outcome expectations, self-efficacy beliefs, and personal goals (Lent, 2013). The figure below depicts the many aspects of SCCT and how they relate to one another.

SCCT originated from Alfred Bandura's social cognitive theory (Lent, 2013); this theory developed as a response to behaviorism. Bandura (1977) maintained that internal factors can affect individuals’ behavior, in addition to external stimuli. To define these internal factors, Bandura utilized two concepts. Outcome expectancy, the first factor, refers to an individual’s assumptions that specific behaviors will cause certain outcomes. In SCCT, outcome expectancy
is called outcome expectations; outcome expectations can vary in direction (i.e. negative, positive, or neutral) and intensity (Lent & Brown, 2006).

Bandura termed the second factor “efficacy expectations”; this factor refers to beliefs individuals hold regarding whether they can successfully perform behaviors, which will result in anticipated outcomes. Efficacy expectations are sometimes referred to as self-efficacy beliefs. Self-efficacy beliefs significantly change according to a particular context or task because they are related to specific performance activities and domains (Lent, 2013). For example, if an individual is learning to play the piano, his or her belief regarding whether he or she will be able to adequately practice and learn a given piano piece would be defined as piano playing self-

efficacy. Past performances and an individual’s ability to play the piano will both affect his or her self-efficacy beliefs in this skill area (Lent, 2013). Behavior must be attached to the self-efficacy domain for meaning to be derived (Betz, 2000); however, increasing one’s self-efficacy beliefs in one area will frequently generalize to other domains (Bandura, 1977). Efficacy expectations, or self-efficacy beliefs, determine the amount of effort and determination individuals will dedicate to an undertaking, given various impediments. According to social cognitive theory, higher self-efficacy levels will lead to more effort and persistence from individuals (Bandura, 1977).

Bandura (1977) clarified the constructs self-efficacy and outcome expectations by defining an outcome expectation as a "judgment of the likely consequence such performances will produce” (p. 22). He then explained self-efficacy as a "judgment of one’s ability to organize and execute given types of performance" (p. 22). Self-efficacy beliefs focus on capabilities, as in individuals’ beliefs as to whether or not they can do something. Outcome expectations are more concerned with the outcome of doing the particular task (Lent, 2013).

The third cognitive-person variable that SCCT highlights, personal goals, is affected by self-efficacy beliefs and outcome expectations. Personal goals are the resolve to complete a particular activity or strive toward a specific outcome (Bandura, 1986). Goals provide a vehicle for people to use in exercising agency toward occupational or educational ambitions (Lent, 2013).

In addition to knowing SCCT’s basic lexicon, one must comprehend how self-efficacy beliefs develop to understand this theory. Self-efficacy beliefs depend on four major information sources: vicarious learning, personal performance accomplishments, physiological or affective states, and social persuasion (Bandura, 1997). Vicarious experiences refer to individuals
witnessing others performing threatening behaviors without the expected negative consequences, thus encouraging individuals in their own quest to perform a given task. Personal performance accomplishments rely on experiences of personal mastery—doing the intended task correctly, whatever it entails. The most powerful source for forming self-efficacy beliefs is a personal performance accomplishment. Physiological states are states of emotional arousal; one example is anxiety. These physiological states both positively and negatively influence self-efficacy beliefs. Finally, in social persuasion someone convinces an individual that he or she can perform a task successfully even though it has been seemingly insurmountable in the past (Bandura, 1977).

Two additional factors also affect self-efficacy levels. The first factor is how an individual perceives the four sources of information, or as Bandura (1977) phrases it, “the impact of information on efficacy expectations will depend on how it is cognitively appraised” (p. 200). For example, if two people are developing their self-efficacy for baking cookies, both can simultaneously participate in a baking class with an expert baker and successfully bake two-dozen cookies. This performance accomplishment should increase their self-efficacy for baking cookies; however, each individual will likely derive meaning from this experience differently, based on already held beliefs. Thus, the development of their self-efficacy for baking cookies will differ accordingly.

The second additional factor refers to contextual influences, such as social, temporal, or situational circumstances. For instance, if the baking class from the above example occurred in a world-renown culinary institution, this may cause the students to be intimidated, altering their self-efficacy belief development (Bandura, 1977).
Contextual factors can also affect goal setting and goal attainment. According to SCCT, objective environmental barriers and an individual’s anticipation of them will weaken goals and decrease the likelihood of goal attainment. Likewise, an environment with few barriers and strong support will increase the chance that a goal will be attained (Lent & Brown, 2006). A later section of this review will present a more detailed discussion of perceived career barriers as they relate to the career development of diverse populations.

Betz (2000) translated social cognitive theory to the career development field for two parts of career decision making: its content and its process. Betz (2000) related SCCT to the career decision making process by noting that self-efficacy beliefs will determine if an individual will complete the exploratory behaviors necessary for making an informed career decision. The construct career decision-making self-efficacy is defined as a type of self-efficacy that focuses on individuals’ confidence in their ability to do various activities associated with career decision making (Betz & Luzzo, 1996). Career decision-making self-efficacy can be measured in career counseling to determine individuals’ readiness to engage in the career decision making process (Lent & Brown, 2006). Because career decision-making self-efficacy was a key construct in the current study, it will be discussed in further detail below.

**Career decision-making self-efficacy.** Career decision-making self-efficacy is a form of self-efficacy that focuses on individuals’ confidence levels for completing various career decision making activities. This construct’s corresponding measures, the Career Decision-making Self-Efficacy Scale Short Form (Betz, Klein, & Taylor, 1996) and the Career Decision-making Self-Efficacy Scale (Betz & Taylor, 1994) operationalize the self-efficacy construct by focusing on five competencies important for making an informed career decision: setting goals,
problem-solving, planning for the future, accurate self-appraisal, and occupational information gathering.

Career decision-making self-efficacy (CDMSE) has shown a statistically significant relationship with another career development variable—decidedness. In a sample of 346 college students, those participants with lower levels of CDMSE had significantly higher levels of indecisiveness, meaning the more indecisive an individual was regarding a career choice, the lower his or her confidence, or efficacy, was for completing activities related to the career decision making process (Taylor & Betz, 1983). Among 350 undergraduate students, CDMSE not only negatively related to indecisiveness but also significantly predicted decidedness levels (Betz & Voyten, 1997). Guay, Ratelle, Senécal, Larose, and Deschênes (2006) studied CDMSE and its relationship to decidedness by comparing 243 college students given their level of career decision making decidedness. Participants were divided into three groups: undecided chronic, undecided developmental, and decided. The decided group, which was 48% of the total sample, was defined as individuals that had consistently low levels of career indecision. The undecided chronic group was defined as individuals who reported consistently moderate levels of career indecision over time and comprised 25% of the sample. Finally, the undecided, developmental group was defined as students who began with moderate levels of indecision but these levels decreased significantly over time; 27% of the sample was categorized as undecided, developmental. From this study, Guay et al. (2006) learned that career decision-making self-efficacy and autonomy are both critical constructs for distinguishing between the career indecision of undecided developmental, undecided chronic, and decided students.

While several studies have shown that indecision and CDMSE are related, Creed, Patton, and Prideaux’s (2006) study of 166 Australian high school students found different results. Data
regarding CDMSE and career indecision were collected once when participants were in 8th grade then again when participants were in 10th grade. Then, the researchers used a latent variable analysis using maximum likelihood estimation to compare cross-lagged models testing possible longitudinal relationships between CDMSE and career indecision. The results indicated that changes in CDMSE did not result in career indecision level changes.

Declaring a major is an important decision for undergraduate students and doing so is a behavioral representation of decidedness. In a sample of 687 college students, Gloria and Hird (1999) found that students who had declared their majors had significantly higher levels of CDMSE \[ F(1, 672) = 38.73, p = 0.00 \], regardless of ethnicity. Furthermore, among those students from racially and ethnically diverse backgrounds, whether they had chosen a major \[ B = -.23, t(682) = 2.69, p < .01 \] was a better predictor of CDMSE levels than racial identity \[ B = -.00, t(682) = 0.05, p > .05 \] and other group orientation \[ B = -.22, t(682) = 2.59, p < .05 \]. Taylor and Popma (1990) had a similar outcome among a sample of 407 college students. In their study, CDMSE level significantly predicted indecision.

CDMSE has shown a significant relationship to other career decision making variables. Betz and Voyten (1997) found that CDMSE beliefs were positively related to intentions of exploring career paths. Choi et al. (2012) completed a meta-analysis in which CDMSE showed a direct relationship with vocational identity \[ r(18386) = .48, p < .01 \]. In a sample of 233 undergraduate students, Luzzo (1993) found a moderately strong positive relationship between CDMSE and individuals’ career decision making attitudes, \[ r(231) = .41, p < .01 \]. The results of these studies evidence CDMSE’s convergent validity with other career decision-making variables.
Because the current study will focus on first generation college students, most from culturally and ethnically diverse backgrounds, the remainder of the CDMSE discussion will focus on literature that studied CDMSE specifically with diverse populations. The distinction between CDMSE’s relevance to all populations versus ethnic and culturally diverse populations is important because several studies support the notion that cultural background and how individuals conceptualize themselves within their culture may play a role in career decision-making self-efficacy levels. For example, in a sample of 687 college students, 98 of which were from ethnic or cultural minority groups, Caucasian students had statistically significantly higher levels of CDMSE (Gloria & Hird, 1999). Additionally, Gushue (2006) conducted path analyses to better understand the relationship between CDMSE, outcome expectations, and ethnic identity among a sample of 128 Latino/a high school students. The results revealed a statistically significant positive direct effect of individuals’ ethnic identity levels on their CDMSE levels ($r = .34, p < .01$), and a statistically significant indirect positive effect of ethnic identity levels on outcome expectations, mediated by self-efficacy levels ($r = .16, p < .01$). These results suggest that ethnic identity directly impacted CDMSE levels, and CDMSE levels influenced outcome expectations. Rollins and Valdez (2006) also found a statistically significant positive relationship between Ethnic Identity Achievement scale score and CDMSE ($r = .46, p < .01$) in a sample of 85 African American high school students. This relationship indicated that as participants reported higher levels of ethnic identity achievement, they also reported higher levels of career decision-making self-efficacy.

Another construct considered in research with diverse populations is level of language acculturation. In a sample of 85 Vietnamese adolescents, American language acculturation was predictive of career decision-making self-efficacy levels. In other words, the more comfortable
and acculturated these adolescents felt in regards to the English language, the more confident they felt about engaging in career development tasks. Level of peer social support also was a significant predictor of CDMSE among these Vietnamese adolescents, meaning that social support from peers seemed to positively impact their confidence levels in completing career development related tasks (Patel, Salahuddin, & O'Brien, 2008).

CDMSE also seems to be related to career exploratory beliefs, which include how individuals view their employment outlooks and their propensity for successfully entering into their aspirational career. In a sample of 179 urban high school upperclassmen, 60% of which were African American, career exploratory behavior statistically significantly predicted CDMSE levels (Brown, Darden, Shelton, & Dipoto, 1999).

Gushue, Clarke, Pantzer, and Scanlan (2006) studied CDMSE in a group of urban, low-income, Latino/a high school students. Within this group of 128 participants, CDMSE acted as a statistically significant predictor variable for vocational identity level and engagement with career exploration tasks, such as a mock interviews or specific career research. In a study done by Gushue, Scanlan, Pantzer, and Clarke (2006), these findings were also demonstrated among 72 urban African American high school students. In this group, CDMSE showed a significant direct relationship with career exploration activities, and CDMSE predicted career search activity levels. Like the group of Latino/a high school students, CDMSE showed a statistically significant direct relationship with vocational identity.

Above, CDMSE was explored from the perspective of the general population as well as among diverse cultural and ethnic groups. Because the current study uses social cognitive career-theory (SCCT) as part of its theoretical base, and the study is focused on first-generation college students who are often from ethnically and racially diverse backgrounds, the applicability of this
theory with diverse populations is an important consideration. The next section will cover
SCCT’s relevance across diverse cultural and ethnic groups.

**Multicultural components.** The social cognitive career theory’s many components add
a layer of complexity to the discussion of its multicultural appropriateness. Therefore, this
section will focus on a broader analysis of SCCT’s multicultural appropriateness. First
theoretical components that have been evaluated for multicultural relevance will be discussed.
Then, various studies that have tested aspects of the SCCT framework with diverse populations
will be presented.

One main assumption in discussing social cognitive career theory’s multicultural
applicability is that because it considers environmental influences, it is multiculturally
appropriate. Lent and Sheu (2010) stated that environmental influences are important
considerations within the framework of SCCT because individuals will likely choose a career
path that is accompanied by environmental supports and lower levels of barriers. More
specifically, SCCT’s choice and interest models refer to various person and environmental
variables relevant to a multicultural context. For example, person inputs of the model include
race, ethnicity, and gender as important considerations (Lent, et al., 1994). Furthermore, Lent
and Sheu (2010) expanded on the idea of person inputs by underscoring the fact that the physical
properties of these inputs are not the focus but rather their influences on barriers, supports, and
experiences as they relate to the learning process. The model also includes contextual influences
that are theorized to moderate individuals’ goals, interests, and actions (Lent, et al., 1994).

One key aspect of SCCT that has been tested for its applicability in diverse populations is
the person variable self-efficacy. Not surprisingly, several studies have discussed self-efficacy
within a multicultural context. For example, Lindley (2006) stated that the term self-efficacy is
useful with diverse populations because it considers environmental influences. However, Lindley (2006) also stated that because self-efficacy is heavily focused on individualism, its effectiveness with some minority cultures is limited. Betz (2000) sees self-efficacy as useful for gaining an understanding of diverse populations’ career development because it can help to explain persistence levels in response to various obstacles encountered by individuals from minority populations.

Tang et al. (1999) found that in a sample of 187 college students, Asian American college students were influenced by family background, acculturation, and self-efficacy for occupations—within various Holland themes—when choosing occupations. Furthermore, self-efficacy for occupations was shown to mediate career choice. Self-efficacy for academic milestones has also shown usefulness as a construct with diverse populations. In a sample of 197 undergraduate students in engineering or science programs from diverse racial and ethnic backgrounds, self-efficacy for academic milestones effectively predicted college academic achievement (Hackett et al., 1992).

Literature on diverse populations and SCCT has garnered support for applying the concept of self-efficacy to these groups (Gushue, Scanlan, Pantzer, & Clarke, 2006; Hackett, Betz, Casas, & Rocha-Singh, 1992; Lent, Lopez, Sheu, and Lopez, 2011; Tang, Fouad, & Smith, 1999). Several conclusions can be drawn from the above studies, which focused on CDMSE and diverse populations. First, acculturation and cultural identity appear to be two key aspects of career development with diverse populations (Gloria & Hird, 1999; Patel et al., 2008; Rollins & Valdez, 2006). Perhaps, SCCT’s Model of Person, Contextual, and Experiential Factors Affecting Career-Related Choice Behavior (Lent et al., 1994) should incorporate level of acculturation and cultural identity as inputs that affect outcome expectations and self-efficacy.
Second, the fact that the construct of career decision-making self-efficacy helped to predict vocational identity and career search activity levels with diverse populations supports the notion that SCCT is applicable within these groups (Gushue, Scanlan, Pantzer, & Clarke, 2006).

In addition to determining the applicability of person variables, some studies have also focused on the relevance of the choice model to diverse populations (Lent et al., 2011; Lent et al., 2010). Lent et al. (2011) tested the social cognitive choice model with a sample of 1,404 students; some students attended majority White universities and others attended historically Black universities. They found that outcome expectations did not uniquely contribute to the model; however, the rest of the model adequately fit when comparing African American and European American students, supporting the use of this model with diverse populations. In another study, the same choice model was tested with path analytic techniques using 116 students enrolled in engineering courses at historically Black universities. Each participant completed measures of outcome expectations, social supports and barriers, major choice goals, environmental supports, academic milestone self-efficacy, barrier-coping self-efficacy, and interests on two occasions, both in the final weeks of consecutive college semesters. The results garnered general support for the model such that changes in outcome expectations, goals, and interests were statistically significantly predicted by self-efficacy. Additionally, participants’ variance in their goal to persist in engineering after their second semester was statistically significantly explained by environmental supports. However, contrary to the theoretical model, interests and outcome expectations did not have additional predictive power in regards to participants’ goals of persisting in engineering (Lent, Sheu, Gloster, & Wilkins, 2010).

This section has reviewed the main components of SCCT as well as its applicability to the current study. It reviewed SCCT’s three cognitive-person variables (i.e. outcome
expectations, self-efficacy beliefs, and personal goals) as well as the various inputs that impact their development. Additionally, this section discussed how the cognitive-person variables affect career decision making, especially the process of it, through reviewing the concept of career decision-making self-efficacy. Finally, SCCT and whether its concepts could be appropriately applied to diverse populations were addressed. The next section will present a second prominent career development theory: John Holland’s theory of career choice.

**John Holland’s Theory of Career Choice**

The section below will describe John Holland’s theory of career choice. Then, a key measure used to operationalize this theory, the Self-Directed Search (SDS; Holland et al., 1994), will be presented along with research examining its use as an intervention. Finally, a discussion of this theory’s usefulness with diverse populations will follow.

**Theoretical assumptions.** From 1953 to the present, John Holland’s theory of career choice has been employed globally. Furthermore, 1,973 publications have used his theory as a point of reference (Foutch, McHugh, Bertoch, & Reardon, 2013). The quantity of references and the extensive time covered convey this theory’s significant influence on the career development field.

One key aspect of Holland’s theory that has made it so compelling is its focus on how to apply vocational theory pragmatically given various presenting problems (Spokane & Cruza-Guet, 2005). According to Reardon and Lenz (1998), the theory is “user friendly” and “useful and practical in almost every way” (p. 13). Holland (1997) has eight assumptions in his theory, which are described below.

Holland’s theory (Holland, 1997) first posits that the vast majority of individuals can be classified as one of six personality types: Realistic, Investigative, Artistic, Social, Enterprising,
or Conventional. Typically, most individuals will begin to resemble a combination of these types by late adolescence. Their development into one of the six types is informed by experience, environment, and heredity. Each type has particular avocational and vocational preferences, values, life goals, self-beliefs, and problem solving styles. For example, Investigative types value intellect, logic, and scholarly activities, whereas, Artistic types value aesthetic experiences and self-expression (Holland, 1997).

Holland’s second assumption states that six model environments exist; the six types outlined above represent these environments. His third assumption explains how individuals find themselves in particular environments. This assumption states that people tend to seek environments where their skills and abilities can be utilized; they also tend to pursue environments where they can express personal values and attitudes, assume fitting roles, and solve suitable problems. The fourth assumption explains individual behavior. It states that individuals behave according to interactions between their environment and personality.

The fifth and sixth assumptions of Holland’s theory refer to the hexagonal model used to illustrate how his theory works. The fifth assumption is that the hexagonal model represents the agreement between environments and individuals. This agreement is referred to as congruence, and according to Holland, the highest level of congruence is achieved when an individual’s environment matches his or her personality—a Realistic personality type will be most congruent with a Realistic environment (Holland, 1997). The sixth assumption is that the hexagonal model explains consistency within an individual or environment. Consistency refers to the location of each letter in a profile pattern on the hexagon. If the profile letters are near one another, then the person or environment is said to have a high level of consistency (Holland, 1997). Figure 2.2
below depicts the hexagonal model and illustrates how each personality type is related to one another.

![Hexagonal Model of Personality Types and Environments](image)

**Figure 2.2.** Hexagonal Model of Personality Types and Environments. Reproduced by special permission of the Publisher, Psychological Assessment Resources, Inc., 16204 North Florida Avenue, Lutz, FL, 33549, from *Making Vocational Choices*, Third Edition, Copyright 1973, 1985, 1992, 1997 by Psychological Assessment Resources, Inc. All rights reserved.

The seventh assumption states that predictions that stem from an individual’s RIASEC profile, occupational code, or the interaction between the two can be adjusted given construct differentiation. The concept of differentiation is a way of describing the intensity with which an environment or individual aligns with the six types. Some individuals will find that they are a
blend of types while others may find that one RIASEC type most clearly represents their personalities (Holland, 1997).

The final assumption states that predictions made from an individual’s RIASEC code, occupational code, or the interaction between the two can be altered given the environment or individual’s identity development. According to Holland (1997), an individual’s identity refers to his or her level of clarity and stability regarding interests, goals, and talents.

**Self-Directed Search.** An assessment used to operationalize Holland’s theory is the Self-Directed Search (SDS; Holland, et al., 1994). The SDS is unique because it can be self-scored, self-interpreted, and self-administered (Spokane & Holland, 1995). This measure was developed to assess individuals’ likenesses to each of the six RIASEC types, and completing the SDS results in a three-letter code that describes an individual’s personality characteristics based on the six RIASEC types. Fields of study, leisure activities, and occupations can be linked to three-letter codes (Holland, et al., 1994). The Self-Directed Search is available in a number of formats. It is offered online, on a computer, or in a paper-and-pencil form (Osborn & Zunker, 2012). The SDS is particularly useful because it is grounded in a prominent theory of career development—Holland’s theory of career choice (Reardon & Lenz, 1998).

