

## ABSTRACT

Title of Thesis: TESTING THE JOINT ROLES OF CAREER  
DECISION SELF-EFFICACY AND  
PERSONALITY TRAITS IN THE  
PREDICTION OF CAREER INDECISION

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Career decision-making self-efficacy and the Big Five traits of neuroticism, extraversion, and conscientiousness were examined as predictors of career indecision in a sample of 181 undergraduates. Participants completed an online survey. I predicted that the Big Five traits and career decision-making self-efficacy would (a) interrelate moderately and (b) each relate significantly and moderately to career indecision. In addition, I predicted that career decision-making self-efficacy would partially mediate the relationships between the Big Five traits and career indecision, while the Big Five traits were predicted to moderate the relationship between self-efficacy and career indecision. All predicted correlations were significant. Self-efficacy fully mediated the relationship of Extraversion to career indecision and partially mediated the relationships of Neuroticism and Conscientiousness to career indecision. Conscientiousness was found to moderate the relationship of self-efficacy

to career indecision such that the negative relation between self-efficacy and career indecision was stronger in the presence of high conscientiousness.

TESTING THE JOINT ROLES OF CAREER DECISION SELF-EFFICACY AND  
PERSONALITY TRAITS IN THE PREDICTION OF CAREER INDECISION

by

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# Dedication

For Mom.

## Acknowledgements

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I would also like to thank Dr. Robert Lent for being such a supportive advisor. Not only has he guided me toward the completion of this work of scholarship, but he has also made it possible for researchers across the world to examine impactful career constructs through his models of Social Cognitive Career Theory. This thesis would not have been possible without him.

Finally, I believe that my friends and family deserve recognition. They are the social supports that I rely on to do the work I do.

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# Chapter 1: Introduction

## Introduction

Selecting a career is an important developmental process. Whether this process involves choosing an occupation in college or training to work in the family business, most adults must engage to some degree in the career decision-making process (Super, Savickas, & Super, 1996). The process is composed of three basic components: (a) understanding one's own personal attributes, (b) learning about the qualifications and conditions of different occupations, and (c) reconciling these two sources of information (Parson, 1909). Conceptually, career counselors direct their efforts toward empowering clients to fulfill these three tasks (Gati & Asher, 2000; Lent & Brown, 2013a).

The ultimate goal of career counseling is for the client to achieve commitment to a career choice, which is defined as “the point at which an individual has a clear sense of his or her occupational preferences along with a firm attachment to a specific set of career goals” (Blustein, Ellis, & Devenis, 1989). Following commitment, an individual can then implement the choice, for example, by declaring a college major or taking steps to apply for a job (Lent, Brown, & Hackett, 1994). Many college students are indecisive when it comes to generating these initial occupational preferences (Brown et al., 2012).

Career indecision, a common indicator of the decision-making process, is defined as the difficulty or inability to learn about the self, learn about careers, and

integrate both sources of information to make a career decision (Kelly & Lee, 2002; Miller & Rottinghaus, 2014). Theoretically, indecision can take two forms: those who are developmentally indecisive and those who are chronically indecisive (Guay et al., 2006). Specifically, developmentally indecisive individuals will change in their levels of indecision over time as they gather more career and self-knowledge, while chronically indecisive individuals tend to remain at a relatively stable level of indecision over time (Van Matre & Cooper, 1984). In practice, research on career indecision has not always clearly distinguished between samples that are developmentally versus chronically indecisive. It may, therefore, be assumed that most studies include both categories of decision-makers. Indeed, it can be difficult to identify the chronically indecisive without observing their decisional status over time. However, since relatively few career decision-makers remain stuck or seek career counseling, it seems likely that developmental indecision is the most common form.

Career indecision can be affected by many factors. Two classes of predictors of indecision that have been researched extensively and that are included in the social cognitive career theory (SCCT) of career self-management are personality traits and self-efficacy (Lent & Brown, 2013a). Personality traits are stable tendencies of thinking, feeling, or behaving that are shaped in part by biology (McCrae et al., 2000). While trait theory makes some allowance for personalities to change over time (e.g., Caspi, Roberts, & Shiner, 2005), traits are typically considered relatively stable across time and situation.

Costa and McCrae (1992) compiled every major personality inventory and found five major personality traits through factor analysis. Known as the Big Five,

the personality traits of Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness have since been examined extensively in relation to the career decision-making process (e.g., Caspi, & Goldberg, 2007; Ng, Eby, Sorensen, & Feldman, 2005; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Neuroticism, Extraversion, and Conscientiousness, specifically, have been shown to account for a significant amount of variance in self-reported ratings of career indecision (e.g., Hartman & Betz, 2007).

The construct of self-efficacy, grounded in the work of Bandura (1986, 1997), focuses on the personal beliefs of an individual to perform particular behaviors (Lent & Brown, 2013b). Specifically, self-efficacy refers to beliefs about one's capabilities to execute particular courses of action. One of the strengths of SCCT is its conceptualization of variables, such as self-efficacy, in terms of the specific career domain or behavior under study (Lent & Brown, 2006). Career decision-making self-efficacy is "an individual's belief that he or she can engage in activities such as accurate self-appraisal, gathering of relevant occupational information, and selecting appropriate goals" (Taylor & Betz, 1983). Self-efficacy can be strengthened by learning experiences, which include "personal performance accomplishments, observational learning (or modeling), social encouragement and persuasion, and physiological and affective states and reactions" (Lent & Brown, 2013b).

Using principal components analysis, Solberg et al. (1994) found that the Big Five personality factors and career decision-making self-efficacy (CDMSE) are distinct constructs. Researchers have investigated neuroticism, extraversion, and conscientiousness (e.g., Hirschi & Hermann, 2013; Rogers, Creed, & Glendon, 2007)

and career decision-making self-efficacy (e.g., Smith & Betz, 2002; Wang, Jome, Haase, & Bruch, 2006) as separate predictors of career indecision. Studies investigating the relationships between the Big Five traits and career decision-making self-efficacy are more limited. Therefore, the purpose of my study is to examine the ways in which the Big Five traits and career decision-making self-efficacy may jointly relate to the career indecision of college undergraduates.

## Chapter 2: Brief Literature Review and Hypotheses

In the following sections I will briefly summarize the existing literature on career indecision, the Big Five traits, and career decision-making self-efficacy. Following this review, I will describe correlational research between the Big Five traits and career decision-making self-efficacy. Finally, I will detail the limited research on mediator and moderator relationships between the Big Five traits and career decision-making self-efficacy in relation to career indecision. A more extended review can be found in Appendix A.

### Career Indecision

Many measures of career indecision (or sources of career indecision) have been developed to capture Parsons' (1909) three-part process or to index an individual's career decision status. While the most commonly used scales generally demonstrate adequate psychometric characteristics, they tend to differ in their conceptual clarity and range of content (Gati & Levin, 2014). For instance, the Career Decision Scale (Osipow, 1987) measures discouragement or uncertainty regarding the decision-making process and difficulty selecting one appealing choice out of many. The Career Decision Profile (Jones, 1989) measures problems with self-clarity, knowledge about occupations, decisiveness, and career choice importance. The Career Decision Inventory Australian Version (Lokan, 1984) measures career planning and usefulness of career exploration. The My Vocational Situation Scale (Holland, Daiger, & Power, 1980) features a Barriers subscale and a vocational identity scale, and the Vocational Exploration and Commitment Subscale (Blustein et

al., 1989) assesses commitment to a career choice. In fact, most common career indecision scales measure both decisional status (i.e., one's level of decidedness) as well as the factors that contribute to career indecision (i.e., sources of indecision). In order to more fully capture career indecision, some researchers have used multiple scales (e.g., Di Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013; Wang et al., 2006).

In a meta-analysis of 28 career indecision studies, Brown and Rector (2008) found four overarching sources of career indecision. The first, Neuroticism/Negative Affectivity, is a factor characteristic of those who focus primarily on the negative aspects of career options. Choice/Commitment Anxiety is another factor describing those who struggle with picking one career out of many options. Lack of Readiness is a factor that describes those who lack planfulness, goal directedness, and decisional confidence beliefs. Finally, Interpersonal Conflicts encompasses external sources of indecision, such as disapproval of one's choices by loved ones. Brown et al. (2012) validated this four-factor structure of career indecision using 167 items from 35 career indecision measures. Hacker et al. (2013) then created and validated a shorter version with 65 items, known as the Career Indecision Profile-65 (CIP-65). Along with the 65 items, Hacker et al. included a one-item indicator of career decision status, which correlates strongly and negatively with the 24-item Choice/Commitment Anxiety subscale ( $r = -.71$ ). In other words, those who experience less difficulty committing to or feeling anxious about the career choice process tend to report higher levels of career decidedness. For the purposes of this study, I will measure career indecision using the Choice/Commitment Anxiety (CCA) subscale of the CIP-65.



### Big-Five Personality Constructs

Previous findings have linked the Big Five traits of Neuroticism, Extraversion, and Conscientiousness to the experience of career indecision (e.g., Page, Bruch, & Haase, 2008; Rogers et al., 2008). One useful way of representing the relationship between the Big Five traits and career indecision is the SCCT model of career self-management (Lent & Brown, 2013b; see Figure 1). Within this theory, personality traits, such as Extraversion, Neuroticism, and Conscientiousness from the Big Five, are continuously present over the course of career development, affecting both the experiences that shape career decision self-efficacy and outcome expectations (Path 17) as well as choice-proximal self-efficacy (Path 11) and decisional outcomes (Paths 8, 9, and 12). The linkage between distal and proximal personality influences is shown by Path 19. Agreeableness and Openness were excluded from the current study because they have tended to be the least reliable predictors of career indecision among the Big Five factors (Hartman & Betz, 2007; Martincin & Stead, 2015; Page et al., 2008; Rogers et al., 2007). The theoretical roles of the three Big Five trait personality variables of interest in relation to indecision are detailed below.

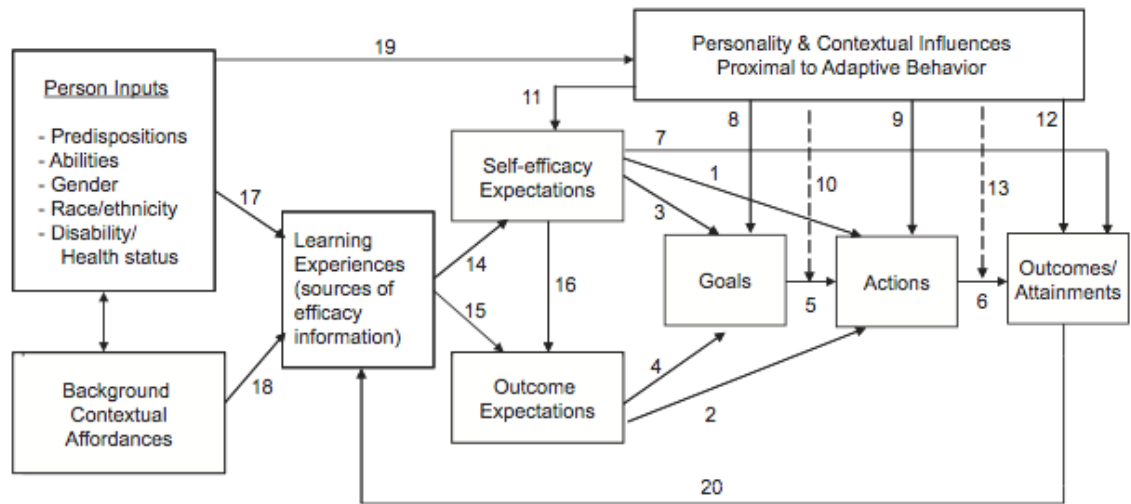


Figure 1. Model of career self-management. Adopted from “Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span,” by R.W. Lent & S.D. Brown, 2013b, *Journal of Counseling Psychology*, 60, p. 562. Copyright 2013 by R.W. Lent & S.D. Brown. Reprinted with Permission.

In the current study, I will be testing only a portion of the SCCT career self-management model, focusing on the relationships between career decision self-efficacy, Neuroticism, Extraversion, Conscientiousness, and career indecision. This portion of the model is presented in Figure 2 below.

