ABSTRACT

Title of Thesis: LEARNING EXPERIENCES IN CAREER EXPLORATION AND DECISION-MAKING: A TEST OF THE CAREER SELF-MANAGEMENT MODEL

Glenn Walter Ireland, Masters of Arts, 2017

Thesis Directed By: Robert Lent, Ph.D., CHSE Department

The proposed study had two objectives. First, it refined a recently developed measure of five types of learning experiences that, according to social cognitive career theory (SCCT; Lent & Brown, 2013), inform self-efficacy and outcome expectations in the domain of career exploration and decision-making. Second, it used the new measure to test hypotheses that (a) career exploration and decision-making learning experiences predicted both career decision self-efficacy and outcome expectations, and (b) these learning experiences related to career exploration goals indirectly via self-efficacy and outcome expectations. Data were collected via an online survey from 215 college students in introductory psychology courses. Hypothesized relationships among the learning experiences, self-efficacy, outcome expectations, and goals were tested using hierarchical linear regression. Non-parametric bootstrapping was used to test mediation (indirect effects) hypotheses.

LEARNING EXPERIENCES IN CAREER EXPLORATION AND DECISION-MAKING: A TEST OF THE CAREER SELF-MANAGEMENT MODEL

By

Glenn Walter Ireland

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Masters of Arts
2017

Advisory Committee:
Robert Lent, Ph.D., Chair
Clara Hill, Ph.D.
Matt Miller, Ph.D.

Acknowledgements

I want to acknowledge and express my sincere gratitude to the many people who have helped me to complete this project. I have participated in the research process at different stages, but this effort represents my first comprehensive involvement in research from start to finish. The encouragement, teaching, mentoring, and support I received along the way were so meaningful to me, and helped me to accomplish my goals.

My advisor, Bob Lent, has added incredible contributions to my development as a researcher, and helped guide me through this study from conception to defense. I will remember the ways he took great care in helping me build my own self-efficacy throughout the project during advising meetings, and provided timely feedback and goal-setting assistance to help me stay motivated. He has been a great example of a scholar-practitioner, challenging me to learn, helping me find a voice as a researcher, and providing the necessary learning experiences that are growing me as a competent researcher and practitioner.

In addition, I want to acknowledge the contributions of my committee members, including Clara Hill and Matt Miller. They offered incredible ideas and questions that elevated the quality and depth of the project. Their thoughtful approach and collegial style demystified the research process for me, and appropriately supported ideals of sharpening ideas through intellectual discourse and critical thinking, while bringing a sense of humor and curiosity I admire and am grateful for.

I want to thank my research team, Lee Penn, Taylor Morris, and Ryan Sappington, as well as my cohort, who have all offered insights, critiqued survey items, and provided encouragement along the way.

Finally, I dedicate this project to my partner, Mei-Yen, and my daughter, Ruth. They have been steadfast in providing time to write, patience when I have been anxious and procrastinated, and compassion when I have struggled to move through this process. Being a graduate student and a partner-parent have been challenging roles to fulfill simultaneously for me, and Mei-Yen and Ruth have helped me to maintain focus on the many joys these opportunities bring. I feel blessed to be married to Mei-Yen who has been a strong example to me as a student/researcher/professional, and more importantly, as a selfless parent and dedicated partner. To my daughter, Ruthie, I am grateful for your boundless enthusiasm for play, your curiosity, your sense of humor, and your gentle, kind nature. This project would not have been possible without the compassion, support, and love of these two amazing women in my life.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

"What's your major?" This question is well ingrained in the lexicon of college students because the exploration of academic and career possibilities is part of the career development process common to adolescence and young adulthood (Lent & Brown, 2013; Super, Savickas, & Super, 1996). College students encounter many unique and changing obstacles in their career decision-making process – a declining economy, less linear (and predictable) career trajectories, and the challenges associated with navigating an increasingly fast-paced, technologically driven, globalized society (Lent, 2013). It is not surprising then that one of the most common reasons students seek career counseling is for help exploring and deciding upon careers (Gati & Levin, 2014). In social cognitive career theory (SCCT), a well-established variable believed to delineate career outcomes is self-efficacy, and it is hypothesized that this variable will also play a key role in an individual's exploration and decision-making process (Lent & Brown, 2013). A promising and understudied aspect of this theory, with implications for career counseling interventions, involves the sources of self-efficacy and outcome expectations, namely, career exploration and decision-making *learning experiences*.

In Social Cognitive Theory, Bandura (1977, 1997) initially proposed the concept of learning experiences as "sources of self-efficacy." Efficacy information is information *perceived* by an individual as relevant to evaluating their personal capabilities in a given task or domain. How an individual cognitively processes and integrates efficacy information to form a self-efficacy judgment is unique to each individual—there is a selection process of what information an individual attends to,

and a heuristic process that influences how information is valued and integrated into existing belief structures (Bandura, 1997).

Bandura (1997) proposed four distinct sources of efficacy information, namely, (1) Mastery Experiences, (2) Vicarious Learning, (3) Verbal Persuasion, and (4) Physiological and Affective States. While Bandura (1997) initially considered these sources as informing self-efficacy beliefs, Lent, Brown, and Hackett (1994) suggested that in career domains these information sources would also inform outcome expectation evaluations. Thus, they referred to efficacy information as "Learning Experiences" to reflect this broader definition. As I measured these antecedents of self-efficacy *and* outcome expectations using the social cognitive career theory framework, I will use the term learning experiences to draw on Bandura's theoretically proposed sources of self-efficacy, while reflecting the hypothesis in SCCT that these same sources also inform the outcome expectations an individual develops.

Social Cognitive Career Theory

Social cognitive career theory (SCCT; Lent & Brown, 2006, 2008; Lent, Brown, & Hackett, 1994, 2000) is one of the most comprehensive theoretical frameworks for understanding career behavior. The segmental, interconnected models of SCCT focus primarily on three "sociocognitive mechanisms": self-efficacy, outcome expectations, and goals. Lent et al. (1994) classify self-efficacy as the self-appraisal of one's capabilities to perform a given task, or an individual's conjured beliefs about the question, "Can I do this?" Outcome expectations reflect an individual's anticipated physical, social, and self-evaluative consequences (positive or

negative) for performing a given task, or "If I do this, what will happen?" Goals reflect an individual's intentions to perform an associated task. The recent Career Self-Management model of SCCT (CSM; Lent & Brown, 2013) focuses on adaptive behaviors across the career life span, including those related to the process of career exploration and decision-making.

While the CSM model was not published until recently, researchers have long focused on career decision self-efficacy, or the confidence in skills necessary to explore options and implement a career decision (Betz, Klein, & Taylor, 1996; Creed, Patton, & Prideaux, 2006; Taylor & Betz, 1983). Career decision self-efficacy, a belief found to be modifiable across various interventions (Gainor, 2006), is also a strong predictor of career indecision, with higher self-efficacy associated with lower levels of indecision (Choi et al., 2012). Though not as comprehensively studied, an individual's beliefs about the likely outcomes for engaging in career exploration and decision behavior (outcome expectations) have been positively related to career decision self-efficacy as well (Choi et al., 2012). Betz and Voyten (1997) found that career decision outcome expectations were a significant predictor of exploratory intentions, or goals.

Figure 1 displays the CSM model, which incorporates a variety of contextual, personal, and background variables that are assumed to predict and promote adaptive career behaviors. Despite the predictive utility of self-efficacy and outcome expectations relative to outcomes like exploratory intentions (goals), decision-making behaviors, and levels of indecision, only a handful of studies have sought to investigate career decision learning experiences, the antecedents of self-efficacy and

outcome expectations in SCCT (Luzzo & Taylor, 1994; Sullivan & Mahalik, 2000). Moreover, only one study was located that had attempted to measure all hypothesized career decision learning experiences, and this study did not report the relationship of these learning experiences both to self-efficacy and outcome expectations (Bike, 2013).

Career Decision Learning Experiences

Researchers have rarely focused on learning experiences in career decision-making as a way to understand the ingredients necessary for quality career interventions (Betz, 2007; Bike, 2013). Thus, a primary goal of the present study was to situate the career exploration and decision-making process within the theoretical framework of SCCT. By including a measure of learning experiences, more consideration can be given to the ways in which career counselors and university professionals can best design career decision-making interventions aimed at improving career decidedness among students.

Recognizing the potential utility of such a measure of career decision learning experiences, Bike (2013) developed a measure specifically targeting the learning experiences that inform career decision self-efficacy (CDSE). Betz and colleagues (1996; 2005) have designed the most popular measure of CDSE around Crites's (1978) five career choice competencies (i.e., accurate self-appraisal, gathering occupational information, goal selection, planning, and problem-solving). Bike (2013) reasoned that these same competencies could be used to develop items for her Career Decision Learning Experiences (CDLE) scale. The CDLE measure has five subscales that reflect Bandura's (1997) mastery, vicarious, and persuasion sources of

efficacy, with the physiological/affective source being divided into distinct positive and negative emotional arousal subscales (Bandura's 1997 theory allows for the possibility that self-efficacy can be informed by both positive and negative arousal states). As evidence of criterion-related validity, Bike found that the CDLE's total scale score moderately correlated with Betz, et al.'s (2005) measure of career decision self-efficacy ($r = .45$). She also found that the CDLE's positive and negative emotional arousal subscales each correlated in expected ways with the positive and negative subscales of the PANAS (Watson, Clark, & Tellegen, 1988), which can be taken as evidence of convergent validity (correlation coefficients were .59 and .54, respectively).

While Bike's (2013) study is important to the study of the career decision-making process, her scale has several potential limitations. First, the item wording used in her CDLE scale is almost identical to wording used in the Career Decision Self-Efficacy-Short Form scale (CDSE-SF; Betz et al., 2005). For example, an item on the Social Persuasion subscale of the CDLE reads, "Adults I admire have let me know I am capable of *accurately assessing my abilities*." In the CDSE-SF, the prompt asks subjects to rate their confidence in a list of tasks, including an identical item that reads, "Accurately assess your abilities." This creates a "linked" or common measurement problem that can artificially inflate correlations between the CDLE scale and the CDSE-SF (cf. Lent & Brown, 2006b). Second, four of the five items on the Mastery Experiences subscale of the CDLE represent Crites's (1978) planning competency, with no items reflecting the self-appraisal, goal selection, or problem solving competencies. This raises a concern about the adequacy of construct

representation. Third, some items are not particularly salient to the process of exploring and deciding on careers, (e.g. "So far in life, I have been good at preparing a good resume.").

Fourth, there is a conceptual problem with the Positive and Negative Emotional Arousal subscales having item prompts that are framed in the present tense (e.g. "I feel…"). Theoretically, learning experiences ought to occur prior to an appraisal of self-efficacy or outcome expectations (e.g., "Last year, I felt…") (Bandura, 1997). Finally, while Bike (2013) examined the relation of the CDLE to career decision self-efficacy, she did not study its relation to career decision outcome expectations, a theoretically postulated link in SCCT. These scale construction issues, and the relationship of learning experiences to outcome expectations, need further exploration, which was a goal of the present study.

An overview of CEDLE scale development and initial validation. In an effort to improve upon the shortcomings of Bike's (2013) measure, Lent, Ireland, Penn, Morris and Sappington (2017) developed and collected initial data on a new measure titled, Career Exploration and Decision-Making Learning Experiences scale (note that the acronym, CEDLE, is used to distinguish this scale from the CDLE scale developed by Bike). The CEDLE scale has five theoretical subscales including mastery experiences (ME), vicarious learning (VL), verbal persuasion (VP), positive emotional arousal (PEA), and negative emotional arousal (NEA). Items were developed and reviewed by a research team focusing on SCCT CSM research, a separate group of graduate students taking a course in assessment and measurement development, and an expert in the field of SCCT with experience developing learning

experience scales in other academic and career domains. After soliciting feedback on conceptual, wording, and editing considerations, the first three subscales contained 8 items each, and the PEA and NEA subscales each contained 5 items. This version of the CEDLE scale can be referenced in Appendix A.

An initial study was conducted using a sample and data collection method similar to the current study. A sample of 324 college students was used to run an exploratory factor analysis. The 34-items of the initial CEDLE scale were subjected to principal axis factoring (suggested in factor analysis for measurement development) and rotated using direct oblimin oblique rotation (suggested when factors are believed to be inter-correlated; Worthington & Whittaker, 2006). Factor solutions of 4, 5, and 6 factors were considered based on eigenvalues, scree plots, and parallel analysis. In each of these factor solutions, items for ME and VP subscales loaded on a common factor. In the four-factor solution, which accounted for 55% of the variance, items of the other subscales (i.e. NEA, PEA, and VL) loaded on distinct factors. Thus, a four-factor solution was favored both because of its interpretability and fit with the theoretical conceptualization of learning experiences.

Concerned about the VP and ME items loading on a common factor, the researchers ran a confirmatory factor analysis based only on the retained items from the exploratory analysis. The goal was to compare a four-factor solution (with four ME and four VP items on the same factor) with a five-factor solution (with four ME and four VP items loading on distinct factors). After this additional consideration, the five-factor solution produced the better overall fit indices and had the advantage of being conceptually and theoretically consistent with Bandura's(1997) theory. Table 1

contains the retained items and factor loadings for the five-factor solution. Items loaded in theoretically consistent ways and scores on each of the subscales, Mastery Experiences (ME; $\alpha = .82$), Verbal Persuasion (VP; $\alpha = .89$), Vicarious Learning (VL; $\alpha = .83$), Positive Emotional Arousal (PEA; $\alpha = .81$), and Negative Emotional Arousal (NEA; $\alpha = .82$), had adequate internal consistency estimates.

However, while the ME and VP factors were ultimately treated as distinct, they remained highly intercorrelated ($r = .77$). This fact may be tied to item wording, and thus, new changes were proposed for verbal persuasion items to be administered in the present study (see Appendix B). A more conservative approach for using the CEDLE measure in the present study was chosen. Instead of relying just on the items in Table 1, all original CEDLE items, including both new and original verbal persuasion items, were delivered to participants so as not to limit the underlying factor structure in this replication sample (i.e., the original 34-item CEDLE was administered along with an additional 8 newly written verbal persuasion items).

This version of the CEDLE scale offers some promising qualities for CSM model testing in the process of career exploration and decision-making. The scale makes improvements over the Bike (2013) measure in several ways. In particular, four of the five CEDLE subscales had a higher correlation with self-efficacy measures than did Bike's total scale score (Bike reported a total scale correlation of $r = .45$); four of the CEDLE scales (all except NEA) correlated with a measure of outcome expectations; and an effort was made to avoid confounding the CEDLE's item content with that of the criterion measures (Lent et al., 2017).

Learning experiences in other domains. Although there have been few attempts to assess learning experiences in the career decision-making domain, researchers have previously operationalized them in the areas of math self-efficacy (Lent, Lopez, & Bieschke, 1991), social self-efficacy (Anderson & Betz, 2001), and occupationally relevant self-efficacy (Schaub, 2003; Schaub & Tokar, 2005). Findings have indicated that, regardless of domain, individual types of learning experiences (e.g. mastery experiences) were significantly correlated with the appropriate measure of self-efficacy. In addition, consistent with Bandura's (1997) theory, mastery experiences generally produced the strongest unique relation to self-efficacy.

Two studies (Lent et al., 1991; Schaub & Tokar, 2005) have found correlations between the learning experiences and a measure of outcome expectations, which lends support to the hypothesis that learning experiences should be related to both self-efficacy and outcome expectations (Lent & Brown, 2013; Lent et al., 1994). Finally, findings have supported the SCCT assumption that the relation of learning experiences to outcome expectations is mediated by self-efficacy (Schaub & Tokar, 2005; M. N. Thompson & Dahling, 2012; Williams & Subich, 2006). These studies focused on learning experiences as they related to interest development, but did not include a measure of goals in this domain.

Experimental manipulation of career decision learning experience. In addition to measuring learning experiences, researchers have also speculated about the effects of interventions linked to each of the learning experiences. Betz and Voyten (1997) suggested, for example, that the career education of college students

might involve the assignment of "career decision-making tasks that are sufficiently straightforward (Bandura's 'performance accomplishments'), and follow up these initial exploratory attempts with support and encouragement (Bandura's 'verbal persuasion and encouragement' component)" (p. 187).

In a study where researchers designed a career course for women around the theoretical learning experiences, Sullivan and Mahalik (2000) reported a significant increase in CDSE for participants compared to those in a control group. Their approach involved many different intervention elements, including having participants research occupational information and integrate information with self-assessments of interests and values (mastery experiences); conduct informational interviews with other women in careers (vicarious learning); give and receive feedback and support from peers (verbal persuasion); and participate in a relaxation training component to regulate anxiety (emotional arousal). They did not, however, assess the relative effects of the different intervention elements, instead measuring only a total score increase in self-efficacy.