The current study utilized the SDS Form R Internet version, which developed from the SDS Form R paper-and-pencil format. Like the SDS Form R Computer version, it includes a SDS Form R Interpretive Report (PAR, Inc., 2013). The SDS Internet version has been shown to be comparable to both the computer and paper-and-pencil versions. Lumsden, Sampson, Reardon, Lenz, and Peterson (2004) found that these three versions were comparable after they examined the test results of 93 undergraduate students who completed each of the three versions in a three-week period. In another study, Barak and Cohen (2002) compared the Internet and
paper-and-pencil versions of the SDS with a sample of 150 high school students. Among the students who took both versions of the SDS, there was a .77 correlation between scales. Three of the RIASEC types, Investigative, Artistic, and Conventional, showed no statistically significant difference between the two modes of testing; participants had higher mean totals for the other three types, Realistic, Social, and Enterprising, in the online administration. From these results, the authors concluded that there was significant support for the use of an online version of the SDS, given its evidence of psychometric soundness and the high satisfaction levels users reported. The remainder of this Self-Directed Search discussion will be largely based on the SDS paper-and-pencil version, with the assumption that these findings are also true for the Internet version, since available literature on the SDS Internet Version is limited.

Holland’s theory assumes that each of the six RIASEC types has specific competencies, activity preferences, self-concepts, and vocational preferences; therefore, the SDS was designed to cover several facets of each type (Holland et al., 1994b). The SDS Form R (Holland, 1994) contains three scales (i.e., competencies, activities, occupations), two self-estimates, and an occupational daydreams section. The three scales have items that address each RIASEC type. Each item asks the test taker to choose “yes” or “no;” every “yes” response adds one point to the measure’s raw score. The activities scales focus on an individual’s potential and actual involvement. The competencies scales are designed to estimate an individual’s aptitudes and proficiencies. The occupations scales ask test takers to endorse occupations that are appealing or interesting. The self-rating scales ask test takers to rate themselves on abilities and skills relative to their peers; these scales range from one to seven with one representing the lowest self-estimate and seven representing the highest self-estimate (Holland, 1994). Because the SDS’s scales are designed to assess several self-knowledge areas, they allow for assessment opportunities within
several domains. For example, the daydreams section assesses expressed interests; the activities section focuses on leisure interests and hobbies; and the competencies section considers clients’ perceived skills (Reardon & Lenz, 1999).

While the SDS is often used to assess career counseling clients and inform practitioners’ decisions in choosing interventions, it is also considered an intervention (Spokane & Holland, 1995). More specifically, the SDS is considered a self-guided assessment and a counselor-free intervention (Dozier et al., 2014). Reardon and Lenz (1998, p. 59) referred to it as a “career planning simulation” and a “vocational interest assessment activity,” evidencing its usefulness as an intervention, rather than solely a test. According to Spokane and Holland (1995), an effective self-guided assessment intervention must contain four key elements: a cognitive framework to understand the scores of the test, a direct link to an efficient job classification system and/or educational options, referral information, and data that supports the instrument's credibility (Spokane & Holland, 1995). The SDS contains all of these elements (Holland, 1997). The next section will further explore outcome studies conducted to determine the effectiveness of the SDS as an intervention.

**SDS outcome studies.** According to the SDS *Technical Manual* (Holland, Fritzche, & Powell, 1994), when individuals complete the SDS, they increase their understanding of themselves, the career options that they are considering, and the level of satisfaction they feel toward a career-related aspiration. Several studies, which are outlined below, evaluated these outcome measures.

A pre-post, randomly controlled study of 104 high school girls measured the SDS’s effects on vocational aspirations, typology knowledge, and information seeking behavior. There were no significant results of this study; however, the girls were divided into eight groups of 13,
which significantly increased the risk of Type II error (Holland, Takai, Gottfredson, & Hanau, 1978).

A study done by Brown-Talbot and Birk (1979) compared the effectiveness of the SDS, the Vocational Exploration and Insight Kit (VEIK), and a Vocational Card Sort (VCS) among a group of 103 undergraduate women. The results indicated that all three had equivalent but small effect sizes, and the SDS and VEIK groups indicated higher levels of occupational options than those of the VCS and control groups. Furthermore, the SDS and VEIK subjects reported higher satisfaction levels than those of the VCS group.

In another study comparing three different treatments (i.e., the SDS, Individual Vocational Planning Test, and traditional vocational counseling), Krivatsky and Magoon (1976) tested treatment efficaciousness on 113 college students. Their results indicated that all of the treatments were equally effective, and participants rated them equally on satisfaction. Furthermore, these authors noted that the SDS is significantly less expensive than traditional vocational counseling, costing six times less than individual vocational counseling; therefore, the SDS is not only effective but also efficient.

A fourth study focused on the efficaciousness of the SDS by comparing it to another instrument used in the career development field—the Strong-Campbell Interest Inventory (SCII). In this study, 96 college freshmen were randomly assigned to three treatment groups: SDS alone, SCII alone, or both. A written questionnaire with 15 Likert-type questions was distributed to participants for completion after each assessment measure was finished. The results of these questionnaires indicated that the SDS alone stimulated more interest in examining careers, in general, than the other treatment interventions. However, in a follow-up report one month after the treatment, none of the treatments showed any significant effect (O'Neil et al., 1979).
In a sample of 959 secondary school students, Zener and Schnuelle (1976) tested the effectiveness of two career development instruments, the Vocational Preference Inventory and the Self-Directed Search, by randomly assigning participants to two treatment groups and a control group. Those students who completed one of the two instruments reported that they were considering more occupational alternatives. Additionally, this outcome remained consistent after three weeks. The treatment groups also reported that they were more satisfied with their current occupational choice and needed less information about themselves, occupations, jobs, and necessary training. In addition to the positive outcomes of treatment in general, those students who completed the Self-Directed Search chose occupations that were more aligned with their SDS codes.

Recently, Dozier et al. (2014) evaluated the use of the SDS Form R Internet version as an intervention using a sample of 125 university students randomly assigned to an SDS intervention group or a control group. The control group and treatment group were compared based on frequency of career exploratory behaviors. The results indicated that the treatment group was more likely to engage in career exploratory behavior in the three weeks following the intervention, relative to the control group \[ F(1, 123) = 7.025, p = .009 \], and the treatment group reported statistically significantly higher numbers of prospective occupations being considered \( p = .018 \).

The above studies indicated that the SDS is an effective intervention for aiding individuals in increasing occupational choice satisfaction levels (Zener & Schnuelle, 1976) and the amount of occupations they are considering (Zener & Schnuelle, 1976; Brown-Talbot & Birk, 1979; Dozier et al., 2014). Plus, the SDS was shown to stimulate interest in (O'Neil et al., 1979) and frequency of (Dozier et al., 2014) career exploration.
Because Holland’s theory is a key component of the current study, as is the population of first generation college students, the next section will review relevant research exploring Holland’s theory and diverse populations. Since FGCS are often from ethnically and culturally diverse backgrounds, studies using ethnically and culturally diverse samples will be the primary focus. Through discussing the applicability of Holland’s theory with diverse populations, one can potentially gain an understanding of whether it is also useful with FGCS.

**Multicultural components.** One method of measuring the multicultural relevance of Holland’s theory is to determine whether the theory’s key assumptions and measures function well and evidence validity in diverse cultural environments (Fouad & Kantamneni, 2013). According to Spokane and Cruza-Guet (2005), Holland’s theory has a considerable amount of literature supporting its use with diverse populations. The section below will further delve into the literature examining the theory’s validity from a multicultural perspective.

One seminal aspect of the theory is the circular structure in which the six Holland types are placed. According to the theory, these types are in a particular order—RIASEC—which accurately reflects their relative similarity to one another (Holland, 1997). If Holland’s theory were applicable with diverse populations, this aspect of it would be supported.

Fouad (2002) tested the validity of the theory’s Hexagonal model among 3,637 individuals who were of varied cultural groups (i.e., European Americans, Asian Americans, African Americans, Hispanics/Latino/as, and Native Americans). She used the Strong Interest Inventory to ascertain whether between group differences in Holland code type occurred and used the randomization test of hypothesized order relations to find whether each group’s RIASEC structure fit with the theory’s RIASEC structure. The randomization test of hypothesized order relations analysis compares the sample’s RIASEC score relationships to the
ideal score relationships, according to Holland’s theory. 72 comparisons are created based on the six types and the circular order of Holland’s hexagon. Fouad’s (2002) sample confirmed Holland’s theoretical assumptions regarding the relationships among RIASEC types for all ethnic groups tested except American Indian professional women. This study also determined whether the Holland theme differences between ethnic groups were more significant than the differences within each ethnic group. The results indicated statistical significance for this analysis; however, the effect size for this difference was small. The main contributing factor to the significant differences found between groups was that the Asian American participants scored higher on the Investigative general occupational theme than any other ethnic group.

Rounds and Tracey (1996) tested the circular order model using a meta-analytical research design. Their sample consisted of 96 cross-cultural RIASEC matrices; of these, 20 were comprised of participants in the United States and 76 were comprised of international participants. Each of these matrices considered the actual relative relationships among combinations of RIASEC letters compared with what the relationship should be based on Holland’s theory, using the randomization test of hypothesized order relations. After analyzing these matrices using the correspondence index, the results demonstrated that Holland’s circular model indicated a 75% fit, on average. Meaning that the predicted relationships among RIASEC types based on Holland’s theory matched the actual relationships about 75% of the time for the total sample.

Among 370 high school students, 30% of which were African American, Ryan, Tracey, and Rounds (1996) administered the Vocational Preference Inventory to analyze possible differences in the circular RIASEC interest structure given ethnicity, gender, and socioeconomic status. They used two methodologies for their analysis: a three-way multidimensional scaling
procedure and the randomization test of hypothesized order relations. Their analyses indicated no significant differences in RIASEC interest structure when comparing Caucasian and African American high school students in regards to model fit. This finding supports the use of Holland’s theory with both groups of students: African American and Caucasian.

In another group of high school students, Gupta, Tracey, and Gore (2007) tested the Holland hexagon’s structural validity in terms of occupational interests among an ethnically diverse census sample from the UNIACT (Unisex Edition of the ACT Interest Inventory) database. The sample consisted of 115,567 participants, 72% of which were Caucasian. Ethnic groups included: Asian American, Caucasian, African American, Native American, and Latino/a. Their results indicated a good overall model fit with nonparametric analysis methods (i.e. circular unidimensional scaling, multidimensional scaling, and the randomization test of hypothesized order relations). However, when structural equation modeling was utilized for the analysis, the model demonstrated a poor fit to Holland’s hexagon. The models tested through structural equation techniques included a loose circular ordering model, where the data is arranged loosely around a circle of unequal distances; a model in which the data is fit around a circle with equal distance among each scale but there are unequal radii; and a third model in which there is equal distance between each scale and equal radii, forming a perfect circle. For the structural equation model analyses, the loose circular ordering model was the best fit and the RMSEA values for the other models, which required equal distance among scales, indicated a poor fit.

In addition to testing Holland hexagon’s validity within each ethnic group, this study also compared scores among groups to determine whether statistically significant differences existed.
These analyses revealed no score differences among ethnic groups, indicating that regardless of individual ethnicity, Holland’s theory has equitable utility (Gupta et al., 2007).

In a sample drawn from the Strong Interest Inventory’s 1994 revision, Fouad, Harmon, and Borgen (1997) compared SII results among 805 African American, 795 Asian American, 36,632 Caucasian, and 686 Latino/a-Hispanic employed adults in the United States. The SII is an assessment that incorporates Holland’s RIASEC types into client results. Analysis of this data set included a randomization test of hypothesized order relations and multidimensional scaling. These analyses supported the circular model of the six RIASEC types. However, when using the sample to determine whether the six types are equal distances apart and fit into the hexagonal structure, none of the groups adequately fit. Upon examining the pictorial images produced by each of the groups, shapes that were produced resembled quadrilaterals, a triangle, and one hexagonal shape. Furthermore, each of the shapes differed based on ethnicity and gender, indicating that differing ethnic groups may fit the theory differently.

Like other studies in the literature, Day, Rounds, and Swaney (1998) utilized the randomization test of hypothesized order to determine if various racial-ethnic groups’ interest themes would reflect Holland’s model within a sample of culturally diverse secondary school students \( (n = 11,610) \). In addition, this study utilized targeted principal components analysis and three-way multidimensional scaling to assess the RIASEC model’s validity. After these analyses, their results showed Holland’s circumplex model represented the interest structure of each ethnic group adequately.

Armstrong, Hubert, and Rounds (2003) used circular unidimensional scaling to test Holland’s RIASEC model among Asian American, African American, European American, and Hispanic American employed adults and high school students. Their analyses indicated that the
circular nature of the model indicated a good fit with all samples. Then, to further test Holland’s theoretical assumptions, they analyzed whether the models supported the theoretical assumption of equidistance among each Holland type. This aspect of the theory had less consistent results: Hispanic American and African American participant groups did not reflect equal distance among Holland types and the European American and Asian American groups’ models had a better fit when there was equal distance among each RIASEC type.

Flores, Spanierman, Armstrong, and Velez (2006) tested the validity of Holland hexagon’s typological order among 487 Mexican American high school students. The female participants’ scores supported the RIASEC order for general occupational themes, but the males’ scores did not. For males, the order was RAISEC instead of RIASEC. Additionally, the outcome data for both men and women did not demonstrate equidistance among the six types.

More recently, Kantamneni and Fouad (2011) used a diverse sample from the 2005 Strong Interest Inventory revision in studying the RIASEC interest structure. Ethnic groups included African American, Latino/a, and Caucasian. Similarly to other studies, the researchers first tested a less stringent RIASEC circular model using circular unidimensional scaling and found an adequate fit for all groups except African American females. This group’s Holland themes were in the order of IRAESC. Next, they added the equidistance requirement and tested how well each model fit. This more stringent model still reached significance and was in an acceptable range for goodness of fit.

Most of the studies above generally supported Holland’s assumption of a circumplex structure representing six interest types in a particular order. However, there was less support for the assumption that each type was equidistant from the others. In addition to the hexagonal structure and the interest themes, another key aspect of Holland’s theory is congruence, or that
persons with certain personality types will achieve the highest level of congruence with environments that align with their type (Holland, 1997). To effectively demonstrate that Holland’s theory applies to diverse cultures, several studies have focused on whether the congruence hypothesis is supported, and these will be discussed next.

Tang, Fouad, and Smith (1999) tested the congruence hypothesis in a sample of 187 Asian American undergraduate students by testing whether participants’ occupational interests, defined by Holland personality types, could predict occupational choice. In other words, if participants chose occupations that aligned with their occupational interest type, then this would support the congruence hypothesis. They chose the following variables as predictors for career choice: acculturation, family, socioeconomic status, family involvement, occupational interests, and career self-efficacy. According to the congruence hypothesis, interests should show statistically significant levels of predictability. The results suggested that family background, acculturation, and self-efficacy influenced Asian American students’ career choices, and interests showed no predictive value. These results did not support Holland’s congruence hypothesis in this population. Instead, these results support this study’s hypothesis that Asian American students will choose occupations that are more traditionally chosen among their cultural group than those occupations that align with their interests.

Gupta and Tracey (2005) had similar findings when testing the congruence hypothesis in a group of 83 Asian Indian American college students and comparing their outcomes to 107 European American college students. The hypothesis was tested by investigating congruence between interests and occupational choice. Results showed that Asian Indians had significantly lower congruence levels between interests and occupational choice as compared to their
European American counterparts. This is believed to be because the Asian Indian students ascribed to the cultural ideal of Dharmic values—upholding tradition and duty.

Finally, Magerkorth (2000) studied the congruence hypothesis among 441 undergraduate students, 21% of which were members of ethnic minority groups. The researcher tested congruence levels by comparing the summary codes of participants’ intended occupation to the codes from their Vocational Preference Inventory (VPI). When comparing congruence scores between vocational choice and interest code, Caucasian participants had significantly higher levels of congruence than their racial and ethnic minority counterparts. This result may indicate that one of Holland’s key assumptions, the congruence hypothesis, may not generalize to populations other than Caucasians.

As discussed in the studies above, Holland’s congruence hypothesis seems to have less support with diverse populations than among European American groups. On the other hand, as mentioned previously, his theory has been applied globally among very diverse groups. More research is needed to determine whether Holland’s theory is supported for use with diverse populations. Another way to test the validity of a theory with diverse groups is to determine whether the measures associated with a theory demonstrate psychometric soundness across various populations. Therefore, the final aspect of Holland’s theory that will be addressed is whether various measures derived from his theory have demonstrated validity within these groups.

Fouad and Mohler (2004) tested the Strong Interest Inventory’s (SII) validity among five racial/ethnic groups: American Indian/Alaskan Native, African American, Latino/a, Asian/Pacific Islander, and Caucasian. They used a sample of 750 career clients and students per ethnic group, totaling 3,750 participants. The results from comparing Strong Interest Inventory
scores indicated that ethnicity statistically significantly affected General Occupational Themes with small effect sizes. This effect stemmed from the finding that Asian Americans scored higher than Native Americans on the Investigative General Occupational Themes and that African Americans had higher scores than Native Americans on the Enterprising General Occupational Themes.

Hansen and Lee (2007) used a different approach for testing the SII’s validity with diverse populations. In their study of 319 college students, they focused on the predictive validity of the Strong Interest Inventory’s occupational scale scores for program of study choices. The results demonstrated a significantly higher hit rate for white males, 81%, and no statistically significant difference when comparing the hit rates of the other groups: African American women, African American men, and Caucasian women. These hit rates were significantly lower and ranged from 54-58%.

The relevance of Holland’s theory in a multicultural context was considered from three perspectives in the above discussion: the generalizability of the circular structure and order of the six interest types; the congruence hypothesis, and whether the Strong Interest Inventory had similar outcomes for varied ethnic groups. These are just three aspects of Holland’s theory that have been tested for multicultural relevance. However, this theory is comprised of several additional assumptions, which have not been tested for validity within a multicultural context. Therefore, the above discussion is inherently limited and conclusions garnered from it should be considered limited in generalizability.

Regarding Holland’s assumption of a circular structure, most studies found that it either fits well across ethnic groups or shows consistent misfit among minority and majority groups. These results indicate that this aspect of the theory can be applied across groups. When testing
the congruence hypothesis across various populations, these results suggest inconsistent support. Caucasian participant results seemed to support the congruence hypothesis more strongly than those of ethnically and culturally diverse groups. Finally, when comparing the validity of the Strong Interest Inventory across ethnicities, variances were found in regards to General Occupational Themes as well as hit rate when comparing SII scores to college major choice.

Overall, the studies outlined above give a limited view into the validity of applying Holland’s theory across diverse ethnic and cultural groups and indicate significant gaps in the literature. Therefore, this study tested the efficaciousness of the Self-Directed Search—a more direct expression of Holland’s theory relative to the Strong Interest Inventory—as a career development intervention. This is a different and new application of Holland’s theory with diverse populations; therefore, the mixed results from limited research literature indicate support for this endeavor.

Having a strong theoretical basis in intervention development is paramount for refining the critical components of career development interventions (Brown & Ryan-Krane, 2000), and the discussion above covered two prominent theories in this field: John Holland’s theory of career choice and social cognitive career theory. These sections also discussed the applicability of these theories with diverse populations. Overall, both theories show promise in their relevancy to diverse groups; however, members of diverse populations may be facing contextual factors not accounted for by the theory. One key variable that attempts to capture several of these contextual factors is perceived barriers. The next section will discuss perceived barriers in further detail.

**Perceived Barriers**

For this study, the term “perceived barriers” represented two main types of barriers related to career development: perceived educational barriers and perceived career barriers. Both
of these barrier types are relevant given the target population of this study, first generation college students. Perceived educational barriers are relevant given FGCS’ current status as undergraduate college students, and perceived career barriers are applicable because they will be important as these students determine their future career paths.

According to Swanson and Woitke (1997), career barriers include conditions or events in an individual’s environment, or within himself/herself, which make career development difficult. The career development literature has provided significant support for the existence of more perceived career barriers among minority populations. This is not surprising since career opportunities available and individuals’ abilities to pursue them differ significantly, given race/ethnicity and social class (Fouad & Kantamneni, 2013).

Luzzo and McWhirter (2001) evaluated perceived career barriers among 286 undergraduate students and found that ethnic minorities had higher perceived career-related barriers and educational barriers than their counterparts. Furthermore, these students indicated lower self-efficacy levels for effectively coping with these barriers. Similarly, in a meta-analysis that included 19,611 participants from 16 studies, Fouad and Byars-Winston (2005) discovered that while the participants from minority groups did not show differences on career-related aspirations, members of minority groups perceived significantly greater career barriers and fewer career opportunities. These findings suggest that all participants began with similar aspirations; however, perceived barriers to achieving those aspirations, which are more prevalent among racial and ethnic minorities, may be a differentiating factor between individuals who realize their goals and those that do not.

Among a sample of 219 Hispanic community college students, FGCS had significantly higher perceived educational barriers and less positive outcome expectations (Nepper Fiebig et
al., 2010). Also, among 247 undergraduate students majoring in management information systems or business information systems, ethnic minorities who were underrepresented in these fields (i.e., African American, Native American, and Hispanic), reported significantly higher levels of job performance barriers and job search barriers than participants from the majority (Smith, 2004).

While minority groups may have higher perceived career barriers, Lent et al. (2000) raised an important point: perceived barriers do not seem to be consistently linked to essential career development outcome variables. Brown and Ryan-Krane (2000) echoed this statement by noting that there is no consistent support for perceived barriers’ effects on career choice or career development outcomes.