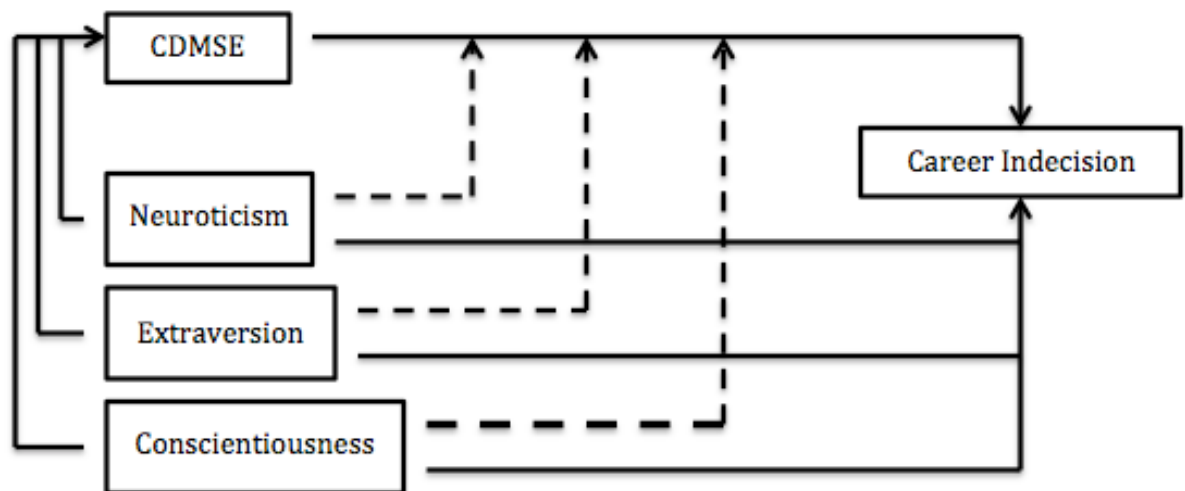


Figure 2. Hypothesized roles of the Big Five factors in relation to career decision self-efficacy and career indecision.

Neuroticism is understood as a lack of positive adjustment and emotional stability, associated with a wide variety of negative emotions (Brown & Hirschi, 2013). Individuals high in Neuroticism tend to be especially attentive to and affected by negative consequences. Tokar, Fischer, and Subich (1998), Vignoli (2015), and Hirschi and Hermann (2013) found higher ratings of Neuroticism to be correlated with higher levels of career indecision. Furthermore, Neuroticism/Negative Affectivity was found to be one of the four factors in Brown et al.'s (2012) meta-analysis of the antecedents of career indecision. Neuroticism is likely to be positively related to career indecision (i.e., the more neuroticism, the greater the indecision) because characteristic feelings of negative affect and vulnerability would cause an individual to feel insecure at various points of the decision-making process. Indeed, in a cluster analysis of students at various points in the career decision-making process, Neuroticism was one of the major characteristics of the "Seriously Undecided" group (Feldt et al., 2011).

Individuals high in Extraversion are characteristically gregarious, assertive, adventuresome, dominant, and ambitious (Brown & Hirschi, 2013). Extraversion is also highly correlated with greater levels of positive emotionality and large friendship networks (Watson & Clark, 1997). Hirschi and Hermann (2013) and Di Fabio et al. (2015) found Extraversion to be negatively related to problems with career decision-making (i.e., those high in Extraversion tend to be less undecided). Feldt et al. (2011) found Extraversion to be a characteristic of students with high potential to become

career-decided. It is likely that Extraversion is negatively correlated with career indecision because the positive affect associated with this trait helps individuals to feel optimistic about their decisions in general. Furthermore, the efficacious social skills of extraverts can help them to better utilize career decision resources like career counselors than introverts.

Finally, Conscientious individuals are likely to be goal-directed, persistent, self-disciplined, and organized (Brown & Hirschi, 2013). They tend to consider situations carefully before acting and are deliberate when they do act (Costa & McCrae, 1992). Hirschi and Hermann (2013) found that higher Conscientiousness was negatively related to problems with vocational identity, decision-making, and information acquisition. Feldt et al. (2011) found that Conscientiousness was characteristic of their “Very Decided” cluster group of students. One explanation for these relationships is that their organization skills and careful deliberation allow Conscientious individuals to make more informed career decisions. Indeed, the planfulness characteristic of the Conscientiousness trait was negatively correlated with the Lack of Readiness indecision factor in the Brown et al. (2012) meta-analysis (i.e., more planful individuals tended to feel more ready to make a career decision).

Collectively, the above findings suggest several hypotheses regarding the linkage of the Big Five traits to career indecision:

*H1: Neuroticism, Extraversion, and Conscientiousness of the Big Five traits will each account for a significant amount of variance in career indecisiveness.*

*H1a: Neuroticism will (a) correlate positively with career indecision and (b) account for unique variance in indecision beyond the other two traits.*

*H1b: Extraversion will (a) correlate negatively with career indecision and (b) account for unique variance in indecision beyond the other two traits.*

*H1c: Conscientiousness will (a) correlate negatively with career indecision and (b) account for unique variance in indecision beyond the other two traits.*

### Career Decision-Making Self-Efficacy

In regard to SCCT's process model of career behavior, career decision-making self-efficacy is specific to the domain tasks of career preparation and entry (Lent & Brown, 2013b) and is also relevant later in the work-life cycle when workers make career changes, either voluntarily or involuntarily. Multiple studies have established the inverse relationship between career decision-making self-efficacy and career indecision (e.g., Betz & Luzzo, 1996; Bullock-Yowell, Andrews, & Buzzetta, 2010; Taylor & Popma, 1990). A recent meta-analysis by Choi et al. (2011) found a weighted average  $r$  of  $-.52$  between career decision-making self-efficacy and career indecision. Career decision-making self-efficacy reflects confidence in one's perceived capabilities to make career-related decisions. Such confidence is to be distinguished from objective decisional skills. However, as with other types of self-efficacy (Bandura, 1986), career decision-making self-efficacy is assumed to help people organize and deploy their skills more effectively.

An individual with a strong sense of career decision-making self-efficacy may say to herself or himself, "I *can* figure out what I'm good at." Having high levels of career decision-making self-efficacy can help individuals to feel more ready to make a career decision (Brown et al., 2012). According to the process model, career decision-making self-efficacy will have a direct effect on career indecision and

indirect effects through goal setting and career decision actions (such as conducting informational interviews; Lent & Brown, 2013b; see Figure 1, Path 7). Therefore, I predict that:

*H2: Career decision-making self-efficacy will be negatively correlated with career indecision.*

### **Relations among the Big Five Factors and Career Decision-Making Self-Efficacy**

Career researchers have examined links between the Big Five traits and career decision-making self-efficacy. Indeed, characteristics of Neuroticism, Extraversion, and Conscientiousness may be related to an individual's development of self-efficacy (see Figure 1, Path 11). For instance, the positive affectivity of Extraversion may interact with previous learning experiences to help extraverts feel more confident in their decisional abilities. The opposite may be true for individuals high in Neuroticism because of their tendencies to experience negative emotion and self-defeat. Conscientious individuals may feel more confident in their decisional abilities because of their tendency to plan and be self-disciplined. Indeed, researchers have found positive relations of both Extraversion and Conscientiousness to career decision-making self-efficacy (Hartman & Betz, 2007; Ojeda et al., 2012; Page et al., 2008; Wang et al., 2006) and negative correlations between Neuroticism and career decision-making self-efficacy (Hartman & Betz, 2007; Page et al., 2008; Robbins, 1985; Wang et al., 2006). Thus, I hypothesize that:

*H3: Three of the Big Five traits will account for a significant amount of variance in Career decision-making self-efficacy, both when tested (a) individually and (b) jointly (i.e., each trait will explain unique variance in career decision-making self-efficacy).*

*H3a: Neuroticism will be negatively correlated with career decision-making self-efficacy*

*H3b: Extraversion will be positively correlated with career decision-making self-efficacy*

*H3c: Conscientiousness will be positively correlated with career decision-making self-efficacy*

*Self-Efficacy as a Mediator of the Relations between Personality and Career*

*Indecision*

Several researchers have investigated career decision-making self-efficacy in relation to personality constructs and career indecision (or related outcomes) (e.g., Bullock-Yowell et al., 2010; Creed, Patton, & Bartrum 2004; Ganske & Ashby, 2007; Smith & Betz, 2002). For example, Solberg et al. (1995) found that career decision-making self-efficacy mediated the relationship between personal agency (a personality variable) and career decidedness. Other researchers have focused specifically on the Big Five personality factors (i.e., Hartman & Betz, 2007; Page et al., 2008; Wang et al., 2006). Rogers et al. (2008) found that career decision-making self-efficacy partially mediated the relations of Conscientiousness and Extraversion to career goals. Wang et al. (2006) found that career decision-making self-efficacy partially mediated the relationships of Neuroticism and Extraversion to career choice commitment. The current study will replicate and extend Wang et al.'s study by including Conscientiousness along with Neuroticism and Extraversion and by assessing career choice commitment with a newly validated measure (the Choice

Commitment/Anxiety scale of the CIP-65). Building on the previous findings, I hypothesize that:

*H4: Career decision-making self-efficacy will mediate the relations of the three Big Five traits to career indecision*

*H4a: The positive relation of Neuroticism to career indecision will be reduced after controlling for career decision-making self-efficacy*

*H4b: The negative relation of Extraversion to career indecision will be reduced after controlling for career decision-making self-efficacy*

*H4c: The negative relation of Conscientiousness to career indecision will be reduced after controlling for career decision-making self-efficacy*

#### *Personality as a Moderator of the Relations between Self-Efficacy and Career*

##### *Indecision*

Research examining personality as a possible moderator of the relation of self-efficacy to career indecision or related outcomes is surprisingly limited. One exception is the Solberg et al. (1995) study described above, which failed to find an interaction effect between career decision-making self-efficacy and human agency (a personality variable) in relation to career indecision. It is possible that personality traits and career decision-making self-efficacy may work in tandem to influence career indecision, yet previous research designs have rarely investigated these relationships.

According to the SCCT process model (Lent & Brown, 2013b; see Figure 1), both career decision-making self-efficacy (Path 7) and personality influences (Path 12) predict career indecision. Furthermore, Guay et al. (2006) have found that Big



Five personality factors and career decision-making self-efficacy are unique constructs, stemming from different sources. Specifically, the Big Five personality constructs are partly biologically determined, pre-existing traits (McCrae et al., 2000), while career decision-making self-efficacy is confidence shaped by domain-specific learning experiences (Lent & Brown, 2013b; Path 14). While career decision-making self-efficacy is associated with lower levels of career indecision, the strength of this relationship may depend on the Big Five traits of Neuroticism, Extraversion, and Conscientiousness. Specifically, I hypothesize that:

*H5: The Big Five traits will moderate the relation of CDMSE to career indecision*

*H5c: Neuroticism will attenuate the negative relation of CDMSE to career indecision such that CDMSE will relate less strongly (and negatively) to career indecision at higher versus lower levels of Neuroticism*

*H5b: Extraversion will accentuate the negative relation of CDMSE to career indecision such that CDMSE will relate more strongly (and negatively) to career indecision at higher versus lower levels of Extraversion*

*H5a: Conscientiousness will accentuate the negative relation of CDMSE to career indecision such that CDMSE will relate more strongly (and negatively) to career indecision at higher versus lower levels of Conscientiousness*

#### *Explanation of Unique Variation in Career Indecision*

Finally, the unique predictive relations of career decision-making self-efficacy and the Big Five Traits to career indecision remain unclear. Because of the matching domain-specificity of career decision-making self-efficacy and career indecision (Bandura, 1997), I hypothesize that:

*H6: CDMSE will account for a larger amount of unique variance in career indecision than does the three Big Five traits.*

## Chapter 3: Method

### Participants

One hundred ninety five undergraduate students who were enrolled in University of Maryland psychology courses signed up for the study, though data from 14 of them were deleted because they had closed their browsers before completing all items. The mean age of the 181 participants was 19.88 (1.65 SD), and the sample was majority female (80.1%). Fifty-five percent of the sample identified as Caucasian American/White, 16.0% identified as Asian American/Pacific Islander, 9.4% identified as African American/Black, 7.8% identified as Hispanic/Latino/a, 0.6% identified as American Indian/Alaskan Native, 5.5% identified as multiracial, and 5.5% indicated “other.” The participants were 25.4% Freshmen, 32.0% Sophomore, 23.8% Junior, 16.0% Senior, and 2.8% in year five or beyond. The Psychology major was the most frequently mentioned of all majors in the sample.

Undergraduates are an ideal population in which to study the career decision process because college is the time that many individuals use to explore and determine their initial career paths. In order to qualify to take the survey, students had to be able to read and respond in English and have access to the Internet. The recruitment letter and informed consent forms are shown in Appendices A and B, respectively.