While these researchers and others have focused mostly on altering an individual's self-efficacy (cf. Gainor, 2006), it is possible to imagine how a participant who found success with an intervention (e.g. incorporating self-assessment data with occupational information) might be more likely to continue these behaviors because they anticipate the behaviors will be effective, and produce valued feelings and rewards. While this scenario fits with Lent et al.'s (1994) hypothesis that the learning experiences impact outcome expectations, this

relationship has, to the reviewer's knowledge, not been tested in the career exploration and decision-making domain (Fouad & Guillen, 2006).

Chapter 2: Review of Literature

Though I have reviewed some literature and research on learning experiences and their potential application in the career exploration and decision-making domain, in this chapter I will explore extant research on the broader context of this domain for the present study. I will examine the evolution of SCCT to include the more recent process model of career self-management, and highlight existing findings about the importance of career decision self-efficacy. Next, I will present existing research applicable to the SCCT CSM framework, and look more carefully at the way that personality and contextual influences come into play in this model. Finally, I will summarize these findings to set the stage for the current study problem and hypotheses.

Studying the career decision making behaviors of college students, with a focus on their self-efficacy as a predictor of various career outcomes, is an approach with a long history (Betz & Hackett, 1981; Taylor & Betz, 1983). This approach is predicated on the notion that self-efficacy mediates the effect of actual ability on career behaviors and outcomes (Bandura, 1997). From early attempts at using Bandura's (1977) self-efficacy theory to study career development, the social cognitive career theory framework for career research has evolved (SCCT; Lent, Brown, & Hackett, 1994, 2000) with application to various career domains such as career interest, choice, performance, satisfaction and well-being (Lent & Brown, 2006a, 2008), and, most recently, in the process domain of career self-management (Lent & Brown, 2013). Applications of SCCT maintain not just the importance of self-efficacy, but also additional social cognitive variables, such as outcome

expectations and goals, as well as a network of personal, contextual, and background variables.

SCCT researchers have maintained Bandura's conceptual assumption that self-efficacy and outcome expectations are domain specific, and investigators of career development must always consider the domain of interest (Lent & Brown, 2006b). In fact, Lent and Brown (2013) noted that while immense efforts have been made to investigate career decision self-efficacy, this type of efficacy has not had a conceptual home in SCCT until the most recent CSM model. Betz and Hackett (2006) recognized the distinction between *content* specific efficacy (e.g., efficacy for skills in a particular occupation) and *process* specific efficacy that helps one manage a set of tasks needed to implement a longer-term goal. Career decision self-efficacy represents the process dimension.

Importance of Career Decision Self-Efficacy

Career researchers have long investigated this process domain (Taylor & Betz, 1983) , even though SCCT's formal focus on process aspects of career behavior was only introduced recently (Lent & Brown, 2013). This research effort has primarily centered around career decision self-efficacy, or "an individual's degree of belief that he or she can successfully complete tasks necessary to making career decisions" (Betz et al., 1996, p. 48). A recent meta-analytic project included studies utilizing Betz et al.'s measure of career decision self-efficacy (formerly CDMSE and now the CDSE-SF; Betz, Hammond, & Multon, 2005), and found many significant relationships relevant to SCCT research (Choi et al., 2012). Using correlational coefficients corrected for measurement error, findings from 34 studies found that measures of

CDSE correlated significantly with relevant constructs highlighted in SCCT: outcome expectations ($r_c = .49$), peer support ($r_c = .41$), and (inversely) career indecision ($r_c = -.57$). These collective findings suggest an important link between CDSE and aspects of adaptive career development hypothesized by Lent and Brown (2013).

The meta-analysis by Choi et al. (2012) also found that several identified variables of interest did *not* have significant relationships to CDSE when results were combined (e.g., race, gender, and career barriers). This was likely due to the conflicting results discovered in several studies (i.e., some studies finding significant effects and others non-significant), and also the relatively small number of studies examining some constructs (e.g., there were only 4 studies total in the meta-analysis that involved the variable of race). Choi et al. also noted that variations in the relations of these variables to CDSE could be due to mediating variables that were not measured in the studies (e.g. learning experiences).

Existing Research Applicable to the SCCT CSM Framework

In an early partial test of the SCCT model in one process domain of vocational behavior (decision-making tasks), Betz and Voyten (1997) investigated career exploratory intentions and career indecision as criterion variables. Exploratory intentions were an operationalization of the concept of goals in SCCT that include plans and aspirations. Betz and Voyten studied a predominantly White (84%) sample of 350 college students (36% men and 64% women) taking an introductory psychology course at a large Midwestern university.

Betz and Voyten found that self-efficacy was correlated with outcome expectations, a result consistent with SCCT. Interestingly, this correlation was

significantly larger in magnitude for men (r = .53) than for women (r=.31). Betz and Voyten also found that career decision outcome expectations were the stronger predictor of exploratory intentions, while self-efficacy was the stronger predictor of career indecision. The regression analyses explained 25% and 29% of the variance in exploratory intentions, for women and men, respectively. They also explained 19% and 28% of variance in career indecision, for women and men.

In a study examining the career planning and exploration process among Australian high school students, Rogers, Creed, and Glendon (2008) surveyed a sample of 414 10^{th}, 11^{th}, and 12^{th} grade students (55% female and 45% male; 90% Caucasian/White). Building on the work of Betz and Voyten (1997), Rogers et al. included two separate measures of career choice actions: (1) career planning, which looked at how much students had engaged in behaviors to think about careers, build relevant occupational skills/interests, and investigate occupational information; and (2) career exploration, involving how much an individual had tapped various social resources available to them (i.e. friends, family, career advisors, printed materials) in order to explore career options. This study included measures of career decision self-efficacy, outcome expectations, and goals, as well as Big 5 personality traits and contextual influences (social supports).

In two separate regression models, Rogers et al. (2008) found that personality variables, career decision self-efficacy, outcome expectations, goals, and social supports accounted for 50% of the variance in career planning behaviors and 27% of the variance in career exploration actions. In both models, a measure of goals produced the largest beta coefficient. Career decision self-efficacy was a significant

individual predictor in the regression model for career planning, but not for career exploration behaviors. Outcome expectations did not explain unique variation in either dependent variable, though it did correlate in expected directions with the other variables.

The personality variables of conscientiousness and openness emerged as significant predictors of career planning behaviors. Findings suggested that the personality variables both predict behavior indirectly (via self-efficacy and goals), and also directly. Finally, social support was found to be a significant predictor of career exploration behaviors, perhaps because measures of these behaviors involved utilization of social resources. The presence of social support also moderated the relationship of goals to career planning behavior, with increasing levels of support strengthening this relationship.

While this was a sample of high school students, the findings suggest the importance of considering personality and social support in SCCT research within the domain of career exploration and decision-making. While outcome expectations was not a significant predictor in the regression models, the authors pointed out that this result may be due to the sample's developmental level. That is, the high school students may not have been facing immediate pressures to make career decisions that some college students may be exposed to by virtue of age and progress in career development.

Building on this study, Rogers and Creed (2011) conducted a longitudinal study with a similar sample and identical constructs and outcome variables (career planning and exploration actions). They surveyed a sample of 631 Australian high

school students both cross-sectionally, as well as 6 months later, to see whether predictor variables at time 1 were significant in predicting changes in the criterion variables between times 1 and 2.

Many of the results mirror results from the earlier cross-sectional findings, but most notable were the longitudinal relations of self-efficacy and goals to choice actions. Career decision self-efficacy was both a significant predictor of cross-sectional outcomes, as well as changes in the criterion variables at time 2. Other predictors included in the model, including personality, demographics (age, gender, work experience), and social supports did not explain unique variance in change in choice actions over time. Interestingly, personality was found to contribute to predictions in the cross-sectional regression analysis, but these results were not consistent across grade-level and were not significant in the longitudinal analysis. This finding could be a result of the sample (high school students) or may suggest that personality only has a minor role to play in predicting engagement in career planning and exploration behaviors when controlling for the effects of self-efficacy and goals.

While the research above has been reviewed retroactively under the framework of the new CSM model, research designed specifically to test the CSM model is only in its early stages. Lent, Ezeofor, Morrison, Penn and Ireland (2016) reported two studies testing the CSM model with a brief measure of career exploration and decision self-efficacy (CEDSE-BD). Lent et al. found that the CEDSE-BD correlated significantly with the most popular measure of career decision self-efficacy, the CDSE-SF (Betz et al., 1996) ($r = .74$), and also produced

significant correlations in expected directions with other relevant variables (e.g. outcome expectations, goals, conscientiousness, social support, decisional anxiety, and level of career decidedness).

Lent et al. (2016) also performed a path analysis predicting exploratory goals, decisional anxiety, and decidedness. They found that self-efficacy, outcome expectations, social supports, and conscientiousness accounted for a significant amount of variance in exploratory intentions (47%). In addition, the path findings supported theoretical assumptions that social support ($\beta = .21$) and conscientiousness ($\beta = .48$) would each produce significant paths to self-efficacy. Collectively, these findings suggest that individuals with higher social support and who are more conscientious will have higher self-efficacy, and that those with higher self-efficacy and outcome expectations tend to have higher future intentions to engage in career exploration and decision-making behaviors.

Personality and Contextual Influences in the CSM Model

The CSM model suggests several personality and contextual variables of importance in promoting career exploration and decision-making. Personality traits categorized by the Big 5 represent individual differences in emotional and cognitive predispositions, and can influence how individuals selectively attend to their environment, what meaning they make, and how they choose to structure their social environment (John, Naumann, & Soto, 2008). This quality may mean that these traits influence relationships individuals form, how they respond to challenge and setbacks, and their typical emotional response to stressors. In fact, individual traits have been found to be related to career exploration, planning, and decision-making outcomes

(Brown & Hirschi, 2013). The personality trait consistently found to have the largest correlation with these outcomes is conscientiousness; extraversion and neuroticism also generally produce higher correlations with relevant decisional outcomes than do agreeableness and openness (Brown & Hirschi, 2013; Roberts, Caspi, & Moffitt, 2003). Thus, the present study focused only on the three most consistent predictors in this domain.

Conscientiousness, often associated with self-control, is a trait defined by an individual's planfulness, organization, and adherence to rules and norms, and it may also play a role in developing relationships and ambition as individuals are able to organize and strive for higher goals (John et al., 2008). Among a sample of college students, Lent et al. (2016) found that conscientiousness was a strong significant predictor of career decision self-efficacy, and also had a moderate correlation with student's self-reported engagement in past exploration and decision-making behaviors. Rogers et al. (2008) also found that more conscientious individuals reported more career exploration and career planning. Since more organized individuals may feel more comfortable with the structured tasks and process management of choosing a career, it makes sense that these individuals would be more exposed to opportunities to gain mastery and, hence, feel more efficacious.

Extraversion and neuroticism are traits more associated with mood (i.e., positive and negative emotionality) (Matthews, Deary, & Whiteman, 2009; Watson & Tellegen, 1985). Indeed they have also been related to basic behavioral approach and inhibition patterns, respectively, meaning the traits may relate to people's decisions to approach or avoid their career exploration and planning process (Gable, Reis, &

Elliot, 2000). Extraversion has been characterized by sociability, energetic approach, and assertiveness, while neuroticism has been characterized by anxiety and negative reactivity to stressful events, and less ability to cope (John et al., 2008).

In the realm of career research, extraversion has been associated with people's willingness to seek out important career relationships through networking, and gain assistance with planning efforts (Brown & Hirschi, 2013). Neuroticism, on the other hand, is often associated with career indecision (Hacker, Carr, Abrams, & Brown, 2013), and at times the avoidance of career planning potentially due to the stress these decisions may bring about (Brown & Hirschi, 2013). In the CSM model, these personality traits may also be expected to interact with self-efficacy, outcome expectations, and goals.

In addition to personality, Lent and Brown (2013) hypothesized that individuals will be more likely to engage in career exploration and decision-making actions if they have access to appropriate social support (and face minimal barriers). When examining meta-analytic findings, Choi et al. (2012) found that career barriers (e.g. family disapproval, financial constraints, or facing discrimination) were not significantly related to career decision self-efficacy across the studies reviewed. Examining individual studies, Quimby and O'Brien (2004) and McWhirter et al. (2000) found that both career barriers and perceived social support were related to career decision self-efficacy, though other studies did not find a link between career barriers and CDSE (Creed, Patton, & Bartrum, 2004; Patton & Creed, 2007). Choi et al. (2012) did, however, find that peer support, often measured as access to supportive

parents, friends, mentors, and resources, was reliably related to CDSE ($r_c = .41$) across studies.

Choi et al. (2012) noted in their discussion that there might be several explanations for why barriers did not emerge as a significant factor related to career decision self-efficacy. Among them, they noted that learning experiences might mediate the effects of career barriers in some studies, a speculation of relevance to the present study. They also suggested that studies examined in the meta-analysis used a variety of measures to tap the construct of career barriers. Although peer and social support have also been assessed using a variety of methods (cf., Quimby & O'Brien, 2004; Rogers et al., 2008; Wright, Perrone-McGovern, Boo, & White, 2014), this construct seems to have a more robust connection with career decision self-efficacy across many studies (Choi et al., 2012). As demonstrated in the Lent et al. (2016) study, the IOACDS Support/Guidance subscale (Nauta & Kokaly, 2001) shows promise for assessing social support in the context of the CSM model for college students and was utilized in the current study.

Summary

Among the findings discussed here, the primacy of career decision self-efficacy in predicting various career decision-related outcomes (e.g. exploratory intentions and behaviors, decisional anxiety and decidedness) is evident (Betz & Voyten, 1997; Lent et al., 2016; Rogers & Creed, 2011; Rogers et al., 2008). These studies have also confirmed the hypothesis in SCCT that higher levels of self-efficacy are associated with more positive outcome expectations. Vocational outcome expectations seem to have a stronger association with exploratory intentions than self-

efficacy, particularly in studies at the college age level (Betz & Voyten, 1997), and recent findings suggest that personality and social support have significant indirect relations to exploratory intentions via self-efficacy and outcome expectations (Lent et al., 2016).

Statement of the Problem

The above literature review suggests that researchers have rarely examined career decision learning experiences explicitly. Though one recent effort has been made to measure these experiences, Bike's (2013) measure has received limited study and may not offer an ideal way to assess certain sources of self-efficacy and outcome expectations. Thus, there appears to be the need for further study of these learning experience variables, which may illuminate the ways in which background, person, and contextual variables relate to self-efficacy and outcome expectations (Figure 1). The proposed study aimed to refine and validate a new measure of career decision learning experiences and used it to test several hypothesized relationships within the SCCT CSM model.

The career exploration and decision-making process poses a common developmental challenge for college students. It is also a process sometimes rife with struggle and indecision (Hacker et al., 2013). Researchers have demonstrated that career decision self-efficacy is strongly related to exploratory intentions and level of indecision (Betz & Voyten, 1997; Choi et al., 2012); yet the career decision learning experiences that inform self-efficacy and outcome expectations have received very limited study (Betz, 2007). Career decision learning experiences, as measured by the

CDLE, have been correlated with self-efficacy (Bike, 2013), but the CDLE was not examined in relation to outcome expectations.

The current study is part of a series of investigations applying SCCT's new CSM model to the context of career decision-making (Lent et al., 2016, 2017). As part of this research program, a measure of career exploration and decision learning experiences was recently developed, and initial data were gathered on its psychometric properties in a sample of undergraduate students (Lent et al., 2017). The current study continued the examination of the measure's properties, including the addition of newly worded verbal persuasion items. After confirmatory factor analysis with the current sample, the scale was used to test hypotheses about the role of learning experiences in career exploration and decision-making.

Hypotheses

Hypothesis testing focused on establishing the relationship of the five CEDLE subscales to other relevant variables in the CSM model, namely, self-efficacy, outcome expectations, goals, personality (conscientiousness, neuroticism, extraversion), and proximal supports (social support). Rather than focusing on a total scale score that aggregates the various learning experiences, subscales were treated as distinct predictors, with the goal of identifying experiences that explain unique variance in self-efficacy and outcome expectations. As a part of exploring construct validity of the CEDLE measure subscales, correlational hypotheses were also tested to explore the relationships between CEDLE scale, personality (C, N, and E) variables, and proximal (social) support.

Existing career literature on personality suggests several hypotheses regarding how personality may relate to how an individual approaches the career exploration and planning process, and how they experience feelings related to this process. As the CEDLE scale includes measures of positive and negative emotional arousal regarding past experiences, it was hypothesized that they would be correlated with personality aspects that tend to predict a positive outlook (extraversion) and a more pessimistic outlook (neuroticism). The trait of conscientiousness is widely viewed as important in orchestrating the structured tasks of career exploration and decision-making (Brown & Hirschi, 2013), and thus, individuals who are more conscientious would be expected to have more opportunity for mastery experiences, a higher experience of positive emotional arousal, and a lower experience of negative emotional arousal.