Since these publications, several studies have found negative effects of perceived barriers on career development. For example, among a group of 272 seventh grade students, perceived career barriers significantly and negatively affected self-efficacy expectations for going to college, which in turn weakened the college-going intentions for potential FGCS. Additionally, positive outcome expectations showed a significant negative relationship with perceived career barriers among potential first generation college students (Gibbons & Borders, 2010). Nepper Fiebig et al. (2010) also found that if environmental barriers do arise, individuals’ barrier perception levels will significantly affect how they perceive and attribute these barriers. Among Hispanic American high school students, levels of perceived educational barriers predicted educational aspiration levels; this indicates that barriers are an important component in individuals’ career development, especially if they are members of ethnic or racial minorities. Furthermore, this perception influenced these high school students more than their generational level, gender, or parental education levels (Ojeda & Flores, 2008).
The construct perceived barriers can be conceptualized through the lens of SCCT. Lent et al. (2000) categorized perceived barriers as negative outcome expectations, which are related to how an individual perceives the environment. If this is indeed the case, then perceived barriers could cause potential first generation college students to avoid particular career-related activities. Furthermore, goal formulation is based on perceived outcomes, so perceived barriers could hinder the goal development process (Gibbons & Shoffner, 2004). The goal development process is imperative because it connects interests to actions in pursuit of an individual’s career development (Lent, et al., 2000). Interests will fail to develop into an occupational choice if an individual perceives barriers as insurmountable (Gibbons & Shoffner, 2004). Goal development is not only a key aspect of SCCT but is directly related to one of the primary outcome measures of this study: goal instability. The present study considers whether perceived career barriers moderate a career development intervention’s effectiveness on the goal instability of first generation college students. The next section discusses goal instability in detail.

**Goal Instability**

The construct goal instability stems from Kohut’s self-psychology, which developed from psychoanalytic theory (Robbins & Patton, 1985). Self-psychology describes how individuals develop their “firm self,” which is comprised of three parts: two poles and an intermediate area between. Basic ambitions originate from the first pole and basic idealized goals stem from the second pole; the intermediate area consists of talents and skills and creates a tension arc between the two poles (Kohut & Wolf, 1978). Kohut’s constructs of grandiosity and idealization correspond to these two poles, with grandiosity corresponding to the first pole and idealization to the second. When an individual has a firm sense of self, he or she has a mature
expression of grandiosity and idealization. A firm sense of self indicates the tendency to have mature goals, realistic life plans, and a striving to reach these goals. Those who lack a firm sense of self struggle to empathize with others and are vulnerable to criticism, separation, and loss (Kohut & Wolf, 1978).

Robbins and Patton (1985) explored Kohut’s constructs of idealization and grandiosity. Both are viewed as developmentally appropriate self-expressions that help to clarify dysfunctional and functional behavior (Kohut & Wolf, 1978). From this exploration, they developed two measures: the Goal Instability Scale (GIS), which corresponds to idealization, and the Superiority Scale, which corresponds to grandiosity (Robbins & Patton, 1985). The Goal Instability Scale measures goal instability (Robbins, Payne, & Chartrand, 1990).

Goal instability refers to a lack of goal directedness and/or orienting goals and a reluctance to work. If individuals possess high levels of goal instability, they may show a pattern of introverted activities, low interest pattern maturity, low self-esteem levels (Robbins & Patton, 1985), negative affect (Multon, Heppner, & Lapan, 1995), and difficulty beginning projects (Santos, 2003).

The opposite of goal instability, goal directedness, reflects a mature expression of idealization in which a person has a firm sense of self, a healthy self-esteem, and a system of ideals for goal-setting; goal directedness is significantly associated with vocational maturity, motivation toward self-direction, and satisfaction with work (Robbins & Patton, 1985).

Goal instability is an important indicator for identity formation. In a sample of 254 undergraduate psychology students, Blustein and Palladino (1991) used canonical correlational analysis to show that goal instability was related to identity formation for both males and females. Females in the study with higher levels of goal instability ($r_s = -0.93$) and superiority ($r_s$
were more likely to be in moratorium ($r_s = .86$) or diffusion states ($r_s = .73$) of identity development, according to the first root. Males with lower levels of goal instability ($r_s = .97$) and therefore higher levels of goal directedness, showed a higher likelihood of being in identity achievement status ($r_s = .85$), according to the first root (Blustein & Palladino, 1991).

Goal instability has also shown relevance when discussing college adjustment. Robbins, Lese, and Herrick (1993) found that goal instability levels were significantly predictive of academic adjustment [$B = .55$, $t(191) = 7.990$, $p < .001$] and that goal directedness was significantly positively related to adjustment to college both academically ($r = .56$, $p < .01$) and personally ($r = .45$, $p < .01$). The study also found that goal instability levels were significantly positively related to higher levels of belonging ($r = .26$, $p < .01$), meaning that as participants rated their goal instability increasingly lower, they rated their levels of belonging higher. Scott and Robbins (1985) had similar findings among a group of 60 college students who participated in a learning skills course. Those students who had lower GPAs showed significantly higher levels of goal instability than their counterparts. When investigating how goal instability levels may impact the academic and personal adjustment of 113 freshmen college students, Schwitzer (1993) also found goal instability to be an important factor. The results indicated that goal instability levels mediated adjustment levels.

These studies suggest that high levels of goal instability may indicate difficulty with adjusting to collegiate demands. Furthermore, the struggle to adjust may contribute to low retention rates. This is important considering that the current study is focused on FGCS, a group often plagued by low retention rates and grade point averages (Chen & Carroll, 2005).

In regards to career development, goal instability has shown negative relationships with several constructs: vocational identity, career decision-making self-efficacy, and career
decisiveness (Bertoch, Lenz, Reardon, & Peterson, 2013; Blustein, 1989; Robbins & Patton, 1985; Santos, 2003). In a sample of 375 Portuguese high school students, Santos (2003) discovered that goal instability was negatively related to self-esteem and vocational identity. Also, relative to self-esteem, goal instability was the strongest predictor of vocational identity.

In a group of 106 college students, 83% Caucasian, Blustein (1989) found that high levels of goal instability discouraged exploratory activity as it pertains to one’s career, and goal-directedness was useful for encouraging exploratory activity. Additionally, he found a strong positive relationship between goal directedness, or low goal instability, and self-efficacy for career decision making.

Bertoch et al. (2013) considered the relationships between performance, career decision state, goal instability, and career thoughts among 258 undergraduate students enrolled in a career development course. These students comprised an ethnically diverse sample: 22.9% African American, 7% Hispanic, and 63.2% Caucasian. After the students completed six instruments related to career development factors, the results showed a direct relationship between dysfunctional career thoughts and goal instability, meaning that with higher goal instability levels, students will likely exhibit higher levels of dysfunctional career thoughts. Furthermore, career tension and career choice dissatisfaction showed significantly positive relationships to goal instability levels. This study garners support for goal instability as a useful readiness measure and evidences goal instability’s convergent validity with other career development constructs.

The literature is limited regarding goal instability’s applicability in a multicultural context. While the two studies discussed above (Santos, 2003; Bertoch et al., 2013) incorporated a culturally or ethnically diverse sample, these studies did not include ethnicity as a factor in

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their analyses. After an additional literature review, four more studies with diverse samples were found. However, two of these studies solely focused on a Portuguese population. Since a Portuguese sample is not directly applicable to the study at hand, the two studies that did not use a Portuguese sample will be discussed below.

The first study considered the academic achievement, goals, and acculturation level of 39 Southeast Asian adolescent refugees who completed a vocational education program. Results indicated that goal commitment and goal instability were significantly positively related, \( r(39) = .42, p < .01 \), indicating that as goal commitment levels increased, goal instability levels decreased. Furthermore, goal instability showed a significant positive relationship to academic achievement, as measured by GPA, \( r(39) = .38, p < .05 \), goal attainment, \( r(39) = .42, p < .01 \), and study habits \( r(39) = .41, p < .05 \), meaning that as goal instability levels decreased, academic achievement, goal attainment, and study habits increased (Lese & Robbins, 1994).

The second study tested the predictability of goal instability levels for three indicators of psychological well being among 243 Korean and 253 American college students. From the standpoint of goal instability’s multicultural relevance, the results were encouraging. For both samples, goal instability showed significant predictability for the three indicators of well-being: life satisfaction, positive relations with others, and autonomy (Hoyoung, 1997). This study was the only one of the four that incorporated a multicultural sample and considered whether the sample’s ethnicity affected goal instability’s usefulness as a variable. While this study did have encouraging results, one study is not sufficient for concluding that goal instability is a useful construct among ethnically and culturally diverse groups.

Levels of goal instability also seem to affect individuals’ responses to varied career development interventions. For example, a group of 69 college students participated in either a
self-directed or interaction-based career development workshop, and the students in each group had varying levels of goal instability. Workshop outcome measures indicated that the interactive workshop was more effective for students with higher levels of goal instability, and for students with lower levels of goal instability, both types of workshops were equally effective (Robbins & Tucker, 1986). Career interventions, in general, and how they apply to the current study are crucial to understanding this study’s importance within the literature; therefore, the next section will discuss career development interventions.

**Career Development Interventions**

While theoretical grounding is important for career intervention effectiveness and evolution, examining intervention outcomes is also vital to determining their usefulness. Therefore, selected literature related to career development intervention outcomes will be discussed below. Additional discussion will focus on computer and web-based intervention efficacy. Since this study’s population of interest is FGCS, and FGCS are often from ethnically diverse backgrounds, intervention outcomes will also be addressed in light of client characteristics.

**General intervention conclusions.** According to Whiston and Blustein (2013), career interventions have shown efficaciousness in increasing work satisfaction, decision-making self-efficacy, and career decidedness, given the findings of several meta-analyses. In the career development field, using meta-analytical techniques is the standard methodology for testing general intervention efficacy (Whiston & Blustein, 2013). Below, several key studies that employed meta-analysis will be discussed as they provide a foundation to evaluate career development interventions.
In a meta-analysis of 58 studies with 7,311 subjects and 240 treatment-control comparisons, various modes of intervention were evaluated. These included: group counseling, individual counseling, individual test interpretation, workshop or structured group, group test interpretation, classroom-based, computer-based, and counselor-free. The results indicated that classroom-based interventions are the most effective but required the most time. Also, the results suggested that individual counseling was the most efficient in that it showed the highest level of positive outcomes for the least amount of time. The meta-analysis also revealed that counselor free interventions, such as the SDS, were modestly effective with a small mean effect size. Overall, this study revealed that the magnitude of outcome was affected by the intensity of the treatment. In other words, intervention outcome improved as the number of hours and/or number of sessions increased, but the mode of delivering these hours or sessions was not as large of a factor (Oliver & Spokane, 1988).

While Oliver and Spokane (1988) found that the number of sessions included in an intervention seemed to be the largest factor in measuring outcomes, Ryan (1999) had different results. This study employed six meta-analyses that referenced 62 studies with 7,725 participants in aggregate. Furthermore, these meta-analyses included studies from Oliver and Spokane’s (1988) meta-analysis when applicable. Ryan’s (1999) meta-analyses revealed two important findings: first, that career interventions which employed four to five sessions had the highest effect sizes, and second, that mode of intervention delivery does matter.

Ryan (1999) and later, Brown and Ryan-Krane (2000) outlined five critical components for career interventions that seemed to produce higher effect sizes. The critical components include support-building activities, individualized attention, written exercises, world of work information, and modeling experiences (Brown & Ryan-Krane, 2000). Support-building
activities refer to incorporating family and friends into the career development process and extending social networks. Written exercises include such activities as workbooks, journals, diaries, plans for implementing career goals, and established career goals recorded in a written format. Modeling refers to exposing the client to people who have successfully completed the career decision making process at least once. Some examples of modeling include counselor self-disclosure and listening to guest speakers. Individualized attention refers to individual meetings between counselors and clients, and information about the world of work includes data about occupations, such as training requirements and necessary skill requirements (Brown & Ryan-Krane, 2000).

The five critical components refer to various characteristics of an intervention that seem to lead to better outcomes; however, another important consideration when choosing a career development intervention is the mode of delivery. For example, interventions can occur within a group counseling setting, an individual setting, or with no counselor. The SDS, when administered and scored without a counselor present, is categorized as a counselor-free intervention.

While individual counseling has shown efficaciousness in the literature, group-based interventions are viewed as ideal because of their cost effectiveness and positive outcomes (Brown & Ryan-Krane, 2000). Furthermore, structured group-based interventions, such as workshops, seem to be more effective than those that are unstructured (Whiston et al., 2003).

Along with structured group-based interventions, career development courses have produced significantly positive outcome data. Whiston (2002) found that career development courses showed larger effect sizes relative to individual career counseling and group career counseling. Additionally, career courses have shown significant positive effects on various
outcome measures such as level of dysfunctional career thoughts (Osborn, Howard, & Leierer, 2007) and level of anxiety (Morano, 2006).

**Computer and Internet based intervention efficacy.** Because the current study used an online assessment as the primary intervention, consideration must be given to the efficacy of interventions delivered through computer software or the Internet. Furthermore, the current study’s population of interest, college students, tends to be technologically savvy (Venable, 2010), and young adults, such as college students, are potentially more likely to engage in an online career development intervention before seeking a career counselor (Gati & Asulin-Peretz, 2011). Enrollment in distance learning courses is also on the rise (Venable, 2010), which may increase the demand for online career interventions and services.

Some researchers have suggested that online career interventions can improve the career counseling process by increasing its efficiency and effectiveness (Gati & Asulin-Peretz, 2011). The use of technology allows for an increasing number of services to be offered at a wider array of timeframes (Venable, 2010). Additionally, offering career development interventions via the Internet increases their level of exposure. Individuals with disabilities (Sampson & Lumsden, 2000) and individuals in rural or remote areas (Oliver & Whiston, 2000) now have the capability to complete interventions, even if visiting a career center is not feasible. Online interventions, and to some extent, computer-based interventions, also provide anonymity to those who would otherwise avoid career counseling because they view it as stigmatizing (Sampson & Lumsden, 2000).

Individualized, self-help online interventions are advantageous because individuals can complete these interventions at their convenience (Gati & Asulipeutz, 2011), and interventions can be tailored to clients’ specific needs (Clark, Horan, Tompkins-Bjorkman, Kovalski, &
Furthermore, online assessment results provide immediate, interactive feedback (Oliver & Whiston, 2000) that can be directly linked to appropriate interventions (Clark et al., 2000), including more in-depth interventions with a counselor. By using online interventions, clients play a more active role in the process and ideally learn how to engage in career decision making for current and future decisions (Gati & Asulin-Peretz, 2011).

These types of interventions are also useful from the perspective of validity. The delivery and implementation of the intervention is standardized (Reile & Harris-Bowlsbey, 2000), and documentation is inherent (Gati & Asulin-Peretz, 2011). This documentation allows for the ability to check online intervention delivery, analyze it for improvements, and ensure the client finished the assessment honestly and completely. Assessments administered online and by computer also tend to be scored more accurately and quickly (Gati & Asulin-Peretz, 2011).

As noted above, while there are advantages to assessment and intervention via the Internet or a PC, this mode of delivery also has some potential problems. One major issue is credibility. Online assessments will not always be psychometrically sound (Oliver & Whiston, 2000), and even if they are, the site or software program may not include psychometric properties or credentials of the creators (Sampson & Lumsden, 2000). Even if the intervention is sound and evidence of its credibility is provided, clients may still obtain invalid results given their test environment. It is difficult to ensure an optimum test environment when online interventions can be accessed anywhere (Sampson, 2000).

Finally, online and computerized career interventions will vary widely in quality of design and content. Some of these interventions may have poor instructions and low-quality interpretation (Reile & Harris-Bowlsbey, 2000). Additionally, the site or program may have confusing content. In fact, sites sometimes fail to test their content for utility among laypeople.
The intervention may also lack proper mechanisms for securing user data. A security breach could result in third parties attaining and using client data (Sampson & Lumsden, 2000).

Another issue with stand-alone online and computer-based interventions is the fact that they tend to be generic and lack features such as progress monitoring or latent need assessment (Gati & Asulin-Peretz, 2011). Their standardized nature often fails to address complex issues (Gati & Asulin-Peretz, 2011). Furthermore, these interventions may lack resources for clients if they need additional assistance, and without these resources, clients with low readiness may become confused and frustrated (Sampson & Lumsden, 2000; Osborn, Dikel, & Sampson, 2011). Because the coordination between online resources and counselors is not optimal, individuals who need additional assistance may struggle to find counselors (Harris-Bowlsbey & Sampson, 2005). Additionally, clients may choose interventions or assessments that are inappropriate for the presenting problem (Gati & Asulin-Peretz, 2011) or engage in poor decision making through the misinterpretation of results provided (Oliver & Whiston, 2000), further complicating their career decision.

In regards to computer-based career counseling, Whiston et al. (2003) made an important distinction before evaluating this mode’s efficaciousness. They first considered whether the computer-based intervention involved additional career counseling or if it was an independent endeavor. The meta-analysis revealed that when computer-based interventions were coupled with counseling they were more effective than if the client completed them independently, with no counselor interaction. Sampson, Purgar, and Shy (2003) stated that self-help measures are meant to be effective in a stand-alone fashion; however, they should also act as vehicles through which those who need more in-depth assistance can recognize their need and seek more intensive
career counseling. Venable (2010) agreed with this blended approach—self-guided interventions coupled with available counselor support—is an effective method of incorporating technology to increase overall interaction.

Using an online group counseling intervention, Herman (2010) compared the effect of having a professionally moderated intervention versus a self-guided intervention among a sample of 43 adults randomly assigned to three groups. Group one received the online intervention with a professional moderator, group two received the online intervention without a professional moderator, and group three acted as a no treatment control. The intervention had several components including self-assessments, interactive lessons, online forums, and homework. The results indicated that participants who completed either of the interventions showed higher levels of career decidedness ($d = .54$), self-knowledge ($d = .58$), and career exploration ($d = .50$). Also, outcomes were more positive in the treatment condition that included a moderator.

Among 27 upperclassmen college students, the method of communicating assessment feedback was tested using participant Session Evaluation Questionnaires (SEQ). Assessment feedback on the Vocational Preferences Inventory was communicated via a traditional, in-person meeting, an online text chat, or an online text chat with web cameras. No significant differences in ratings were found between text chat with video and face-to-face interpretation sessions; however, these two modalities were rated significantly higher than those participants who received their feedback in an online text chat without video (Jones, Harbach, Coker, & Staples, 2002).

Severy (2008) evaluated the effectiveness of an online, narrative-based career development intervention in a group of college students who were randomly assigned to a number of treatment and control conditions. Participants in the treatment groups completed eight
online interventions and results indicated that they had significantly lower levels of indecision and significantly higher levels of certainty than the control group. It should be noted that the author did not include the number of treatment groups, statistics to support findings, sample size, or participant demographics in the article.

While several studies have considered the mode of delivery when testing efficaciousness of online and computer-based interventions (e.g. self-guided versus professionally moderated), other studies tested whether a computerized intervention was effective by comparing its results to other interventions. In a sample of 960 college students completing a program for undecided freshmen, two online career exploration systems were compared. These systems were the CAPA and FOCUS online systems. The tested interventions had three components, attending a wellness lecture on topics such as anxiety, health, and finances; completing exploration activities, such as attending on-site career fairs; and completing an online intervention with an assessment aspect and suggestions for either major or occupational options via either the CAPA or FOCUS. Both interventions evidenced success because a significant amount of students increased their level of decidedness and career decision-making self-efficacy. Furthermore, the CAPA intervention group had significantly greater gains than the FOCUS group on career decision-making self-efficacy levels (Betz & Borgen, 2009).

In a sample of 712 self-selected Internet users, the perceived effectiveness of an online career planning system called Making Better Career Decisions (MBCD) was tested. This system involves a series of online assessments that help users narrow their list of occupational alternatives. Perceived effectiveness was measured using a questionnaire in which participants answered questions related to their career decision making progress and knowledge acquired as a result of the intervention. Higher levels of perceived benefit were positively related to
decidedness as well as satisfaction with their list of options (Gati, Kleiman, Saka, & Zakai, 2003). No effect sizes were included in the results, which is troublesome considering the large sample size.

An Internet-based career planning system designed as a self-help tool was tested for psychometric validity on 2064 self-selected users as well as 68 high school students. The results of this intervention, referred to as e-advice, were compared to Self-Directed Search results as well as results from counseling sessions. Face validity was also ascertained by asking participants to complete a questionnaire regarding their satisfaction and agreement with the results. This study found evidence of construct and face validity for this online intervention (Šverko, Akik, Babarovic’, Beˇina, & Šverko, 2002).

A second study assessed the validity and reliability of a career intervention delivered online—the Internet version of Career Key (Jones, 1997). In this study, 99 college students completed the Self-Directed Search (Holland, 1994) and the web-based version of Career Key. They also completed a follow-up Career Key administration two weeks after the initial intervention to test for reliability. The results garnered positive evidence for the psychometric validity of Career Key. Test-retest reliability was between .75 and .84, except for the Conventional subscale, which was .47. Also, all concurrent validity coefficients had values at or above .65 (Levinson, Zeman, & Ohler, 2002).

Several studies within the literature tested the effectiveness of computer assisted career guidance systems (CACGS). 126 university students were randomly assigned to three computer assisted career guidance systems, SIGI, SIGI Plus, and Discover, to test for level of perceived effectiveness. For all three systems, more than half of participants rated their respective system
effective, and there were no significant differences in effectiveness among systems (Peterson, Ryan-Jones, Sampson, Reardon, & Shahnasarian, 1994).

In a group of 87,293 high school and college students, career exploratory behaviors were studied over the course of eight months through the use of the DISCOVER computer assisted career guidance system (CACG). DISCOVER includes self-assessments as well as information related to occupations and programs of study. The results indicated that the students fell into three categories of users: in-depth, focused, and general browser. The second component of this study considered exit surveys completed by 1655 participants. The exit surveys indicated that those users who were categorized in the in-depth and focused groups were more likely to search for outside information as well as engage others in their career decisions than users who were general browsers (Gore, Bobek, Robbins, & Shayne, 2006).