To calculate sample size necessary to test the hypotheses, I took desired power level (0.80), probability level (0.05), anticipated medium effect size (*f-square* = 0.15), and number of predictors for the tests (7 total: CDMSE, 3 personality

variables, and 3 interactions between each personality variable and CDMSE) into account. I determined the medium effect size based on previous findings in the field. The projected minimum sample size as indicated by the linear multiple regression function in G\*Power statistical software is 103 participants. However, a somewhat larger sample size (at least 150 participants) was sought to allow for more power to detect less than medium effect sizes and to support possible supplementary analyses.

### Measures

#### Career Decision-Making Self-Efficacy

Betz, Klein, and Taylor (1996) initially developed the Career Decision-Making Self-Efficacy Scale short form (CDMSE-SF; 1996). It has been used to assess one's degree of belief that he or she can successfully complete 5 types of tasks necessary to make career decisions. The items measure accurate self-appraisal, gathering occupational information, goal selection, making plans to implement the decision, and problem solving (Betz et al., 1996). One item ("Find information in the library about occupations you are interested in") was updated to be more current by including the phrase "or Internet." Scores are determined by calculating the mean of its 25 items, each of which is scored on a 5-point Likert scale, with 1 = *no confidence at all* and 5 = *complete confidence*. Higher scores indicate a greater degree of CDMSE with a maximum score possible of 5 and a minimum score possible of 1. One sample item from the scale is: "How much confidence do you have in your ability to develop a clear understanding of your work-related skills?"

Betz et al. (1996) reported an overall internal consistency estimate of .94. Similarly strong evidence of internal consistency has been found across studies with

undergraduate samples (e.g., Page et al., 2008; Smith & Betz, 2002; Wang et al., 2006). Test-retest reliability for the original CDMSE scale was .83 after a month and a half interval (Luzzo, 1993). In terms of validity, the scale has also been shown to be inversely related to the Career Indecision Scale (Osipow, Carney, & Barak, 1976) and the identity subscale of My Vocational Situation scale, which assesses the extent of identification with a career decision (Holland et al., 1980). The internal reliability coefficient of the CDMSE in the current study was .92. A copy of this scale is available in Appendix C.

#### Five-Factor Traits

The Big Five Mini-Markers Scales (Saucier, 1994) ask participants to rate the extent to which they identify with adjectives indicating Five Factor traits. There are 40 items on the entire scale, and items are rated on a Likert scale ranging from 1 (*extremely inaccurate*) to 9 (*extremely accurate*). For the purposes of this study, only the Extraversion, Conscientiousness, and Neuroticism subscales were used. These subscales contain 8 items each. Two sample items from the Neuroticism subscale are “Envious” and “Relaxed” (reverse-scored). Two sample items for the Extraversion scale are “Bold” and “Bashful” (reverse-scored). Two sample items for the Conscientiousness scale are: “Systematic” and “Careless” (reverse-scored). Each subscale score is determined by calculating the mean of the items on the subscale. A value of “9” signifies a stronger expression of the subscale trait, while a value of “1” signifies a weaker expression.

The initial coefficient alpha estimates for the Big-Five Mini-Markers scales were .76, .85, and .86 for Neuroticism, Extraversion, and Conscientiousness,

respectively (Saucier, 1994). Palmer and Loveland (2004) reported convergent validity estimates between the Big Five Mini-Markers and the Big Five Questionnaire (another instrument used to measure the Big Five traits) subscales. In particular, the authors reported correlations of .56, .85, and .75, respectively, between the corresponding measures of Neuroticism, Extraversion, and Conscientiousness on the Mini-Markers and Big Five Questionnaire. Furthermore, the authors also found that the Mini-Markers correlated with Life Satisfaction and Emotional Intelligence measures to a degree similar to the Big Five Questionnaire. Mooradian and Nezelek compared the Mini-Markers to the NEO Five-Factor Inventory and found correlations of .54 for the Neuroticism scales, .62 for the Extraversion scales, and .68 for the Conscientiousness scales. Thalmayer and Saucier (2014) found structural support for the Big-Five Mini-Markers across samples in 26 nations. The internal reliability coefficients of the scales in the current study were .79 for Neuroticism, .89 for Extraversion, and .87 for Conscientiousness. Copies of these scales are available in Appendix D.

#### Career Indecision

The Career Indecision Profile – 65-item version (CIP-65; Hacker et al., 2013) is a relatively new measure of career indecision. For the purposes of this study, only the Choice/Commitment Anxiety (CCA) subscale were administered. The CCA subscale contains 24 items that encompass need for occupational information (5 items), need for self-information (5 items), choice anxiety and discouragement (3 items), approach-approach conflict (4 items), and inability to commit (7 items) facets of career indecision. The CCA demonstrates strong Cronbach's reliability estimates

in US ( $\alpha = .96$ , Brown et al., 2012;  $\alpha = .97$ , Hacker et al., 2013) and international ( $\alpha = .97$ , Abrams et al., 2013;  $\alpha = .94$ , Carr et al., 2014) college-age samples. One sample item from the scale is: “I am concerned that my goals may change after I decide on a career.” Participants are asked to indicate on a six-point Likert scale (from “Strongly Disagree” to “Strongly Agree”) the degree to which each item applies to them. Scores are determined by calculating the mean of the 24 items, with higher scores indicating a greater degree of career indecision. The CCA subscale demonstrates a strong negative correlation with the one-item career decidedness item ( $r = -.71$ , Hacker et al., 2013). No test-retest reliability or divergent validity tests have yet been performed with the CIP-65. The internal reliability coefficient for the current study was .96. A copy of the CCA subscale and its accompanying demographics questions can be found in Appendix E.

### Procedure

I recruited undergraduate students through the SONA university research sign-up system. In this platform, students are able to decide among a list of available research studies whether to participate in this study either for extra credit or to satisfy a mandatory research requirement. I administered the battery of surveys through a secure secondary Qualtrics website. Participation was self-selected and voluntary. All contact with participants took place through a consent form and instructions presented before participants began the surveys. The consent form detailed the purpose of the survey to participants (See Appendix B).

## Chapter 4: Results

### Results

Table 1 lists the means, standard deviations, and internal consistency reliability coefficients for the five variables in the study. The means of the personality, self-efficacy, and career indecision scales in this study were all within a standard deviation of those reported by other researchers (e.g., Hacker et al., 2013; Kelly, 2006; Palmer & Loveland, 2004; Rogers et al., 2007; Wang et al., 2006). Each of the variables yielded acceptable reliability estimates ( $\alpha = .79$  to  $.96$ ).

Table 1. Descriptive Statistics and Preliminary Analysis ( $n = 181$ ).

<b>Variable</b>	<b><i>M</i></b>	<b><i>SD</i></b>	<b><math>\alpha</math></b>	<b><i>Skewness</i></b>	<b><i>Kurtosis</i></b>
Career Decision-Making Self-Efficacy	3.57	.57	.92	-.196 (.181)	-.095 (.359)
Extraversion	5.81	1.50	.89	-.393 (.181)	-.180 (.359)
Neuroticism	4.45	1.28	.79	.346 (.181)	.172 (.359)
Conscientiousness	6.68	1.27	.87	-.859 (.181)	1.464 (.359)
Choice/Commitment Anxiety	3.46	1.08	.96	-.098 (.181)	-.739 (.359)

*Note.* Values in parentheses are standard errors.

I tested the bivariate hypotheses (H1, H2, H3) first. As shown in Table 2, all of the variables were significantly intercorrelated at the .05 level, with correlations ranging in size from  $r = -.18$  (between extraversion and choice indecision) to  $r = -.47$  (between self-efficacy and choice indecision), with most reflecting medium effect sizes ( $r = .30$  to  $.35$ ). The pattern of correlations was consistent with hypotheses that



choice indecision would correlate positively with neuroticism (H1a[a]) and negatively with extraversion and conscientiousness (H1b[a] and H1c[a], respectively). The negative correlation between self-efficacy and indecision was consistent with H2. In addition, the correlations of self-efficacy to the personality variables (negative correlation with neuroticism, positive correlations with extraversion and conscientiousness) were consistent with H3a, b, and c.

Table 2. Correlations among Study Variables ( $n = 181$ ).

Variable	1	2	3	4
1. Career Decision-Making Self-Efficacy	--			
2. Extraversion	.32***	--		
3. Neuroticism	-.25**	-.20**	--	
4. Conscientiousness	.35***	.32***	-.32***	--
5. Choice/Commitment Anxiety	-.47***	-.18*	.30***	-.38***

Note. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

To test the multivariate hypotheses in H1, I regressed choice indecision on the three Big-Five personality variables, with all predictors entered together into a single equation. Table 3 presents the beta weights indicating the unique variance explained by each predictor variable. Conscientiousness ( $\beta = -.30$ ) and Neuroticism ( $\beta = .19$ ) both produced significant regression coefficients ( $p < .01$ ), which were consistent with H1a(b) and H1c(b), respectively. However, the coefficient for Extraversion ( $\beta = -.05$ ) was not significant, thereby failing to support H1b(b). Together, the set of predictors accounted for 18% of the variance in choice indecision.

Table 3. Choice/Commitment Anxiety Regressed on Big-Five Variables.

Variable	<i>B</i>	<i>St. Error</i>	$\beta$	<i>t</i>	<i>Sig.</i>
----------	----------	------------------	---------	----------	-------------

(Constant)	4.67	.598	--	7.81	.000
Extraversion	-.033	.052	-.046	-.632	.528
Neuroticism	.158	.060	.189	2.62	.010
Conscientiousness	-.258	.063	-.304	-4.08	.000

To test the multivariate hypotheses in H3, I similarly regressed career decision-making self-efficacy on the three Big-Five variables. I entered all predictors simultaneously. The results are presented in Table 4. Extraversion ( $\beta = .23$ ), Neuroticism ( $\beta = -.13$ ), and Conscientiousness ( $\beta = .23$ ) all produced significant regression coefficients ( $p < .05$ ), which were consistent with H3a(b), H3b(b), and H3c(b). Together, the Big-Five variables accounted for 19% of the variance in career decision-making self-efficacy.

Table 4. Career Decision-Making Self-Efficacy Regressed on Big-Five Variables.

<b>Variable</b>	<b><i>B</i></b>	<b><i>St. Error</i></b>	<b><math>\beta</math></b>	<b><i>t</i></b>	<b><i>Sig.</i></b>
(Constant)	-.001	.068	--	-.012	.990
Extraversion	.227	.071	.228	3.180	.002
Neuroticism	-.130	.071	-.130	-1.814	.010
Conscientiousness	.231	.074	.233	3.130	.000

#### Mediation

I first tested the mediation hypotheses (H4a, b, c) and moderation hypotheses (H5a, b, c) with the following strategy: three hierarchical equations predicting choice indecision were conducted, as recommended by Baron & Kenny (1986). In each case, I entered one of the personality predictors at the first step of the equation, self-efficacy at the second step, and the personality x self-efficacy interaction term at the third step. I then examined the mediation, or indirect, effects more precisely with bias-corrected bootstrapping procedures. (The personality and self-efficacy main

effects terms were standardized before computing the personality x self-efficacy products, so as to reduce multicollinearity between the main effects and interaction terms.)

The first step tested the bivariate relation of the personality variable to choice indecision, while the second step tested the extent to which this relationship is mediated by self-efficacy. That is, a drop in the relation of the personality variable to the criterion variable after entering (or controlling for) self-efficacy suggests that self-efficacy at least partially mediates the personality/criterion relationship. Full mediation is assumed when the predictor/criterion relationship approaches zero in the presence of the mediator variable. The third step (i.e., the addition of the interaction term) was used to test the moderation hypotheses.