Social support may facilitate the career exploration and decision-making process in several ways. For example, such support can provide access to verbal persuasion and vicarious learning. It may also enable attainment and interpretation of mastery experiences. Feeling a sense of support in the career exploration and decision-making process also ought to increase positive emotional arousal, and decrease anxiety or negative emotional arousal. The set of correlational hypotheses among CEDLE, personality, and social support are listed below:

1. CEDLE subscales will have the following correlational relationships with personality (C, N, and E) and social support variables in the CSM model

   a. E (as a reflection of general positive emotionality) will be significantly positively correlated with PEA (domain-specific CEDLE scale)
   b. Similarly, N (as a reflection of trait negative affect) will be significantly positively correlated with NEA

c. C will be significantly, positively related with Mastery Experiences
d. C will be significantly, positively correlated with PEA
e. C will be significantly, negatively correlated with NEA
f. Support will be significantly, positively related with Mastery Experiences
g. Support will be significantly, positively related with Vicarious Learning
h. Support will be significantly, positively related with Verbal Persuasion
i. Support will be significantly, positively related with PEA
j. Support will be significantly, negatively related with NEA

Studies in other domains have demonstrated that learning experiences are significantly correlated with self-efficacy and outcome expectations (Anderson & Betz, 2001; Lent et al., 1991; Schaub & Tokar, 2005). It was assumed that career decision learning experience predictors would also follow the theoretical expectations proposed by Bandura (1997) for self-efficacy and similarly by Lent and Brown (2013) for outcome expectations. Following initial findings on the CEDLE (Lent et al., 2017), it is proposed that these scales will relate to self-efficacy and outcome expectations.

2. The CEDLE scales will, individually and jointly, relate to career decision self-efficacy (CDSE) above and beyond conscientiousness and social support:

a. CEDLE variables will, collectively, explain unique variance in CDSE, above and beyond social support and conscientiousness
b. CEDLE variables will each account for unique variance in CDSE, even after controlling for social support and conscientiousness

The third set of hypotheses closely mirror 2a and 2b, but involve career decision outcome expectations (CDOE) as the criterion variable. In the CSM model, self-efficacy is also expected to predict outcome expectations, in addition to social support and conscientiousness. Thus, the third set of hypotheses are that:

3. The CEDLE scales will, individually and jointly, relate to career decision outcome expectations (CDOE) above and beyond self-efficacy, conscientiousness and social support:

a. CEDLE variables will, collectively, explain unique variance in CDOE, above and beyond CDSE, social support and conscientiousness
b. CEDLE variables will each account for unique variance in CDOE, even after controlling for CDSE, social support and conscientiousness

The fourth set of hypotheses concern the prediction of goals (which are being measured as exploratory intentions). In the CSM model (Brown & Lent, 2013), CDSE, CDOE, social support and conscientiousness are portrayed as having direct relationships to goals, while the learning experiences variables do not. In predicting exploratory intentions, it is hypothesized that:

4. The CEDLE scales will, neither individually and jointly, relate to exploratory intentions above and beyond self-efficacy, outcome expectations, conscientiousness and social support:

a. CEDLE variables will, collectively, not explain unique variance in exploratory intentions, above and beyond CDSE, CDOE, social support and conscientiousness
b. CEDLE variables will, individually, not explain unique variance in intentions, above and beyond CDSE, CDOE, social support and conscientiousness

Finally, the study explored the mediation relationships expected in the model between CEDLE, CDSE, CDOE, and Exploratory Intentions. See Figure 2 for a depiction of the potential mediation pathways. The expectation from the model is that CDSE and CDOE would fully mediate the relationships between learning experiences and goals. The fifth set of hypotheses proposed that:

5. All indirect pathways in the model between CEDLE predictors and Exploratory

Intentions will be significant:

a. Each indirect path from CEDLE predictors to CDOE through CDSE will be significant
b. Each indirect path from CEDLE predictors to exploratory intentions through CDSE will be significant
c. Each indirect path from CEDLE predictors to exploratory intentions through CDOE will be significant
d. Each indirect path from CEDLE predictors to exploratory intentions through both CDSE and CDOE will be significant

Chapter 3: Method

Design

The current study used a descriptive, correlational design using self-report surveys. In addition to examining the factor structure of the CEDLE measure, this study tested the relationships of the CEDLE to career decision self-efficacy, outcome expectations, exploratory intentions, social support, and three personality traits.

Participants

Demographic data were available for all 215 participants and the summary of the sample characteristics can be found in Table 3. The participants were 215 undergraduate students enrolled in psychology courses at a mid-Atlantic, Tier-1 research university. The age of participants ranged from 18 to 34 (M=19.79, SD = 1.83), and included 75 freshman (35%), 62 sophomores (29%), 49 juniors (23%), 27 seniors (13%) and two students (<1%) who reported other class ranks. There were 141 women (66%), 67 men (31%) and seven students (3%) reporting other gender identities. The racial/ethnic composition of the sample included 128 individuals identified as White or European American (60%), 30 as Black or African American (14%), 34 as Asian/Pacific Islander American (16%), 11 as Hispanic American or Latino/a (5%), and eight as Multiracial (4%). Four students specified other options, including "Native American," "Other," "Arab," and "Middle Eastern."

The majority of the sample rated themselves as moderately to very decided on their career direction at the present time (n=125, 58%), while the other participants ranged from completely undecided to slightly decided (n=90, 42%). Among all of the participants, 135 (63%) indicated that making or remaking a career decision was

either moderately or very important to them at the present time. Participants spanned a diverse array of current majors and double majors; however, a significant subset of the sample indicated they are pursuing at least one major in psychology (*n*=92, 43%). This is not surprising as the recruitment of participants was exclusively through psychology department courses.

Measures

Learning experiences. The Career Exploration and Decision-Making Learning Experiences (CEDLE) scale was developed in preparation for this study (Lent et al., 2017). The scale currently consists of 5 conceptual subscales corresponding to the five informational sources of efficacy information: mastery experience (8-items), vicarious learning (8-items), verbal persuasion (8-items), positive emotional arousal (5-items) and negative emotional arousal (5-items) (Bandura, 1997; Bike, 2013). Participants are asked to respond to items on the first three subscales using a Likert scale of agreement from 1 (*Strongly disagree)* to 5 (*Strongly agree*), with higher scores representing higher presence of learning experience in these areas. Sample items include: "The way I have approached important career-related decisions has worked well for me in the past" (mastery experiences); "I have role models who have explained to me how they chose an academic major or career path" (vicarious learning); and, "Important others have convinced me that I possess the skills needed to manage my career decision-making process" (verbal persuasion).

The final two subscales (positive and negative emotional arousal) were modeled after the PANAS-short form (E. R. Thompson, 2007), and include the

prompt, "When you have approached career exploration and decision-making tasks over the past year, to what extent have you felt…" Respondents are asked to rate their experience on a Likert-type scale from 1 (*Very slightly or not at all*) to 5 (*Extremely*). The positive emotions used are: Attentive, Inspired, Active, Determined, and Excited. The negative emotions used are: Upset, Nervous, Ashamed, Afraid, and Overwhelmed. It should be noted that these emotion choices represent minor modification to the PANAS, with "Overwhelmed" replacing "Hostile" on the negative scale, and "Excited" replacing "Alert" on the positive scale. These word changes were made because hostility and alertness are emotions less associated with career decision-making, while feeling "overwhelmed" or "excited" may reflect emotions more common to the career exploration and decision-making process among college students.

While the CEDLE scale is in development, it has shown promising initial psychometric properties in recent testing with a sample of 324 college students (Lent et al., 2017). An exploratory factor analysis was conducted on an initial version of the scale and a four-factor solution was derived using parallel analysis and interpretability criteria. Items meant to assess verbal persuasion and mastery experiences loaded together on the first factor (VPME), while other items separated into the three other theoretically distinct factors (negative emotional arousal-NEA, positive emotional arousal-PEA, and vicarious learning-VL). Using a trimmed 20-item list from EFA (14 items were deleted due to inadequate factor loadings, or cross-loadings, and/or low communalities), a confirmatory factor analysis on the scale suggested a five-factor solution (with distinct factors for verbal persuasion and

mastery experiences) was significantly better fit than the four-factor alternative. Thus, the current study offered an opportunity to further understand the underlying factor structure of the scale and tease out the differences between the mastery experiences and verbal persuasion factors.

The five subscales had Cronbach alpha estimates of .82 (ME), .89 (VP), .83 (VL), .81 (PEA), and .82 (NEA). Each of the five subscales correlated significantly with the measure of career decision self-efficacy chosen for the current study: ME ($r = .67$); VP ($r = .55$); VL ($r = .54$); PEA ($r = .61$); and NEA ($r = -.29$). Also consistent with SCCT, the subscales correlated significantly with outcome expectations: ME ($r = .67$); VP ($r = .59$); VL ($r = .55$); PEA ($r = .63$); NEA ($r = -.30$). Of conceptual relevance, the PEA and NEA subscales had a small, though significant correlation (r = -.18). This suggests that positive and negative emotional arousal constitute distinct sources of efficacy information. Path analysis was also conducted in the study indicating that CEDLE scales explained significant variance in both self-efficacy (R^2=.54) and outcome expectations (R^2=.20) (Lent et al., 2017). All individual CEDLE variables had significant direct paths to self-efficacy (with the exception of verbal persuasion). Only vicarious learning and positive emotional arousal had significant direct paths to outcome expectations, while accounting for scores on the other predictors.

While the CEDLE measure showed promise in initial testing, one problem is that the scores for verbal persuasion and mastery experiences were highly intercorrelated. Items for the verbal persuasion subscale initially included language such as "A role model *has told* me I am good at making career decisions." This sort

of construction could be interpreted as a comment on one's accomplishments, rather than an effort at persuasion per se. The verbal persuasion items were, therefore, re-written for the current study to capture intentional efforts at persuasion. Thus, item language now includes wording like, "convinced me," and "persuaded me," to distinguish occurrences of verbal persuasion from mastery experiences among participants. Items were reviewed by a team of SCCT researchers and an expert in the area of learning experiences scale development. New items were also added to reflect distinct ways individuals receive verbal persuasion about their career exploration process. Items for the revised CEDLE can be reviewed in Appendix B. Prior to hypothesis testing in the present study, the revised CEDLE scale were examined using exploratory factor analysis, and scale reliability and validity evidence was reviewed.

Self-efficacy. The Career Decision Self-Efficacy Scale – Short Form (CDSE-SF; Betz et al., 1996; 2005) represents the "gold standard" for measuring career decision self-efficacy in SCCT research. In the interest of brevity, and given the large number of constructs being measured in the current study, the Career Exploration and Decision Self Efficacy scale will be used (CEDSE; Lent et al., 2016). The CEDSE measure was recently developed specifically for use in hypothesis testing involving the CSM model, and contains 8 items assessing (brief) decisional self-efficacy (CEDSE-BD). Though the initial scale used a 10-point Likert-type scale for participants to rate their confidence in various decisional tasks and coping situations, the present study used a 5-point Likert scale in keeping with subsequent data collection, which found that the 5-point scale maintained robust reliabilities (>.80)

and produced more normally distributed scores (Lent et al., 2017). Participants rated their confidence in tasks such as "Figure out which career options could provide a good fit for your personality," and "Learn more about careers you might enjoy" on a scale from *No confidence at all* (0) to *Complete confidence* (4).

The CEDSE scale has been found to correlate substantially with the CDSE-SF (r = .74), yet the CEDSE differs slightly in that it has items focusing on the ability of individuals to match their self-attributes to occupational options. Lent et al. (2016) found adequate reliability coefficients for scores on the CEDSE-BD (α = .94) and the CEDSE-CE subscales (α = .86). In a sample of college students, the CEDSE-BD scores showed theory-consistent correlations with measures of outcome expectations (r = .61), conscientiousness (r = .31), social support for career decision-making (r = .48), and career decidedness (r = .41). Results also indicated that the CEDSE-BD performed comparably to the CDSE-SF in regression and path analyses predicting exploratory intentions, decisional anxiety, and level of decidedness. These results suggest that the CEDSE-BD can be used as a brief assessment in place of the longer CDSE-SF in testing the CSM model of SCCT.

Outcome expectations. Career decision-making outcome expectations were measured using the career outcome expectancies subscale of the Betz and Voyten (1997) Career Decision-Making Outcome Expectancies and Exploratory Intentions Scale (CDMOEEIS). The career outcome expectancies subscale assesses beliefs that career decision-making tasks will result in favorable outcomes. The scale consists of four items rated on a 5-point scale from *Strongly Agree* (1) to *Strongly Disagree* (5). A sample item is "If I learn more about careers, I will make a better decision." Higher

scores reflect greater beliefs about the positive consequences of career exploration and decision-making activities. In college student samples, scores on the outcome expectations subscale have been found to produce coefficient alpha values of .79 to .88 (Betz & Voyten, 1997; Lent et al., 2016). In their study of career indecision, Betz and Voyten found that outcome expectations were strongly related to exploratory intentions.

Exploratory intentions. Career decision-making goals was measured with the Exploratory Intentions subscale of the Career Decision-Making Outcome Expectancies and Exploratory Intentions Scale (Betz & Voyten, 1997). The exploratory intentions subscale assesses an individual's intention to engage in behaviors to explore career options. Betz and Voyten initially conceived the scale to capture the goals construct in the SCCT model. The scale consists of five items rated on a 5-point scale from *Strongly Agree* (1) to *Strongly Disagree* (5). A sample item is "I intend to spend more time learning about careers than I have been." Higher scores reflect greater intentions to engage in career exploration behaviors. In college student samples, scores on the exploratory intentions subscale have been found to yield coefficient alphas ranging from .73 to .80 (Betz & Voyten, 1997; Lent et al., 2016). In a college student population, scores on the Exploratory Intentions scale were correlated moderately to strongly in expected directions with the CEDSE-BD ($r = .37$), and outcome expectations ($r = .50$) (Lent et al., 2017).

Conscientiousness. The Big Five Inventory (BFI; John et al., 2008) is one of several measures that assess personality dimensions representing the "Big Five" taxonomy (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and,

Openness). The BFI is a short personality scale and contains phrases using trait adjectives to reduce ambiguity, while still maintaining core prototypical markers of each trait and high reliability estimates (John et al., 2008). The conscientiousness trait reflects an individual's organized, goal-directed, and planful characteristics, and is one of the most relevant personality traits to the career-decision making process (Brown & Hirschi, 2013; Lent et al., 2016).

High scores on the BFI conscientiousness subscale reflect a stronger presence of favorable attributes for decision-making, while low scores reflect individuals who may be more easily distracted and/or tend towards procrastination. The conscientiousness subscale consists of 9 items and respondents are asked to rate their level of agreement with statements about their personality on a 5-point scale ranging from *Disagree strongly* (1) to *Agree strongly* (5). Sample items include "I see myself as someone who makes plans and follows through with them," and "I see myself as someone who tends to be lazy" (reverse scored). John et al. (2008) reported a coefficient alpha of .82, and Lent et al. (2016) found alphas ranging from .79 to .84 among college students. Lent et al. (2016) found moderate to strong correlations between BFI conscientiousness scores and scores on career decision self-efficacy (ranging from .31 to .55). Additionally, when entered in a regression model with other predictors of self-efficacy (i.e. social support and actual experience), they also found conscientiousness to account for unique significant variance in self-efficacy. These results provide predictive validity evidence for use of this BFI scale in SCCT model testing research.

Neuroticism. High scores on the BFI neuroticism subscale reflect an individual who is more nervous, sad, and otherwise has a more negative outlook or emotionality. Scores on this scale were also correlated with lower coping ability with stress (John et al., 2008). The neuroticism subscale consists of 8 items and respondents are asked to rate their level of agreement with statements about their personality on a 5-point scale ranging from Disagree strongly (1) to Agree strongly (5). Sample items include, "I see myself as someone who is depressed, blue," and, "I see myself as someone who is relaxed, handles stress well" (reverse scored). John et al. (2008) reported an internal consistency of .87. Given that a more neurotic personality may lead to a more negative interpretation of events, the measure was used to assess construct validity by examining its relationship to the negative emotional arousal subscale of the CEDLE measure. In past career research, neuroticism has been found to be associated with avoidant strategies when approaching career exploration, and to lower levels of career decidedness (Brown & Hirschi, 2013).

Extraversion. High scores on the BFI extraversion subscale reflect an individual who is more outgoing, sociable, and assertive, and generally has a more positive outlook on life. Scores on this scale were also correlated with more approach-oriented behaviors (John et al., 2008). The extraversion subscale consists of 8 items and respondents are asked to rate their level of agreement with statements about their personality on a 5-point scale ranging from Disagree strongly (1) to Agree strongly (5). Sample items include, "I see myself as someone who generates a lot of enthusiasm," and, "I see myself as someone who is sometimes shy, inhibited"

(reverse scored). John et al. (2008) reported an internal consistency of .86. Given that a more extraverted personality may lead to a more positive interpretation of events, the measure was used to assess construct validity by examining its relationship to the positive emotional arousal subscale of the CEDLE measure. In past career research, extraversion was indirectly related to self-efficacy and goal setting for career exploration among high school students (Rogers et al., 2008), possibly a result of extroverted tendencies toward proactive engagement and social comfort at approaching others about career information (Brown & Hirschi, 2013).