In another study, the DISCOVER system was tested for effectiveness in a sample of 90 college students randomly assigned to three groups: computer-only, counselor and computer, or waitlist control. The counselor and computer group involved three two-hour sessions split between the use of the system and individual sessions with a career counselor. The computer group involved two one-hour appointments. The results indicated that both treatment groups showed a significant increase in level of career decidedness compared to the waitlist control, and the treatment group with a counselor showed a significantly higher level of decidedness compared to the other two groups. There was no effect of age, sex, or race on the intervention’s effectiveness. (Eveland, Conyne, & Blakney, 1998)

Hornyak (2007) also studied the effects of the computer-assisted career guidance system DISCOVER on 63 college students who were undecided regarding their career path. Vocational identity, need for cognition, and dysfunctional career thought levels were used as outcome
variables. The results showed that the use of DISCOVER significantly lowered dysfunctional career thought levels and increased vocational identity.

**Intervention efficacy in light of client characteristics.** Another factor that affects the efficaciousness of career interventions is client characteristics (e.g. race, gender, ethnicity, or sexual orientation). The career development literature contends that client factors are important considerations in determining career development needs (Brown & Ryan-Krane, 2000), and certain client groups require unique variables and processes (Fouad & Byars-Winston, 2005). Yet, the field’s knowledge regarding the interaction between intervention outcomes and client factors is limited (Whiston & Rahardja, 2008; Brown et al., 2005).

To understand career development intervention components necessary for diverse populations, Brown et al. (2005) compared six career intervention needs unique to minority populations with Brown and Ryan-Krane’s (2005) key components. These needs include: role models for efficacy and skill building, skills for managing ethnocentrism and discrimination, planning and decision-making skills, increased educational and career attainment, correct ability and vocational personality evaluation, and accurate yet broad occupational information. Through this comparison, Brown et al. (2005) determined that Brown and Ryan-Krane’s (2005) five components met all of these needs except two: skills to manage ethnocentrism and discrimination and increased educational and career attainment. Jackson, Leon, and Zaharopoulos (2010) agreed with Brown et al.’s (2005) suggestion that addressing discrimination is a necessary component for career development interventions with diverse populations. They contended that interventions should prepare ethnically and culturally diverse adolescents for biases that could occur by raising adolescents’ awareness of discrimination, while
simultaneously aiding in the development of coping methods (Jackson, Leon, & Zaharopoulos, 2010).

While these intervention suggestions seem useful given research pertaining to career development with diverse populations, they must be empirically tested before being adopted into practice. To better understand intervention outcomes in light of client characteristics, select literature, which focuses on intervention efficacy among racial or ethnic minority groups, will be reviewed below.

A group career development intervention based on the integrative contextual model of career development (ICM; Lapan, 2004) was developed and tested among 142 middle school students in an inner city, low-income neighborhood. Stratified random sampling was used to split participants into a control group or one of two treatment groups. The first treatment group received an ICM-based intervention and the second received a more traditional career intervention. The culture-specific ICM intervention included all aspects of the more traditional career intervention, plus components related to ICM. Relative to the control group, the culturally-focused intervention resulted in significantly higher levels of career exploration, social, and work readiness skills; efficacy for attaining career and educational goals; and positive attributions for reaching career and educational goals. The more traditional intervention resulted in no significant differences on outcome measures relative to the control group. Finally, when comparing the two intervention groups, the only measure in which the culturally specific intervention showed superiority over the traditional intervention was in participants’ levels of positive attributions and efficacy regarding reported ability to reach career and educational goals (Turner & Conkel, 2010).
Ali, Yang, Button, and McCoy (2012) found that career aspirations and vocational skills self-efficacy showed statistically significant increases after the implementation of a nine-session career education program at three high schools in Iowa ($n = 133$). This program focused on cultural relevancy by asking for input from the culturally diverse participants as well as school administrators. In addition to asking for participant and school personnel input, the researchers based the intervention on SCCT (Lent, 2013) and the five key components of career interventions (Brown & Ryan-Krane, 2000).

Using a population of 484 Southern Indian high school students, two career intervention groups and a control group were compared. The first, a more universal career intervention, was called Work Awareness and You. The second, which incorporated Indian cultural considerations, was called Jiva. These interventions were compared on their effectiveness for reducing negative career belief levels. To ensure a valid comparison, each intervention addressed similar content areas such as: self-awareness, developing career alternatives, planning a career path, and learning about the world of work. Additionally, each intervention occurred for 20 hours during a three-month period (Arulmati, 2011). Pretest data indicated no differences among the three groups’ socioeconomic statuses or negative career belief levels. The Career Belief Patterns Scale indicated statistically significant gain score differences between the two treatment groups as well as differences between the treatment groups and the control group on negative career thoughts. The control group showed increased negativity; the universal treatment group showed a change from high negative career thought levels to average; and the Jiva treatment group showed a change from high negative career thought levels to low-average.

In a study with 59 Latino/a college students, the five critical components of career interventions (Brown & Ryan-Krane, 2000) were used to develop an open and ongoing career-
counseling group. Additionally, the group format was designed to act as a mode through which participants could legitimize the Latino/a college experience and gain a sense of cohesion. While the group design adequately follows research literature pertaining to career interventions and considers multicultural concerns, the study did not include outcome measures through which career professionals could draw meaningful conclusions. Instead, based on descriptive statistics only, the author reported that individuals who participated in the group had higher retention rates than other Latino/as and the University as a whole (Berrios-Allison, 2011).

Cinamon (2006) focused on a different cultural group: Israeli Arabic adolescents living in Tel Aviv, Israel. Fifteen adolescents aged 17 to 19 from low-income families engaged in an intervention based on social cognitive career theory (Lent, 2013) and the five critical components of career interventions (Brown & Ryan-Krane, 2000). This intervention focused on minorities and work-family conflict. It consisted of three units: information about family, work, culture, and work-family conflict; identity exploration for ethnic and personal identity; and skill transfer for role management. The participants met for eight ninety-minute sessions then provided open-ended written feedback in which they reported an increased awareness of self and greater career-related knowledge regarding the world of work. This feedback was the sole outcome measure used for determining the efficaciousness of the intervention.

In the final study that focused on career intervention efficacy with culturally and ethnically diverse groups, Rivera-Mosquera, Phillips, Castelino, Martin, and Mowry Dobran (2007) engaged 30 Latino/a adolescents between the ages of 12 and 21 in a program focused on three areas: career exploration, college preparedness, and academic skill building. The program’s main goal was to increase self-efficacy in each of the three areas by administering a culturally and linguistically appropriate program. The career exploration component was informed by
Brown and Ryan-Krane’s (2000) five key components, as well as culturally relevant interventions from the career development literature. Like two studies discussed before it (Berrios-Allison, 2011; Cinamon, 2006), this study did not include adequate outcome data—15 of the 30 participants completed the pretests, and the questionnaire used was specific to this particular study. Descriptive statistics indicated career development knowledge and career development self-efficacy increased; however, the statistical significance of this increase was not calculated.

Overall, the career development field is still formulating standards for culturally appropriate interventions. Furthermore, many of the studies that have been done to test the efficaciousness of interventions with ethnically and culturally diverse populations did not include adequate outcome measures. Without reliable and valid outcome measures, career counselors will struggle to determine whether these interventions are appropriate for use with diverse populations. However, the field understands the social and professional significance of having standards for culturally appropriate interventions and, as discussed above, is working toward this goal.

Critical Analysis of the Literature

Research suggests that first generation college students (FGCS) demographically differ from other college students. These demographic factors seem to add additional challenges to earning a college degree. For example, financial hardships often force FGCS to work while attending postsecondary institutions (Pascarella et al., 2004). This added time constraint, coupled with the fact that FGCS are more likely to have dependents (US Department of Education, 2001) and need remedial coursework (Boyett, 2010; Chen & Carroll, 2005), may help to explain FGCS’ weaker academic performances and lower retention rates (Ishitani, 2006).
While much literature exists in regards to the demographic characteristics of first
generation college students, many of the studies reviewed utilized data from the National
Education Longitudinal Study of 1988 that was completed in 2000. Although the studies may
vary in publication date, the findings from these studies stem from the same sample data set,
possibly inflating conclusions derived from the literature. Other than this aspect of the literature
on FGCS, the vast majority of studies reviewed used sound methodologies and reported useful
findings.

In addition to their challenges in earning a college degree, FGCS have been shown to
have difficulties in the career decision making process. They were found to have lower career
aspirations (Pike & Kuh, 2005) and remained undecided for longer periods (Chen & Carroll,
2005). They also may have higher levels of dysfunctional career thoughts (Roneferiti, 2012).
Furthermore, in one study, FGCS were less likely to use available career services (Parks-Yancy,
2012). Overall, the FGCS literature that specifically addresses career decision making is limited.
While some variables have been studied within the FGCS population, others have not, such as
goal instability and to a lesser extent, career decision-making self-efficacy. The current study
sought to address this gap.

Both SCCT and Holland’s theory of career choice appear to be beneficial paradigms from
which to consider FGCS’ career development because they have both shown applicability to
culturally and ethnically diverse populations. Plus, they are widely used and have extensive
evidence of their validity.

Overall, there is support for the application of Holland’s theory to diverse cultures
(Foutch et al., 2013); however, the studies reviewed in this section found mixed evidence. As
stated previously, six of the nine studies reviewed, or 67%, found little difference in the validity
of Holland’s hexagonal structure among varied cultural groups. These outcomes indicate that it can be applied cross-culturally with some confidence. Contrarily, given the three studies reviewed, the congruence hypothesis consistently showed stronger support among Caucasian groups versus minority groups. The literature reviewed for this study points to the need for additional research on Holland’s theory, and the use of the SDS with diverse populations. All studies except one that examined the outcomes associated with completing the Self-Directed Search were from the late 1970s. This is a clear gap in the literature, especially since the SDS is a key measure used in operationalizing Holland’s theory. Therefore, the current study not only addresses the gap in time for outcome studies that consider the SDS as an intervention, but also provides additional information on the use of the SDS with FGCS.

SCCT’s consideration of environmental and contextual variables makes it particularly applicable with diverse populations (Lent & Sheu, 2010; Lent et al., 1994). Its person variables and choice models have both been studied for multicultural relevance, and both aspects of the theory have garnered support (Lent et al., 2009; Lent et al., 2011; Tang et al., 1999). According to the literature reviewed, career decision-making self-efficacy is a useful construct for understanding the career development of ethnically and culturally diverse populations. It was effectively utilized for predicting important career development variables, such as the propensity to engage in career exploration activities and vocational identity levels (Gushue Clarke, Pantzer, & Scanlan, 2006; Gushue, Scanlan, Pantzer, & Clarke, 2006). However, SCCT’s complex nature reveals that some aspects of it have yet to be tested with diverse populations.

Cultural considerations, such as racial identity and level of acculturation, seem to affect career decision-making self-efficacy levels. While Gloria and Hird (1999) found that declaring a major was more indicative of CDMSE levels than racial identity and other group orientation,
several studies found evidence that cultural variables were important (Gushue, 2006; Patel et al., 2008; Rollins & Valdez, 2006).

Perceived barriers, which can be conceptualized as a negative form of outcome expectations within SCCT’s framework, have been found to be higher among ethnic and racially diverse populations (Fouad & Byars-Winston, 2005; Luzzo & McWhirter, 2001; Nepper Fiebig et al., 2010; Smith, 2004). Furthermore, perceived barriers seem to negatively affect the career decision making process (Gibbons & Borders, 2010; Ojeda & Flores, 2008). Since this construct seems to be particularly relevant to diverse populations, and by extension FGCS, the current study attempted to clarify its importance in the career decision making process for FGCS.

Goal instability shows promise in its ability to detect adjustment levels among the college student population, as evidenced by Robbins, Lese, and Herrick (1993); Schwitzer (1993); and Scott and Robbins (1985). The connection to college adjustment is important since FGCS often struggle with this task (Chen & Carroll, 2005). Additionally, goal instability has evidenced significant relationships with a myriad of career decision making constructs, such as dysfunctional career thoughts (Bertoch et al., 2013), career decision-making self-efficacy (Robbins & Patton, 1985), and vocational identity (Santos, 2003). However, the goal instability literature is lacking in its evaluation of this construct as it relates to diverse populations. Only one study could be found which evaluated goal instability’s relative utility when comparing the majority and a minority cultural group. The current study helped to close this gap by exploring goal instability levels in a group of FGCS.

Overall, all of the studies that comprised the goal instability literature used adequate sample sizes for evaluating their research. Two had smaller sample sizes (Robbins & Tucker, 1986; Scott & Robbins, 1985) of 60 and 69; however, they did not have comparison groups, so
the sample size can be considered adequate. One methodological concern with a one group design though, is that no comparison control group was used, meaning that confounds could have affected results.

In regards to career development interventions, the selected literature reviewed seemed to indicate that counselor-free interventions, such as the SDS, are modestly effective (Oliver & Spokane, 1988; Whiston et al., 2003). A preferred mode of career development intervention is structured groups because of their cost effectiveness and efficacy (Whiston, Brecheinsen, & Stephens, 2003). Furthermore, career courses have shown to be more efficacious than individual or group-based counseling (Whiston, 2002). Perhaps, this is because they are similar to a structured group intervention and often allow for more intensive interventions.

While the meta-analyses performed in relation to intervention effectiveness in the career development field have been extremely valuable, there is a need for additional, current data evaluating the Self-Directed Search (SDS) as an intervention that contributes to various career outcomes. The SDS was classified as a counselor-free intervention when included in these meta-analyses; however, it is somewhat different than other counselor-free interventions. The SDS was designed as a self-interpreted, self-administered, and self-scored intervention (Spokane & Holland, 1995). In fact, Reardon and Lenz (1998) referred to the SDS as a “career planning simulation” (p. 59), since it is both a career assessment measure and a career guidance intervention. As noted previously, when individuals complete the SDS, they typically increase their understanding of themselves and the level of satisfaction they feel toward a career-related aspiration (Holland, Fritzsche, & Powell, 1994). Additionally, individuals have reported considering more career options and more frequently engaging in career exploration activities (Dozier et al., 2014).
The studies that have been completed to specifically target the SDS as an intervention indicated adequate validity of it as an intervention (Brown-Talbot & Birk, 1979; Krivatsky & Magoon, 1976; Zener & Schnuelle, 1976). However, all but one of these studies was done with an older SDS version and was completed over 30 years ago. The fact that the SDS has shown efficacy as a career intervention and is completely grounded in Holland’s theory of vocational choice (Reardon & Lenz, 1998), supports its usefulness with today’s career counseling clients. However, none of the previous studies focused on ethnicity or culture as important components to consider when testing its impact on various career development factors. The current study was designed to add to the literature by determining the impact a stand alone, web-based career intervention, specifically the Self-Directed Search Form R, Internet Version; had on the goal instability and career decision-making self-efficacy of an ethnically and culturally diverse college population.

Another important consideration often overlooked is the cost effectiveness of interventions—how many clients in need can be reached given time and money constraints? In describing the SDS paper version, Krivatsky and Magoon (1976) noted that it is a useful intervention because of its cost effectiveness and evidence of efficaciousness. More recently, Dozier et al. (2014) found support for the SDS’s use as an online, counselor-free intervention that could be completed at the participant’s convenience. The results of this study indicated that completing the SDS online significantly increased the frequency of seeking-out career information and the number of prospective occupations being considered. If the current study can provide evidence of the effectiveness of an online career intervention, such as the SDS Internet version, with diverse populations, then these types of interventions can potentially be used with many more clients than individual or even group counseling.
Betz and Luzzo (1996) defined career decision-making self-efficacy as individuals’ confidence in their ability to do various career decision-making related activities, such as occupational information gathering, setting goals, accurate self-appraisal, problem-solving, and planning for the future. Dozier et al. (2014) found that college students who completed the Self-Directed Search Form R: Internet Version increased their career decision-making activity levels through seeking-out career information. Similarly, O’Neil et al. (1979) found that completing the SDS stimulated participants’ interest in exploring various occupations.

What is not clear is whether brief, standalone, online assessments can have a significant impact on various career outcome measures. College and university career center websites often provide links to a variety of online career assessment measures. While a casual review of career center websites reveals the extent of this service delivery, little is known about the impact on users of delivering assessments in this manner. In keeping with best practices related to using assessments in career services (Wood & Hays, 2013), it would be important to test whether the online delivery method for career assessments and interventions is efficacious. The current study tested whether a standalone, online assessment, specifically the Self-Directed Search Form R: Internet Version, can positively impact career decision-making self-efficacy and goal instability in a sample of FGCS.

In addition to increasing individuals’ levels of engagement with career information, the SDS paper version has shown effectiveness in increasing occupational choice satisfaction levels (Zener & Schnuelle, 1976). Robbins and Patton (1985) found that individuals with low levels of goal instability, or goal directedness, have a clear sense of self, high levels of motivation toward self-direction, and higher levels of satisfaction with work. In contrast, individuals with high levels of goal instability tend to have a lack of goal directedness and struggle to begin projects
(Santos, 2003). More evidence is needed regarding whether a brief online career assessment, such as the Self-Directed Search Form R: Internet Version, can increase motivation for engaging in career development activities, increase levels of satisfaction with career choice, and thereby, decrease individuals’ goal instability levels. The current study sought to test whether a standalone, Internet-based assessment could positively impact goal instability levels within a sample of FGCS.

In regards to the effectiveness of interventions delivered via a PC or the Internet, the current literature shows adequate support for this mode of delivery. However, given the evolving nature of the Internet, studies published even 10 years ago appear much more dated relative to other career development studies without a technology focus. Therefore, this particular area of research must remain active to maintain its relevance.

Several studies that focused on technological concerns suggest that career development professionals must ensure that interventions employed online are user-friendly, the directions are clear, there is strong evidence of psychometric properties, and data confirming the quality of the assessment and interventions are available (Clark et al., 2000; Gati & Asulin-Peretz, 2011; Harris-Bowlsbey & Sampson, 2005; Oliver & Whiston, 2000; Sampson et al., 2003; Sampson & Lumsden, 2000). The current study used the Self-Directed Search Form R: Internet Version, as its intervention—an assessment that contains all of these qualities. Furthermore, one could hypothesize that online interventions are likely to be positively received, especially given the population of interest in the current study, first year college students. Through the Pew Research Internet Project, Smith, Rainie, and Zickuhr (2011) found that 98% of undergraduate students were Internet users; this figure contrasts considerably with the number of adults, in general, who reported using the web, 75%. Venable (2010) found that young adults are more technologically
savvy, and Shier (2005) found that they expect a certain level of technology, information, and availability of services at all times. Additionally, more students are completing coursework from a distance through online offerings (Venable, 2010); therefore, these students may find online career interventions more accessible. The current study adds to the literature on today’s college students, specifically FGCS, by determining whether an online intervention can improve their career decision-making self-efficacy and goal instability.

Conclusion

In summary, each variable pertinent to the study at hand was reviewed, along with the theoretical underpinnings that guided this study. The theories addressed were the social cognitive career theory and John Holland’s theory of career choice. The variables discussed were career decision-making self-efficacy, perceived barriers, and goal instability. Finally, the literature review included a section outlining the current state of interventions in the career development field as they pertain to diverse populations. A critique of the literature review followed. Below, the research questions developed in response to the literature review, as well as the corresponding hypotheses, are listed. The next section will focus on this study’s methodology used to address these research questions:

1. What are the effects of completing a self-exploration measure on goal instability in first generation college students?

2. What are the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students?

3. How does the level of perceived barriers moderate the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy in first generation college students?
4. What are the relationships among gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers in first generation college students?

In response to the research questions and informed by the literature review, the following hypotheses were developed:

H1: Completing a self-exploration measure will decrease goal instability in first generation college students.

H2: Completing a self-exploration measure will increase career decision-making self-efficacy in first generation college students.

H3: Higher perceived barriers will moderate the effects of completing a self-exploration measure on goal instability in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.

H4: Higher perceived barriers will moderate the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.
CHAPTER 3

METHODOLOGY

This chapter outlines the method utilized to address research questions developed according to the literature reviewed in chapter two. The research questions are presented followed by corresponding hypotheses. Next, the participants are described as well as the research procedures. Each instrument used to test the variables of interest is presented. The instrumentation section covers each instrument’s background information as well as psychometric properties. Following the instrumentation section, the research design is discussed as well as the variables and treatment. Finally, the statistical analyses used to test the hypotheses are described.

Research Questions

The literature reviewed, problem statement, and social significance of the issues presented led to the development of the following research questions:

1. What are the effects of completing a self-exploration measure on goal instability in first generation college students?
2. What are the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students?
3. How does the level of perceived barriers moderate the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy in first generation college students?
4. What are the relationships among gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers in first generation college students?
Hypotheses

The following hypotheses were developed in response to the research questions above and informed by the literature review:

H1: Completing a self-exploration measure will decrease goal instability in first generation college students.

H2: Completing a self-exploration measure will increase career decision-making self-efficacy in first generation college students.

H3: Higher perceived barriers will moderate the effects of completing a self-exploration measure on goal instability in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.

H4: Higher perceived barriers will moderate the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.

Participants

**Power Analysis.** An a priori power analysis was performed for an F test of differences in a two-way MANOVA omnibus test. Two outcome measures were included and their correlation was assumed to be $r_s$ of .52 (Betz et al., 2005). The following assumptions were used: an effect size of $f = .25$ and an $\alpha$ of .05. Using the program G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), it was determined that power of .80 can be achieved with a sample of $n = 98$.