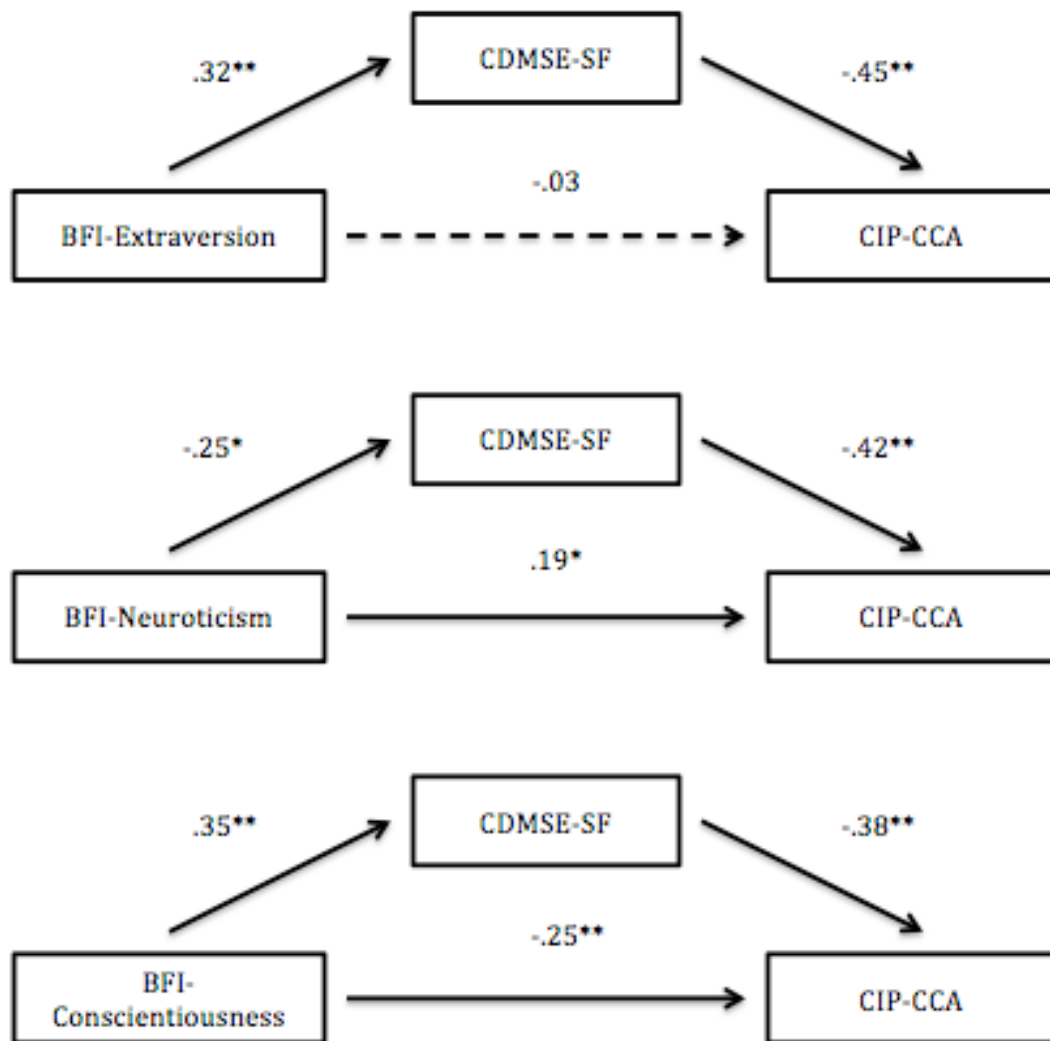
Table 5 presents the results of each regression. In the first regression, Extraversion produced a beta weight of  $-.18$  ( $p < .05$ ) at step 1. However, its beta weight diminished to  $-.03$  ( $p > .05$ ) at step 2, suggesting that self-efficacy fully mediated the relationship between Extraversion and CCA. Results of the other two regressions suggested that self-efficacy partially mediated the (negative) relationship between Conscientiousness and CCA ( $-.38$ ) and the (positive) relationship between Neuroticism and CCA ( $.30$ ). That is, the beta weights of both Neuroticism and Conscientiousness were reduced in size (to  $-.25$  and  $.19$ , respectively), but were still statistically significant, when CDMSE was included as a predictor at step 2. These mediating relationships are shown visually in Figure 3.

Table 5. Summary of Hierarchical Regression Analyses of the Relationship of Self-Efficacy and Personality to Career Choice Indecision

Model	B	SEB	$\beta$	F	df	R <sup>2</sup> change
CCA - Extraversion						
Step 1				6.053*	180	.033*
Extraversion	-.194	.079	-.180*			
Step 2				24.795***	179	.184***
Extraversion	-.033	.075	-.031			
CDMSE	-.492	.076	-.455***			
Step 3				16.541***	178	.001
Extraversion	-.040	.077	-.038			
CDMSE	-.490	.076	-.453***			
Interaction	-.033	.068	-.033			
CCA - Neuroticism						
Step 1				17.341***	180	.088***
Neuroticism	.318	.076	.296***			
Step 2				29.916***	179	.163***
Neuroticism	.206	.072	.192**			
CDMSE	-.450	.072	-.417***			
Step 3				21.256***	178	.013
Neuroticism	.217	.072	.202**			
CDMSE	-.455	.072	-.421***			
Interaction	.117	.065	.116			
CCA - Conscientiousness						
Step 1				30.312***	180	.144***
Conscientiousness	-.408	.074	-.380***			
Step 2				33.129***	179	.126***
Conscientiousness	-.266	.073	-.248***			
CDMSE	-.409	.074	-.379***			
Step 3				24.190***	178	.019*
Conscientiousness	-.289	.073	-.269***			
CDMSE	-.407	.073	-.376***			
Interaction	-.147	.067	-.141*			

Note. CCA = Choice/Commitment Anxiety; CDMSE = career decision-making self-efficacy; Interaction = CDMSE X Big Five Trait  
 \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

Figure 3. Direct and Mediated Relations of the Big-Five Predictors to Career Indecision.



*Note.* CDMSE-SF = Career Decision-Making Self-Efficacy – Short Form; BF-Extr = Big-Five Mini-Markers Extraversion Scale; Big-Five Mini-Markers Neuroticism Scale; BF-Cons = Big-Five Mini-Markers Conscientiousness Scale; CIP-CCA = Career Indecision Profile – Career Choice Anxiety.  
 \* $p < .01$ .; \*\* $p < .001$ .

I tested the significance of the indirect, or mediated, effect of each personality variable on indecision (via self-efficacy) with the bias-corrected bootstrapping procedures of the PROCESS macro (Hayes, 2013). Specifically, I ran three models, using career indecision as the dependent variable, self-efficacy as the mediator variable, and one Big Five personality trait at a time as the independent variable. The

macro produced 5000 bootstrap samples and a 95% confidence interval for each model. Table 6 presents the unstandardized regression coefficients reflecting the indirect effects of the Big Five variables through CDMSE. Each of the indirect effects were significant (i.e., none of the confidence intervals contained a value of zero).

Together, results of the mediation analyses were consistent with H4a, b, and c.

Table 6. Indirect Effects of Big-Five Predictors on CCA Mediated by CDMSE

<b>Predictor</b>	<b>Effect</b>	<b>Boot SE</b>	<b>BootLLCI</b>	<b>BootULCI</b>
Extraversion	-.1078	.0294	-.1725	-.0567
Neuroticism	.0882	.0281	.0393	.1486
Conscientiousness	-.1126	.0295	-.1800	-.0635

*Note.* LLCI = Lower limit of confidence interval; ULCI = Upper limit of confidence interval

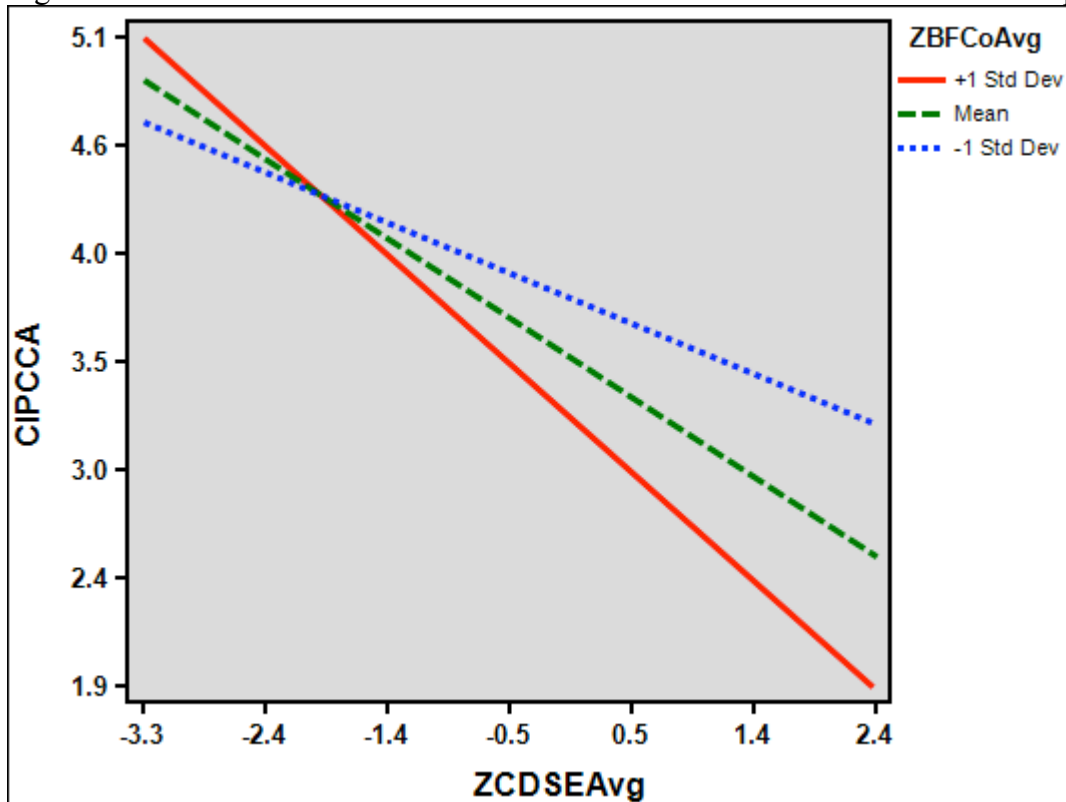
#### Moderation

Turning to the moderation hypotheses, step 3 of the hierarchical regression results displayed in Table 5, above, indicated that neither the self-efficacy x Extraversion or self-efficacy x Neuroticism interaction terms were significant (respectively,  $\beta = -.04$  and  $\beta = .12$ ,  $p > .05$ ). Therefore, neither of these personality variables moderated the relationship of self-efficacy to choice indecision, thereby failing to support H5a and b. However, the self-efficacy x Conscientiousness interaction was significant ( $\beta = -.14$ ,  $p < .05$ ), accounting for an additional 2% of the variance beyond the main effects terms.

To examine the nature of the interaction, I plotted the slopes of the CDMSE/choice indecision relationship at 1 SD above the mean, at the mean, and at 1 SD below the mean of Conscientiousness (Aiken & West, 1991). The findings indicated that, while self-efficacy was related negatively to indecision at each level of the moderator, the relationship was stronger at higher versus lower levels of

Conscientiousness (simple slopes were, respectively,  $B = -.56, -.41, -.26, p < .05$ ). That is, consistent with H5c, self-efficacy predicted indecision especially well among participants with higher levels of Conscientiousness. This relationship is shown graphically in Figure 4.

Figure 4. Conscientiousness as a Moderator of the CDMSE/Indecision Relationship



Unique Variance

Finally, to determine whether the personality variables or CDMSE contribute more unique variance to CCA, I regressed both sets of variables on CCA in alternating order and changes in R-squared were compared. In other words, I entered the personality variables on step 1 and CDMSE on step 2 to determine the change in R-square in one equation. Then I performed the reverse order of entry in the second

equation. The larger change in R-square would indicate more unique predictive ability for the corresponding step-2 variable(s). When I entered CDMSE at the second step, it accounted for 11% additional variance; when I entered the set of personality variables at the second step, it explained 7% unique variance above and beyond CDMSE. That CDMSE accounted for 4% more unique variance in indecision beyond personality is consistent with H6.



## Chapter 5: Discussion

### *Findings*

In the current study, I sought to contribute a more detailed understanding of the nature of the joint relationships of the Big Five traits and career decision-making self-efficacy to career indecision. Results indicated that conscientiousness and neuroticism relate to career indecision both directly and indirectly through self-efficacy. However, the relationship of extraversion to indecision was fully mediated by self-efficacy. In addition, the relationship between self-efficacy and career indecision was strengthened in the presence of high conscientiousness.

#### Extraversion

Extraversion proved to be weakly related to career indecision in the presence of other personality variables, which was contrary to expectations. Specifically, after controlling for Neuroticism and Conscientiousness, the correlation between Extraversion and career indecision became non-significant. It may be that Extraversion plays roles that are similar to Conscientiousness and Neuroticism in relation to career indecision. For example, those high in Extraversion, like those high in Conscientiousness, may be more inclined to turn to others for assistance in order to fulfill personal goals. Also, those high in Extraversion, like those low in Neuroticism, may be less impeded by negative affect in the decision-making process.

This may help to explain why Extraversion did not explain unique variation in career indecision over and above the other predictors in this sample.