Social support. Following the model of the Lent et al. (2016) study, social support in this study utilized the Influence of Others on Academic and Career Decision Making Scale (IOACDS; Nauta & Kokaly, 2001). This scale was specifically designed to capture an individual's access to role models in the academic and vocational decision-making process. The 8-item scale "Support/Guidance," subscale was used to capture influence of role models who may offer advice, encouragement, and help making effective career decisions. The subscale includes positively and negatively worded statements to which participants can respond with their agreement on a Likert scale from Strongly disagree (1) to Strongly agree (5) (negatively worded statements are reverse scored). Example statements include: "There is someone who supports me in the academic and career choices I make," and "There is someone who helps me weigh the pros and cons of academic and career choices I make." Higher scores on the measure indicate a greater sense of perceived support in the academic and career decision-making process.

The IOACDS was shown to correlate as expected with measures of general social support, vocational identity, and career certainty (Nauta & Kokaly, 2001). Discriminant validity was also established by showing an insignificant relationship between scale scores and scores on the Marlowe-Crowne Social Desirability Scale. In three independent samples of college students, Nauta and Kokaly reported high reliability of scores for Support/Guidance (.89 to .94). The IOACDS also showed promising test-retest reliability over a 10-week period for Support/Guidance ($r = .71$), suggesting some stability in the construct over time. In a separate study, Lent et al. (2016) found coefficient alphas ranging from .84 to .85 for two independent samples of college students.

Decidedness. In the domain of career exploration and decision-making, self-efficacy has been reliably linked to lower levels of indecision (Choi et al., 2012). In a study developing measures to test the career self-management model of SCCT in this domain, Lent et al. (2016) used a single item to assess level of career decidedness as an outcome variable. The item was included to be administered as a validity check on a career indecision scale and to get a sense of how decided an individual feels about their career choice (Hacker et al., 2013). Lent et al. used the item: "How decided about your overall career direction are you at this point in time?" and provides 6 ratings from *Completely Undecided* to *Very Decided*. They discovered that this item moderately related to a measure of decisional anxiety (r = -.46).

The present study included two additional items asking participants to rate their agreement with statements about their level of decidedness on a 6-point Likert-type scale, from *Strongly Disagree* (1) to *Strongly Agree* (6). The statements are, "I

have narrowed my career options down to a general occupational field that I intend to enter," and "I have decided on a specific occupation or job title that I plan to pursue." These items were adapted from Jones (1989) (See Appendix J). In the current sample, the scores on the 3-item measure had an internal consistency estimate of .88. Decidedness items were administered to participants along with other measures in the study, though scores were used primarily as an internal validity check on the other measures (e.g., self-efficacy and the learning experiences). The decidedness scale was not used in any of the main analyses in the present study.

Procedure

Participants were recruited from undergraduate psychology courses that offered credit for participating in research studies. After accessing the study via the online SONA system, students were directed to an online survey system, Qualtrics. Prospective participants were first be presented with a consent form and were asked whether they (a) met the minimum age requirement (18), and (b) agreed to consent as described.

If they provided their consent, students were then directed to complete each of the measures of the study, including the following: a newly developed and revised measure of Career Exploration and Decisional Learning Experiences (CEDLE); the Career Exploration and Decision Self-Efficacy – Brief Decisional (CEDSE-BD) scale (Lent et al., 2016); and, the Career Decision-Making Outcome Expectancies and Exploratory Intentions scales (Betz & Voyten, 1997), which measure, respectively, outcome expectation and goal variables. To examine the predictive utility of CEDLE, other theoretical variables of interest were included in the study, namely measures of

conscientiousness, neuroticism and extraversion (John et al., 2008) and a measure of social supports (Nauta & Kokaly, 2001). See Appendix D through I for survey items.

The measures were delivered in random order to each participant to avoid biasing results due to ordering effects. Finally, at the end of the survey, participants were asked to complete a demographics form including age, race/ethnicity, gender identity, current academic major, and a brief (3-item) measure of career decidedness (see Appendix J and K). Upon completion of the survey, participants had an opportunity to read about the purpose of the study and were thanked for their participation.

Data Analysis

The data were first examined for missing scores and outliers. Next, an exploratory factor analysis (EFA) examined the factor structure of the CEDLE items, with a particular focus on measurement refinement. EFA was utilized to understand how participants interpreted the revised verbal persuasion items, and how these items relate to the original verbal persuasion and mastery experience items. Confirmatory factor analysis was then used to evaluate the relative fit statistics of four-factor (where mastery experience and verbal persuasion items were forced to load on the same factor) and five-factor (where mastery experiences and verbal persuasion load on different factors) solutions. After these steps in measurement refinement, the final five-factor, 20-item CEDLE scale was used in investigating model-testing hypotheses.

Internal consistency values were computed for each of the measures in the study. Means, standard deviations, and bivariate correlations were computed for all

scales and relationships of interest were evaluated (Hypotheses 1a-1j). This also helped to further estimate the reliability and validity of the CEDLE scale. Finally, correlation and regression assumptions were checked within the data set, including normality, linearity, and homoscedasticity.

The five subscale measures of learning experiences were entered in three separate regression models, one with CEDSE-BD as the outcome variable, one with CDOE as the outcome variable, and a third with exploratory intentions as the outcome variable. The focus of these hierarchical regression models was on (a) the significance of the total amount of explained variance by the set of predictors, as well as (b) on the significance of each individual predictor, controlling for the presence of the other learning experiences and relevant SCCT theoretical predictors. The regression findings were examined to discover the predictor(s) that explain the most unique variation in CDSE and CDOE scores.

In order to test the fifth set of hypotheses exploring hypothesized mediation effects in the CSM model, bias-corrected bootstrapping was used to examine the significance of indirect paths posited in the model (see Figure 2). This method allows an investigator to draw conclusions about the presence of a mediation relationship without the large sample sizes needed through the causal-steps approach (Baron & Kenny, 1986). Correlations between individual CDLE subscales and the CDSE-SF were not reported by Bike (2013), though the total CDLE scale score correlated moderately with the CDSE-SF. In a similar study looking at CDSE, CDOE, and exploratory intentions, Betz and Voyten (1997) found moderate to large relationships both between self-efficacy and outcome expectations, and between those measures

and exploratory intentions. To be conservative, effect size estimates for mediation relationships were assumed to be moderate. By this assessment, the mediation relationships would have required a sample size of 148 in order to achieve the necessary power (.8) for bias-corrected bootstrap analysis (Fritz & MacKinnon, 2007). The mediation tests required a larger sample size than power estimates for earlier regression analyses, so this proposed sample size provided adequate power for all other hypothesis tests in the study.

Chapter 4: Results

Missing Data and Validity Check

The online survey was accessed by 240 individuals, and of these respondents, five individuals failed to complete two or more measures in the survey battery. These five cases were considered as missing data and removed from the data set. Because the other 235 participants responded to all items, no additional steps were needed to handle missing data.

Participants were asked to self-assess the integrity of their responses via a single validity check item at the end of the survey. Following recommendations from Meade and Craig (2012), participants responded to the following question at the conclusion of the survey:

> *It is vital to our study that we only include responses from people that devoted their full attention to this study. Otherwise, our collective efforts (the researchers' and the time of other participants) could be wasted. You will receive credit for this study no matter what. However,* ***in your honest opinion, should we use your data in our analyses in this study?***

There were 20 respondents who answered this question with a "No" response. Upon closer visual inspection of their responses to the measures, apparent strings of the same response or suspicious response patterns were observed in most cases (e.g., responding to every question in multiple surveys with the same rating or with a "zigzag" pattern). Given the problematic nature of the data in this subset, and the respondents' own indication of their data as unusable, these 20 cases were also

removed from the data set prior to analyses. The final data set included 215 respondents with complete data.

Measure Refinement of the CEDLE Scale

One aim of the present study was to explore the potential benefits of newly written verbal persuasion items for the Career Exploration and Decision-Making Learning Experiences measure (CEDLE), and to pick the best items for the scale prior to testing hypotheses derived from the career self-management model of SCCT. These newly written verbal persuasion items were designed to be more explicit in conceptually and practically distinguishing verbal persuasion learning experiences from mastery experiences (e.g., new items used stronger verbs like "convinced," or "persuaded," rather than eliciting instances when someone "told" them something persuasive about their abilities). Using exploratory factor analysis (EFA) in a previous sample of college students, the original verbal persuasion items and mastery experience items of the CEDLE measure loaded on the same factor (Lent et al., 2017).

In order to test whether the new verbal persuasion items offer clearer separation from mastery experiences, and to see how these items relate to the original verbal persuasion and mastery experience items, an EFA using principal axis factoring and oblique rotation (Direct Oblimin) was conducted using SPSS 23.0. The 16 original CEDLE items for mastery and verbal persuasion learning experiences (eight items each) were included in the EFA, along with the eight newly written verbal persuasion items (see APPENDIX A for all CEDLE items). The goal of this EFA was to investigate whether the mastery and verbal persuasion items represented

the same latent dimension, or whether there is more than one dimension, as theoretically expected.

In order to determine a factor solution, multiple metrics were used including parallel analysis, scree plots, and eigenvalues (Worthington & Whittaker, 2006). The parallel analysis was run with 10,000 randomly generated data sets and suggested 2 latent factors for retention (see Table 4 for results). Though scree plots and eigenvalues for the factors were examined secondarily, their interpretation also aligned with a two-factor solution (the eigenvalues suggest a three-factor solution, but only one item had a primary factor loading on the third factor and was heavily cross-loaded). In the two factor solution, a Kaiser-Meyer-Olkin (KMO) statistic was .946 and Bartlett's test of sphericity was significant ($p < .001$), indicating the relationships between this subset of CEDLE items was strong enough to proceed with the factor analysis (Tabachnick & Fidell, 2001). The factor solution accounted for 59.6% of the total variance among items.

Results from this EFA can be seen in Table 3. Several items with low communalities (<.4), low primary factor loadings (<.4), and high cross-loadings (<.15 the difference from an item's highest factor loading) were removed according to recommendations from Worthington and Whittaker (2006). The first factor is comprised exclusively of verbal persuasion items (an equal mix of newly written and original items), while the second factor is comprised exclusively of mastery experience items. This finding suggested that participants in the current sample interpreted new and old verbal persuasion items as essentially the same, while mastery experiences represented a distinct latent factor.

A second EFA was run including just the original mastery experience and verbal persuasion items (16 total) to see if the same latent factor structure held up in the absence of the new verbal persuasion items. Parallel analysis with 10,000 randomly generated data sets again suggested a two-factor structure (see Table 6). The second EFA was similarly run using principal axis factoring and oblique rotation (Direct Oblimin) with the two factor solution having a KMO statistic of .931 (Bartlett's test of sphericity was also significant at $p < .001$). The two-factor solution explained 58.3% of the total variance and again split items into latent factors of verbal persuasion learning experiences (factor 1) and mastery experiences (factor 2). Two items were removed for failing to meet a priori criteria for retention (Worthington & Whitaker, 2006). The resulting factor solution is displayed in Table 7. Again, this second EFA provided supporting evidence that participants in the current sample interpret items for verbal persuasion and mastery experiences as distinct learning experiences.

In summary, the results of these two exploratory factor analyses suggested that the newly written verbal persuasion items, though intended to better represent the verbal persuasion dimension, were not interpreted differently by participants (i.e., they were perceived as reflecting the same latent dimension as the original persuasion items). The second EFA, run using only the original verbal persuasion items and mastery experience items, also suggested the presence of two latent (mastery and persuasion) dimensions. Because existing validity information has already been collected on these original items (Lent et al., 2017), a confirmatory factor analysis using the original CEDLE items (including items from the mastery experiences,

verbal persuasion, vicarious learning, and positive and negative emotional arousal subscales) was conducted with data from the current sample, to evaluate whether the factor structure from the previous study could be confirmed.

Testing Four- and Five-Factor Models of the CEDLE

In an initial validation study of the CEDLE measure, Lent et al. (2017) discovered mixed evidence regarding factor structure. That is, while results of EFA for the entire 34-item measure suggested the presence of four factors (with mastery and verbal persuasion items loading on the first primary latent factor), a confirmatory factor analysis of a shortened 20-item version of the measure (i.e., after removing non-optimally performing items in an initial EFA) indicated that a five-factor solution produced better fit to the data (though scores on mastery and verbal persuasion subscales were still highly interrelated). At the time of the study, it was less clear whether this phenomenon was due to item wording (see above discussion), was sample specific, or accurately represented the way in which people develop beliefs regarding their decision-making self-efficacy (e.g., the success of decision-making experiences is interpreted via verbal feedback from significant others). In order to assess the replicability of this factor structure, and choose a scale to be used in theory testing hypotheses for the present study, a confirmatory factory analysis (CFA) was used with the current sample (Tabachnick & Fidell, 2001; Worthington & Whittaker, 2006).

The CFA included the shortened, 20-item version of the CEDLE from the Lent et al. (2017) study. This included four items from each of the five CEDLE scales: mastery, persuasion, negative emotional arousal, positive emotional arousal,

and vicarious learning. Though EFA suggested a four-factor solution in the first study (Lent et al., 2017), Bandura's (1997) social cognitive theory and Lent et al.'s (1994) SCCT model conceptualized learning experiences as including distinct, though related, mastery and verbal persuasion experiences. Mirroring theoretical expectations, the results of preliminary EFA from the present study (see above) also suggested that verbal persuasion and mastery experience represent distinct latent factors. Thus, two alternative models were tested using CFA, a four-factor model where mastery and verbal persuasion items load on the same factor, and a five-factor solution where mastery and verbal persuasion each occupy their own factor.

The data were subjected to a CFA using MLM estimation in Mplus 7.4 (Muthén & Muthén, 1998-2015). Researchers have suggested reporting a chi-square test statistic indicating overall model fit as well as the Standardized Root Mean Square Residual (a SRMR value ≤.08 incidates a good fitting model); the Root Mean Square Error of Approximation (a RMSEA value ≤.06 indicates relatively good fit, while a value above .08 indicates poor fit); and the Comparative Fit Index, which demonstrates the improvement in overall model fit above the null model (a CFI value ≥ .95 indicates good fit, though ≥.90 has been considered acceptable by some researchers) (Hoyle & Panter, 1995; Hu & Bentler, 1999; Worthington & Whittaker, 2006).

The initial four-factor measurement model suggested marginal fit to the data (Santorra-Bentler χ^2 (164, N=215) = 347.13, $p < .001$; SRMR = .07; RMSEA = .07, 90% CI [.062, .083]; CFI = .89). The five-factor model yielded more optimal fit indices (S-B χ^2 (160, N=215) = 260.93, $p < .001$; SRMR = .06; RMSEA = .05, 90%

CI [.042, .066]; CFI = .94). The factor loadings for all items were significant and substantial (.58 to .84) (see Table 9 for a summary of the model comparison data).

Because the four-factor model is nested within the five-factor model in this analysis, a chi-square difference test was run to examine whether the five-factor model represents significantly better fit to the data than the four-factor model. The results of this S-B (scaled) χ^2difference test found a significant difference in model fit between the five-factor and four-factor models, $T_d(4, N = 215) = 100.52, p < .001$. According to this finding, the five-factor model provided significantly better model fit than the four-factor model. Supporting this conclusion, the difference between CFI values in the two models is greater than .01, which suggested that the difference in fit between the two models is meaningful.

Based on the findings, the five-factor model with factors representing each of the five distinct learning experiences was chosen for use in further analysis in the current study. While the five-factor model distinguishes between mastery and verbal persuasion learning experiences, and had the statistically better fit to the data compared to the four-factor model, the correlation between the mastery and verbal persuasion factors was .63, suggesting that they are highly interrelated, which could cause multicollinearity problems in the subsequent regression analysis. The EFA and CFA analyses attempted to refine the CEDLE measure, though newly written verbal persuasion items were determined not to improve substantially over the original items. Using the original items only, the factor structure from the initial scale construction study was replicated (Lent et al., 2017). This 20-item version of the CEDLE measure, with four items for each of the five learning experience types, was

used to compute the scores of the mastery experiences, verbal persuasion, vicarious learning, and positive and negative emotional arousal subscales that were used in the subsequent model-testing hypotheses of the current study.

Preliminary Analyses Prior to Model Testing

Prior to conducting the regression analysis for hypothesis testing in the study, assumptions for multiple regression analyses were examined (Tabachnick & Fidell, 2001). In each regression analysis, standardized residuals were examined for non-normality, casewise diagnostics were evaluated, and P-P and Q-Q plots were examined. The histogram of standardized residuals appeared normally distributed and points on the P-P and Q-Q plots lie close to the diagonal suggesting the assumptions for normality were met. However, two individual variables (Outcome Expectations and Exploratory Intentions) were slightly negatively skewed and leptokurtic. Rank transformations were applied and z scores of the rank transformation were used in subsequent regression analyses. Plots of standardized predicted values versus residuals were reviewed and assumptions of linearity and homoscedasticity appeared to be reasonably met. Finally, issues of multicollinearity and outliers were examined in each regression. Statistics for VIF for all predictors were less than 3.5, while tolerance scores were all above .03, which suggested there were no problems to address with multicollinearity. Descriptive statistics are presented for all variables in Table 10. The non-transformed scores for Outcome Expectations and Exploratory Intentions appear in this table.