**Population.** The target population for this study was freshmen, first-generation college students (FGCS) at a large, 4-year public university in the southeastern region of the United States. More specifically, this study can be generalized to groups of FGCS who are entering an
institution of higher learning without prior college experience. Because the FGCS population is typically comprised of individuals from diverse cultural backgrounds and from a lower socioeconomic status, the results of this study can also be considered when targeting the career development needs of minority college students and college students who have low socioeconomic statuses.

Sample. This study’s participants were incoming freshmen beginning the Center for Academic Retention and Enhancement’s (CARE) Summer Bridge Program. In 2013, 380 incoming freshmen were accepted into the program. All of these students were first generation college students and eligible for Pell or university sponsored need-based grants (Center for Academic Retention and Enhancement, 2014). Historically, this group has been largely comprised of individuals from diverse backgrounds. In 2011, 51% of participants were African American, 21% were Multi-Racial, 15% were Caucasian, 12% were Latino/a, 1% were Asian, and <1% were Pacific Islander (Center for Academic Retention and Enhancement, 2012). This is relative to the 65% Caucasian population enrolled at the University during the 2013 fall semester (Florida State University Office of Institutional Research, 2013).

This study used data from students who participated in the CARE Summer Bridge Program at the beginning of the 2013 summer semester. During the program’s check-in process, students were invited to complete a series of measures as part of a career center research activity. 166 students voluntarily agreed to complete the pre-test measures. These measures included: the Career Decision-Making Self-Efficacy Scale Short-Form (CDMSE-SF; see Appendix E), a participant data sheet (see Appendix C), the Occupational Alternatives Questionnaire (OAQ; see Appendix C), the Perception of Barriers Scale (POB; see Appendix D), and the Goal Instability Scale (GIS; see Appendix F). The folders also contained a consent form (see Appendix A).
These 166 participants were randomly assigned to three groups according to the pretest measures folder color. Folder color alternated between red, green, and yellow folders. Two of these three groups were treatment groups in which participants were asked to complete the Self-Directed Search Form R: Internet Version (SDS; see Appendix G). Therefore, 109 participants were assigned to a treatment group and the other 57 were in the control group.

The day after pretest measures were collected, a follow-up email request was sent to the 109 treatment group participants asking them to complete an online career assessment—the Self-Directed Search Form R: Internet Version—and 62 did so. This is a 57% response rate. At the end of the study’s intervention phase, an email request was sent to the control group, as well as the 62 participants who completed the Self-Directed Search Form R: Internet Version, which asked them to complete the post-test measures using a University-sponsored, online assessment platform called Qualtrics. The post-test measures were the CDMSE-SF and the GIS. Those participants who completed the post-test measures included 55 SDS treatment group members and 47 control group members, totaling 102 participants. Of these participants, one individual did not complete all measures fully, so the data were removed from the data set. The descriptive statistical analysis revealed one outlier value that was at least three standard deviations below the mean in the CDMSE-SF pretest values. Because of its very low value, it was removed from the data set. The final data analysis consisted of 100 first generation college students who were part of the 2013 Center for Academic Retention and Enhancement’s Summer Bridge Program. Table 3.1 provides demographic data for the sample as well as comparative data for the undergraduate population of the university as a whole (Florida State University Office of Institutional Research, 2013).
The majority of individuals in the sample were from minority groups, 80%. This is a much larger percentage than the university undergraduate population, 33%. The sample’s cultural composition is consistent with the first generation college student literature, which reports that FGCS are more likely to be from diverse ethnic or cultural backgrounds (Bui, 2002; Chen & Carroll, 2005). Additionally, the sample had a larger percentage of females, 69%. The university undergraduate population also has a higher percentage of female students (55%) than male students (45%).

Table 3.1

Sample Demographics Compared to Undergraduate University Population

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample (&lt;em&gt;n = 100&lt;/em&gt;)</th>
<th>Undergraduate University Population (&lt;em&gt;n = 32,171&lt;/em&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30%</td>
<td>45%</td>
</tr>
<tr>
<td>Female</td>
<td>69%</td>
<td>55%</td>
</tr>
<tr>
<td>No Response</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>43%</td>
<td>9%</td>
</tr>
<tr>
<td>Asian American</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Biracial</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>Caucasian</td>
<td>18%</td>
<td>65%</td>
</tr>
<tr>
<td>Hispanic American</td>
<td>23%</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>No Response</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Procedures

Before collecting data, the primary researcher received approval from the University’s Institutional Review Board (IRB) to complete the study (see Appendix B). Once the study was
approved, a career center staff member and the primary researcher met with the Center for Academic Retention and Enhancement’s leadership to develop a logistical plan. These meetings determined that the initial data collection phase would occur on the first day of the 2013 Center for Academic Retention and Enhancement’s Summer Bridge Program during check-in.

Before this day, the principal researcher compiled folders containing all pre-test materials (see Appendices A-J). Yellow, green, and red folders were placed in alternating order then distributed sequentially; the sequential distribution and initial folder order acted as the random assignment procedure for participants. 336 students were enrolled in the 2013 CARE Summer Bridge Program, and 166 of these students agreed to complete the pretest measures. This yielded a participation rate at pretest of 49.4%. Two-thirds, or 109 participants, were assigned to one of two treatment groups, and the other 57 were assigned to the control group through folder color. Initially, this study proposed to have three groups: a control group, a treatment group that would complete the online assessment only, and a second treatment group that would complete the online assessment then attend a three-hour workshop to discuss and apply assessment results. As will be described in further detail below, only four participants attended the three-hour workshop. The data from these four participants were removed from the data set. Those participants in the second treatment group who did not attend the workshop, completed the online assessment, and completed post-test measures, were added to the first treatment group.

On the first day of the 2013 Center for Academic Retention and Enhancement’s Summer Bridge Program, students who were waiting to check-in were offered the opportunity to voluntarily participate in this research study. Three career center staff, along with the primary researcher, approached students to ask them if they would like to participate. If they agreed to participate, folders containing the participant data sheet (see Appendix C), Career Decision-
making Self-Efficacy Scale Short-Form (CDMSE-SF; see Appendix E), Occupational Alternatives Questionnaire (OAQ; see Appendix C), Perception of Barriers Scale (POB; see Appendix D), and Goal Instability Scale (GIS; see Appendix F), along with two copies of the consent form (see Appendix A), were distributed for their completion. The participants then completed these measures, which were counterbalanced. These folders were color-coded by treatment group and put in alternating order for random assignment. Red folders signified the control group, green folders signified the treatment group who would participate in the online intervention only, and yellow folders signified the treatment group who would participate in the online intervention and the workshop. The IRB consent form explained the original study design, which described two treatment groups and one control group.

After participants completed the folders, they were given a debriefing packet, which included a list of counseling referral resources (see Appendix I), a debriefing form (see Appendix J) that explained their roles in the study, and if in a treatment group, instructions for completing the online assessment measure (see Appendix H). The debriefing form distributed was unique according to the participant’s group (control, treatment group one or treatment group two). If the participant was assigned to the control group, the debriefing form indicated that no further participation was needed, but the participant would receive a request to complete posttest measures. If the participant was assigned to the first treatment group (online assessment measure only), instructions for completing the online assessment measure were included in the debriefing form. If the participant was assigned to the second group (online assessment measure and workshop), directions pertaining to the logistics of the workshop were included in his or her debriefing form as well as instructions for completing the online assessment measure.
On the following day, both treatment groups received a follow-up email invitation to complete the Self-Directed Search Form R: Internet Version. The first treatment group had 1.5 weeks to complete the measure, and the second treatment group had one week to complete the measure in order to allow for the primary researcher to compile results for the workshop.

One week after the initial data collection, a workshop was held for participants in the second treatment group. Only four of the second treatment group’s members attended this workshop; therefore, data from the participants who participated in the workshop were removed from the study and the second treatment group was combined with the first treatment group. Only those participants from the second treatment group who had completed the online assessment, completed the posttest measures, and failed to attend the workshop were added to the first treatment group.

Approximately 1.5 weeks after initial data collection, the principal investigator sent emails to all members of the newly formed treatment group who had completed the Self-Directed Search Form R: Internet Version. This email contained a link to the post-test measures. The post-test measures were on a University-sponsored, online assessment platform called Qualtrics. These measures included the Goal Instability Scale (GIS) and the Career Decision-making Self-Efficacy Scale Short Form (CDMSE-SF). The post-test measures were counterbalanced. The principal investigator also sent an email to all control group members, which contained a link to the same set of posttest measures, the GIS and CDMSE-SF. These measures were also counterbalanced. After the post-test data collection was complete, control group members received an email offering the opportunity to complete the Self-Directed Search Form R: Internet Version. No control group members chose to complete this assessment.
Because data collection procedures yielded two groups of participants instead of three, the study’s results will be discussed with two groups only: a treatment group and a control group. Again, the treatment group completed the initial pre-test packet, the online assessment measure, and online posttests.

**Instrumentation**

**Participant Data Sheet.** A participant data sheet (See Appendix C) was utilized to collect basic contact information as well as demographic data. The questionnaire asked participants to include their email addresses for follow-up. In regards to demographics, the questionnaire asked participants to identify their gender, age, ethnicity, and the name of the high school they attended. The primary researcher requested high school information to allow for possible future data analysis that could further inform the knowledge base regarding FGCS.

**The Self-Directed Search Form R: Internet Version.** The current study employed the Self-Directed Search Form R: Internet Version, which was derived from the SDS Form R paper-and-pencil version (PAR, Inc., 2013). This version has shown to be equivalent to the computer and paper-and-pencil versions of the SDS Form R 4th Edition (Lumsden et al., 2004); therefore, the following discussion will focus on the SDS Form R 4th Edition.

The Self-Directed Search Form R 4th Edition (SDS; Holland et al., 1994) is a self-exploration measure utilized in career counseling. It can be self-scored, self-interpreted, and self-administered and is grounded in Holland’s theory (1997). Completing the measure results in a three-letter code, which is a combination of six Holland themes represented by the acronym RIASEC. This code can be linked to fields of study, occupations, leisure activities, and personality characteristics categorized under the code (Holland et al., 1994).
The SDS begins with an occupational daydreams section, where test takers are asked to list occupations that they have been contemplating. Test takers then complete three scales: the activities scale, occupations scale, and competencies scale. Each scale’s items pertain to the six RIASEC types. Items are in a dichotomous format in which each item asks test takers to answer yes or no in response to the prompt. One point is added to the raw score for each “yes” endorsement and each “no” response adds zero points. After test takers have completed these three scales, they complete two self-rating scales. These scales ask test takers to rate themselves on abilities as compared with their peers. The self-rating scales range from one to seven; a rating of one denotes a low self-rating, a rating of seven denotes a high self-rating, and a rating of four denotes an average self-rating (Holland, 1994).

The SDS’s normative sample was comprised of 2,602 working adults and students nationwide; this sample indicated strong support for the SDS’s psychometric properties. KR-20 coefficients ranged from .72 to .92 for the Activities, Competencies, and Occupations scales. Summary scale coefficients had KR-20 coefficients from .90 to .94, demonstrating strong internal consistency. To measure test-retest reliability, 73 people, including adults, high school students, and undergraduate students, completed the SDS over a timespan of 4 to 12 weeks. The summary scale test-retest correlations ranged from .76 to .89 (Holland, et al., 1994).

The SDS showed strong concurrent validity when considering the 54.7% hit rate for the normative sample. The hit rate refers to the number of participants whose high point code results agreed with their one-letter aspirational or occupational codes (Holland et al., 1994). Savickas, Taber, and Spokane’s (2002) study demonstrated strong evidence for the convergent validity of the SDS; the SDS showed median validity coefficients ranging from .70—between the SDS and the Strong Interest Inventory—to .41—between the SDS and the Kuder Occupational Interest
Survey-Form DD. This study also provided evidence of discriminant validity by comparing the SDS to four other commonly used interest inventories: the Strong Interest Inventory-Skills Confidence Edition, the Campbell Interest and Skills Survey, the Kuder Occupational Interest Survey–Form DD, and the Revised Unisex Edition of the ACT Interest Inventory.

The Goal Instability Scale. The Goal Instability Scale (GIS; Robbins & Patton, 1985) is a self-report measure with 10-items. It is used to measure one construct: goal instability. Goal instability refers to an absence of goal directedness and/or orienting goals and a reluctance to work. It originated from Kohut’s self-psychology, which developed from psychoanalytic theory (Robbins & Patton, 1985).

The GIS uses a Likert-type scale that ranges from "Strongly Agree" to "Strongly Disagree." Item values range from one for “Strongly Agree” to six for “Strongly Disagree.” The maximum score for the GIS is 60 points. As a subject increasingly agrees with the scale's items, his or her GIS score decreases, indicating more goal instability. Sample items of this scale include: “I lose my sense of direction” and “I wonder where my life is heading.”

The GIS was initially developed using rational procedures then factor analytic techniques. It has shown adequate levels of internal consistency in a college population with an alpha coefficient of .81 and test-retest reliability of .76 (Robbins & Patton, 1985). Confirmatory factor analysis found that the GIS measures one construct only: goal instability (Robbins et al., 1990). The GIS also shows evidence of generalizability, given that it accurately measured the single construct of goal instability among varying populations such as Portuguese and English students (Casillas, et al., 2006).

Goal instability has been recognized as a relevant construct within the career development field. For example, it has shown a positive relationship with dysfunctional career
thoughts (Bertoch, 2013), and a negative relationship with career decisiveness (Robbins & Patton, 1985) and self-efficacy for the career decision making process (Blustein, 1989).

The Career Decision-Making Self-Efficacy Scale-Short Form (CDMSE-SF). The Career Decision-Making Self-Efficacy Scale-Short Form (CDMSE-SF) consists of five 5-item scales (Betz et al., 1996). This measure was derived from the Career Decision Self-Efficacy Scale (CDSES; Taylor & Betz, 1983), which had 50 items. Each of the CDSES’s five scales was shortened from ten items to five. One example of a CDMSE-SF item includes, “How much confidence do you have that you could select one major from a list of potential majors that you are considering?” (Betz et al., 1996).

Both the CDSES’s and the CDMSE-SF’s scale structures are developed from the career maturity model (Crites, 1978). Having a theoretical basis for the development of these scales contributes to content validity. The five scales include: goal selection, gathering occupational information, accurate self-appraisal, problem solving, and making plans for the future (Betz & Luzzo, 1996).

The CDMSE-SF’s aim is to measure individuals’ confidence in their ability to effectively complete various tasks required for career decision making. Each question asks test takers to rate their confidence level on a five-point Likert-type scale, with one representing no confidence and five representing complete confidence. Therefore, total scores can range from 25-125.

Evidence of adequate psychometric properties has been established. The total scale showed an adequate level of internal consistency with a coefficient alpha of .94. The other scales also evidenced internal consistency with coefficient alphas ranging from .73-.83. The scale's total score also evidenced concurrent validity with the Vocational Identity Scale among male participants, \( r(79) = .48, p < .001 \), and among female participants, \( r(101) = .63, p < .001 \). It
also showed evidence of divergent validity with the Career Decision Scale in regards to Certainty among male participants, \( r(79) = -0.31, p < .01 \) and female participants, \( r(101) = -0.68, p < .001 \), as well as indecision among male participants, \( r(79) = -0.48, p < .01 \), and female participants, \( r(101) = -0.63, p < .001 \) (Betz et al., 1996).

Additionally, confirmatory factor analyses have shown that for both European American and Asian samples, the five-factor model was a good fit for the data. The one-factor model also evidenced validity when using likelihood ratio testing (Miller, Roy, Brown, Thomas, & McDaniel, 2009). However, several models other than the five factor model have shown fit to the data (Hampton, 2005; Watson, Brand, Stead, & Ellis, 2001); therefore, the current study only used the total score as a global factor to measure career decision-making self-efficacy.

**The Perception of Barriers Scale.** The Perception of Barriers Scale (POB; McWhirter, 1998) was originally created for the high school student population but was then adapted for use with college students (Luzzo & McWhirter, 2001). Its 32 items use a Likert-type scale ranging from 1-5 with a 5 endorsement indicating, “strongly agree” and a 1 endorsement indicating, “strongly disagree.” Items 1-11 comprise the Career-Related Barriers portion of the assessment, and items 12-32 comprise the Educational Barriers portion of the assessment. One example of a career-related barrier item is: “In my future career...I will probably be treated differently because of my sex.” One example of an educational barrier item is: “Not being smart enough...is currently a barrier to my educational aspirations.” Higher scores indicate higher levels of perceived barriers (Luzzo & McWhirter, 2001). The POB scale is scored by averaging item responses, and overall scores range from one to five.

This assessment has shown adequate evidence of reliability among first year college students with Cronbach alphas of .90, .86, and .88 for the total scale, Career-Related Barriers
Scale, and Educational Barriers Scale, respectively (Luzzo & McWhirter, 2001). Also, a 2-month test-retest analysis was conducted for a sub-sample of the original test subjects, and it resulted in stability coefficients ranging from .68-.78 (Luzzo & McWhirter, 2001). This measure has also shown evidence of construct validity. Luzzo and McWhirter (2001) found a negative relationship between perceived career barriers and self-efficacy for coping with barriers.

**The Occupational Alternatives Questionnaire.** The Occupational Alternatives Questionnaire (OAQ; Zener & Schnuelle, 1972; Slaney, 1980) is a brief self-report measure used to operationalize career decisionedness. This measure is unpublished and was used in the current study for exploratory purposes only. The questionnaire first asks test takers to list all occupations they are currently considering. Then, the questionnaire asks test takers to record their first choices. If individuals do not have a first choice, they are asked to write “undecided.” This instrument’s scores range from one to four; scores of one or two indicate greater career decidedness and scores of three or four indicate less career decidedness (Reardon & Lenz, 1998). A score of one indicates listing a first choice and no alternatives, a score of two indicates listing a first choice with alternatives, a score of three indicates listing just alternatives, and a score of four indicates listing no first choice or alternatives (Slaney, 1980).

This measure has sufficient evidence of reliability, with a reported .93 level of test-retest reliability (Redmond, 1973), and scores have evidenced stability over a 6-week period (Slaney, 1978). It also has shown evidence of concurrent validity in a sample of adult women, college students, and high school students when compared to the Vocational Decision-Making Difficulty Scale, the Career Decision Scale, and the Satisfaction with Career Scale (Slaney, Stafford, & Russell, 1981).
Research Design

The current study employed a true experimental, pretest-posttest, control group, design (Heiman, 2002; Campbell & Stanley, 1963). The data was collected from two independent groups: one treatment group and one control group. Two dependent variables were examined to test the efficacy of the treatments: (a) goal instability and (b) career decision-making self-efficacy. More details regarding these variables are provided below. An additional variable, perceived barriers (high/low), was used to determine whether it moderated the treatment effect on goal instability and career decision-making self-efficacy.

In addition to the primary research design, this study examined participant characteristic relationships by using exploratory bivariate correlational analysis techniques. Characteristics examined include gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers.

Variables

This study employed one independent variable with two levels. The first level was the completion of a self-exploration measure, the Self-Directed Search Form R: Internet Version. The second level was a no treatment control group. The treatment effect was tested using two dependent variables. The first dependent variable was career decision-making self-efficacy, operationalized by the total score on the Career Decision-Making Self-Efficacy Scale-Short Form (CDMSE-SF; Betz et al., 1996). The second dependent variable was goal instability, operationalized through the total score on the Goal Instability Scale (GIS; Robbins & Patton, 1985).

All variables of interest were considered in light of the target population: first generation college students (FGCS). Because the literature review indicated that FGCS populations often
perceive higher levels of barriers compared to other students, perceived barriers were measured and used as a moderator variable. Perceived barriers were operationalized using the total score on the Perception of Barriers Scale (POB; McWhirter, 1998). A median split was used to designate groups with high and low perceived barriers, given the power limitations of the data set and the desire to create a visual portrayal of a potential interaction.

**Treatment**

The research study examined the outcome data derived from participants who completed a self-exploration measure, the Self-Directed Search Form R: Internet Version (SDS; Holland et al., 1999). Before completing the intervention, all participants completed pre-test measures on the first day of the CARE Summer Bridge Program. After completing pre-test measures, folder color randomly assigned participants to either the treatment group or the control group.

Those participants assigned to the treatment group received an email with directions for completing the online intervention as well as a printed copy of the directions. Participants completed the intervention via computers that they had access to on campus and were able to complete the intervention at any point during the 1.5 week time period allotted. Once the self-exploration intervention was completed, participants received follow-up emails directing them to online post-tests. These posttests included the Goal Instability Scale and the Career Decision-Making Self-Efficacy Scale Short Form, which were administered through an online assessment portal sponsored by the University called Qualtrics.

The research also included a control group that completed all pre and posttest measures without engaging in the Self-Directed Search Form R: Internet Version self-exploration intervention. Participants in the control group received an email at the conclusion of the treatment period, which directed them to the same set of posttest measures as the treatment
group. Completing posttest measures required approximately five to ten minutes of participants’ time. During the period that posttest data was collected, several reminder emails were also sent to all participants. After the data collection period was complete, participants in the control group were given the opportunity to complete the career development intervention.

Data Analysis

Using Statistical Package for the Social Sciences (SPSS) version 22, an initial analysis of the data was conducted to derive descriptive statistics for the treatment and control groups as well as to conduct an exploratory analysis of participant characteristics. This analysis included bivariate correlations of participant characteristics outlined in the fourth research question. These characteristics included: gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers.