#### Neuroticism

Consistent with hypotheses, Neuroticism contributed unique variance to career indecision, even in the presence of the other personality variables and career decision-making self-efficacy. High levels of Neuroticism likely play an important role in contributing to career indecision, making the task feel overwhelming and career choices seem undesirable. It was found that career decision-making self-efficacy partially mediated the correlation between Neuroticism and career indecision. It may be that Neuroticism stunts career decision-making self-efficacy by serving as a cognitive filter that neutralizes the effects of career decision-making mastery experiences. This, in turn, contributes to less confidence in making a career decision and higher career indecision. As with Extraversion, there was no interaction found between Neuroticism and career decision-making self-efficacy in relation to career indecision. The negative relation between self-efficacy and career indecision held true across all levels of Neuroticism. In other words, individuals appeared to benefit from an increased sense of self-efficacy in the career decision-making process, despite their degree of Neuroticism.

#### Conscientiousness

Conscientiousness produced the largest beta weight among the three Big-Five personality predictors of indecision ( $\beta = -.30$ ;  $p < .001$ ). The planful and organizational aspects of Conscientiousness conceivably aid individuals in sorting

through the career decision-making process. The relation of this trait to indecision was found to be partially mediated by career decision-making self-efficacy.

Conscientiousness may contribute to a feeling of confidence in one's abilities to make a career decision, which in turn relates to self-ratings of career indecision. Through the moderation analysis, Conscientiousness was also shown to interact with career decision-making self-efficacy such that high levels of both Conscientiousness and CDMSE contributed to a lower report of career indecision than either predictor alone. Those who are both confident in their own abilities and who demonstrate conscientious behaviors reported lower levels of career indecision.

#### Career Decision-Making Self-Efficacy

Career decision-making self-efficacy contributed more unique variance than the set of personality variables to the prediction of career indecision and also served as a full (Extraversion) or partial (Conscientiousness, Neuroticism) mediator of the relations of the personality variables to indecision. One's own beliefs in being able to make a career decision appear to make a greater contribution to the career decision-making process than do the personality variables alone. To some degree, the predictive ability of the personality variables is determined by the degree to which they contribute to confidence in one's abilities to make a career decision. Contrary to expectations, CDMSE only interacted significantly with Conscientiousness and not Neuroticism or Extraversion, as predicted. Those who are high in decision-making self-efficacy may benefit even more by increasing their Conscientiousness behaviors, such as making plans and sticking to goals. Those high in Neuroticism and low in Extraversion may struggle with coming to a career decision, yet they may be able to

compensate by increasing their self-efficacy through mastery experiences or mentoring relationships.

### Implications

The implications for researchers are that CDMSE operates jointly with personality variables in nuanced ways. As a domain-specific predictor, it possesses utility as a major contributor to the variance in career indecision, and as a full or partial mediator of the relations of Extraversion, Neuroticism, and Conscientiousness to career indecision. Currently, the overall SCCT Career Decision-Making Self-Management Model proposes the mediation path from personality variables to career decision-making outcomes (Paths 7 and 11). In tests of the full model, the interaction effect between career decision-making self-efficacy and conscientiousness should be examined. If the results are replicated in a test of the full model, then the moderation effect should be included in the theoretical model. For practitioners, the findings of this study suggest that interventions directed toward improving an individual's degree of self-confidence in making a career decision, such as through creating mastery experiences and modeling (Bandura, 1997), can be beneficial to individuals across levels of Extraversion and Neuroticism and, especially, at high levels of Conscientiousness. For individuals with high degrees of Neuroticism, interventions might also be geared toward helping them to cope with feelings of negativity and catastrophizing that may interfere with the decision-making process.

### Limitations

One potential limitation of this study is the fact that students self-selected whether to participate. As a result, the findings can be affected by unknown qualities of those who choose to participate, thereby creating a threat to construct validity. Furthermore, the fact that the sample was composed of students taking introductory psychology courses limits the generalizability of the results. In other samples, such as individuals transitioning from one career to another, Extraversion may be a unique predictor in its own right. Other limitations include the fact that participants self-reported on all variables, and I chose a design that was cross-sectional in nature. As a result, the findings do not imply temporal precedence or causality. Researchers could use a longitudinal design in the future to test more adequately for mediation.

### Future Directions

One future direction for research in this field is to examine the longitudinal effects that Big Five personality variables play in the formation of career decision-making self-efficacy beliefs. Given the indirect effects found when career decision-making self-efficacy was applied as a mediator of the relation between the Big Five traits and career indecision, it stands to reason that personality traits play a role in the formation of self-efficacy beliefs in the career decision domain. An individual's personality traits may alter the impact that learning experiences have on self-efficacy beliefs (Path 14, Figure 1). For example, an individual high in Neuroticism may not experience a mastery experience in a positive way. Because of the strength of the relationship between career decision-making self-efficacy and career indecision,

researchers should seek to understand the factors that influence the formation of these confidence beliefs in future studies. Researchers should also seek to differentiate chronic and developmental typologies of indecision. The four subscales of the CIP-65 may offer fruitful ways to measure different types of indecision, such as chronic and developmental indecision. Furthermore, other variables, such as social support and barriers, may interact in nuanced ways with career decision-making self-efficacy. The SCCT career self-management model may be useful in further research examining the process of coming to a career decision over time.

# Appendices

## Appendix A

### Extended Literature Review

In the following sections, I will review the most current research on my study variables of interest. Specifically, I will begin with the development of career indecision (the dependent variable) as a construct, followed by a review of the measurement and factor structure of career indecision. Next, I will review the current literature on the independent variables (Big Five personality factors and career decision-making self-efficacy) and their relationships both to each other and to career indecision. Following this, I will explore the current literature on self-efficacy as a potential mediator and moderator of the relations between the Big Five variables and career indecision. Finally, I will conceptualize the hypotheses of the study within a Social Cognitive Career Theory (SCCT) framework.

#### *Career Indecision*

Deciding on and committing to a career is a significant struggle for many undergraduate students. Roughly half of students struggle with the career decision-making process in college (Gianakos, 1999). This is likely because the college setting offers many options for career paths. Students also feel pressured to come to a decision before leaving college and entering the workforce. Many negative outcomes are associated with the difficulty or inability to make a career decision, including anxiety (Brown & Rector, 2008; Miller & Rottinghaus, 2014; Saka, Gati, & Kelly, 2008), depressive symptoms (Rottinghaus, Jenkins, & Jantzer, 2009; Walker III & Peterson, 2012), financial costs, and delayed degree completion for students. For over

a century, vocational researchers have investigated the antecedents and characteristics of the career decision-making process, with the goal of lessening the state of career indecision.

Parson (1909) first conceptualized the decision-making process as consisting of three parts. According to Parson, an individual comes to a career decision by (a) understanding one's own personal attributes, (b) learning about the qualifications and conditions of different occupations, and (c) reconciling these two sources of information. Essentially, the individual is seeking a good fit between his/her own vocational interests, skills, and values and the interests, skills, and values characteristic of specific careers. While other researchers have examined the career decision-making process from various perspective, such as career interests (e.g., Holland & Holland, 1977), personal agency (e.g., Hacket & Betz, 1981), and social justice (e.g., Hartung & Blustein, 2002), Parson's model still serves as the basic underlying structure. Therefore, the state of career indecision is defined as the difficulty or inability to learn about the self, learn about careers, and integrate both sources of information to make a career decision (Kelly & Lee, 2002; Miller & Rottinghaus, 2014).

***Measurement and factor structure of career indecision.*** Researchers have designed various measures in an attempt to capture aspects of the career decision-making process for college students. The Career Decision Scale (CDS), designed by Osipow et al. (1976; Osipow, 1987), measures two dimensions: identity diffusion and positive choice conflict. Identity diffusion refers to discouragement or uncertainty regarding the decision-making process, and positive choice conflict captures



difficulty in selecting one of several appealing career options. The Career Decision Profile (CDP; Jones, 1989), previously called the Vocational Decision Scale (VDS; Jones, 1977) was designed to assess four reasons that students remain indecisive: self-clarity, knowledge about occupations and training, decisiveness, and career choice importance. The Career Decision Inventory Australian Version (CDI-A) assesses two dimensions of the process for high school students: career planning undertaken and range and usefulness of career exploration undertaken (Lokan, 1984). The My Vocational Situation Scale (MVS) features a subscale of decision-making (three items) along with identity, perceived barriers, and information subscales (Holland, Daiger, & Power, 1980). Finally, the 19-item Vocational Exploration and Commitment (VECS) subscale of the Commitment to Career Choice Scale assesses the range of progress from an exploratory and uncommitted posture up to a highly committed posture (Blustein, Ellis, & Devenis, 1989). Each of these measures examines some key aspects of the decision-making process. Many researchers resort to using more than one career indecision measure in order to better capture several facets of the construct (e.g., Di Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013; Wang, Jome, Haase, & Bruch, 2006).

Guay et al. (2006) distinguished between college students who are developmentally indecisive and those who are chronically indecisive. Specifically, developmentally indecisive individuals will change in their levels of indecisiveness over time as they gather more career and self-knowledge, yet chronically indecisive individuals tend to remain at a stable level of indecision over time (Dysinger, 1950; Van Matre & Cooper, 1984). Thus, the career decision-making process can differ

between individuals depending on the nature of their indecision. Until recently, career indecision measures focused on only the developmental conceptualization of indecision or did not differentiate between the two, such as the popular Career Decision Scale (CDS, Osipow, 1987). To better understand variation in career decision-making, many vocational researchers have investigated the underlying dimensions of career indecision.

In an exploratory factor analysis with undeclared first-year college students, Kelly and Lee (2002) combined the three most common career indecision scales at the time: namely, the Career Decision Scale (CDS; Osipow, 1987), the Career Factors Inventory (CFI; Chartrand, Robbins, Morrill, & Boggs, 1990), and the Career Decision-Making Difficulties Questionnaire (CDMQ; Gati, Krausz, & Osipow, 1996). Kelly and Lee (2002) found six underlying factors of career indecision from these three measures, which are: lack of information, need for information, trait indecision, disagreement with others, identity diffusion, and choice anxiety. Lack of information entails not possessing knowledge about the decision-making process, the self, and avenues for acquiring further career-related information. Need for information also describes a deficit in career knowledge, yet it differs from the “lack of information” dimension in the degree of personal importance and urgency placed on the information. For example, an individual actively working to make a career decision may need to know the average salaries of different engineering professions, yet another individual not engaged in the process may merely lack the information. Trait indecision according to Kelly and Lee (2002) “reflects chronic and pervasive difficulty in making decisions” (p. 319). Disagreement with others is an aspect of

indecision that appears later in the process when significant others disagree with the individual's career choices. Identity diffusion entails difficulty with integrating self-knowledge and career knowledge. Finally, choice anxiety describes the affective discomfort experienced for some when making a career decision.

Nauta (2012) replicated Kelly and Lee's exploratory factor analysis with a mixed sample of declared and undeclared majors and found a five-factor structure of career indecision. Specifically, Kelly and Lee's identity diffusion dimension failed to form a unique factor in Nauta's study. Nauta suggested that the identity diffusion dimension may be less stable with individuals who have already made a small career commitment in the form of the college major.

Brown and Rector (2008) identified a competing four-factor model of career indecision sources derived from a meta-analysis of 28 career indecision studies. Brown et al. (2012) found support for the four-factor structure by administering 167 items from 35 career indecision measures (CIP-167) to a sample of college students; they confirmed this structure by re-examining published data sets. Hacker, Carr, Abrams, and Brown (2013) then created and validated a shorter version with 65 items, known as the Career Indecision Profile-65 (CIP-65). The four factors of the profile were labeled Neuroticism/Negative Affectivity, Choice/Commitment Anxiety, Lack of Readiness, and Interpersonal Conflicts.

Neuroticism/Negative Affectivity is conceptualized as a chronic indecision factor typical of persons who focus on the negative aspects of career options and thereby see few good options. Choice/Commitment Anxiety is another kind of chronic indecision used to represent maximizer tendencies. In other words, persons

who score high on this factor see many good options and fear losing out on options they may later regret not choosing (Dahling & Thompson, 2012). The Lack of Readiness factor describes a type of developmental career indecision in which persons lack planfulness, goal directedness, and career decision-making self-efficacy beliefs. Finally, the Interpersonal Conflicts factor encompasses external sources of conflict in the form of discrimination and disapproval of commitment choices by significant others. The benefits of the CIP-65 over other measures of indecision include its empirical basis (distilling the essences of prior measures of career indecision), Cronbach's alpha ratings between .88 and .97 for each of the four factors, and inclusion of both developmental and chronic dimensions of career indecision (Hacker et al., 2013).