Correlational Hypotheses

Hypotheses 1a through 1j were proposed to further investigate the construct validity of the CEDLE measures. Based on existing literature regarding social support, personality, and learning experiences, predictions for the relationships between CEDLE variables (ME – mastery experiences; VP – verbal persuasion; VL – vicarious learning; PEA – positive emotional arousal; and NEA – negative emotional arousal), and personality and support variables (C – Conscientiousness; N – Neuroticism; E – Extraversion; Support – Social Support) were explored. Variable relationships were examined by conducting two-tailed Pearson correlation tests. All correlational hypotheses were found to be statistically significant and in expected directions (see Table 11 for correlations). Each of the correlations is described below.

Conscientiousness was found to correlate moderately with ME ($r = .48; p < .01$) and PEA ($r = .38; p < .01$); and, negatively, but more modestly with NEA ($r = -.23; p < .01$). Namely, higher conscientiousness was associated with more mastery and positive emotional arousal experiences but lesser negative emotional arousal experiences. These findings provide support for hypothesis 1a, 1b, and 1c, respectively. Extraversion (as a reflection of general positive emotionality) was found to be significantly, positively correlated with the domain specific CEDLE measure of PEA ($r = .34; p < .01$); greater extraversion was correlated with higher levels of positive emotional arousal. Similarly, Neuroticism (as a reflection of trait negative affect) was found to be significantly correlated with the domain specific CEDLE measure of NEA ($r = .41; p < .01$). Higher neuroticism was correlated with

increased negative emotional arousal learning experiences. These findings provide support for hypotheses 1d and 1e, respectively.

Social support, a proximal environmental predictor of self-efficacy and outcome expectations in SCCT, was expected to correlate with each individual CEDLE measure. Indeed, Support was positively correlated with ME ($r = .40; p < .01$); VP ($r = .35; p < .01$); VL ($r = .58; p < .01$); PEA ($r = .34; p < .01$); and, negatively correlated with NEA ($r = -.15; p < .05$). These findings show that greater social support was significantly correlated with mastery experiences, verbal persuasion, vicarious learning, and positive emotional arousal. Support was negatively correlated with negative emotional arousal learning experiences. These results provided support for hypotheses 1f, 1g, 1h, 1i, and 1j, respectively. Broadly, the correlational hypotheses in this study provide additional construct validity for the CEDLE measure because predictions made based on theoretical knowledge and prior empirical expectations were confirmed. This provides a firmer basis for conducting the subsequent regression analyses testing relationships predicted by the SCCT CSM model.

Testing the CSM Model: Hierarchical Regression Analyses

Having produced a refined CEDLE measure, three hierarchical regression analyses were conducted to assess the contributions of learning experience variables in predicting Career Exploration and Decision-Making Self-Efficacy (CEDSE-BD), Career Decision Outcome Expectations (CDOE) and Exploratory Intentions (Intentions) (Hypothesis 2, 3, and 4, respectively), above and beyond proximal contextual and personality influences (Social Support and Conscientiousness). In

each analysis, the proximal contextual influences are added to the regression model in step 1 (as are CEDSE-BD and CDOE as appropriate), and the five learning experiences predictors are added in step 2 to examine whether they (a) collectively add statistically significant explained variance, and, (b) whether individual CEDLE variables are significant predictors.

In the first hierarchical regression analysis (see Table 12), CEDSE-BD was regressed on proximal contextual supports and personality variables in Step 1 (Social Support, Conscientiousness). The CEDLE predictors were added in Step 2 (ME, VP, VL, PEA, and NEA). The proximal support and personality variables jointly accounted for 25% of the variance in career exploration and decision-making self-efficacy. The addition of the CEDLE predictors in step 2 explained an additional 22% of variance, confirming Hypothesis 2a ($\Delta F(5,207) = 17{,}19; p < .001$). However, only partial support was found for hypothesis 2b. In the full model, only four of the five learning experiences predictors accounted for significant unique variance after controlling for the other predictors in the model: ME ($\beta = .24, p < .01$); VP ($\beta = .16, p < .05$); NEA ($\beta = -.13, p < .05$) and, PEA ($\beta = .23, p < .01$). The beta weight for Vicarious Learning was not significant when controlling for the other variables. This suggested that having prior successful mastery experiences, access to verbal persuasion, lower levels of negative emotional arousal, and higher levels of positive emotions in relation to the career decision-making process are all associated with greater decisional self-efficacy, above and beyond the contribution of social support and personality.

In the second hierarchical regression analysis (see Table 13), rank-transformed (and normalized) scores for outcome expectations (CDOE) were regressed on proximal contextual supports and personality variables, as well as CEDSE-BD, in Step 1 (in the SCCT CSM model, self-efficacy is seen as a direct predictor of outcome expectations). Again, the five learning experiences predictors were added in Step 2. CEDSE-BD, social support, and personality variables jointly accounted for 17% of the variance in CDOE (z-scores of rank transformation). The addition of the learning experiences predictors in Step 2 explained an additional 3% of variance, though this was non-significant ($\Delta F(5,206) = 1.49; p = .195$). This did not provide support for hypothesis 3a, that CEDLE variables would collectively account for explained variance in outcome expectations above and beyond the other predictors.

Likewise, in the full model, no support was found for hypothesis 3b either, as each of the learning experience predictors were non-significant (p>.05) when controlling for other predictors. Only social support was a significant individual predictor of rank-transformed CDOE scores in the full model ($\beta = .32, p < .01$), suggesting that, with greater social support, individuals tend to report more positive outcome expectations for their career exploration and decision-making process, above and beyond conscientiousness, self-efficacy, and the learning experiences.

In the third and final hierarchical regression analysis (see Table 14), rank-transformed (and normalized) scores for Exploratory Intentions were regressed on proximal contextual supports and personality variables, CEDSE-BD, and CDOE in Step 1. The Step 1 predictors mirrored direct pathways shown in the SCCT CSM

model to “Goals”, which are indexed in the current study by the Exploratory Intentions variable. There are no direct paths between CEDLE learning experiences and Intentions hypothesized in the CSM model, so hypotheses 4a and 4b were that CEDLE variables would *not* explain unique variance in Intentions beyond the theoretical relationships proposed. The CEDLE variables were added in Step 2 of the regression analyses.

Social Support, Conscientiousness, CEDSE-BD, and CDOE collectively accounted for 16% of the variance in Intentions. The addition of the CEDLE predictors, counter to the prediction of hypothesis 4a, added a statistically significant 7% of explained variance ($\Delta F(5,205) = 3.65; p < .01$). In the full model, the findings were not consistent with hypothesis 4b, as NEA was a statistically significant individual predictor of Exploratory Intentions ($\beta = .20, p < .01$). This finding suggested that greater negative emotional arousal in the career exploration and decision-making process may help to motivate intentions to take exploratory actions. CDOE (normalized rank scores) was the only other statistically significant individual predictor ($\beta = .33, p < .01$) of Intentions, suggesting that the more positive outcomes one believes will occur from taking action, the more likely they are to plan to take exploratory action regarding their career decision-making.

Testing the CSM Model: Mediation Analyses

Indirect effects between CEDLE predictors, CEDSE-BD, CDOE (normalized rank transformation scores), and Intentions (normalized rank transformation scores) were examined in mediation analysis. Indirect effects, identified from proposed relationships in Figure 2, were tested with 5000 bias-corrected bootstrap samples

using Mplus 7.4 (Muthén & Muthén, 1998-2015). Bootstrapping is a method for testing for statistical mediation, or the relative strength of various indirect pathways in a model. While the hierarchical regressions above give a sense of direct path relationships in the SCCT CSM model, the testing of indirect effect pathways suggest some of the more nuanced ways in which learning experiences may contribute to individuals' career decision-making process.

Only partial support was found for each of hypotheses 5a, 5c, and 5d, while no support was found for Hypothesis 5b (for a summary of indirect effect findings organized by hypothesis, see Table 15). Specifically, the indirect paths from Mastery Experiences ($B = .06, SE = .05, 95\%\ CI\ [.00, .18]$) and Positive Emotional Arousal ($B = .05, SE = .04, 95\%\ CI\ [.00, .15]$) to CDOE, through CEDSE-BD, were found to be statistically significant. These results suggested that mastery experiences and positive emotional arousal in the career exploration and decision-making process may boost self-efficacy which, in turn, promotes positive outcome expectations. However, Verbal Persuasion, Vicarious Learning, and Negative Emotional Arousal did not have significant indirect paths to outcome expectations through self-efficacy.

Vicarious Learning was the only variable to have a significant indirect pathway to Intentions through Outcome Expectations ($B = .16, SE = .05, 95\%\ CI\ [.07, .26]$). In this pathway, outcome expectations mediate the relationship between vicarious learning and exploratory intentions. In other words, vicarious learning experiences may nurture positive expectations about engaging in exploratory actions which, in turn, may promote intentions to take such actions.

Finally, the predictions of significant indirect paths from CEDLE variables to Intentions through self-efficacy, and then outcome expectations, also had partial support. The paths originating with Mastery Experiences ($B = .02, SE = .02, 95\%\ CI\ [.00, .07]$), Verbal Persuasion ($B = .01, SE = .01, 95\%\ CI\ [.00, .05]$), and Positive Emotional Arousal ($B = .02, SE = .01, 95\%\ CI\ [.00, .06]$) were each significant. That is, mastery experiences, verbal persuasion, and positive emotional arousal were associated with more favorable exploratory intentions via the pathway from self-efficacy to outcome expectations.

In summary, only six of the 20 proposed indirect effects were found to be significant, providing partial support for hypothesis 5a, 5c, and 5d. No indirect effects from learning experiences to intentions through self efficacy were found to be significant (hypothesis 5b). Mastery experiences and positive emotional arousal both had significant indirect effects on outcome expectations (through self-efficacy) and intentions (through the self-efficacy to outcome expectations pathway). Vicarious learning had a significant indirect effect on exploratory intentions through outcome expectations. Verbal persuasion had a significant indirect effect on exploratory intentions (through the self-efficacy to outcome expectations pathway). No significant indirect effects were found that originated with the Negative Emotional Arousal variable.

Chapter 5: Discussion

Refinement and Validation of the CEDLE Scales

Furthering development and validation efforts of the CEDLE measure (Lent et al., 2017) , the present study offered additional validity evidence for the scale, and underscored the importance of the ongoing effort to understand the career exploration and decision-making process. Scholars have long held an interest in career decision self-efficacy (CDSE; (Hackett & Betz, 1981; Lent & Brown, 2013; Lent et al., 1994; Taylor & Betz, 1983), empirically tested its significance in relationship to career outcomes (Betz & Voyten, 1997; Creed et al., 2006; Rogers & Creed, 2011), and attempted to manipulate it through intervention (Ali, Yang, Button, & McCoy, 2011; Chronister & McWhirter, 2006; Luzzo & Taylor, 1994; McWhirter et al., 2000; Sullivan & Mahalik, 2000). According to the architects of this construct, it is now the antecedents of self-efficacy (and outcome expectations) that require further investigation (Betz, 2007), because the sources may be one of the most useful theoretical guides to designing successful career counseling interventions.

Bike (2013) was one of the first researchers to tackle this effort, creating the Career Decision-Making Learning Experiences scale (CDLE). The CDLE scale, though novel, has several shortcomings, such as item wording that may artificially inflate correlations with the CDSE self-efficacy measure (Taylor & Betz, 1983); concerns about the adequacy of construct representation, and the possibility that some items are outside of the intended conceptual domain. Further, Bike (2013) did not report individual subscale relationships (opting only to use a total scale score), and

did not examine potential correlations between CDLE and domain-specific outcome expectations, a theoretically important link in SCCT.

The CEDLE scale (Lent et al., 2017) has improved upon these shortcomings and offers promising psychometric properties for further study. The five CEDLE subscales include Mastery Experiences (ME), Verbal Persuasion (VP), Vicarious Learning (VL), Positive Emotional Arousal (PEA), and Negative Emotional Arousal (NEA). The subscales follow the conceptual framework proposed by Bandura (Bandura, 1977, 1997) and mirror those of Bike's CDLE scale. Yet, item construction for the CEDLE was done using wording distinct from the CDSE and CEDSE-BD measures, thereby minimizing content overlap and artificially high correlations with self-efficacy.

CEDLE subscales are, as expected, intercorrelated. However, these correlations are not so large as to suggest construct redundancy. The relationship between ME and VP, though strong ($r = .63$ in the present study), is conceptually plausible. Real world learning experiences are complex and may be difficult for participants to distinguish, leading them to interpret successes primarily through feedback from others (Lent et al., 2017). Confirmatory factor analysis in the initial validation of the CEDLE scale, and the current study, both support the five conceptual factors proposed by Bandura (1997). Scores on the subscales also have shown adequate reliabilities among college students across both studies (ME, $\propto = .81\ to\ .82$; VP, $.87\ to\ .89$; VL, $.76\ to\ .83$; PEA, $.81\ to\ .83$; NEA, $.82\ to\ .82$).

In addition to factor structure and reliability findings, there is additional evidence of construct validity for CEDLE. In the current study, conscientiousness

was significantly, positively correlated with ME and PEA, and negatively correlated with NEA. These relationships match expectations for personality dimensions and career exploration and planning behaviors (Brown & Hirschi, 2013). In a previous study, cognitive interpretation of past experiences provided incremental predictive utility beyond simply asking participants whether they had engaged in certain exploratory behaviors (Lent et al., 2017). In hierarchical regression, ME was a significant individual predictor of self-efficacy, above and beyond social supports and conscientiousness. This finding is consistent with the hypothesis that perceived past successes are one of the most important predictors of self-efficacy (Anderson & Betz, 2001; Bandura, 1997; Lent et al., 1991).

Verbal persuasion also contributed unique variance in the prediction of self-efficacy, above and beyond other learning experiences, social support, and conscientiousness. Not surprisingly, VP had a positive correlation with a measure of social support, as having others support one's career exploration and decision-making process is likely to come in the form of verbal input about one's capabilities. Indeed, in a realm like career exploration and decision-making where there are not concrete measures of success, college students may rely on input from important others to affirm their sense of ability in this domain (Bandura, 1997).

In the first CEDLE study, VL was a significant individual predictor of outcome expectations in simple regression (Lent et al., 2017). In the current study, when social support and conscientiousness were included in the hierarchical regression model, VL was no longer individually significant (nor were any other of the CELDE factors). It may be that the efficacy-enhancing functions of vicarious

learning overlap with those of social support and that the path from vicarious learning to outcome expectations is largely mediated by self-efficacy.

The positive and negative emotional arousal subscales (PEA and NEA, respectively) have repeatedly shown small negative correlations, suggesting that they are distinct factors (i.e., that positive arousal is not merely the absence of career decision-making-related anxiety). This finding mirrors Bike's (2013) findings, as well as Bandura's (1997) delineation of these constructs. In the present study, significant, moderate, relationships were found between PEA and Extraversion ($r=.34$, $p<.01$), and NEA and Neuroticism ($r=.41$, $p<.01$). The CEDLE emotional arousal scales are more domain-specific than are the global personality constructs of Extraversion and Neuroticism. Thus, these moderate correlations illuminate the importance of measuring domain-specific affective experiences.

In addition to individual subscales, the set of five CEDLE predictors offer incremental predictive validity. Collectively, the set has previously accounted for significant explained variance in self-efficacy ($R^2 = .54$) and outcome expectations ($R^2 = .20$). When including other predictors from SCCT (conscientiousness and social support), the CEDLE predictor set also added significant unique variance in the prediction of self-efficacy ($\Delta R^2 = .22$). On balance, the current findings related to the CEDLE's psychometric properties suggest its potential utility in future model testing.

In addition to using the CEDLE scale for future model testing of the career self-management model, the scale's conceptual framework should also be further investigated. In the current study, the scale was presented as if learning experiences

occur simultaneously (e.g., mastery experiences and positive emotional arousal events). However, the cognitive heuristic processes involved in self-efficacy formulation may rely on events or experiences that occur in succession. For example, given that college students embark on career exploration with little guidance, and successes may be less clearly defined in this domain, it is possible that they may rely on verbal feedback or persuasion about their abilities. Perhaps mastery experiences are only judged as such after verbal persuasion experiences allow for the categorization of past efforts as successful.