Once the initial data analysis was complete, gain scores were calculated for the two dependent variables (i.e. goal instability and career decision-making self-efficacy). Then, a two-way MANOVA omnibus test was conducted using the gain scores to determine the Self-Directed Search Form R: Internet Version’s treatment effects on the two dependent variables given high or low levels of perceived barriers. This two-way MANOVA omnibus test was performed to answer the first three research questions.

Delimitations

With regard to the data collection process, several delimitations should be noted. First, all of the measures used in the study were self-report measures. Using self-report measures assumed all participants completed these measures honestly. Second, the data were gathered from FGCS who applied and were accepted into the CARE Summer Bridge Program, a supportive program that is designed to increase FGCS retention rates. The fact that this sample was comprised of
students in this program may limit its generalizability to other FGCS who do not participate in this program or receive additional support.

Though the participants were randomly assigned, they self-selected to voluntarily participate, and no data was collected from those CARE Summer Bridge Program participants who chose not to participate. Therefore, it cannot be determined whether the sample was different in some way from the individuals who opted not to participate.

Attrition and history are important considerations as well. History is a factor because this study occurred over approximately a 1.5 week period, and though every effort was made to ensure the participants did not engage in any career development activities, the participants could have engaged with the on-campus career center or interacted with other individuals concerning the topic of educational and career decision making. Attrition is a factor because the study had two data collection periods and an intervention period. All participants who completed pretest measures did not participate in all aspects of this study.

Finally, the intervention and posttest measures were completed online. The primary investigator assumed that all participants completed the online portions of this study with full effort; however, using online administration for the sake of participant convenience could have allowed for less engaged participants during the intervention and completion of posttest measures.
CHAPTER 4

RESULTS

This chapter explores the results of the data analysis, which were driven by the study’s research questions and hypotheses. The primary analysis was a two-way multivariate analysis of variance (MANOVA) to test the first, second, and third research questions and their corresponding hypotheses. These research questions and hypotheses were:

Research Questions

1. What are the effects of completing a self-exploration measure on goal instability in first generation college students?

2. What are the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students?

3. How does the level of perceived barriers moderate the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy in first generation college students?

4. What are the relationships among gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers in first generation college students?

Hypotheses

H1: Completing a self-exploration measure will decrease goal instability in first generation college students.

H2: Completing a self-exploration measure will increase career decision-making self-efficacy in first generation college students.
H3: Higher perceived barriers will moderate the effects of completing a self-exploration measure on goal instability in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.

H4: Higher perceived barriers will moderate the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students such that as perceived barriers increase the impact of the self-exploration measure will decrease.

Additionally, this chapter includes several data analyses done to ensure data integrity and verify measure utility for this sample. Part of these initial analyses included several tests to determine whether the data met assumptions for performing a multivariate analysis of variance (MANOVA). These included: a normal distribution, homogeneity of variance, exclusion of outliers, homogeneity of variance-covariance, and equality of error variances. Descriptive statistics and results of these analyses are included below.

**Reliability of Measures**

All measures used to determine intervention outcomes were tested for reliability. These include: the Goal Instability Scale (GIS) and the Career Decision-Making Self-Efficacy Scale, Short Form (CDMSE-SF). Additionally, the Perception of Barriers Scale (POB) was tested for reliability, as it was used to determine whether perception of barriers moderated outcome variables. The Occupational Alternatives Questionnaire could not be tested for reliability since it was a single item measure, and the Self-Directed Search Form R: Internet Version could not be tested for reliability since the primary researcher did not have access to psychometric properties of the sample’s response set. Participants’ SDS interpretive reports yielded summary scores for each participant, without access to individual item responses.
Cronbach’s alpha was used to measure internal consistency for the total scores on the GIS, CDMSE-SF, and POB. According to Kline (2000), alpha values should be high, with values close to 0.9, and should not drop below 0.7. The Goal Instability Scale (GIS) yielded evidence of reliability with a pretest Cronbach’s alpha of .84 and a posttest Cronbach’s alpha of .89. These values evidence strong internal consistency. This is consistent with Robbins and Patton’s (1985) alpha coefficient of .81 in a college population. The CDMSE-SF also demonstrated strong evidence of internal consistency, with a pretest Cronbach’s alpha of .94 and a posttest Cronbach’s alpha of .95. This is consistent with Betz et al. (1996), which found a Cronbach alpha of .94 when testing this measure. The Perception of Barriers Scale (POB) evidenced strong reliability as well, with a Cronbach’s alpha of .91. Luzzo and McWhirter (2001) found a Cronbach’s alpha of .90 among first year college students when measuring the reliability of this scale.

**Descriptive Statistics of the Variables**

Before testing this study’s hypotheses, descriptive statistics were calculated for each variable to ensure integrity of the data; this statistical analysis was performed for the total group \( (n = 101) \), the treatment group \( (n = 54) \), and the control group \( (n = 47) \). The following variables were included: the Goal Instability Scale (GIS), Career Decision-Making Self-Efficacy Scale Short Form (CDMSE-SF), and the Perception of Barriers Scale (POB).

The descriptive statistics revealed one outlier value that was at least three standard deviations from the mean in the CDMSE-SF pretest values. Because of its very low value, it was removed from the data set. This resulted in a final sample size of 100. These descriptive statistics can be found in Table 4.1 below.
The outcome variables revealed interesting trends in the data when analyzing each outcome variable through paired samples t-tests. For the full data set, the GIS and CDMSE-SF mean posttest scores were significantly lower (GIS, $t(99) = 4.48, p = .000$; CDMSE-SF, $t(99) = 3.72, p = .000$) than the pretest scores, yielding large effect sizes for GIS ($d = .90$) and CDMSE-SF ($d = .75$). The GIS mean scores decreased from a mean of 48.47 ($SD = 8.333$) to a mean of 45.54 ($SD = 9.655$). The CDMSE-SF mean scores decreased from a mean of 102.41 ($SD = 13.771$) to a mean of 98.14 ($SD = 15.799$). These values reveal that participants’ goal instability increased and career decision-making self-efficacy decreased significantly.

This trend was not reflected when comparing the treatment and control group pretest posttest values individually through paired samples t-tests. The treatment group revealed significantly lower GIS posttest scores ($t(53) = 3.25, p = .002$) and CDMSE-SF posttest scores ($t(53) = 4.23, p = .000$), as compared to pretest, yielding large effect sizes for GIS ($d = .89$) and CDMSE-SF ($d = 1.16$). The mean GIS scores decreased from 48.67 ($SD = 7.753$) at pretest to 45.52 ($SD = 9.542$) at posttest, and the mean CDMSE scores decreased from 103.85 ($SD = 14.40$) at pretest to 98.07 ($SD = 16.76$) at posttest. Alternatively, the control group had significantly lower GIS posttest scores ($t(45) = 3.11, p = .003$), and nonsignificant, but lower CDMSE-SF posttest scores ($t(45) = 1.32, p = .194$). The significantly lower control group GIS posttest scores yielded a large effect size ($d = .93$). The control group GIS scores decreased from a mean of 48.24 ($SD = 9.048$) at pretest to a mean of 45.57 ($SD = 9.892$) at posttest, and its CDMSE-SF scores decreased from a mean of 100.72 ($SD = 12.939$) at pretest to a mean of 98.22 ($SD = 14.769$) at posttest.

The negative skewness of all GIS pretest scores, CDMSE-SF treatment group pretest scores, as well as CDMSE-SF pretest total group values indicated a clustering of scores to the
right of the mean. The mean GIS pretest value of 48.47 \( (SD = 8.33) \) was greater than the normative data for college students, with average scores of 42.31 \( (SD = 8.83) \) and 36.80 \( (SD = 9.92; \) Robbins & Patton, 1985). The negative kurtosis values for the GIS pretest data suggested a flat profile, meaning that these data are more likely to fall in the tails of the histogram, as compared to a normal curve. The POB scores showed a positive skewness for all three groups, which indicated a clustering of scores to the left of the mean for this measure. The POB also had negative kurtosis values thus indicating a flat profile and that scores were more likely to fall in the tails of the histogram, relative to a normal curve. The average POB scores of this sample \( (M = 2.10, SD = .54) \) were lower than a comparable college student sample \( (M = 3.75, SD = 0.59; \) Metz, Fouad, & Ihle-Helledy, 2009). A more detailed normality assessment will be presented below to examine whether variables meet statistical assumptions.

Because this study was a true experimental design with random assignment to treatment groups, the assumption can be made that these groups were not statistically different on outcome measures at the pretest stage of the study. However, a one-way ANOVA was performed to ensure that there were no pre-treatment differences between these two groups on perception of barriers \( [F(1, 98) = .02, p = .89] \), goal instability \( [F(1, 98) = .07, p = .80] \), or career decision-making self-efficacy \( [F(1, 98) = 1.3, p = .26] \). This analysis yielded no significant differences between groups on any of these measures.

**Assessing normality.** Distribution normality was examined using the Shapiro-Wilk test, in addition to the skewness and kurtosis values. The Perception of Barriers \( (p = .20) \), and CDMSE-SF posttest \( (p = .12) \) variables met the normality assumption. The GIS pretest scores \( (p = .001) \), GIS posttest scores \( (p = .01) \), and CDMSE-SF pretest scores \( (p = .02) \) for the total data set did not meet the assumption of normality, as their p-values were less than .05.
Table 4.1

Descriptive Statistics of Primary Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS (pretest)</td>
<td>Total (n = 100)</td>
<td>48.47</td>
<td>8.33</td>
<td>34</td>
<td>-0.57</td>
<td>-0.21</td>
</tr>
<tr>
<td></td>
<td>Treatment (n = 54)</td>
<td>48.67</td>
<td>7.75</td>
<td>30</td>
<td>-0.39</td>
<td>-0.51</td>
</tr>
<tr>
<td></td>
<td>Control (n = 46)</td>
<td>48.24</td>
<td>9.05</td>
<td>34</td>
<td>-0.70</td>
<td>-0.09</td>
</tr>
<tr>
<td>GIS (posttest)</td>
<td>Total (n = 100)</td>
<td>45.54</td>
<td>9.66</td>
<td>41</td>
<td>-0.47</td>
<td>-0.26</td>
</tr>
<tr>
<td></td>
<td>Treatment (n = 54)</td>
<td>45.52</td>
<td>9.54</td>
<td>41</td>
<td>-0.37</td>
<td>-0.18</td>
</tr>
<tr>
<td></td>
<td>Control (n = 46)</td>
<td>45.57</td>
<td>9.89</td>
<td>38</td>
<td>-0.60</td>
<td>-0.25</td>
</tr>
<tr>
<td>CDMSE-SF (pretest)</td>
<td>Total (n = 100)</td>
<td>102.41</td>
<td>13.77</td>
<td>52</td>
<td>-0.26</td>
<td>-0.73</td>
</tr>
<tr>
<td></td>
<td>Treatment (n = 54)</td>
<td>103.85</td>
<td>14.40</td>
<td>52</td>
<td>-0.51</td>
<td>-0.52</td>
</tr>
<tr>
<td></td>
<td>Control (n = 46)</td>
<td>100.72</td>
<td>12.94</td>
<td>48</td>
<td>.04</td>
<td>-0.76</td>
</tr>
<tr>
<td>CDMSE-SF (posttest)</td>
<td>Total (n = 100)</td>
<td>98.14</td>
<td>15.80</td>
<td>66</td>
<td>-0.15</td>
<td>-0.49</td>
</tr>
<tr>
<td></td>
<td>Treatment (n = 54)</td>
<td>98.07</td>
<td>16.76</td>
<td>63</td>
<td>-0.01</td>
<td>-0.88</td>
</tr>
<tr>
<td></td>
<td>Control (n = 46)</td>
<td>98.22</td>
<td>14.77</td>
<td>66</td>
<td>-0.41</td>
<td>0.28</td>
</tr>
<tr>
<td>Perception of Barriers</td>
<td>Total (n = 100)</td>
<td>2.10</td>
<td>0.54</td>
<td>2.28</td>
<td>0.19</td>
<td>-0.62</td>
</tr>
<tr>
<td></td>
<td>Treatment (n = 54)</td>
<td>2.10</td>
<td>0.56</td>
<td>2.12</td>
<td>0.11</td>
<td>-0.87</td>
</tr>
<tr>
<td></td>
<td>Control (n = 46)</td>
<td>2.11</td>
<td>0.51</td>
<td>2.28</td>
<td>0.35</td>
<td>-0.18</td>
</tr>
</tbody>
</table>

Note. GIS total scores range from 10-60, with a higher score indicating more goal instability. CDMSE-SF total scores range from 25-125, with a higher score indicating higher career decision-making self-efficacy. Perception of Barriers total scores range from 1-5, with 5 indicating stronger barrier perceptions.

However, the GIS pretest skew coefficient had a value of -0.57, indicating moderate skewness (Bulmer, 1979), and GIS posttest scores as well as the CDMSE-SF pretest scores had skew coefficients less than the absolute value .50, indicating approximate symmetry (Bulmer, 1979). Performing transformations would further skew these data, so the data in its current state was utilized. See Table 4.2 for further detail.

Gain scores. This study’s future analyses used gain scores, or the difference between the post-test score and the pretest score (Dimitrov & Rumrill, 2003), to determine whether the career
development intervention increased career decision-making self-efficacy and decreased goal instability.

Table 4.2

Tests of Normality and Homogeneity of Variance

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Shapiro-Wilk</th>
<th>Levene Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS (pretest)</td>
<td>100</td>
<td>0.951*</td>
<td>0.797</td>
</tr>
<tr>
<td>GIS (posttest)</td>
<td>100</td>
<td>0.966*</td>
<td>0.045</td>
</tr>
<tr>
<td>CDMSE-SF (pretest)</td>
<td>100</td>
<td>0.970*</td>
<td>0.636</td>
</tr>
<tr>
<td>CDMSE-SF (posttest)</td>
<td>100</td>
<td>0.979</td>
<td>1.791</td>
</tr>
<tr>
<td>Perception of Barriers</td>
<td>100</td>
<td>.982</td>
<td>1.100</td>
</tr>
</tbody>
</table>

*Note. *p < .05

Additional MANOVA assumptions. In addition to assessing the raw data for meeting the normality assumption, gain scores were analyzed to determine whether they met assumptions for performing a two-way multivariate analysis of variance (MANOVA). Box’s M Test of Equality of Covariance Matrices was not significant \[F(9, 85870) = 2.12, p = .02\], indicating that the data did not violate the assumption of homogeneity of variance-covariance matrices. Levene’s Test of Equality of Error Variances was also not significant for the Career Decision-Making Self-Efficacy Short Form Gain Score \[F(3, 96) = 1.87, p = .14\] and the Goal Instability Scale Gain Score \[F(3, 96) = 1.13, p = .34\]. The values indicated that these data did not violate the assumption of equality of variance for each variable. Because these assumptions were met, the two-way MANOVA was used to test this study’s hypotheses.
Research Questions and Hypotheses

Research Question 1: What are the effects of completing a self-exploration measure on goal instability in first generation college students?

H1: Completing a self-exploration measure will decrease goal instability in first generation college students.

A two-way MANOVA omnibus test was used to test whether completing a self-exploration measure will decrease goal instability in first generation college students. Because this statistical analysis did not reveal a significant effect, it can be concluded that there were no significant effects of completing a self-exploration measure on goal instability in first generation college students. The first hypothesis, completing the Self-Directed Search Form R: Internet Version, a self-exploration measure, will decrease goal instability in first generation college students, was not supported.

Research Question 2: What are the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students?

H2: Completing a self-exploration measure will increase career decision-making self-efficacy in first generation college students.

A two-way MANOVA omnibus test was used to test whether completing a self-exploration measure would increase the career decision-making self-efficacy of first generation college students. Because the two-way MANOVA omnibus test did not reveal a significant effect, it was concluded that there were no significant effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students. The second hypothesis was not supported.
Research Question 3: How does the level of perceived barriers moderate the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy in first generation college students?

H3: Higher perceived barriers will moderate the effects of completing a self-exploration measure on goal instability in first generation college students such that as perceived barriers increase, the impact of the self-exploration measure will decrease.

H4: Higher perceived barriers will moderate the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students such that as perceived barriers increase, the impact of the self-exploration measure will decrease.

A two-way MANOVA omnibus test was performed to ascertain whether perceived barriers moderated the effects of completing a self-exploration measure on goal instability and career decision-making self-efficacy. The analysis revealed that level of perceived barriers did not have a significant effect on these outcome variables ($p > .05$). Therefore, the third hypothesis, higher perceived barriers will moderate the effects of completing a self-exploration measure on goal instability in first generation college students such that as perceived barriers increase, the impact of the self-exploration measure will decrease, was not supported. The fourth hypothesis was not supported either.

Research Question 4: What are the relationships among gender, ethnicity, career decision state, career decision-making self-efficacy, goal instability, and perceived barriers in first generation college students?

To explore the fourth and final research question, a bivariate correlational analysis was performed to compare the variables: gender, ethnicity, career decision state, career decision-
making self-efficacy, goal instability, and perceived barriers. The analyses revealed significant relationships among several of these variables. Career decision state, as measured by OAQ score, was significantly positively related to level of perceived barriers \((r = .275, p < .05)\), meaning that participants with less certainty about their career decision had higher levels of perceived barriers. Career decision-making self-efficacy gain score was significantly positively related to goal instability gain score \((r = .367, p < .05)\). Though several variables were significantly related, no predictor variables showed significant relationships with outcome variables; therefore, a hierarchical multiple regression analysis was not indicated. Please see Table 4.3 for further detail.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>OAQ Score</th>
<th>Perception of Barriers</th>
<th>GIS (Gain)</th>
<th>CDMSE-SF (Gain)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>0.062</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAQ Score</td>
<td>-0.003</td>
<td>-0.026</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of Barriers</td>
<td>-0.042</td>
<td>0.014</td>
<td>0.275**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIS (Gain)</td>
<td>-0.106</td>
<td>0.083</td>
<td>0.11</td>
<td>0.081</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDMSE-SF (Gain)</td>
<td>-0.178</td>
<td>0.074</td>
<td>0.00</td>
<td>-0.027</td>
<td>0.367**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Gender had 2 levels. Ethnicity had 10 levels. OAQ score ranged from 1 to 4. Perception of Barriers scores range from 1 to 5. GIS Gain scores range from -29 to 14. CDMSE-SF Gain scores range from -38 to 26. Pearson’s correlation coefficient was used.

\(**p < 0.01\) level.
CHAPTER 5

DISCUSSION

First generation college students (FGCS) often face a unique set of challenges as they embark on their college career. The literature indicates that FGCS tend to be less prepared for college (Bui, 2002), perform worse academically (Chen & Carroll, 2005), and have lower retention rates (Ishitani, 2006). More pertinent to this study, FGCS also seem to encounter greater difficulties during the career decision making process (Chen & Carroll, 2005; Roneferiti, 2012).

Therefore, the current study’s primary goal was to add to the career development literature related to FGCS as they engage in the career decision making process. The current study utilized a true experimental design to determine whether completing an Internet-based career development intervention (i.e. the Self-Directed Search Form R: Internet Version) would affect FGCS’ goal instability and career decision-making self-efficacy, two variables that previous research studies have shown to be related to the career decision making process. Goal instability was measured using the Goal Instability Scale (GIS; Robbins & Patton, 1985), and career decision-making self-efficacy was measured using the Career Decision-Making Self-Efficacy Scale Short Form (CDMSE-SF; Betz et al., 1996). This study also considered participants’ initial levels of perceived barriers, since perceived barrier levels seem to be important considerations when discussing the career development of ethnically and culturally diverse groups (Gibbons & Borders, 2010; Nepper Fiebig et al., 2010; Ojeda & Flores, 2008). Perceived barriers were measured using the Perceived Barriers Scale (POB; Luzzo & McWhirter, 2001).
This chapter reviews the current study’s findings by addressing each research question and hypothesis in light of previous literature. Limitations of this study are also addressed as well as implications for future research and practice.

**Discussion of Findings**

**Research questions one and two.** It was hypothesized that completing a self-exploration measure, the Self-Directed Search Form R: Internet Version (SDS; Holland, et al., 1999), would decrease goal instability and increase career decision-making self-efficacy in first generation college students. These hypotheses were tested by conducting a two-way MANOVA omnibus test to compare the treatment and control groups’ gain scores for goal instability and career decision-making self-efficacy levels. The MANOVA revealed that the intervention did not have a statistically significant effect on career decision-making self-efficacy or goal instability levels, given initial perceived barriers scores.

The Self-Directed Search has been described in the career development literature as a self-guided, counselor free intervention, in addition to its use as a psychometrically sound measure for understanding one’s interests. Reardon and Lenz (1998) referred to the Self-Directed Search as a “vocational interest assessment activity” and a “career planning simulation” (p. 59). Holland (1997) wrote that the SDS contains all necessary elements of a self-guided assessment intervention, including a cognitive framework for understanding the test scores, direct connections to a job classification system or educational options, data that provides instrument credibility, and referral information (Spokane & Holland, 1995). In fact, five of the six SDS outcome studies reviewed in the literature for this study showed positive results from completing the SDS, such as increased occupational choice satisfaction levels (Zener & Schnuelle, 1976) and number of occupations being considered (Zener & Schnuelle, 1976; Brown-Talbot & Birk,
The results found in this study were not consistent with previous studies in regard to the SDS’s impact on career development outcomes. A few possible explanations include: the fact that the SDS is a counselor-free intervention, the fact that the SDS did not contain all of the five critical components (Brown & Ryan-Krane, 2000), the possibility that this treatment was not intense enough from a dosage standpoint, and the fact that the intervention did not specifically address diversity issues. Sample characteristics may have also contributed to the insignificant findings. For example, the sample may have had low readiness levels for effectively engaging with career development interventions. Each of these explanations will be discussed in detail below.