Unfortunately, popular measures of career indecision may confound decisional status with reasons for being undecided. For example, "I know what I'd like to major in but I don't know what careers it can lead to that would satisfy me" (CDS, Osipow, 1987), measures both decisional status and lack of career knowledge. Decisional status items, such as "How decided about your career direction are you at this point in time?" found in the CIP-65, better capture the construct of decisional status. Interestingly, the Choice/Commitment Anxiety (CCA) subscale of the CIP-65 demonstrates a strong negative correlation with the decisional status item ( $r = -.77$ , Hacker et al., 2013). This suggests that a decisional status component may be present in the CCA (i.e., construct overlap). It may also suggest that anxiety and hesitation to make choices are particularly compelling reasons for career indecision status.

In sum, career decision-making is conceptualized as a process in which individuals must integrate personal knowledge with career knowledge in order to arrive at a career choice. Researchers have found a diverse array of factors that correlate with career indecision, such as domain knowledge, external barriers, personality variables, and social cognitive resources (e.g., planfulness, self-efficacy). Furthermore, these correlational factors can be conceptualized as either developmental indecision factors that will change with time or chronic indecision factors that will remain relatively constant. While some measures tend to confound career decision status with the factors that may be responsible for it (e.g., difficulties in making decisions generally), it is useful to distinguish between these constructs (i.e., decision status and type of/reasons for indecision). The following section will describe two important contributing factors to career indecision (as it is reflected by various measures of indecision): Big Five personality constructs and career decision-making self-efficacy.

### ***Personality and Social Cognitive Antecedents of Indecision***

Choosing and committing to a career is a multi-dimensional process. Many factors contribute to the process at varying levels of influence. At the macro-level, economic incentives and racial stereotyping can limit perceived career opportunities (Hartung & Blustein, 2002). At the meso-level, external barriers (e.g., Creed, Patton, & Bartrum, 2004), educational opportunities (e.g., Hartung & Blustein, 2002), and parental pressure (e.g., Braunstein-Bercovitz, Hedva, Benjamin, Asor, & Lev, 2012) can also exert influence at various stages in the process. Such macro- and meso-level factors serve as an environmental context, interacting dynamically with factors at the

individual level. At the individual level, personality and social-cognitive factors may help determine how actively individuals will seek out information and how comfortable individuals feel making a choice. Certain Big Five personality factors and career decision-making self-efficacy are typically used to capture the personality and social-cognitive variables of the process, respectively. Solberg et al. (1994) ran a principal components analysis and found that the two constructs are relatively distinct. This section will describe the constructs and summarize how they have been found to relate to career indecision research.

Personality is conceptualized as the relatively stable tendencies of thinking, feeling, and acting that are largely shaped by biology (McCrae et al., 2000). While these tendencies can be changed over time by the environment (Caspi, Roberts, & Shiner, 2005), they are commonly treated as relatively fixed. There are five basic dimensions of personality, known as the Big Five: neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1992). All personality constructs, such as shyness and perfectionism, tend to load on these five dimensions (Costa & McCrae, 1992). These Big Five personality dimensions have been found to contribute to a number of vocational outcomes, such as unemployment (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007) and career satisfaction (Ng, Eby, Sorensen, & Feldman, 2005). As a result of their stable nature, Di Fabio et al. (2013) found that Big Five traits explain more variance in chronic career indecisiveness than developmental career indecision. The three Big Five Dimensions of Neuroticism, Extraversion, and Conscientiousness have specifically been found to contribute to the career decision-making process (Brown & Hirschi, 2013).

**Neuroticism.** Neuroticism is understood as a lack of positive adjustment and emotional stability; it is associated with a wide variety of negative emotions (Brown & Hirschi, 2013). Individuals high in Neuroticism tend to be especially attentive to and affected by negative consequences. In a cluster analysis of students at various points in the career decision-making process, Neuroticism was one of the major characteristics of the “Seriously Undecided” group (Feldt et al., 2011).

In their review of the personality and vocational literature between the years 1993-1997, Tokar, Fischer, and Subich (1998) found higher ratings of Neuroticism to be correlated with higher levels of career indecision ( $r = 0.34$ ; Hirschi & Hermann, 2013). Various unidimensional measures of career indecision have been found to be positively correlated with measures of neuroticism, including the Vocational Decision Scale (O’Hare & Tamburri, 1986), the Vocational Exploration and Commitment subscale of the Commitment to Career Choice Scale (Wang, Jome, Haase, & Bruch, 2006; Page, Bruch, & Haase, 2008), the Career Development Inventory Australian version (Rogers, Creed, & Glendon, 2008), and the My Vocational Situation scale (Hirschi & Hermann, 2013). Neuroticism is likely to be positively related to career indecision (i.e., the more neuroticism, the greater the indecision) because characteristic feelings of negative affect and vulnerability would cause an individual to feel insecure in various points of the decision-making process.

**Extraversion.** Individuals high in Extraversion are characteristically gregarious, assertive, adventuresome, dominant, and ambitious (Brown & Hirschi, 2013). Extraversion is also highly correlated with greater levels of positive emotionality and large friendship networks (Watson & Clark, 1997). Feldt et al.

(2011) found Extraversion to be a characteristic of students with high potential to become career-decided. Hirschi and Hermann (2013) found Extraversion to be negatively related to problems with career decision-making (i.e., those high in extraversion tend to be less undecided;  $r = -0.17$ ). As with neuroticism, many researchers have examined extraversion in its relationships to measures of career indecisiveness. All found a significant negative relationship between extraversion and career indecision. These include the Vocational Exploration and Commitment subscale of the Commitment to Career Choice Scale (Wang, Jome, Haase, & Bruch, 2006), the Career Decision Scale (Wang, Jome, Haase, & Bruch, 2006), the Career Development Inventory Australian version (Rogers, Creed, & Glendon, 2008), the Indecisiveness Scale (Frost & Shows, 1993), the Career Decision-making Difficulties Questionnaire (Di Fabio et al., 2013) and the My Vocational Situation scale (Hirschi & Hermann, 2013). It is likely that Extraversion is negatively correlated with career indecision because the positive affect associated with this trait can help individuals to feel more optimistic about their decisions in general. Furthermore, the efficacious social skills of extraverts can help them to better utilize career decision resources like career counselors than do introverts.

***Conscientiousness.*** Conscientious individuals are likely to be goal-directed, persistent, self-disciplined, and organized (Brown & Hirschi, 2013). They tend to consider situations carefully before acting and are deliberate when they do act (Costa & McCrae, 1992). Hirschi and Hermann (2013) found that higher Conscientiousness was negatively related to problems with vocational identity, decision-making, and



information acquisition ( $r = -.016$  for decision-making). Feldt et al. (2011) found that Conscientiousness was characteristic of their “Very Decided” cluster of students.

Many researchers have found a negative correlation between measures of conscientiousness and measures of career indecision (e.g., Page Bruch, & Haase, 2008; Rogers, Creed, & Glendon, 2008; Hirschi & Hermann, 2013). One explanation for these relationships is that their organization skills and careful deliberation allow conscientious individuals to make more informed career decisions. Indeed, the planfulness characteristic of the conscientiousness trait was negatively correlated with the Lack of Readiness indecision factor in the Brown and Rector (2008) meta-analysis (i.e., more planful individuals tended to feel more ready to make a career decision).

Overall, researchers have explored the relation of personality to career indecision. Findings suggest that neuroticism is positively correlated with career indecision, while extraversion and conscientiousness are negatively correlated with career indecision. Similar findings are expected with a measure of career decisional status.

***Career Decision-Making Self-Efficacy.*** According to Social Cognitive Theory, individuals are engaged in a reciprocal relationship with the social environment, such that cognitions and motivations are both affected by and exert influence over the environment (Bandura, 1986). In specific life domains, such as relationships or careers, individuals learn from their social environments that they are capable, to varying degrees, of performing the actions necessary to achieve goals (Bandura, 1997). The social environment teaches them through mastery experiences,

verbal persuasion, and modeling, and these interact with the emotional state of the individual (Bandura, 1986). Through these learning experiences, individuals become more or less confident, or self-efficacious, regarding their capabilities in different performance domains and tasks (Bandura, 1997).

The most commonly used measure of career decision-making self-efficacy is the Career Decision-Making Self-Efficacy Scale – Short Form (CDMSE-SF, Betz, Klein, & Taylor, 1996). This scale assesses one's degree of belief that he or she can successfully complete tasks necessary to make career decisions. The items measure self-efficacy regarding accurate self-appraisal, gathering occupational information, goal selection, making plans to implement the decision, and problem solving (Betz et al., 1996). The strength of this measure lies partly in the fact that its items reflect Parson's (1909) decision-making process elements. Domain-specificity is necessary in order for the self-efficacy of a particular domain to be fully captured (Bandura, 1986; Lent & Brown, 2006).

The CDMSE-SF scale has been found to correlate significantly with many measures of developmental career indecision (e.g., Choi, Park, Yang, Lee, Lee, & Lee, 2011). These scales include My Vocational Situation Scale (Wang, Jome, Haase, & Bruch, 2006), the Career Decision Profile (Solberg, Good, Fischer, Brown, & Nord, 1995), the Career Development Inventory Australian Version (Rogers, Creed, & Glendon, 2008), the Vocational Exploration and Commitment subscale of the Commitment to Career Choice Scale (Wang, Jome, Haase, & Bruch, 2006; Page, Bruch, & Haase, 2008), and the Career Decision Difficulties Questionnaire (Di Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013). All of these studies reported a negative

correlation between career decision-making self-efficacy and the measure of career indecision (e.g., Page, Bruch, & Hasse, 2008;  $r = -0.60$ ).

**Big Five and CDMSE.** This section will summarize findings on the relations between the Big Five and the CDMSE-SF scale. Neuroticism, with its trait negative emotions and feelings of vulnerability, is conceptualized as negatively related to self-efficacy in completing career decision tasks (Brown & Hirschi, 2013; Page, Bruch, & Haase, 2008; Peidmont, 1998). Many researchers have found a significant negative relationship between the neuroticism subscale of the Big-Five personality factors and the CDMSE-SF (e.g., Page, Bruch, & Haase, 2008;  $r = -0.28$ ). A negative relationship has also been found between the CDMSE-SF and the NEO Five-Factor Inventory (NEO-FFI, Costa & McCrae, 1992; Hartman & Betz, 2007; Rogers, Creed, & Glendon, 2008; Wang et al., 2006) and between the CDMSE-SF and the International Personality Item Pool (IPIP-NEO, Goldberg et al., 2006; Bullock-Yowell, Andrews, & Buzzetta, 2010). It is possible that high trait neuroticism undermines confidence in one's decision-making capabilities.

Extraversion has been assumed to correlate positively with career decision-making self-efficacy. Individuals with high trait extraversion are more likely to have a positive outlook and to muster social resources toward career decision-making, thereby bolstering their sense of self-efficacy (Brown & Hirschi, 2013; Peidmont, 1998). It is also likely that the domain-specific confidence of CDMSE mobilizes the general positive outlook and social resources of extraversion toward making a career decision. Researchers have found a significant positive relationship between the CDMSE-SF and Extraversion subscales of the Big Five Inventory (e.g., Page, Bruch,

& Haase, 2008;  $r = 0.32$ ), the NEO Five Factor Inventory (Hartman & Betz, 2007; Rogers, Creed, & Glendon, 2008; Wang et al., 2006), and the International Personality Item Pool (Bullock-Yowell, Andrews, & Buzzetta, 2010).

Conscientiousness and career decision-making self-efficacy are also related. Individuals high in trait conscientiousness are organized, disciplined, and aware (Brown & Hirschi, 2013; Piedmont, 1998). These conscientious characteristics are beneficial for navigating the decision-making process. Individuals possessing this trait will likely feel more confident in completing career decision-making tasks, such as researching career information and education requirements. Researchers have found a significant positive relationship between the CDMSE and the conscientiousness subscales of the Big Five Inventory (e.g., Page, Bruch, & Haase, 2008;  $r = 0.43$ ), the NEO Five Factor Inventory (Hartman & Betz, 2007; Rogers, Creed, & Glendon, 2008), and the International Personality Item Pool (Bullock-Yowell, Andrews, & Buzzetta, 2010).