In this same vein, emotional arousal experiences might also be conceptualized as occurring secondarily to mastery or vicarious learning experiences. Perhaps some of these experiences may be neutral in the minds of students until they develop some affective categorization of their experiences. One alternative model may be to consider positive and negative emotional arousal experiences as two distinct possibilities, which are only actualized after other types of learning experiences occur. In this way, it is also possible to consider how variables like personality may modify individuals' interpretation of events as reinforcing existing positive or negative emotional schemas. These potential temporal relationships would be an interesting line of inquiry in future studies that collect longitudinal data on the learning experiences and seek to test competing causal hypotheses about the different ways learning experiences may be temporally ordered.

Career Self-Management Model Findings

The present study is the second to explore the CEDLE construct in the Career Self-Management (CSM) model of SCCT. In model-testing hypotheses, the key

social cognitive variables of domain-specific self-efficacy, outcome expectations, and goals (intentions) were included. Based on hierarchical regression findings, the CEDLE predictors accounted for significant variance in self-efficacy, above and beyond social support and conscientiousness, two proximal predictors of self-efficacy posited by SCCT theory. This finding supports the hypothesis that Bandura's (1997) "sources of self-efficacy" are, indeed, linked to self-efficacy. In the final step of the regression model, the ME, VP, PEA, and NEA learning experiences remained individually significant above and beyond the other predictors. These four sources may thus represent distinct targets for interventions designed to increase career decision self-efficacy among college students.

The CEDLE predictors, though, did not predict significant variance in outcome expectations above and beyond social support, conscientiousness, and self-efficacy. The lack of additional significant explained variance was counter to hypothesized predictions of a direct link between CEDLE variables and outcome expectations in the CSM model. In multiple studies involving the CEDLE scale (Lent et al., 2017), the relationship between self-efficacy and outcome expectations has been significant in ways consistent with SCCT theoretical postulates. It is possible that the CEDLE variables are linked to outcome expectations mostly indirectly, through self-efficacy.

One alternative to the possibility of these indirect effects may be that the CEDLE variables are really not substantial predictors of outcome expectations. Theoretically, outcome expectations comprise one's expectation of valued physical (perhaps not as central to career exploration and decision-making), social (e.g.,

approval or rejection from peers or parents, or anticipated monetary compensation), and self-evaluative (e.g., positive view of self, or self-criticisms) reactions (Bandura, 1997; Fouad & Guillen, 2006). While findings from the current study identified social support as having a significant relationship with positive outcome expectations in the domain of interest, the variables used in regression analyses only accounted for 20% of the variance in outcome expectations, suggesting that other variables of influence were missing from the study.

In their review of existing outcome expectations research, Fouad and Guillen (2006) trace the evolution of outcome expectations as a construct that Bandura proposed in his Social Cognitive Theory (1977, 1997). Among several theoretical underpinnings discussed, Fouad and Guillen mention Aspiration Theory (c.f. Lewin, Dembo, Festinger, & Sears, 1944) as a key part of the emergence of outcome expectations. This theory would center a students' level of familiarity with a particular task (versus the novelty of that task). So, one possible area of exploration for understanding outcome expectations may be students' sense of career exploration and decision-making as a new experience, which has been previously proposed (Lent et al., 2017). Measuring this "novelty" construct may help determine students' ability to adequately set higher levels of aspiration. Another area suggested by Fouad and Guillen is the concept of locus of control (c.f. Rotter, 1966). Locus of control was found to account for significant variance in vocational outcome expectations in a previous study (Işik, 2013). It is possible that students with a more external locus of control perceive less positive outcome expectations due to the lack of their own sense of agency in the career exploration and decision-making process. This may imply

that measuring external factors like career barriers are still important (Gushue, Clarke, Pantzer, & Scanlan, 2006; Gushue & Whitson, 2006; Lent et al., 2000), despite some researchers reporting no significant relationship between these constructs (Ali, McWhirter, & Chronister, 2005; McWhirter et al., 2000).

Fouad & Guillen (2006) also allude to the impacts of an individuals' level of self-reflectiveness and their developmental stage as being related to how individuals form outcome expectations and how impactful these outcome expectations are at various points in life. More recently, other variables like critical consciousness of racial inequality (McWhirter & McWhirter, 2015; Olle & Fouad, 2015) and social class variables, like perceived social status (M. N. Thompson & Dahling, 2012) and family socioeconomic status (Metheny & McWhirter, 2013) among lower-SES participants, were also found to be related to vocational outcome expectations, all of which were not assessed in the present study and warrant future study.

The current study also explored a third hierarchical regression model involving exploratory intentions as the criterion variable. Like Betz and Voyten (1997) found, outcome expectations was the most substantial predictor of exploratory intentions, and self-efficacy did not contribute significantly as an individual predictor. Counter to expectations from the CSM model, adding the CEDLE predictors to the regression model explained a small, but significant amount of additional variance ($\Delta R^2 = .07$). This result largely came from the individual contribution of NEA, suggesting that individuals who feel more anxious because of their past attempts at career decision-making likely have stronger intentions to explore their options in the future. The extent to which such anxiety actually leads to exploratory action is

unclear; however, it does align with the notion that moderate levels of anxiety may be facilitative (Bandura, 1997). While interesting, this finding may be sample-specific and thus requires further exploration in longitudinal research in order to draw stronger conclusions.

Indirect effects of the CEDLE variables on self-efficacy, outcome expectations, and exploratory intentions were examined through bootstrapping. While CEDLE predictors did not have direct effects on outcome expectations in regression testing, ME and PEA did have significant indirect effects through self-efficacy. The notion that having had successful experiences or positive emotional arousal regarding past efforts, would increase future positive outcome expectations is theory-consistent. These effects, however, may be more significant as they increase an individual's confidence in the tasks that led to their positive outcome expectation. Combined with several other significant indirect effects, these findings raise the prospect that individual types of learning experiences may not operate uniformly along the SCCT pathways. While using a total scale score for the CEDLE measure may make sense for certain theory-testing purposes, the present findings support the practice of treating the individual CEDLE predictors as co-varying, yet distinct. The decision on how to model these variables will likely come down to practicality and the research questions at hand.

The small relationship between self-efficacy and exploratory intentions, both in bivariate and regression analyses, also deserves comment. These findings mirror findings of Betz and Voyten (1997), who found that the only significant predictor of exploratory intentions in their study was outcome expectations. Bandura (1997)

hypothesized that self-efficacy becomes less predictive of future plans for action as the task becomes less challenging. Perhaps students consider exploratory tasks as relatively easy to complete (i.e., most students may find accessing online career information within their capabilities), and thus their confidence is high even though they do not intend to take further action. Thus, confidence may not be the most important predictor of future actions in this domain, even though it is associated with less future career indecision (Choi et al., 2012).

Collectively, these findings regarding hypothesized relationships in the CSM model provide support for some proposed relationships (e.g., between CEDLE and self-efficacy, or between outcome expectations and exploratory intentions), as well as evidence counter to predicted outcomes (i.e., no significant relationships between CEDLE and outcome expectations, between self-efficacy and exploratory intentions, and in many of the mediation indirect effects). Ultimately, continued efforts are needed to build a stronger case for the tenability of the CSM model within the career exploration and decision-making domain, and for the targeted population of college students. Given the cross-sectional nature of this study and the early stage of research involving the CEDLE, it would be premature to suggest changes to the model at this time.

Any potential revisions to the CSM model would require continued efforts at replication, collection of longitudinal data to examine temporal effects, and a larger data set to increase power for estimating relationships of interest. As such, the results of this study emphasize the potential utility of the model, while also exploring propositions for future research targeted at illuminating reasons why some non-

significant relationships in the model were discovered in this sample (e.g., potential measurement issues with the outcome expectations construct). Regardless of the strength of the CSM model to explain the results of this study, the findings do offer potential insights and suggestions for career counselors working with college students.

Implications for Career Counseling

It has long been suggested that career counselors work to improve students' career decision self-efficacy in order to reduce career indecision (Choi et al., 2012). In particular, researchers have suggested accomplishing this through the theoretical sources of self-efficacy proposed by Bandura (1997). Sullivan and Mahalik (2000) employed this theoretical framework in their design of a career course for women (though no measure of learning experiences existed to use as a manipulation check in their study). Their course design provided several useful examples of how to construct interventions based on learning experiences. Other researchers have also created interventions based on the sources of self-efficacy (Ali et al., 2011; Betz & Luzzo, 1996; Luzzo & Day, 1999; McWhirter et al., 2000). Findings regarding the CEDLE offer further support for efforts to modify self-efficacy and outcome expectations in the domain of career exploration and decision-making.

In the findings of the current study, ME and PEA were the only sources that had both significant direct effects on self-efficacy, and also showed significant indirect effects on both outcome expectations and exploratory intentions. They are thus targets for career counselors to attend to, especially those working with college students. As many students likely arrive on campus with little experience in this

career domain, counselors should not only focus on providing information, but on offering opportunities for students to practice this emerging skill set (e.g., assigning homework to reinforce modeled career exploration strategies). Counselors who walk through examples of what they recommend, and give students small concrete steps for follow-up will likely help to increase students' sense of their capabilities. Also, efforts to connect less conscientious students, with social supports and vicarious learning opportunities may also enhance self-efficacy and, in turn, and outcome expectations.

Career counselors might also focus on students' anxieties, normalizing the challenges in the process, and dispelling damaging myths about the world of work. In addition, counselors can help students tap into more positive feelings, like excitement and inspiration about their career futures, in hopes of raising their sense of efficacy. Each of these approaches may help to strengthen the exploratory intentions that counselors hope to cultivate in students.

While self-efficacy is important to promoting exploratory intentions, it may be even more important for counselors to focus on students' outcome expectations, thereby helping them to see the links between exploratory behaviors and progress in career decision-making. Finally, the current results illuminate the role that social support plays in forging positive outcome expectations. Rather than relying on campus resources exclusively, college counselors may work to help students build new support networks or tap existing networks in students' families or academic communities. Alumni relationships or mentoring programs for underserved

populations may provide an opportunity for mentoring and role modeling that is useful in facilitating career decision-making.

Limitations

The results of this study need to be interpreted in light of its limitations. The sample contained a preponderance of White (60%) and female students (66%). The sample was also composed entirely of college students at a single 4-year institution; it also contained a large proportion of psychology majors (43%). These sample characteristics may limit the generalizability of the findings. Future research is needed to study the CEDLE in more racially and ethnically diverse students, those attending 2-year colleges, those from different socio-economic statuses, those of different ability statuses, and those at different points in their career exploration process.

In the CFA on the CEDLE measure, which produced an adequate fit for the 5-factor model, results need to be interpreted cautiously. The CFI for the chosen five-factor solution was above an acceptable level, yet still below the most stringent .95 cutoff. Further research is therefore needed on the stability of the CEDLE's factor structure. Another limitation is that these findings are based on cross-sectional data. They, therefore, cannot be used to support causal assumptions or establish the cyclical nature of relationships in the CSM model (e.g., outcomes such as decidedness are posited as providing a feedback loop to learning experiences). Longitudinal research is needed to assess the temporal precedence of the variables over time.

Learning experiences are derived conceptually from Bandura's (1997) sources of self-efficacy. The smaller correlations between learning experiences and outcome

expectations may have been due, in part, to limitations in item construction that focused more on self-efficacy development. Future research might, therefore, try to develop items that are tailored more to the sources of outcome expectations drawing, for example, on the outcomes of past experiences with career exploration and decision-making (e.g., "My past experiences with career-related decisions made my parents proud").

Potential cultural limitations should also be considered. For example, the CEDLE measure presupposes a predominantly Western, individualistic worldview. This worldview and value system is reflected in item content, such as use of "I" as the subject in item wording. Thus, the scale assumes that an individual's judgment of their interests, values, and personality are at the heart of their career choices, rather than considering more explicitly the influence of one's family and important others. For example, Asian American families may influence children's career choices significantly (Okubo, Yeh, Lin, Fujita, & Shea, 2007). Such potential limitations underscore the importance of continuing validation of the CEDLE using diverse samples.

In interpreting the findings, it should be noted that some of the CEDLE scales, especially mastery experiences and verbal persuasion, were highly interrelated. In everyday life, it may be difficult to separate perception of the individual learning experiences because they are likely to occur together. For example, a successful decision experience may well be accompanied by positive verbal feedback from others as well as by positive affect. A final limitation is that all measures were

obtained via the self-report of a single individual and, thus, were subject to mono-source and mono-method biases.

Future Directions

While the CEDLE measure has promising psychometric properties and a growing amount of construct validity evidence, additional work is needed to address potential limitations in the scale. As noted above, data that have been collected so far on the measure are cross-sectional, and longitudinal data are needed to examine temporal relations of the CEDLE variables to self-efficacy and outcome expectations. Longitudinal study would also be a way of examining the temporal precedence of learning experiences to exploratory behaviors. This type of study is challenging to implement because of the large sample sizes needed and the difficulty in maintaining connection to participants over time. One promising area may be cementing partnerships between campus career service providers (e.g., college career centers) and academic researchers in order to pursue mutual goals of studying students' career outcomes, aiding theoretical understanding, and redesigning interventions for optimum effectiveness.

Future research is also needed to examine whether the factor structure of the CEDLE replicates among diverse samples. The present validation efforts have confirmed a 5-factor structure among college students, but it remains to be seen whether the measure provides similar structure and scale score reliabilities in groups of different ages, cultures, and among individuals at different points in their career process (e.g., those re-deciding on a career or transitioning to new work after a period of unemployment). One reason for studying career learning experiences is that it may

enhance understanding of the impacts of system-level political, social, economic, and occupational disadvantages to students based on race/ethnicity, gender, sexual orientation, ability, and other group identities (cf. Chartrand & Rose, 1996). This type of testing of the CEDLE measure is particularly important, as learning experiences may be a mediating influence between background variables like race, gender, ability, and socioeconomic status, and self-efficacy. It is possible that career disparities among groups are partly a result of differential access to career decision-making learning experiences.

Early work on career self-efficacy considered the prevailing opportunity structure affecting women's tendency to avoid traditionally male-dominated fields (Hackett & Betz, 1981). Byars and Hackett (1998) suggested ways in which women of color may differentially experience and incorporate learning experiences based on their circumstances, environment, sociopolitical context, and family dynamics. It may be, for example, that women of color from lower socio-economic backgrounds have less access to educational mastery experiences or career role models that help promote their career development. Testing the CSM model with a focus on groups systematically disadvantaged by institutional barriers would be a valuable next step in research on the CSM model and learning experiences construct.

Learning experiences as a construct is one way to consider influences on self-efficacy and outcome expectations. However, it would also be useful to study other variables that may be at play, such as social supports and barriers, a broader array of personality traits, and cultural variables. Some constructs that could impact efficacy judgments include acculturation, racial and ethnic identity, gender-role socialization,

experiences of sexism, racism, or discrimination, socioeconomic status, and parent-child attachment (Byars & Hackett, 1998; Downing & Nauta, 2009; Morrow, Gore, & Campbell, 1996; Patel, Salahuddin, & O(Byars & Hackett, 1998; Downing & 06). It is possible, for example, that some of these variables may moderate the relationships between learning experiences and self-efficacy or outcome expectations.

While CEDLE was used in the present study for model testing of the CSM model in SCCT, it is possible that CEDLE could also be used in testing interventions designed to provide career learning experiences. Sullivan and Mahalik (2000), for example, developed a career exploration course designed to modify the theoretical learning experiences. The CEDLE measure could be used in this type of research to establish whether interventions produce their intended effects via the intervening mechanism of change in career exploration learning experiences.

Finally, one puzzling finding from recent research is the modest relationships obtained between the CEDLE scales and career decision outcome expectations. It is unclear whether these effect sizes are due to the CEDLE measure, unique aspects of the domain of interest, sample characteristics, problems with CSM theory, or the measurement of outcome expectations. Relatively little effort has been devoted to investigating outcome expectations in this domain (Fouad & Guillen, 2006).

It is possible the outcome expectations measure utilized in this study may include too many easily endorsable items (e.g., “If I learn more about myself, I’ll make a better career decision”). The presence of such items may be one of the reasons that scores on the CDOE measure have tended to be negatively skewed in some studies (Lent et al., 2016, 2017). It is also possible that inclusion of negatively

worded items may more fully capture the attitudes of college students (e.g., "If I don't take additional steps, I'll eventually make a good career decision"). In other words, it is worth exploring through future qualitative and quantitative research whether the current measure of outcome expectations adequately represents the construct. Such inquiry, along with further research on the adequacy of the CEDLE scales and CSM theory, may add to understanding of the career exploration and decision-making process.