The SDS has been described as a counselor-free intervention, and Oliver and Spokane’s (1988) meta-analysis revealed that counselor free interventions tend to be modestly effective, with small mean effect sizes. The SDS outcome studies included in the literature review support this claim. While five of the six studies reviewed did find the SDS to be an efficacious intervention, the effect sizes in Brown-Talbot and Birk’s (1979) study were reported as small, and O’Neil et al.’s evidence of effectiveness (1979) was no longer apparent after one month.

Brown and Ryan-Krane’s (2000) research may help to explain the current study’s non-significant results and the overall modest efficaciousness of the SDS in prior research. As a standalone intervention, the SDS contains one of five critical components for a career development intervention—world of work information in the summary report (Brown & Ryan-Krane, 2000). It does not include modeling, individualized attention, written exercises, or support building activities. Brown and Ryan-Krane (2000) also found that the ideal number of sessions for career development intervention is four to five. The SDS intervention in this study involved a one-time interaction via an online intervention; it contained no pre or post
intervention interactions with a career counselor. The entire data collection process also occurred in a very short timeframe, approximately 1.5 weeks. It could be argued that the current study’s intervention was not intense enough to have a lasting effect on participant’s goal instability or career decision-making self-efficacy levels. In other words, the brief treatment, and the lack of assessment orientation (Sampson & Lumsden, 2000), may help explain why this study’s intervention did not show efficaciousness.

Another consideration in evaluating the results of the current study is the unique composition of the study’s participants. The current study’s participants were a group of ethnically and culturally diverse first generation college students who were incoming freshmen. Brown et al. (2005) suggested that in addition to Brown and Ryan-Krane’s five critical ingredients (2000), career development interventions for diverse populations should address skills for managing ethnocentrism and discrimination, as well as the encouragement of higher educational and career attainment levels. The current study’s intervention, completing the Self-Directed Search Form R: Internet Version (SDS; Holland et al., 1999), did not include these additional components.

Another way to frame the current study’s outcome is the concept of readiness. The career development literature has indicated that if clients have low levels of readiness, they will typically benefit less from career interventions (Blustein, 1989; Galles & Lenz, 2013), especially Internet-based, self-help interventions such as the online version of the SDS (Osborn et al., 2011). Sampson, McClain, Musch, and Reardon (2013) suggested that one contributing factor to low readiness is limited life experience. The current study’s sample may have less life experience compared to college students farther along in their studies, given the fact that they have less educational experience and perhaps less work experience. Therefore, they may not
have the level of readiness necessary to benefit from certain types of career development interventions, especially brief, counselor-free online interventions such as the Self-Directed Search Form R: Internet Version (SDS; Holland et al., 1999).

Interestingly, the overall sample, as well as both groups individually, showed a statistically significant decrease in goal instability scores from pretest to posttest, meaning their goal instability levels increased. However, the difference in GIS gain scores between groups was not statistically significant, so this outcome cannot be attributed to the study’s intervention.

In the same way, the results for the entire sample showed a statistically significant decrease in career decision-making self-efficacy. Upon analyzing the treatment and control groups individually, this decrease was true for the treatment group but not for the control group. While the control group did show a decrease, it was not statistically significant. Because both groups showed a change in career decision-making self-efficacy, and only the treatment group completed the intervention, the change in career decision-making self-efficacy cannot be attributed to this study’s intervention.

One explanation for the decrease in GIS and CDMSE-SF scores may be the statistical phenomenon of regression to the mean. For example, the pretest values of goal instability for the entire sample were negatively skewed and had a higher mean value \( M = 48.47; SD = 8.33 \) than the normative data for college students collected by Robbins and Patton (1985) in their initial development of the Goal Instability Scale. Robbins and Patton’s (1985) sample of 453 college students, from two different schools, had mean GIS scores of 42.31 \( (SD = 8.83) \). They also collected data from a second sample of college students \( (n = 133) \), and these scores also showed lower values than the present study’s sample \( (M = 36.80, SD = 9.92; \) Robbins & Patton, 1985).
Another way to understand the statistically significantly lower GIS and CDMSE-SF scores found in this study could be attributed to the fact that the sample was comprised of freshmen college students during their first weeks of college. Pretest data was collected on the first day they arrived at the university and posttest data was collected approximately 1.5 weeks later, after they had finished their first full week of classes. The FGCS literature indicates that this student population tends to struggle more academically (Choy, 2001; Ishitani, 2006) and in social adjustment (Hertel, 2002). The fact that this study’s sample was likely moving through the adjustment process may have been expressed through lower goal instability and career decision-making self-efficacy scores. The literature has found that goal instability is relevant when discussing college adjustment in that higher goal instability levels indicate lower levels of adjustment (Robbins et al., 1993). The decrease in goal instability scores may be a reflection of this study’s sample beginning the adjustment process.

As the study participants entered this adjustment period and experienced their first collegiate level academic courses, their initial certainty regarding goals and confidence in their ability to move through the career decision making process may have been challenged. Attending their first week of lectures and engaging in other events on campus, may have created uncertainty regarding their initial career decision. In the literature, career decision-making self-efficacy has been connected to decidedness levels; participants who are undecided tend to have lower levels of career decision-making self-efficacy (Taylor & Betz, 1983; Taylor & Popma, 1990). The lower CDMSE-SF scores may have reflected newfound uncertainties regarding career decisions.

**Research question three.** Research question three had two corresponding hypotheses. The first hypothesis was that higher perceived barriers would moderate the effects of completing
a self-exploration measure on goal instability in first generation college students such that as perceived barriers increased, the impact of the self-exploration measure would decrease. The second hypothesis was that higher perceived barriers would moderate the effects of completing a self-exploration measure on career decision-making self-efficacy in first generation college students such that as perceived barriers increased, the impact of the self-exploration measure would decrease.

These hypotheses were tested with a two-way MANOVA omnibus test using gain scores for the dependent variable measures, Goal Instability Scale scores and Career Decision-Making Self-Efficacy Short Form scores. Initial Perception of Barriers Scale scores were considered in the analysis to determine whether high or low levels of perceived barriers would moderate the intervention’s effect on career decision-making self-efficacy and/or goal instability. The MANOVA revealed no statistically significant effects of the intervention and that participants’ reported perceived barriers levels did not significantly affect the study’s dependent variables ($p > .05$).

Overall, the sample’s perceived barriers scores ($M = 2.10$, $SD = .54$) were lower than a college sample from a prior study ($M = 3.75$, $SD = .59$; Metz, Fouad, & Ihle-Helledy, 2009). The current study sample’s average score of 2.10 indicated that respondents, on average, disagreed with the statements related to perceived educational and career barriers. This was an unexpected finding because the research literature reviewed suggested that college students from ethnically and culturally diverse backgrounds perceive higher than average barriers. For example, Luzzo and McWhirter (2001) found statistically significantly higher perceived career and educational barriers among ethnic minorities among a sample of 286 undergraduate students. Fouad and Byars-Winston (2005) had a similar outcome in their sample of 19,611 participants—those
participants from minority groups perceived statistically significantly higher career barriers. Not only do minority students seem to report higher perceived barriers, but also Nepper et al. (2001) found that minority first generation college students indicated statistically significantly higher levels of perceived barriers than other minority college students among a group of 219 Hispanic community college students.

It is interesting to note that over half of the respondents either agreed or strongly agreed with items 12 and 32. Item 12 states, “Money problems are currently a barrier to my educational aspirations.” Item 32 states, “Lack of financial support is currently a barrier to my educational aspirations.” These items seem to suggest that although this study’s sample did not perceive the same level of barriers as those reported in other studies using college student samples, they were still concerned with their finances and viewed finances as a central obstacle to attaining their educational goals. This is consistent with findings from prior studies. For example, Hertel (2002) compared FGCS with second generation college freshmen and found that the first generation group reported statistically significantly lower parental income levels. Additionally, FGCS are more likely to have lower income levels and fall in a lower socioeconomic status (Bui, 2002; Chen & Carroll, 2005; Engle & Tinto, 2008; Inman & Mayes, 1999).

**Research question four.** The fourth research question was exploratory; therefore, it had no corresponding hypothesis. Its objective was to determine whether various participant characteristics such as gender, ethnicity, career decision state (i.e. OAQ score), career decision-making self-efficacy, goal instability, and perceived barriers were related. Initial bivariate correlational analyses revealed that four of these variables did have statistically significant relationships.
Career decision state was significantly positively related to level of perceived barriers ($r = .275, p < .05$). This finding suggests that participants with higher perceived barriers were experiencing more uncertainly regarding their career decisions. The significant positive relationship between career decision state and perceived barriers aligns with the findings of Gibbons and Borders (2010): in a sample of 272 seventh grade students, higher perceived barriers negatively impacted self-efficacy expectations for attending college, meaning that perceived barriers seemed to negatively impact the career development process. Gibbons and Shoffner (2004) seemed to agree with this notion; they contended that high perceived barriers may cause individuals to eliminate an occupational choice if they believe the barriers are too challenging to overcome.

Another finding of the exploratory analysis was that the career decision-making self-efficacy gain score was significantly positively related to the goal instability gain score ($r = .367, p < .05$). This reflects the fact that as participants’ career decision-making self-efficacy scores decreased, indicating less career decision-making self-efficacy, their goal instability scores decreased as well, reflecting higher levels of goal instability. The finding that these two constructs are positively related is in agreement with past studies. These studies found that as participants were less certain about their goals, they indicated less confidence in their ability to engage in career decision making (Blustein, 1989; Robbins & Patton, 1985). Goal instability and career decision-making self-efficacy have also been cited in the literature as useful for measuring readiness to engage in the career decision making process (Melvin & Lenz, in press; Sampson, Peterson, Reardon, & Lenz, 2000). The current study’s findings related to these two constructs further support this claim—participants with low readiness would be expected to have higher goal instability levels and lower career decision-making self-efficacy levels.
Limitations of the Study

Many of the factors that could have impacted the internal and external validity of this study’s results were mentioned in the delimitations section (e.g. attrition, history, computer-based posttest completion); however, several additional limitations will be discussed below. First, limitations in sampling will be reviewed, followed by limitations related to this study’s treatment.

Limitations in sampling. The final sample, which consisted of one treatment group and one control group, was large enough to achieve adequate power for analyzing the study’s hypotheses. However, the initial study design proposed three groups: a control group and two treatment groups. The first treatment group completed the Self-Directed Search only. The second treatment group was asked to complete the Self-Directed Search and attend a three hour career workshop focused on interpreting the Self-Directed Search, learning a theory-based approach to career decision making (Sampson, Reardon, Peterson, & Lenz, 2004), and engaging with occupational information resources. Of the 50+ participants asked to attend, four came to the workshop intervention. Because four was not an adequate sample size to represent a treatment group, the data representing these four participants were removed from the final data set. Those participants in the workshop treatment group who did not attend the workshop, completed the online assessment, and completed post-test measures, were combined with the online assessment only treatment group. The fact that only four participants attended the workshop may be a reflection of participants’ low readiness to engage in the career decision-making process or struggle to balance research participation with other demands from the Center for Academic Retention and Enhancement (CARE)’s 2013 Summer Bridge Program schedule.
**Limitations in the treatment.** Initially, this study aimed to incorporate a workshop-based intervention through using a third treatment group. As noted above, too few participants assigned to this group attended the workshop, and this treatment intervention was eliminated from the original research design. The addition of this structured treatment intervention may have improved the study’s findings, given the nonsignificant results associated with the online intervention only treatment group. Findings from past research support the use of structured group-based interventions (Whiston, 2002). Structured interventions have shown greater efficacy compared to unstructured interventions (Whiston et al., 2003), and group interventions are viewed as ideal because they are cost effective as well as efficacious (Brown & Ryan-Krane, 2000).

Another potential limitation of the treatment is that it was introduced via email. Sampson and Lumsden (2000) recommended properly orienting career counseling clients to online career development activities to ensure they understand the task. If the current study’s participants had been introduced to the online intervention via an in-person meeting or presentation, posttest data may have revealed a statistically significant change.

A final treatment limitation may have been the timeframe during which data was collected. The first day participants arrived on campus may not have been ideal for collecting data because students were likely experiencing many other, more immediate, emotions related to embarking on their college careers, which could have prevented them from fully engaging in the study’s tasks.
Implications

The following section discusses implications of the current study. First, implications for future research will be presented. This will be followed by a discussion of implications for practice.

Implications for research. The findings and limitations of the current study suggest implications for future research focused on first generation college students. One primary consideration is the timeframe for engaging this group of college students and seeking their participation in a research activity. As mentioned above, the first few days students arrive on-campus may not be ideal for collecting career development data because students may struggle to fully engage in the activity. Additionally, these students have not yet experienced any aspects of the collegiate lifestyle. On the other hand, one of the rationales for the current study’s data collection timeframe was to collect data from students before they received various campus interventions, including career interventions, as part of their summer program. To select an optimum timeframe for their study, future researchers should closely weigh the need for a fully engaged sample that have gained some college experience against the possibility that the sample may have received career development interventions beforehand.

Whiston et al. (2003) suggested that computer-based interventions are more efficacious if coupled with in-person counseling. The current study had proposed an additional, in-person intervention; however, the participants did not attend in sufficient numbers to allow for analysis of this treatment intervention. One potential reason for participants’ lack of attendance may have been the scheduled time for the intervention, a Saturday morning, as well as the fact that it was held at the end of the participants’ first week of classes. Future researchers could explore alternative times for implementing interventions that might fit better with students’ schedules.
and preferences, such as during a weekend afternoon or weeknight evening. Furthermore, researchers could ask participants for their opinions regarding ideal times and locations for intervention activities. By accommodating participants’ schedules and location preferences as well as offering additional incentives, researchers may find that participants attend in higher numbers.

The current study did not find significant results related to the effects of completing a brief online assessment, specifically the Self-Directed Search Form R: Internet Version (Holland et al., 1999), on the career decision-making self-efficacy or goal instability of FGCS. SDS studies included in the literature review primarily used the paper Assessment Booklet and Occupations Finder as well as different outcome measures than the current study. The method used for administering the assessment measure, paper versus Internet, as well as the dependent measures chosen may have impacted the results. The current study chose career decision-making self-efficacy and goal instability as outcome measures because of their theoretical underpinnings and interrelatedness to past outcome measures that found significant results (e.g. number of occupational alternatives being considered and interest in examining various careers). Future researchers may want to consider whether their dependent variables are appropriate given the specific career intervention used, the dependent variables’ theoretical relatedness to the intervention, and whether the dependent variables are sensitive enough to capture the impact of a brief, counselor-free intervention.

Replication of findings is an important aspect of applying research outcomes to practice, and the current study replicated several important findings from the literature. For example, research reviewed suggested that perceived career barriers impact the career decision-making process by affecting self-efficacy expectations for attending college (Gibbons & Borders, 2010)
and predicting aspiration levels (Ojeda & Flores, 2008). The current study found that perceived barrier levels were significantly positively related to career decision state \((r = .275, p < .05)\), meaning that those participants with higher perceived barriers also reported lower levels of decidedness. Because the relationship between perceived barriers and career decision-making has been further supported by the current study, it reinforces the need for future researchers to continue to increase their understanding of perceived barrier’s role in the career decision-making process, especially among minorities and FGCS.

The current study also replicated findings related to the relationship between goal instability and career decision-making self-efficacy; the results indicated a significant positive relationship between these two variables \((r = .367, p < .05)\). Blustein (1989) and Robbins and Patton (1985) found that individuals with less certainty about their goals also reported lower confidence levels for engaging in the career decision-making process. While the relationship between these two variables is apparent, future researchers could focus on better understanding the nature of this relationship and its implications.

This study seems to reinforce the suggestions of Brown and Ryan-Krane (2000) regarding the five critical components for career interventions. Future research that includes these five key components as part of a career development intervention with FGCS may produce significant results. When conducting research with FGCS, researchers might also want to consider the suggestions of Brown et al. (2005), which provide further guidance related to the needs of diverse populations and the use of career development interventions. In addition to the five critical components, Brown et al. (2005) lists skills to manage ethnocentrism and discrimination and skills to achieve increased levels of educational and career attainment as necessary career development intervention components when working with diverse populations.
Another consideration for future research relates to the mode in which the study’s intervention was presented. Though the SDS Form R Internet Version has adequate psychometric properties, provides resources for individuals to conduct self-guided research, and includes suggestions for next steps, it does not provide direct access to a career practitioner but rather provides referral resources. If individuals who completed this measure desired additional assistance, they would need to seek-out these resources via online referral options or a handout provided by the primary researcher. Lack of further assistance has been cited as a limitation of online career interventions (Gati & Asulin-Peretz, 2011; Sampson & Lumsden, 2000). Future researchers may consider designing a study in which participants could engage in further intervention if they wished to do so through a live chat or an online request for services.

One delimitation of the current study was the fact that the intervention could be accessed anywhere at anytime, as long as participants had access to the Internet. This factor may have impacted the participants’ level of engagement with the task, particularly if there were other distractions present while individuals were completing the activity. Future researchers could consider using a computer lab or tablets to provide for more environmental control while participants complete a computer-based career intervention. This intervention design would help to ensure that each participant is fully engaging with the intervention task (Sampson, 2000).

**Implications for practice.** Career development practitioners can use the current study to inform their work with two primary groups. They can consider the findings of this study when delivering career development services to first generation college students, as well as college students from diverse cultural and ethical backgrounds.

The fact that a counselor-free, brief, online intervention did not positively impact the career decision-making self-efficacy or goal instability of first year, first generation-college
students appears to indirectly support the current literature’s recommendations regarding how to best deliver career development interventions to achieve the most efficacious outcomes. Namely, the literature suggests that career practitioners should incorporate Brown and Ryan-Krane’s critical components to increase the likelihood that interventions will be effective (Brown, Ryan-Krane, Brecheisena, Castelinoa, Budisina, Millera, & Edensa, 2003). The literature also provides support for the notion that group-based (Whiston et al., 2003) and classroom environments (Osborn et al., 2007; Whiston, 2002) are as effective as individual interventions, thus allowing career counselors to implement more in depth interventions in a low-cost, efficient manner (Sampson et al., 2004).

The literature on career interventions with diverse populations provides guidelines for career practitioners to consider when working with individuals from culturally and ethnically diverse groups. For example, Brown et al. (2005) recommended two additional career intervention aspects in addition to the five critical components that Brown and Ryan-Krane (2005) outlined: skills to manage discrimination and skills to achieve higher levels of educational and career attainment. Additionally, the National Career Development Association developed minimum competencies for multicultural career counseling and development (2009). These competencies as well as Brown et al.’s (2005) suggestions should be considered by career development practitioners when counseling individuals from diverse populations.

The findings from this study did indicate a significant positive relationship between participants’ career decision state and level of perceived barriers, which supports the notion that the perceived barriers construct may be an important consideration in the career decision making process, especially for diverse client populations (Gibbons & Borders, 2010; Nepper et al., 2010). When working with diverse client populations, career development practitioners should
explore whether clients’ perceived barrier levels are high and how this might be impacting the career decision making process, then intervene accordingly.

One other important factor that should be considered by career development practitioners when working with FGCS is client readiness for the career counseling process. Sampson et al. (2000) defined career decision making readiness as the intersection of the complexity of the individual's life situation and the capability of the individual to move through the career decision making process. Complexity refers to external factors in an individual’s life that make the career decision making process more difficult. The current FGCS literature points to several factors that may add complexity to first generation college students’ career decision making. For example, Hertel (2002) found that FGCS reported statistically significantly lower levels of social adjustment relative to second generation college students. Another factor that may add to complexity levels for FGCS is their ability to meet the academic demands of collegiate level coursework. The FGCS literature indicated that this student population tended to struggle more academically (Choy, 2001; Ishitani, 2006), was more likely to withdraw from courses or repeat courses (Chen & Carroll, 2005), and reported more hours studying and completing assignments outside of the classroom (Bui, 2002).

Another external factor that may increase complexity levels is financial concerns. Over half of the current study’s participants reported perceived barriers related to financial concerns. This outcome supports the FGCS literature’s findings that FGCS tended to have greater financial need than their counterparts (Bui, 2002; Chen & Carroll, 2005; Engle & Tinto, 2008; Hertel, 2002; Inman & Mayes, 1999) and tended to worry about financial aid more often (Bui, 2002). If FGCS have dependents at home (Inman & Mayes, 1999) and a job outside of school (Boyett, 2010), these stressors will further add to complexity levels. Therefore, practitioners should have
referral resources available to respond to FGCS’ additional needs such as information regarding scholarships and fellowships, referrals to the campus financial aid office, resources for how to manage finances, childcare information, resources for finding a part-time job, and referrals to free financial services in the community.

Osborn et al. (2011) contended that individuals with lower readiness levels benefit less from Internet-based self-help resources and interventions. Given the fact that complexity levels for FGCS may be high, the likelihood that they will have lower readiness levels compared to college students who are not first generation is greater. Therefore, career counselors should consider assessing clients’ readiness levels, especially FGCS, before asking them to complete an Internet-based self-help intervention. Career counselors may need to address factors related to capability and complexity (Sampson et al., 2004) before engaging FGCS in career problem solving and decision making tasks.