Researchers have also found other personality constructs to be related to CDMSE. For example, Ganske and Ashby (2007) found a significant positive correlation between CDMSE and adaptive perfectionism, and Hsieh and Huang (2014) found that proactive personality correlated positively with the CDMSE. These personality constructs are amalgamations of Big Five traits, making it difficult to determine which specific traits are contributing to the relationships. One of the benefits of using a measure like the Big Five Inventory is its ability to isolate individual traits in relation to CDMSE and career indecision (Costa & McCrae, 1992

### ***Nature of Relations among Self-Efficacy and Personality***

Research findings have established bivariate relations between the CDMSE, certain Big Five traits, and career indecision. However, it is also important to consider the different roles that self-efficacy and personality may play in relation to career indecision. That is, rather than acting as independent antecedents of career indecision, it is possible that self-efficacy and personality factors operate together to predict and explain career indecision (Lent & Brown, 2013). Two possibilities are that the CDMSE mediates and/or moderates the relation of personality to career indecision. This section will examine previous research relevant to these mediating and moderating possibilities.

***Mediation.*** Rogers et al. (2008) examined two aspects of the career decision-making process – career planning and career exploration – with a sample of 414 Australian high school students in grades 10, 11, and 12. The sample was mostly white (90%) and the majority of participants were female (55%). The researchers had participants fill out a measure of career planning and exploration, the CDMSE-SF, and all five Big-Five personality constructs (NEO-FFI). Results indicated that CDMSE partially mediated the relationship between conscientiousness and career planning, (i.e., the beta weight was reduced from 0.36 to 0.21 after entering CDMSE into the equation). They also found that the CDMSE partially mediated the relations of conscientiousness and extraversion to career exploration. The researchers did not find a significant relationship between neuroticism and the career process variables of planning and exploration. Therefore, there was no relationship for the CDMSE to mediate in these instances.

It should be noted that the Rogers et al.'s (2008) findings, while relevant to the current study, did not employ career indecision as the dependent variable. Rather it focused on students' self-reports of their planning and exploration behavior. Moreover, their study involved high school, rather than college, students. It may be that neuroticism is more likely to be related to career indecision (which may partly reflect affective and trait-like difficulties with decision-making) than it is to relate to engagement in planning and exploring activities. In addition, it is possible that college students are more likely than 10<sup>th</sup> or 11<sup>th</sup> grade students to be concerned about making career-related decisions. Hence, the focus of the current study on college students' career indecision.

Wang et al. (2006) investigated CDMSE as a mediator of the relations of both extraversion and neuroticism to career choice commitment. They administered the CDMSE-SF, the extraversion and neuroticism subscales of the NEO-FFI, and three indicators of choice commitment (the VECS, the CDS, and the MVS) to a sample of 184 college undergraduates. The sample consisted of 54% White students, 47% male students, and 25% freshman, 21% sophomore, 22% junior, and 32% senior students. After aggregating the minority members of the sample into one sample of students of color, Wang et al. were able to statistically compare their mediation model between white students and students of color.

Wang et al. (2006) found that CDMSE fully mediated the relationship between extraversion and career choice commitment among white students and partially mediated the relationship between extraversion and career choice commitment among students of color. The CDMSE was not shown to mediate the

relationship between neuroticism and choice commitment in white students, though it partially mediated this relationship in students of color. Together, these findings suggest that CDMSE's role as mediator of personality-indecision relations may depend on the specific personality factor as well as on students' racial/ethnic group status. Unfortunately, Wang et al. did not include a measure of conscientiousness in their study. Moreover, Wang et al. (2006) reported that 89% of their sample had already declared a major, and 52% had already decided on a career. Thus, it is possible that their findings were affected by the fact that many of their participants were not in the active stage of career decision-making.

Overall, there is some support for the hypotheses that CDMSE will mediate the relations of neuroticism, extraversion, and conscientiousness to certain career decision outcomes. However, prior studies examining this question have been limited in certain respects. For example, they have either not included all three of the Big Five predictors (Wang et al., 2006), not included a measure of career indecision (Rogers et al., 2008), or have included participants who are not likely to be actively engaged in career decision activities (both studies). To address these concerns, the current study will focus on students in the first two years of college, include a measure of career indecision, and assess all three of the Big Five factors that have been found consistently to relate to career indecision.

***Moderation.*** Although a number of researchers have examined relations among the Big Five personality variables, CDMSE, and career indecision, their primary focus has been either on correlational or mediational relations (e.g., Hartman & Betz, 2007; Page, Bruch, & Haase, 2008; Wang et al., 2006). The current review

did not uncover any studies that specifically tested whether CDMSE may moderate the relations of the Big Five factors to career indecision. One study (Solberg et al., 1995) did examine the relations among career search self-efficacy (somewhat conceptually related to CDMSE), human agency (a broad personality factor), and several career decision outcomes. They did not find an interaction between self-efficacy and human agency in relation to career goals, knowledge, and actions. However, it is not clear whether Solberg et al.'s findings would generalize to specific measures of CDMSE, the Big Five factors, or career indecision. Thus, the proposed study may be the first to test whether CDMSE moderates (i.e., affects the strength of the ) relations between the Big Five personality factors and career indecision.

### **Social Cognitive Career Theory Process Model**

To inform my hypotheses regarding the joint roles of CDMSE and the Big Five factors in relation to career indecision, it is useful to consider relevant theory. Many researchers have drawn on Bandura's (1986) Social Cognitive Theory to inform their hypotheses related to CDMSE and career indecision (e.g., Solberg et al., 1995; Wang et al., 2006). Domain-specific self-confidence has been shown to be highly predictive of domain-specific outcomes, much as Bandura postulated (Bandura, 1997). Consistent with Bandura's theory, the CDMSE has been found consistently to predict career indecision (Choi et al., 2011).

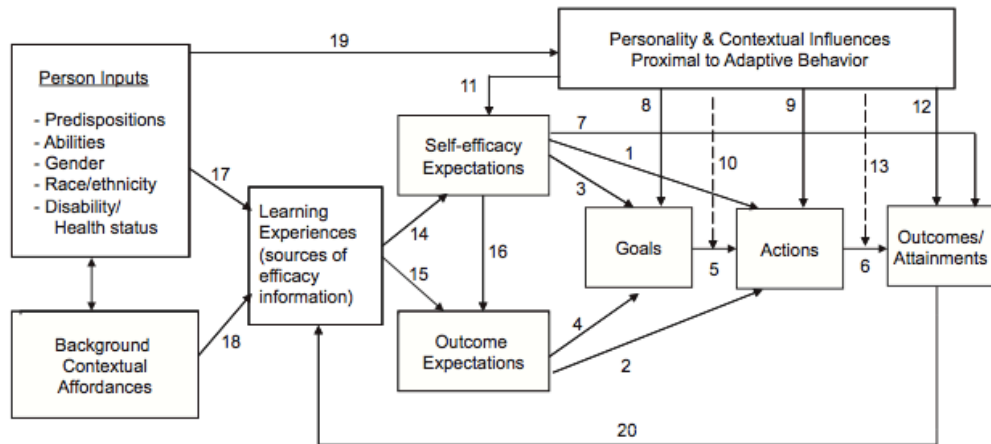
Regarding personality, researchers commonly draw on the Five Factor Model of personality (e.g., Page, Bruch, & Haase, 2008; Wang et al., 2006). This conceptualization of personality posits that five basic categories of human traits can be used to predict behavior (Costa & McCrae, 1992, McCrae & Costa, 1996). Using



this conceptualization, career researchers have found that neuroticism relates positively to career indecision, while extraversion and conscientiousness relate negatively to career indecision, as described above (e.g., Hirschi & Hermann, 2013).

SCCT may serve as an overarching framework for deriving hypotheses related to the joint roles of CDMSE and the Big Five personality traits in relation to career indecision. Based on Bandura's Social Cognitive Theory (1986), SCCT emphasizes the predictive power of self-efficacy and outcome expectations (i.e., beliefs about the consequences of performing an action) in relation to career interests, goals, and career behaviors. One strength of the model is its ability to integrate social-cognitive, personality, and contextual variables into a single framework (Lent & Brown, 2013a; Lent, Brown, & Hackett, 2000). One assumption of SCCT is that social cognitive variables do not function alone, but rather are associated with other important personal and contextual variables (Lent, Brown, & Hackett, 1996).

SCCT has been applied to many outcomes, including career interest and choice (Lent, Brown, & Hackett, 1994), well-being and work satisfaction (Lent & Brown, 2008), and, recently, career decision-making and self-management processes (Lent & Brown, 2013b). Studies have already tested some variables of the model in a career decision-making context, including outcome expectations (e.g., Feldt & Woelfel, 2009), self-efficacy (e.g., Hartman & Betz, 2007), and social supports and goals (e.g., Rogers, Creed, & Glendon, 2008). The proposed study will apply the SCCT self-management model to the relationships between CDMSE, Big Five personality factors, and career indecision.



*Figure 1.* Model of career self-management. The numbered paths are discussed in the article text below. Adapted from “Toward a unifying social cognitive theory of career and academic interest, choice, and performance,” by R.W. Lent, S. D. Brown, & G. Hackett, 1994, *Journal of Vocational Behavioral*, 45, p. 93. Copyright 1993 by R. W. Lent, S. D. Brown, & G. Hackett. Reprinted with permission.

As shown in Figure 1, the SCCT self-management model recognizes that many factors contribute to career outcomes like career decidedness. Through learning experiences, individuals build self-confidence toward making a career decision (Path 14). Self-efficacy, in turn, contributes both directly to career outcomes (Path 7) and indirectly through career actions (Path 1), career goals (Path 3), and outcome expectations (Path 16). Personality variables, which are linked to personal inputs like gender (Path 19), also contribute to career outcomes both directly (Path 12) and indirectly through career goals (Path 8), career actions (Path 9), and self-efficacy (Path 11). For the purposes of this study, I will focus on the direct paths of self-efficacy and personality to career indecision (Path 7 and Path 12 respectively) as well as on hypothesized mediated pathway between personality and career indecision via self-efficacy (Paths 11 and 7). In addition, I will examine the role of CDMSE as a possible moderator of personality-indecision relations. These mediator and moderator relations are highlighted in Figure 2, below.

## Purpose and Hypotheses

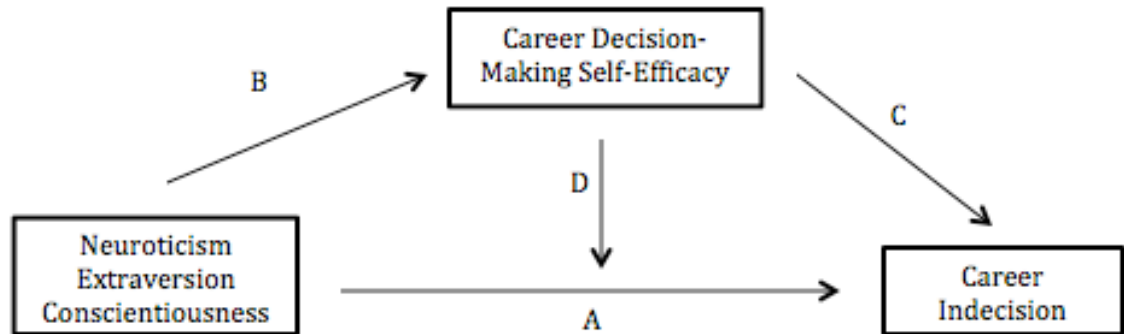


Figure 2. Model of hypothesized relationships between study variables.

The purpose of this study is to investigate, in a sample of undergraduate students, the nature of the relations among the Big Five traits of neuroticism, extraversion, and conscientiousness (BFI); career decision-making self-efficacy (CDMSE-SF); and career indecision within a social-cognitive career theory framework. This study will build on previous research specifically by positing that CDMSE will both mediate and moderate the relations of the three personality factors to career indecision. Previous findings have shown that career indecision is positively related to neuroticism and negatively related to extraversion and conscientiousness. Therefore, the proposed study will first attempt to replicate the direct relations between these personality traits and career indecision (Path A). It is hypothesized that:

*H1: Neuroticism, Extraversion, and Conscientiousness of the Big Five traits will each account for a significant amount of variance in career indecision.*

*H1a: Neuroticism will (a) correlate positively with career indecision and (b) account for unique variance in indecision beyond the other two traits.*

*H1b: Extraversion will (a) correlate negatively with career indecision and (b) account for unique variance in indecision beyond the other two traits.*

*H1c: Conscientiousness will (a) correlate negatively with career indecision and (b) account for unique variance beyond the other two traits.*

The study will next attempt to replicate the direct relationships between CDMSE and the Big Five personality variables established in previous studies.

Specifically:

*H2: Three of the Big Five traits will account for a significant amount of variance in career decision-making self-efficacy, both (a) individually and (b) jointly (i.e., each trait will explain unique variance in career decision-making self-efficacy).*

*H2a: Neuroticism will be negatively correlated with career decision-making self-efficacy.*

*H2b: Extraversion will be positively correlated with career decision-making self-efficacy.*

*H2c: Conscientiousness will be positively correlated with career decision-making self-efficacy.*

In previous studies, CDMSE has been found to be negatively correlated with measures of career indecision. The proposed study will attempt to replicate this finding (Path C).