Table 1

Career Exploration and Decision-Making Learning Experiences (CEDLE) - Items and Standardized Factor Loadings

Learning Experience Item	Factor				
	ME	**VP**	**VL**	**PEA**	**NEA**
The way I have approached important career-related decisions has worked well for me in the past	.73				
I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions	.73				
I have been good at putting my career-related decisions into action	.78				
I have been resourceful at gathering the information I need to make career-related decisions	.70				
Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions		.84			
Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions		.85			
Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions		.80			
Important others have let me know that I am good at managing challenges that arise when making career-related decisions		.76			
I have role models who are good at making important career decisions			.83		
I have observed people I admire who are resourceful at gathering the information they need to make career-related decisions			.66		
I have role models who are knowledgeable about how their interests and abilities fit different career options			.83		
I have role models who have explained to me how they chose an academic major or career path			.67		
Determined				.77	
Inspired				.80	
Active				.61	
Excited				.73	
Upset					.57
Nervous					.77

Afraid	.84
Overwhelmed	.75

Note: Findings from initial validation of CEDLE scale. ME=Mastery Experiences; VP=Verbal Persuasion; VL=Vicarious Learning; PEA=Positive Emotional Arousal; NEA=Negative Emotional Arousal; Positive and negative emotion items were preceded by the stem, "When you have apprached career exploration and decision-making tasks over the past year, to what extent have you felt…"

Table 2

Correlation Table, Means, Standard Deviations, and Internal Consistency from Initial CEDLE Study (Lent, et al., 2016)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. CEDSE-Brief Decisional	--											
2. CDSE-Short Form	.78	--										
3. Outcome Expectations	.39	.40	--									
4. Goals	.37	.45	.52	--								
5. Decidedness	.48	.50	.28	.12	--							
6. Environmental Exploration	.41	.43	.14	.25	.22	--						
7. Self-Exploration	.35	.39	.24	.34	.22	.50	--					
8. Mastery Experiences	.67	.67	.25	.25	.46	.49	.38	--				
9. Verbal Persuasion	.55	.59	.20	.26	.32	.45	.37	.77	--			
10. Vicarious Learning	.54	.55	.31	.34	.24	.30	.27	.54	.59	--		
11. Positive Emotional Arousal	.61	.63	.23	.30	.49	.40	.35	.62	.53	.43	--	
12. Negative Emotional Arousal	-.29	-.30	.06	.03	-.14	-.07	.14	-.32	-.26	-.12	-.18	--
Mean	3.66	3.59	4.17	4.00	4.61	2.69	3.45	3.51	3.43	3.78	3.59	3.17
Standard Deviation	.74	.62	.58	.57	1.15	1.02	.96	.76	.81	.79	.79	.95
Chronbach's Alpha	.93	.94	.90	.87	.84	.89	.88	.82	.89	.83	.81	.82

Note. N=324; correlations ≥ |.12| are significant, p<.05.

Table 3

Demographic Characteristics for Total Sample (N=215)

Variable	%	N
Race		
Black or African American	14	30
Hispanic American or Latino/a	5	11
White or European American	60	128
Asian/Pacific Islander American	16	34
Multiracial	4	8
Native American	<1	1
Gender		
Male	31	67
Female	66	141
Non-binary or other term	3	7
Year in School		
Freshman	35	75
Sophomore	29	62
Junior	23	49
Senior	13	27
Other	<1	2

Variable	Mean	SD	Range	Possible Range
Age	19.79	1.83	18-34	NA
Current importance of making career decision	4.58	1.61	1-6	1 (Very Unimportant) to 6 (Very Important)

Table 4

Parallel Analysis Results for Mastery Experiences, New Verbal Persuasion and Old Verbal Persuasion Items

Cases	215
Variables	24
Data Sets	10,000
Percent	95

Root	Raw Data Eigenvalues	Mean of Random Data Eigenvalues	Percentile of Random Data Eigenvalues
1	10.839	.784	.901
2	1.237	.670	.759
3	.652	.583	.658
4	.512	.509	.576
5	.372	.443	.505
6	.324	.384	.441
7	.293	.328	.382
8	.191	.275	.325
9	.174	.225	.272
10	.128	.178	.223
11	.098	.132	.174
12	.065	.088	.129
13	.036	.045	.083
14	-.013	.004	.042
15	-.041	-.036	-.001
16	-.061	-.075	-.040
17	-.100	-.113	-.080
18	-.120	-.150	-.119
19	-.130	-.187	-.158
20	-.145	-.224	-.194
21	-.152	-.261	-.232
22	-.187	-.299	-.271
23	-.202	-.340	-.309
24	-.233	-.388	-.352

Note. Output from PAF/Common Factor Analysis & Raw Data Permutation script run in SPSS 23.0

Table 5

Exploratory Factor Analysis of Mastery Experience Items, New Verbal Persuasion Items, and Old Verbal Persuasion Items

Factor name and items	Loadings		λ^2	New or Old
Factor one: Verbal Persuasion	1	2		
#8: Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions	.900	-.140	.655	Old
#20: Important others have let me know that I am good at putting my career-related decisions into action	.860	.000	.743	Old
#6: Important others have convinced me that I possess the skills needed to handle any obstacles to making a career-related decision	.840	-.070	.630	New
#12: Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions	.770	.000	.599	Old
#24: Important others have let me know that I am good at managing challenges that arise when making career-related decisions	.760	.070	.650	Old
#16: Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions	.760	.010	.588	Old
#14: Important people in my life have expressed their confidence in my ability to persevere through challenges in making career-related decisions	.740	-.030	.508	New
#18: At least one person close to me has convinced me that I am resourceful in gathering information needed to make a career-related decision	.700	.000	.481	New
#4: Important others (e.g., family, friends, teachers, mentors) have told me that I am good at making career-related decisions	.630	.090	.489	Old
#22: An important person in my life has convinced me of my strengths in the area of career decision-making	.620	.120	.496	New
#10: Those close to me have convinced me I can successfully put my career decisions into action	.580	.110	.433	New
#32: Important others have let me know that they trust my ability to make good career-related decisions	.580	.090	.416	Old
Factor two: Mastery Experiences				
#17: When stuck in making a tough decision about my career future, I have worked at it until it is successfully resolved	-.010	.790	.606	NA
#1: The way I have approached important career-related decisions has worked well for me in the past	.010	.710	.512	NA

#29: I have been satisfied with the career-related decisions I have made in the past	-.050	.690	.432	NA
#9: I have been good at putting my career-related decisions into action	.100	.690	.577	NA
#5: I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions	.020	.640	.421	NA
#21: I have been resourceful at gathering the information I need to make career-related decisions	.320	.520	.600	NA

Extraction Method: Principal Axis Factoring
Rotation Method: Oblimin with Kaiser Normalization
Items Removed: 2, 13, 25, 26, 28, 30

Table 6

Parallel Analysis Results for Mastery Experiences and Old Verbal Persuasion Items

Cases	215
Variables	16
Data Sets	10,000
Percent	95

Root	Raw Data Eigenvalues	Mean of Random Data Eigenvalues	Percentile of Random Data Eigenvalues
1	7.420	.583	.697
2	.988	.467	.554
3	.264	.380	.453
4	.249	.306	.371
5	.149	.239	.299
6	.123	.178	.231
7	.062	.121	.171
8	.036	.068	.114
9	-.005	.016	.059
10	-.014	-.032	.007
11	-.036	-.080	-.042
12	-.076	-.127	-.091
13	-.120	-.174	-.139
14	-.146	-.222	-.185
15	-.205	-.272	-.234
16	-.223	-.330	-.286

Note. Output from PAF/Common Factor Analysis & Raw Data Permutation script run in SPSS 23.0

Table 7

Exploratory Factor Analysis of Mastery Experience Items and Old Verbal Persuasion Items

Factor name and items	**Loadings**		λ^2
Factor one: Verbal Persuasion	1	2	
#8: Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions	.895	-.133	.650
#20: Important others have let me know that I am good at putting my career-related decisions into action	.876	-.007	.760
#16: Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions	.773	.014	.614
#24: Important others have let me know that I am good at managing challenges that arise when making career-related decisions	.773	.058	.665
#12: Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions	.738	.056	.607
#4: Important others (e.g., family, friends, teachers, mentors) have told me that I am good at making career-related decisions	.597	.096	.447
#32: Important others have let me know that they trust my ability to make good career-related decisions	.565	.109	.418
Factor two: Mastery Experiences			
#17: When stuck in making a tough decision about my career future, I have worked at it until it is successfully resolved	-.019	.774	.579
#9: I have been good at putting my career-related decisions into action	.021	.744	.576
#29: I have been satisfied with the career-related decisions I have made in the past	-.095	.736	.451
#1: The way I have approached important career-related decisions has worked well for me in the past	-.008	.719	.509
#5: I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions	-.001	.646	.417
#21: I have been resourceful at gathering the information I need to make career-related decisions	.290	.543	.603
#25: In making career-related decisions, I have been able to successfully evaluate how various choice options met my needs	.111	.537	.385
#13: In making decisions related to my career future, I have been good at seeking any help I need from other people	.194	.484	.406

Extraction Method: Principal Axis Factoring

Rotation Method: Oblimin with Kaiser Normalization

Items Removed: 25, 28

Table 8

Confirmatory Factor Analysis for Latent Variables in the CEDLE Scale: Five-Factor Model

Latent variable and indicators	Standardized estimate	S.E.	Estimate/S.E.
Factor one: Mastery Experiences			
#1: The way I have approached important career-related decisions has worked well for me in the past	**.680**	.040	17.080
#5: I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions	**.634**	.053	12.049
#9: I have been good at putting my career-related decisions into action	**.778**	.030	25.890
#21: I have been resourceful at gathering the information I need to make career-related decisions	**.769**	.032	24.370
Factor two: Verbal Persuasion			
#8: Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions	**.786**	.030	25.876
#12: Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions	**.815**	.027	29.914
#16: Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions	**.772**	.042	18.564
#24: Important others have let me know that I am good at managing challenges that arise when making career-related decisions	**.805**	.030	27.091
Factor three: Vicarious Learning			
#3: I have role models who are good at making important career decisions	**.719**	.047	15.143
#7: I have observed people I admire who are resourceful at gathering the information they need to make career-related decisions	**.578**	.054	10.706
#11: I have role models who are knowledgeable about how their interests and abilities fit different career options	**.809**	.046	17.414
#23: I have role models who have explained to me how they chose an academic major or career path	**.598**	.060	9.919
Factor four: Negative Emotional Arousal			
#33: Upset	**.647**	.042	15.423

#34: Nervous	**.782**	.035	22.169
#39: Afraid	**.841**	.030	28.044
#41: Overwhelmed	**.723**	.030	24.125
Factor five: Positive Emotional Arousal			
#36: Determined	**.778**	.031	24.775
#37: Inspired	**.647**	.044	14.574
#40: Active	**.763**	.032	23.876
#42: Excited	**.746**	.037	20.390

Bolded items = $p<.01$.

Table 9

Fit Statistics for CFA Measurement Models

Model	S-B $\chi 2$	*df*	SRMR	RMSEA	90% CI for RMSEA	CFI
Four-Factor Model	347.125	164	.071	.072	.062 - .083	.888
Five-Factor Model	260.925	160	.058	.054	.042 - .066	.938

Notes. S-B $\chi 2$ = Satorra-Bentler scaled chi square; *df* = degrees of freedom; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; CFI = Comparative Fit Index; The four-factor model combines mastery experiences and verbal persuasion items on the same factor, while the five-factor solution models these sets of items as separate latent factors

Table 10

Descriptive Statistics

Variable	Mean	Std. Dev.	Minimum Value	Maximum Value	Skew		Kurtosis	
					Statistic	S.E.	Statistic	S.E.
Mastery Experiences	3.59	.74	1.00	5.00	-.559	.166	.479	.330
Verbal Persuasion	3.64	.77	1.00	5.00	-.661	.166	.600	.330
Vicarious Learning	3.97	.69	1.75	5.00	-.708	.166	.542	.330
Negative Emotional Arousal	3.14	.98	1.00	5.00	.018	.166	-.671	.330
Positive Emotional Arousal	3.62	.79	1.75	5.00	-.205	.166	-.323	.330
CEDSE-Brief Decisional	2.72	.71	.88	4.00	-.129	.166	-.474	.330
Outcome Expectations	4.20	.53	2.13	5.00	-.642	.166	1.630	.330
Social Support	4.09	.72	1.63	5.00	-.793	.166	.503	.330
Conscientiousness	3.66	.70	1.56	5.00	-.219	.166	-.675	.330
Neuroticism	2.97	.85	1.00	5.00	-.019	.166	-.408	.330
Extraversion	3.34	.77	1.25	5.00	-.043	.166	-.277	.330
Exploratory Intentions	3.93	.63	1.00	5.00	-.817	.166	2.045	.330
Decidedness	4.53	1.29	1.00	6.00	-.895	.166	-.073	.330

Note. N=215

Table 11

Correlation Table, Means, Standard Deviations and Internal Consistency Estimates

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Mastery Experiences	--												
2. Verbal Persuasion	.63**	--											
3. Vicarious Learning	.38**	.57**	--										
4. Neg. Emotional Arousal	-.33**	-.15*	-.05	--									
5. Pos. Emotional Arousal	.53**	.45**	.32**	.02	--								
6. CEDSE-Brief Decisional	.60**	.53**	.39**	-.27**	.50**	--							
7. Outcome Expectations	.14*	.16*	.32**	.04	.22**	.24**	--						
8. Social Support	.40**	.35**	.58**	-.15*	.34**	.40**	.39**	--					
9. Conscientiousness	.48**	.43**	.27**	-.23**	.38**	.43**	.08	.36**	--				
10. Neuroticism	-.21**	-.19**	-.09	.41**	-.09	-.30**	-.05	-.02	-.27**	--			
11. Extraversion	.22**	.30**	.18**	-.24**	.34**	.23**	.15*	.13	.21**	-.32**	--		
12. Exp. Intentions	.10	.21**	.18**	.19**	.24**	.17*	.38**	.19**	.14*	.02	.02	--	
13. Decidedness	.55**	.32**	.18**	-.26**	.34**	.54**	.15*	.26**	.28**	-.07	.09	-.02	--
Mean	3.59	3.64	3.97	3.14	3.62	2.72	4.20	4.09	3.66	2.97	3.34	3.93	4.53
Standard Deviation	.74	.77	.69	.98	.79	.71	.53	.72	.70	.85	.77	.63	1.29
Chronbach's Alpha	.81	.87	.76	.83	.82	.92	.87	.88	.86	.87	.86	.87	.88

Note. Pearson Correlations with two-tailed test of significance; ** p<.01; * p<.05; Correlations for Outcome Expectations (7) and Exploratory Intentions (12) are based on normalized rank scores for these variables

Table 12

Hierarchical Regression Analysis Predicting CEDSE-BD (N=215)

Variable	*B*	*SE B*	β	*df*	*R*	R^2	ΔR^2	*Δ F*
Step 1				2, 212	.50	.25	.25	36.04**
Social Support	.27	.06	.28**					
Conscientiousness	.33	.06	.33**					
Step 2				5, 207	.69	.47	.22	17.19**
Social Support	.09	.07	.09					
Conscientiousness	.08	.06	.08					
Mastery Exp.	.23	.07	.24**					
Verbal Pers.	.15	.07	.16*					
Vicarious	.05	.07	.05					
NEA	-.10	.04	-.13*					
PEA	.20	.06	.23**					

Notes. *$p<.05$, **$p<.01$; NEA = Negative Emotional Arousal; PEA = Positive Emotional Arousal;

Table 13

Hierarchical Regression Analysis Predicting Outcome Expectations (N=215)

Variable	*B*	*SE B*	β	*df*	*R*	R^2	ΔR^2	*Δ F*
Step 1				3, 211	.42	.17	.17	14.76**
Social Support	.50	.09	.38**					
Conscientiousness	-.16	.10	-.12					
CEDSE-BD	.20	.10	.15*					
Step 2				5, 206	.45	.20	.03	1.49
Social Support	.42	.11	.32**					
Conscientiousness	-.13	.10	-.09					
CEDSE-BD	.21	.12	.15					
Mastery Exp.	-.09	.13	-.07					
Verbal Pers.	-.07	.12	-.06					
Vicarious	.19	.12	.14					
NEA	.08	.07	.08					
PEA	.11	.10	.10					

Notes. Analysis is based on normalized rank scores of CDOE-8 (outcome expectations); **p*<.05, ***p*<.01; CEDSE-BD = Career Exploration and Decision-Making Self-Efficacy; NEA = Negative Emotional Arousal; PEA = Positive Emotional Arousal;

Table 14

Hierarchical Regression Analysis Predicting Exploratory Intentions (N=215)

Variable	*B*	*SE B*	β	*df*	*R*	R^2	ΔR^2	*Δ F*
Step 1				4, 210	.40	.16	.16	9.82**
Social Support	-.01	.10	-.01					
Conscientiousness	.14	.10	.10					
CEDSE-BD	.05	.10	.04					
CDOE-8	.38	.07	.37**					
Step 2				5, 205	.48	.23	.07	3.65**
Social Support	.02	.11	.02					
Conscientiousness	.12	.10	.09					
CEDSE-BD	.03	.12	.02					
CDOE-8	.34	.07	.33**					
Mastery Exp.	-.13	.13	-.10					
Verbal Pers.	.23	.12	.18					
Vicarious	-.08	.12	-.06					
NEA	.20	.07	.20**					
PEA	.13	.10	.10					