Additionally, practitioners should heed suggestions by researchers for how to increase efficacy of online career interventions and assessments. Some of these recommendations include: ensuring a test environment that encourages full engagement (Sampson, 2000) and ensuring online interventions have clear instructions (Reile & Harris-Bowlsbey, 2000) and user-friendly content (Sampson, 2000). As career practitioners and career services offices increasingly rely on self-guided, online interventions and related assessments, they need to consider additional support available for individuals who need more assistance (Osborn et al., 2011).

Conclusion

The present study considered whether an Internet-based career intervention, in the form of an online assessment, would positively impact career decision-making self-efficacy and goal instability in a sample of first year, first generation college students, given initial levels of
perceived barriers. The results of this study revealed no change in either outcome variable due to the online intervention employed, lending support to the career development intervention outcome literature’s suggestion that career interventions should contain five key components to be efficacious (Brown & Ryan-Krane, 2000). The literature also contends that career development interventions should address additional variables when working with ethnically and culturally diverse populations, such as aiding in the development of skills for managing discrimination and ethnocentrism (Brown et al. 2005). This point also seems to be indirectly supported by this study’s findings.

Because college campuses are becoming more diverse (National Center for Education Statistics, 2011), there is an ongoing need to further explore evidence-based interventions that can be used to enhance the career development of first generation college students. The National Career Development Association’s (NCDA, 2009) Minimum Competencies for Multicultural Career Counseling and Development emphasize the importance of regularly assessing information, resources, and technology for their sensitivity to diverse populations’ needs. Computer-based interventions are likely to be an ongoing component of career services delivery (National Association for Colleges and Employers, 2014), so determining best practices in this area, especially as it relates to diverse client populations, is critically important to the career development field’s future endeavors.
APPENDIX A

CONSENT FORM

Dear Potential Participant,

I am a doctoral student under the direction of Professor Janet Lenz in the Department of Educational Psychology and Learning Systems in FSU’s College of Education. I am conducting a research study to examine the effects of a career intervention on the goal instability and career decision-making self-efficacy of first generation college students.

Your participation today will involve completing a demographic questionnaire and 3 different paper-based assessments about personal and career characteristics. Completion of these forms should take about 25 minutes. The name field on each assessment has been replaced with an identifying number only. In a few weeks, you will be asked to complete another set of these three assessments.

You have a 66% chance of being selected to complete an online self-exploration measure called the Self-Directed Search. Completing this measure will require approximately 30 minutes of your time. In addition, you may be asked to participate in a two-hour career development activity during the next few weeks. This activity will require approximately two hours of your time, and you have a 33% chance of being asked to participate. If you are not selected to complete the self-exploration measure or participate in the activity, you will have the opportunity to do both at a later date.

Information obtained from you will remain confidential, to the extent allowed by law. Information recorded by hand will be digitized into an encrypted PDF file and stored on a CD-ROM in a locked file cabinet. Your responses on the consent form, demographic form and assessments will be stored in locked cabinets, out of public view and under the control of the principal investigator and/or faculty advisors. Data collected from this study will be retained in a secure manner until June 30, 2020, after which time it will be destroyed. The results of the research study may be published, but your name will not be used, and the results will be presented in group format only. Information identifying you (e.g. name or ID number) will not be stored with the final data set.

Your participation in this study is voluntary. You will not be paid for your participation. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. The discomfort and risk reasonably expected by your participation in this project is that you may become more aware of personal characteristics that relate to career decision-making. This awareness may cause mild anxiety. If you experience such a reaction after participating in this study, please contact FSU’s Career Center (850-644-6431) or the University Counseling Center (850-644-2003) to discuss your situation.

Although there may be no direct benefit to you, a possible benefit of your participation is the increase in your understanding of factors influencing your career decision-making. This information also has the potential to improve the ability of counselors and advisors to address issues that may interfere with career problem solving and decision-making.

If you have any questions concerning this research study, please contact Brittany Melvin (__________________) or Janet Lenz, Ph.D., at ____________________ If you have any questions

about your rights as a participant in this research, or if you feel you have been placed at risk, please contact the Chair of the Human Subjects Committee, Institutional Review Board, or the Vice President for the Office of Research at (850) 644-8633.

Sincerely,
Brittany Melvin

I give my consent to participate in the above study.

(Signature)          (Date)

(Print Your Name Here)

APPENDIX B

IRB APPROVAL MEMORANDUM

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 5/31/2013

To: Brittany Melvin

Address: ..................................................................................
Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Exploring the Impact of a Career Intervention on the Confidence and Motivation of First Generation College Students

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 5/29/2014 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Janet Lenz, PhD, Advisor
HSC No. 2013.10365
APPENDIX C

PARTICIPANT DATA SHEET

ID#_________

PARTICIPANT DATA SHEET

PLEASE FILL-OUT THE INFORMATION BELOW. FOR QUESTIONS 5-6, PLACE THE NUMBER IN THE SPACE IN THE RIGHT MARGIN WHERE INDICATED.

1. Where did you attend high school? ___________________________

2. Did either of your parents graduate from college? (Please circle) Yes No

3. E-mail Address __________________________________________

4. Age (in years) _______

5. Sex (1=Male 2=Female) ________

6. Ethnic Group (write in number) __________
   1. American Indian 5. Caucasian
   2. Asian-American/Pacific Islander 6. Other __________
   3. African-American 7. Prefer not to respond
   4. Hispanic-American

7. List all the occupations you are considering right now.

_________________________ ___________________________ __________________________

_________________________ ___________________________ __________________________

8. Which occupation is your first choice? (If undecided, write “undecided.”)

_________________________________________________

9. How well satisfied are you with your first choice? (write in the number)
   9.________

   1. Well satisfied with choice
   2. Satisfied, but have a few doubts
   3. Not sure
   4. Dissatisfied and intend to remain
   5. Very dissatisfied and intend to change
   6. Undecided about my future career
APPENDIX D

THE PERCEPTION OF BARRIERS SCALE

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...."

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Not Sure</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

1. ... be treated differently because of my sex.

2. ... be treated differently because of my ethnic/racial background.

3. ... experience negative comments about my sex (such as insults or rude jokes).

4. ... experience negative comments about my racial/ethnic background (such as insults or rude jokes).

5. ... have a harder time getting hired than people of the opposite sex.

6. ... have a harder time getting hired than people of other racial/ethnic backgrounds.

7. ... experience discrimination because of my sex.

8. ... experience discrimination because of my racial/ethnic background.

9. ... have difficulty finding quality daycare for my children.

10. ... have difficulty getting time off when my children are sick.
11. ... have difficulty finding work that allows me to spend time with my family.

For each item below, finish the sentence with: 
"... currently a barrier to my educational aspirations." For example, Item 12 would read: "Money problems are ... currently a barrier to my educational aspirations."

12. Money problems are... Strongly Agree Not Sure Strongly Disagree

13. Family problems are... A B C D E

14. Not being smart enough is... A B C D E

15. Negative family attitudes about college are... A B C D E

16. Not fitting in at college is... A B C D E

17. Lack of support from teachers is... A B C D E

18. Not being prepared enough is... A B C D E

19. Not knowing how to study well is... A B C D E

20. Not having enough confidence is... A B C D E

21. Lack of support from friends to pursue my educational aspirations is... A B C D E

22. My gender is... A B C D E

23. People's attitudes about my gender are... A B C D E

24. My ethnic background is... A B C D E

25. People's attitudes about my ethnic background are... A B C D E

26. Childcare concerns are... A B C D E
27. Lack of support from my "significant other" to pursue education is... A B C D E

28. My desire to have children is... A B C D E

29. Relationship concerns are... A B C D E

30. Having to work while I go to school is... A B C D E

31. Lack of role models or mentors is... A B C D E

32. Lack of financial support is... A B C D E

Please rate your degree of confidence that you could **overcome** each of the potential career barriers listed below.

<table>
<thead>
<tr>
<th></th>
<th>Highly Confident</th>
<th>Not At All Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>33. Discrimination due to my gender.</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>34. Discrimination due to my ethnicity.</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>35. Negative comments about my sex (insults, jokes).</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>36. Negative comments about my racial/ethnic background (insults, jokes).</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>37. Difficulty finding quality daycare.</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>38. Difficulty getting time off when my children are sick.</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>39. Difficulty finding work that allows me to spend time with my family.</td>
<td>A B C D E</td>
<td></td>
</tr>
</tbody>
</table>

Please rate your degree of confidence that you could **overcome** each of the potential educational barriers listed below.

<table>
<thead>
<tr>
<th></th>
<th>Highly Confident</th>
<th>Not At All Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>40. Money problems...</td>
<td>A B C D E</td>
<td></td>
</tr>
<tr>
<td>41. Family problems...</td>
<td>A B C D E</td>
<td></td>
</tr>
</tbody>
</table>

131
<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>42.</td>
<td>Not being smart enough...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>43.</td>
<td>Negative family attitudes about college...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>44.</td>
<td>Not fitting in at college...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>45.</td>
<td>Lack of support from teachers...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>46.</td>
<td>Not being prepared enough...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>47.</td>
<td>Not knowing how to study well...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>48.</td>
<td>Not having enough confidence...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>49.</td>
<td>Lack of support from friends...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>50.</td>
<td>My gender...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>51.</td>
<td>People's attitudes about my gender...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

(Continued) Please rate your degree of confidence that you could overcome each of the potential educational barriers listed below.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Highly Confident</td>
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<tr>
<td>Not At All Confident</td>
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</tr>
<tr>
<td>52.</td>
<td>My ethnic background...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>53.</td>
<td>People's attitudes about my ethnic background...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>54.</td>
<td>Childcare concerns...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>55.</td>
<td>Lack of support from my &quot;significant other&quot;...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>56.</td>
<td>My desire to have children...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>57.</td>
<td>Relationship concerns...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>58.</td>
<td>Having to work while I go to school...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>59.</td>
<td>Lack of role models or mentors...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>60.</td>
<td>Lack of financial support...</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>
Finally, please indicate your level of agreement with the following four statements:

"In general, I think that..." | Strongly Agree | Not Sure | Strongly Disagree
--- | --- | --- | ---
61. ...there are many barriers facing me as I try to achieve my *educational* goals. | A | B | C | D | E
62. ...I will be able to overcome any barriers that stand in the way of achieving my *educational* goals. | A | B | C | D | E
63. ...there are many barriers facing me as I try to achieve my *career* goals. | A | B | C | D | E
64. ...I will be able to overcome any barriers that stand in the way of achieving my *career* goals. | A | B | C | D | E
# APPENDIX E

## CAREER DECISION-MAKING SELF-EFFICACY SCALE - SF

### Career Decision-Making Self-Efficacy Scale (CDMSE—Short Form)

For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the key.

The confidence levels are valued in the following manner:

1. No Confidence at all
2. Very Little Confidence
3. Moderate Confidence
4. Much Confidence
5. Complete Confidence

### HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

<p>| | | | | |</p>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tbody>
</table>

1. Find information in the library or on the Internet about occupations you are interested in.
2. Select one major from a list of potential majors that you are considering.
3. Make a list of your goals for the next five years.
4. Determine the steps to take if you are having academic difficulties in your chosen major.
5. Accurately assess your strengths and weaknesses.
6. Select one occupation from a list of potential occupations that you are considering.
7. Determine the steps you need to take to successfully complete your chosen major.
8. Persistently work at your major or career goal even when you get frustrated.
9. Determine what your ideal job would be.
10. Find out employment trends for an occupation over the next ten years.
11. Choose a career that will fit your preferred lifestyle.
12. Prepare a good resume.
13. Change majors if you did not like your first choice.

### HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

<p>| | | | | |</p>
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15. Find out the average yearly earnings of people working in a specific occupation of your interest.
16. Make a career decision and then not worry whether it was right or wrong.
17. Change occupations if you are not satisfied with the one you enter.
18. Figure out what you want to sacrifice to achieve your career goals.
19. Talk with a person already employed in the field you are interested in.
20. Choose a major or career that will fit your interests.
21. Identify employers, firms, and institutions relevant to your career possibilities.
22. Define the type of lifestyle you would like to live.
23. Find information about graduate or professional schools.
24. Successfully manage the job interview process.
25. Identify some reasonable major or career alternatives if you are unable to get your first choice.
APPENDIX F

THE GOAL INSTABILITY SCALE

Directions: Following are a number of statements that reflect various ways in which we can describe ourselves. After reading each statement, one at a time, circle a number along the scale which ranges from 1, Strongly Agree, to 6, Strongly Disagree. There are no right or wrong answers so please just make your best judgment. Simply try to rate the extent to which you agree with each statement. Do not spend too much time with any one statement. Circle the number which best fits for each statement and do not leave any unanswered.

Please Circle A Number For Each Statement, Along:

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Moderately Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Moderately Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. It’s hard to find a reason for working.  1  2  3  4  5  6
2. I don’t seem to make decisions by myself.  1  2  3  4  5  6
3. I have confusion about who I am.  1  2  3  4  5  6
4. I have more ideas than energy.  1  2  3  4  5  6
5. I lose my sense of direction.  1  2  3  4  5  6
6. It’s easier for me to start than to finish projects.  1  2  3  4  5  6
7. I don’t seem to get going on anything important.  1  2  3  4  5  6
8. I wonder where my life is headed.  1  2  3  4  5  6
9. I don’t seem to have the drive to get my work done.  1  2  3  4  5  6
10. After a while I lose sight of my goals.  1  2  3  4  5  6
APPENDIX G

THE SELF-DIRECTED SEARCH FORM R: INTERNET VERSION

Due to licensing laws, the Self-Directed Search Form R: Internet Version could not be included in the appendices of this dissertation.
APPENDIX H

INSTRUCTIONS FOR COMPLETING THE SDS

Dear Participant,

Thank you for your continued participation in this research study. Please follow the directions below to complete a self-exploration measure focused on your career development. This measure will require about 30 minutes of your time. After you’ve finished, you will receive a report explaining the results.

*Note: The measure MUST be completed by Friday, June 21 at 7PM.*

2. Follow the directions carefully to complete each section of this measure.
3. At the bottom of the last page called Demographic Data, the online assessment will ask for payment options. Please choose group account.
   For **Account ID**, please enter: k0116
   a. For **Password**, please enter: XXXXX
4. You’re done! Thank you for your participation!
APPENDIX I

RESOURCES FOR ADDITIONAL INFORMATION

Resources for Additional Information

Florida State University (FSU) Career Center: Dunlap Student Success Center
Provides comprehensive career services on a drop-in basis; individual counseling appointments are available at select times.
- Eligibility for services: anyone
- Fees: none
- Website: www.career.fsu.edu
- Hours: Drop-in Monday-Friday 9:00AM-4:30PM
- Phone: 850-644-6431
- Address: 100 S. Woodward Ave

FSU Counseling Center: 201 Askew Student Life Building
Provides individual counseling, outreach programs, small group therapy, couples counseling, crisis intervention, and psychiatric consultation.
- Eligibility: all FSU students, TCC students with a TCC/FSU medical card
- Fees: none for enrolled students
- Website: www.counseling.fsu.edu
- Hours: Appointment or crisis: Monday-Friday 9:00AM-5:00PM
- Phone: 850-644-2003
- Address: 942 Learning Way

Human Services Center: College of Education, 2207 Stone Building
Provides free individual counseling services to adults, adolescents, and children, including FSU students.
- Eligibility: anyone
- Fees: none for enrolled students
- Hours: variable – call for days and hours
- Phone: 850-644-3857
- Address: 114 W. Call Street

Advising First Center for Exploratory Students, William Johnston Building, Ground Floor
Provides help to students who are unsure about their major, mapping, and where or how to declare a major; has general advisors as well as major-specific.
- Eligibility: all FSU students
- Fees: none
- Website: www.advisingfirst.fsu.edu
- Hours: 8AM-5PM, Appointments preferred
- Phone: 850-644-3430
• Address: 143 Honors Way

**Crisis Management Unit: FSU Police Department, 108 PSF (Tanner Building)**
Provides emergency services for mental health crises both on and off campus (e.g. Baker Acts, crisis intervention, and stabilization). Other services include: 24/7 crisis intervention and referrals.
  • Eligibility: FSU students, faculty, & staff
  • Fees: none
  • Website: www.police.fsu.edu
  • Hours: 24 hours a day/7 days a week
  • Phone: 850-344-1234

**FSU University Health Services, The Health and Wellness Center**
Provides outreach programming and medical care such as nutrition assessments, physical therapy, psychiatry services, health promotion outreach, HIV/STD testing, general medical care, and urgent care services.
  • Eligibility: FSU students, post-doctoral fellows, visiting scholars, dependents of these groups, orientation students, & TCC students with a TCC/FSU medical card
  • Fees: none for enrolled students
  • Website: http://www.uhs.fsu.edu/
  • Hours: Monday-Friday, 8:00AM-4:00PM
  • Phone: 850-644-6230
  • Address: 960 Learning Way

**2-1-1 Big Bend**
Provides a 24-hour helpline and referral service for the Tallahassee community.
  • Eligibility: anyone
  • Fees: none
  • Website: 211bigbend.net
  • Hours: 24 hours a day/7 days a week
  • Phone: 211 or 850-617-6333

**National Suicide Prevention Lifeline**
Provides 24-hour, free, and confidential suicide prevention and mental health counseling.
  • Eligibility: anyone
  • Fees: none
  • Website: www.suicidepreventionlifeline.org
  • Hours: 24 hours a day/7 days a week
  • Phone: 1-800-273-TALK (8255)
Dear participant,

Thank you for your voluntary participation in this study. At this time, no further commitment of time or information is needed from you. However, you will receive a follow-up email in one week asking you to complete a final set of online measures. This should require no more than 10 minutes of your time.

Over the next week, I ask that you do not participate in any career development related activities such as visiting the Career Center for drop-in services or engaging in career assessments. After you have completed the final set of research forms via an online survey, you will have the opportunity to participate in an online self-exploration measure.

Also, I encourage you to keep the consent form provided, should you have questions about the study. I welcome any questions or concerns you may have; please feel free to email me at

Again, thank you for your participation!

Brittany Melvin
Doctoral Candidate, Educational Psychology and Learning Systems
June 15, 2013

Dear participant,

Thank you for your voluntary participation in this study. Tomorrow morning, you will receive an email asking you to complete an online self-exploration measure called the Self-Directed Search. Please use the notecard provided to you or the email information to guide you in completing this assessment. Please complete this assessment by Friday, June 21. After completing the assessment, you will receive a follow-up email asking you to complete a final set of online measures. This should require no more than 10 minutes of your time.

I encourage you to keep the consent form provided, should you have any questions about the study. I welcome any questions or concerns you may have; please feel free to email me at

Again, thank you for your participation!
Brittany Melvin
Doctoral Candidate, Educational Psychology and Learning Systems
Dear participant,

Thank you for your voluntary participation in this study. Tomorrow morning, you will receive an email asking you to complete an online self-exploration measure called the Self-Directed Search. Please use the notecard provided to you or the email information to guide you in completing this assessment. Please complete this assessment by **Friday, June 21**.

Also, **next Saturday, June 22, from 10:00-11:30AM**, you will be participating in a career development activity at the **Dunlap Success Center (DSC)** in rooms 2201-2202. This activity will include a discussion of the Self-Directed Search measure, as well as an opportunity to learn more about your own career development. You will also complete the final set of research forms at this event.

I encourage you to keep the consent form provided, should you have any questions about the study. I welcome any questions or concerns you may have; please feel free to email me at

---

Again, thank you for your participation!

Brittany Melvin
Doctoral Candidate, Educational Psychology and Learning Systems
APPENDIX K

LICENSURE AGREEMENTS
Sent Via Email: brittany.melvin@gmail.com

June 5, 2014

Brittany R. Melvin
Florida State University
6032 Dawnridge Court
Baton Rouge, LA 70817

Dear Ms. Melvin:

In response to your recent request, permission is hereby granted to you to include Holland’s Hexagonal model illustrating the relative distances among personality types taken from Making Vocational Choices (MVC) in your dissertation titled, Exploring the Impact of a Career Development Intervention on the Career Decision-Making Self-Efficacy and Goal Instability of First Generation College Students.

If additional material is needed or further publication, it will be necessary to write to PAR for further permission.

This Agreement is subject to the following restrictions:

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[4] One copy of any of the material reproduced will be sent to the Publisher to indicate that the proper credit line has been used.
TWO COPIES of this Permission Agreement should be signed and returned to me to indicate your agreement with the above restrictions. I will then sign it for PAR and return a fully executed copy to you for your records.

Sincerely,

Vicki M. McFadden
Permissions Specialist
vmark@parinc.com
1-800-331-8378 (phone)
1-800-727-9329 (fax)

ACCEPTED AND AGREED: 

DATE: June 5, 2014

ACCEPTED AND AGREED: 

DATE: June 6, 2014
REFERENCES


BIOGRAPHICAL SKETCH

Brittany Melvin Joslyn is a doctoral candidate in the Combined Doctoral Program in Counseling Psychology and School Psychology at Florida State University. Brittany earned a Bachelor of Arts degree cum laude in Business Administration from Rhodes College in 2007. Then she worked for two years for Mercer Consulting in the Human Capital Practice as an analyst. Her clinical experiences include work at a state penitentiary, private practice, consulting firm, university clinic, and VA outpatient clinic.

For three years, Brittany worked at the Florida State University Career Center as a career advisor, supervisor, and undergraduate course instructor. She also contributed to research supporting the cognitive information processing theory of career development. At the career center, Brittany gained extensive experience with serving the college student population and will continue working with this population through an APA accredited internship at Utah State University’s Counseling and Psychological Services in Logan, Utah.