*H3: Career decision-making self-efficacy will be negatively correlated with career indecision.*

Prior research has only incompletely examined the hypothesized role of CDMSE as a partial mediator of the relations between the Big Five personality traits and career indecision (Paths B and C). To study this more comprehensively, it is hypothesized that:

*H4: Career decision-making self-efficacy will mediate the relations of the three Big Five traits to career indecision.*

*H4a: The positive relation of Neuroticism to career indecision will be reduced after controlling for career decision-making self-efficacy.*

*H4b: The negative relation of Extraversion to career indecision will be reduced after controlling for career decision-making self-efficacy.*

*H4c: The negative relation of Conscientiousness to career indecision will be reduced after controlling for career decision-making self-efficacy.*

Prior research on CDMSE as a moderator of the relations between the personality traits and career indecision could not be located, although one study examine the conceptually related variables of career search self-efficacy, human agency, and various career decision outcomes (Solberg et al., 1995). Drawing on SCCT, it is possible that the two sets of factors (i.e., self-efficacy and personality) may interact with one another in relation to career indecision. In particular, it is hypothesized that:

*H5: CDMSE will moderate the relations of three of the Big Five traits to career indecision*

*H5a: CDMSE will buffer the positive relation of Neuroticism to career indecision such that Neuroticism will relate more weakly to career indecision at higher versus lower levels of CDMSE*

*H5b: CDMSE will accentuate the negative relation of Extraversion to career indecision such that Extraversion will relate more strongly to career indecision at higher versus lower levels of CDMSE*

*H5c: CDMSE will accentuate the negative relation of Conscientiousness to career indecision such that Conscientiousness will relate more strongly to career indecision at higher versus lower levels of CDMSE*

Finally, from an empirical perspective, it is useful to consider whether one set of predictors, self-efficacy or personality, offers a more individually useful explanation of career indecision. Whereas the prior hypotheses imply that the two sets of factors operate together in relation to career indecision, if it is found that they relate more or less independently to career indecision, it would be useful to know which one accounts for a greater share of unique variance in career indecision. Such findings can have implications for the design of career decision-making interventions. Bandura (1997) has argued that stronger predictive relations are likely to occur when predictors match dependent variables in terms of domain-specificity. Because CDMSE and career indecision are both conceived in relatively domain-specific terms, while traits represent more global self-attributes, it is hypothesized that:

*H6: CDMSE will account for a larger amount of unique variance in career indecision than does the three Big Five traits.*

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## Appendix B

### Informed Consent Form

<b>Project Title</b>	Self-Beliefs and Personality Factors in Career Decision-Making
<b>Purpose of the Study</b>	<p>This research is being conducted by Dr. Robert Lent and Lee Penn, Department of Counseling, Higher, and Special Education, at the University of Maryland, College Park. We are inviting you to participate in this research project because you are at least 18 years old, an undergraduate student, and may be in the process of deciding on a career or academic major.</p> <p>The purpose of this research is to better understand the process of career exploration and decision-making. The measures used in this study will enable us to examine factors that help students to make satisfying career decisions.</p>
<b>Procedures</b>	You will be asked to complete a brief survey. It should require about 10 minutes of your time. The survey will ask you about your attitudes toward career exploration and decision-making activities.
<b>Compensation</b>	As a result of your participation, you will be eligible for .5 units of experimental credit.
<b>Potential Risks and Discomforts</b>	There are no known risks associated with participating in this research study.
<b>Potential Benefits</b>	The survey is not designed to benefit you directly, though it is possible that some students may benefit from the opportunity to think about their career plans and the steps that can help them to decide on a career direction. The study may also inform counselors to develop practices that can be used to help future students make career decisions.
<b>Confidentiality</b>	You will not be required to provide any information that may link your identity to your survey responses. We will do our best to minimize any potential loss of confidentiality. The data will be collected via an online survey provider and stored in the survey provider's database, which is only accessible with a password. Once the information is downloaded from the online survey provider, it will be stored in a password-protected computer. Permission will only be given to the investigators to access the data. Any reports based on the survey information will only present the results in aggregate form (e.g., group averages). Individual survey responses will never be reported.



<p><b>Right to Withdraw and Questions</b></p>	<p>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time by closing your browser. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.</p> <p>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please feel free to contact the investigator(s):  Lee Penn at <a href="mailto:Leetpenn@gmail.com">Leetpenn@gmail.com</a>; 3207 Benjamin Building, University of Maryland, College Park, MD 20742; (301) 405-2878  Dr. Robert Lent, Ph.D. at <a href="mailto:Boblent@umd.edu">Boblent@umd.edu</a>; 3207 Benjamin Building, University of Maryland, College Park, MD 20742; (301) 405-2878</p>
<p><b>Participant Rights</b></p>	<p>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</p> <p style="text-align: center;"><b>University of Maryland College Park  Institutional Review Board Office  1204 Marie Mount Hall  College Park, Maryland, 20742  E-mail: <a href="mailto:irb@umd.edu">irb@umd.edu</a>  Telephone: 301-405-0678</b></p> <p>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</p>
<p><b>Statement of Consent</b></p>	<p>By selecting your choice below you are indicating your right to consent or not consent electronically.</p> <p>Selecting “Yes, I Consent” and clicking on the “Continue” button below indicates that you are at least 18 years old and have read and understand the terms of this study and thus voluntarily agree to participate.</p> <p>If you do NOT wish to participate in this study, please select “No, I DO NOT Consent” and click “Continue” to decline participation.</p>

## Appendix C

### Career Decision Self-Efficacy Scale-Short Form (Betz, Klein, & Taylor, 1996)

For each statement listed below, indicate your degree of confidence in your ability to accomplish each activity or task. Use the following scale to indicate your confidence.

- 0 = No Confidence at all
- 1 = Very little confidence
- 2 = Moderate confidence
- 3 = Much confidence
- 4 = Complete confidence

1. Find information in the library about occupations you are interested in
2. Select one major from a list of potential majors you are considering
3. Make a plan of your goals for the next five years
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major
5. Accurately assess your abilities
6. select one occupation from a list of potential occupations you are considering
7. determine the steps you need to take to successfully complete your chosen major
8. persistently work at your major or career goal even when you get frustrated
9. determine what your ideal job would be
10. find out the employment trends for an occupation over the next ten years
11. choose a career that will fit your preferred lifestyle
12. prepare a good resume
13. change majors if you did not like your first choice
14. decide what you value most in an occupation
15. find out about the average yearly earnings of people in an occupation

16. make a career decision and then not worry about whether it was right or wrong
17. change occupations if you are not satisfied with the one you enter
18. figure out what you are and are not ready to sacrifice to achieve your career goals
19. talk with a person already employed in the field your 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 from reasonable major or career alternatives if you are unable to get your first choice

## Appendix D

### Big-Five Mini-Markers *Extraversion* Subscale (Saucier, 1994)

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age.

Before each trait, please write a number indicating how accurately that trait describes you, using the following scale:

Inaccurate					Accurate			
------------	--	--	--	--	----------	--	--	--

Extremely	Very	Moderately	Slightly	Slightly	Moderately	Very	Extremely
-----------	------	------------	----------	----------	------------	------	-----------

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- \_\_\_ Talkative
- \_\_\_ Extroverted
- \_\_\_ Bold
- \_\_\_ Energetic
- \_\_\_ Shy
- \_\_\_ Quiet
- \_\_\_ Bashful
- \_\_\_ Withdrawn

### Big-Five Mini-Markers *Neuroticism* Subscale (Saucier, 1994)

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age.

Before each trait, please write a number indicating how accurately that trait describes you, using the following scale:

Inaccurate					Accurate			
------------	--	--	--	--	----------	--	--	--

Extremely	Very	Moderately	Slightly	Slightly	Moderately	Very	Extremely
-----------	------	------------	----------	----------	------------	------	-----------

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

- \_\_\_ Unenvious
- \_\_\_ Relaxed

- \_\_\_ Moody
- \_\_\_ Jealous
- \_\_\_ Temperamental
- \_\_\_ Envious
- \_\_\_ Touchy
- \_\_\_ Fretful

Big-Five Mini-Markers *Conscientious* Subscale (Saucier, 1994)

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age.

Before each trait, please write a number indicating how accurately that trait describes you, using the following scale:

Inaccurate					Accurate			
Extremely	Very	Moderately	Slightly	Slightly	Moderately	Very	Extremely	
1	2	3	4	5	6	7	8	9

- \_\_\_ Organized
- \_\_\_ Efficient
- \_\_\_ Systematic
- \_\_\_ Practical
- \_\_\_ Disorganized
- \_\_\_ Sloppy
- \_\_\_ Inefficient
- \_\_\_ Careless

## Appendix E

### Career Indecision Profile-65

Directions: Read each statement carefully and indicate how well it describes you. Fill in the appropriate circle following each statement. Use the disagree/agree scale above the circles to select your answer. Although some items may seem similar, try to answer each without considering your other answers.

Strongly Disagree Moderately Disagree Slightly Disagree Slightly Agree Moderately Agree Strongly Agree

1

I am uncomfortable committing myself to a specific career direction.

2

I need to learn more about what I want from a career.

3

My interests change so much that I cannot focus on one specific career goal.

4

I often feel discouraged about having to make a career decision.

5

I sometimes feel directionless.

6

I'm having a hard time trying to decide between a couple of good career options.

○ ○ ○ ○ ○ ○

7

I need a clearer idea about my abilities and talents before I can make a good career decision.

○ ○ ○ ○ ○ ○

8

I'm conflicted because I find a number of different careers appealing.

○ ○ ○ ○ ○ ○

9

I need to learn more about myself before I can make a good career decision.

○ ○ ○ ○ ○ ○

10

It's difficult for me to choose a career because I like so many different things.

○ ○ ○ ○ ○ ○

11

I like to keep myself open to various career opportunities rather than committing to a particular career.

○ ○ ○ ○ ○ ○

12

I feel stuck because I don't know enough about occupations to make a good career decision.

○ ○ ○ ○ ○ ○

13

I am familiar with my career options, but I'm just not ready to commit to a specific occupation.

○ ○ ○ ○ ○ ○

14

I need to learn more about the interests I have before I can make a good career decision.

○ ○ ○ ○ ○ ○

15

I'm concerned that my interests may change after I decide on a career.

○ ○ ○ ○ ○ ○

16

I am not sure I can commit to a specific career because I don't know what other options might be available.

○ ○ ○ ○ ○ ○

17

I'm concerned that my goals may change after I decide on a career.

○ ○ ○ ○ ○ ○

18

I need more information about occupations in which I might be successful.

○ ○ ○ ○ ○ ○

19

I don't have enough occupational information to make a good career decision.

○ ○ ○ ○ ○ ○

20



I need to learn how to go about making a good career decision.

○ ○ ○ ○ ○ ○

21

I need more information about careers I might like.

○ ○ ○ ○ ○ ○

22

I often feel nervous when thinking about having to pick a career.

○ ○ ○ ○ ○ ○

23

I'm having a hard time narrowing down my career interests.

○ ○ ○ ○ ○ ○

24

I don't know much about the occupations I'm considering.

○ ○ ○ ○ ○ ○

## **CIP-65 Demographics Questionnaire**

**1. Age:** \_\_\_\_\_

**2. Gender:**

Female Male

**3. Race/Ethnicity**

African American/Black

American Indian, Alaskan native

Caucasian American/White

Mexican American/Chicano

Asian American, Pacific Islander

Puerto Rican, Cuban, Other Hispanic Origin

Multiracial

Other

**4. How decided about your *overall* career direction are you at this point in time?**

Decided

Completely Undecided

Moderately Undecided

Slightly Undecided

Slightly Decided

Moderately Decided

Very Decided

**5. How much do you agree or disagree with the following two statements?**

a. I have narrowed my career options down to a *general occupational field* that I intend to enter, for example, engineering, literature, or the social sciences.

b. I have decided on a *specific occupation* or job title that I plan to pursue, for example, computer engineer, writer, or psychologist.

**6. Your Year in School**

1

2

3

4

## Appendix F

### Decisional Stress (Stumpf et al., 1981)

How much undesirable stress have the following caused you relative to other significant issues with which you have had to contend?

Little			Average			A Great Deal
1	2	3	4	5	6	7

1. Deciding on the type of work I want to do
2. Deciding on a general occupational field
3. Deciding on a specific job
4. Deciding on a type of work organization (e.g., government, university, business)

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