Notes. Analysis is based on normalized rank scores of Exploratory Intentions and CDOE-8 (outcome expectations); **p*<.05, ***p*<.01; CEDSE-BD = Career Exploration and Decision-Making Self-Efficacy; NEA = Negative Emotional Arousal; PEA = Positive Emotional Arousal;

Table 15

Indirect Effects from Bias-corrected Bootstrapping in Mplus

Independent & Mediator Variables	Dependent Variable	β	*B*	*SE B*	95% CI
Hypothesis 5a Relationships					
Mastery --> Self Efficacy	**Outcome Exp.**	**.050**	**.064**	**.045**	**.000, .182**
Persuasion -->Self Efficacy	Outcome Exp.	.029	.036	.027	-.001, .114
Vicarious --> Self-Efficacy	Outcome Exp.	.018	.025	.021	-.003, .085
PosEmo --> Self-Efficacy	**Outcome Exp.**	**.045**	**.054**	**.035**	**.000, .147**
Neg Emo --> Self-Efficacy	Outcome Exp.	-.027	-.027	.019	-.082, .000
Hypothesis 5b Relationships					
Mastery --> Self-Efficacy	Intentions	.021	.028	.029	-.015, .101
Persuasion --> Self-Efficacy	Intentions	.012	.016	.018	-.008, .070
Vicarious --> Self-Efficacy	Intentions	.008	.011	.013	-.006, .050
PosEmo --> Self-Efficacy	Intentions	.019	.024	.024	-.014, .083
NegEmo --> Self-Efficacy	Intentions	-.012	-.012	.011	-.040, .006
Hypothesis 5c Relationships					
Mastery --> Outcome Exp.	Intentions	-.015	-.019	.053	-.128, .084
Persuasion --> Outcome Exp.	Intentions	-.044	-.057	.049	-.164, .031
Vicarious --> Outcome Exp.	**Intentions**	**.109**	**.155**	**.050**	**.067, .261**
PosEmo --> Outcome Exp.	Intentions	.041	.051	.038	-.014, .138
NegEmo --> Outcome Exp.	Intentions	.025	.025	.026	-.018, .085
Hypothesis 5d Relationships					
Mastery --> Self-Efficacy --> Outcome Exp.	**Intentions**	**.018**	**.024**	**.017**	**.001, .072**

Persuasion --> Self-Efficacy --> Outcome Exp.	**Intentions**	**.011**	**.013**	**.011**	**.000, .047**
Vicarious --> Self-Efficacy --> Outcome Exp.	Intentions	.007	.009	.008	-.001, .033
PosEmo --> Self-Efficacy --> Outcome Exp.	**Intentions**	**.016**	**.020**	**.014**	**.001, .059**
NegEmo --> Self-Efficacy --> Outcome Exp.	Intentions	-.010	-.010	.007	-.031, .000

Notes. Bolded entries showed significant mediation, while non-bolded entries are statistically non-significant

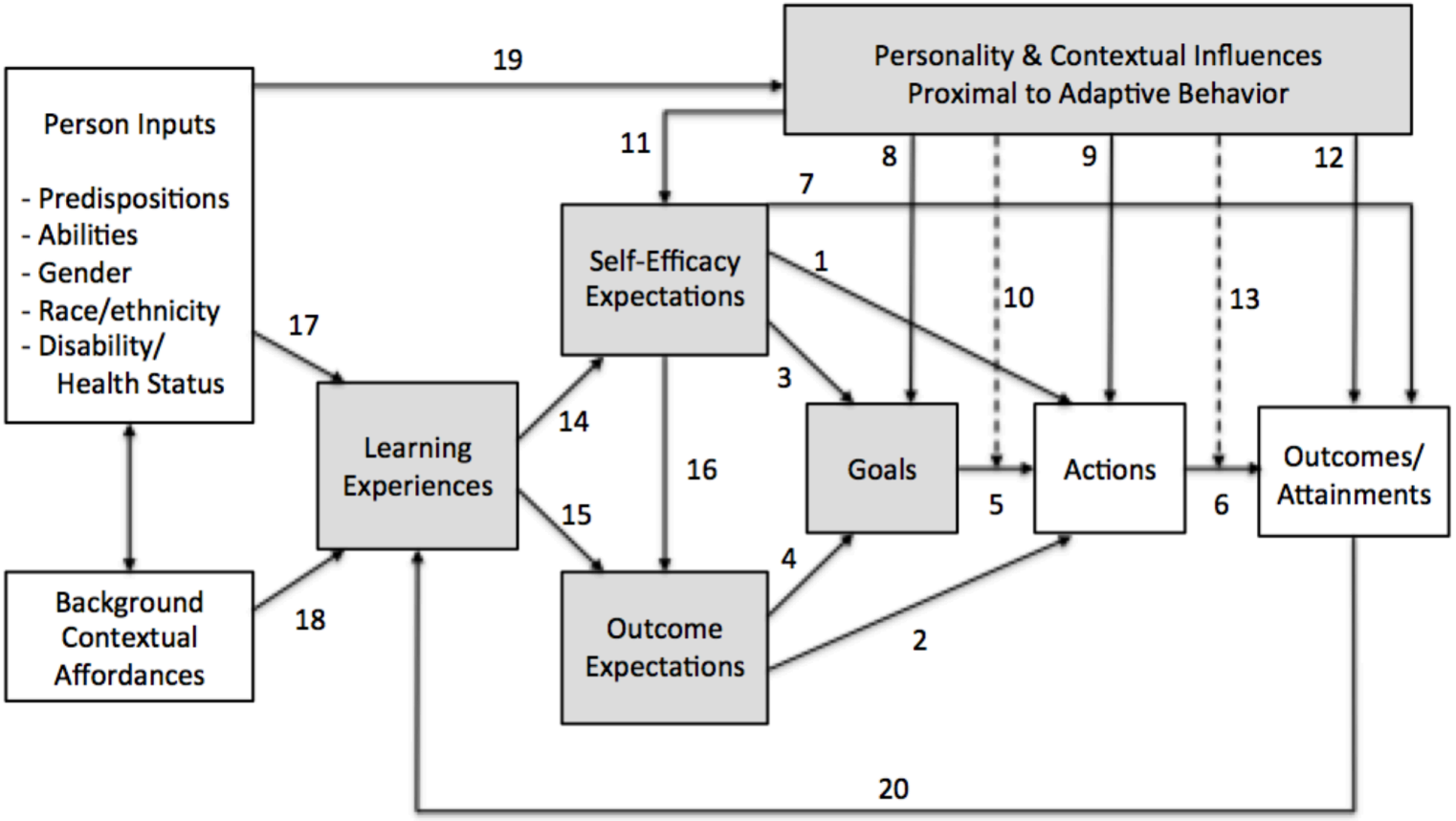

Figure 1. Model of career self-management. Variables shaded in gray are relevant to the present study. Reprinted from Lent, R. W. & Brown, S. D. (2013) with permission. Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology, 60(4),* p. 562.

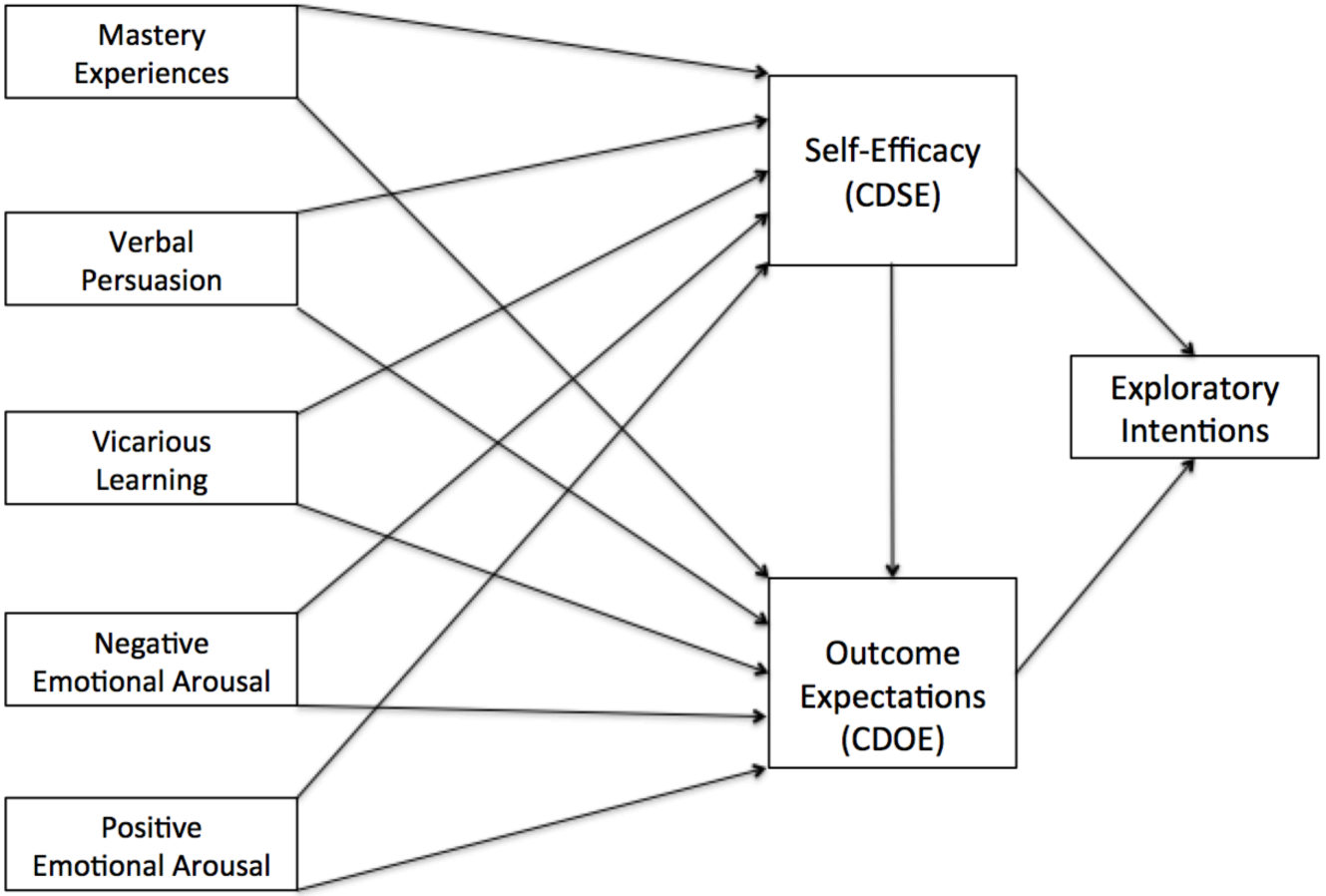

Figure 2. Model depicting mediation relationships between CEDLE variables and Exploratory Intentions for fifth set of hypotheses.

Appendix A: Career Exploration and Decision-Making Learning Experiences

(CEDLE) Scale

The following questions ask about your past experiences in making decisions related to your career future. **Such decisions can include things like what career direction to pursue, what major to declare, or what college to attend.**

Rate your agreement with the following statements on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1	2	3	4	5

1. The way I have approached important career-related decisions has worked well for me in the past.
2. I have role models who are good at making important career decisions.
3. Important others (e.g., family, friends, teachers, mentors) have told me that I am good at making career-related decisions.
4. I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions.
5. I have observed people I admire who are resourceful at gathering the information they need to make career-related decisions.
6. Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions.
7. I have been good at putting my career-related decisions into action.
8. I have role models who are knowledgeable about how their interests and abilities fit different career options.
9. Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions.
10. In making decisions related to my career future, I have been good at seeking any help I need from other people.
11. My friends have been good at putting their career or academic major decisions into action.
12. Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions.
13. When stuck in making a tough decision about my career future, I have worked at it until it is successfully resolved.
14. I have seen other people like me do a good job of weighing the positives and negatives of different choice options when making career-related decisions.
15. Important others have let me know that I am good at putting my career-related decisions into action.

16. I have been resourceful at gathering the information I need to make career-related decisions.
17. I have role models who have explained to me how they chose an academic major or career path.
18. Important others have let me know that I am good at managing challenges that arise when making career-related decisions.
19. In making career-related decisions, I have been able to successfully evaluate how various choice options met my needs.
20. I have observed my friends making difficult academic or career decisions.
21. Important others have let me know that I am good at making back-up plans in case my preferred career-related decisions do not work out.
22. I have been satisfied with the career-related decisions I have made in the past.
23. Most people I know have been satisfied with the career-related decisions they have made in the past.
24. Important others have let me know that they trust my ability to make good career-related decisions.

When you have approached career exploration and decision-making tasks over the past year, to what extent have you felt…

Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1	2	3	4	5

25. …Upset
26. …Nervous
27. …Ashamed
28. …Determined
29. …Inspired
30. …Attentive
31. …Afraid
32. …Active
33. …Overwhelmed
34. …Excited

Items belong to the following subscales:
Mastery Experiences – 1, 4, 7, 10, 13, 16, 19, 22
Vicarious Learning: 2, 5, 8, 11, 14, 17, 20, 23
Verbal Persuasion: 3, 6, 9, 12, 15, 18, 21, 24
Negative Emotional Arousal: 25, 26, 27, 31, 33
Positive Emotional Arousal: 28, 29, 30, 32, 34

Appendix B: Initial and Revised CEDLE Verbal Persuasion Items

Initial Verbal Persuasion Items

1. Important others (e.g., family, friends, teachers, mentors) have told me that I am good at making career-related decisions.
2. Important others have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions.
3. Important others have let me know I do a good job of considering the positives and negatives of different choice options when making career-related decisions.
4. Important others have let me know that I have been good at evaluating the choice options that would best meet my needs in making career-related decisions.
5. Important others have let me know that I am good at putting my career-related decisions into action.
6. Important others have let me know that I am good at managing challenges that arise when making career-related decisions.
7. Important others have let me know that I am good at making back-up plans in case my preferred career-related decisions do not work out.
8. Important others have let me know that they trust my ability to make good career-related decisions.

Proposed/Revised Verbal Persuasion Items for Current Study

1. Important others (e.g., family, friends, teachers, mentors) have encouraged my efforts to explore different career options.
2. Important others have convinced me that I possess the skills needed to handle any obstacles to making a career decision.
3. Those close to me have convinced me I can successfully put my career decisions into action.
4. Important people in my life have expressed their confidence in my ability to persevere through challenges in making career-related decisions.
5. At least one person close to me has convinced me that I am resourceful in gathering information needed to make a career-related decision.
6. An important person in my life has convinced me of my strengths in the area of career decision-making.
7. Those close to me have helped me focus less on my setbacks and more on my potential to make a good career-related decision.
8. Important others have persuaded me to feel confident in making career-related decisions

Appendix C: Career Exploration and Decisional Self-Efficacy – Brief Decisional (CEDSE-BD) Scale (Lent et al., 2016)

Instructions: The following is a list of activities involved in exploring and deciding about career options. Please indicate how much confidence you have in your ability to do each activity. Use the 0 to 4 scale to indicate your degree of confidence.

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

How much confidence do you have in your ability to:

1. Figure out which career options could provide a good fit for your personality
2. Identify careers that best use your skills
3. Pick the best-fitting career option for you from a list of your ideal careers
4. Learn more about careers you might enjoy
5. Match your skills, values, and interests to relevant occupations
6. Make a well-informed choice about which career path to pursue
7. Learn more about jobs that could offer things that are important to you
8. Identify careers that best match your interests

Appendix D: Career Decision-Making Outcome Expectancies Scale (Betz & Voyten, 1997)

Instructions: This scale is concerned with your beliefs about the usefulness of doing different types of career planning activities. Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

1. If I learn more about different careers, I will make a better career decision.
2. If I know my interests and abilities, then I will be able to choose a good career.
3. If I know about the education I need for different careers, I will make a better career decision.
4. If I spend enough time gathering information about careers, I can learn what I need to know to make a good decision.
5. If I learn more about my career values (the things I most want from a career), I will make a better career decision.
6. If I put enough time into deciding on career options, it will increase my chances of making a better decision.
7. If I carefully compare the pros and cons of different career options, I will make a better career decision.
8. If I learn more about which careers might best match my personality, I will make a better career choice.

Appendix E: Career Decision-Making Exploratory Intentions Scale (Betz & Voyten, 1997)

Instructions: This scale asks about whether you intend to do different types of career planning activities over the next two months. Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

Over the next two months…

1. I intend to spend more time learning about careers than I have been.
2. I plan to talk to lots of people about careers.
3. I am committed to learning more about my abilities and interests.
4. I intend to get all the education I need for my career choice.
5. I plan to talk to advisors or counselors in my college about career opportunities for different majors.
6. I plan to spend more time thinking about which careers best match my interests and abilities
7. I intend to learn more about how my values (the things I most want from a career) can be met by different careers
8. I plan to spend time comparing the advantages and disadvantages of different career options
9. I plan to identify my most likely career direction (or a few likely directions)
10. I intend to spend time thinking about how to put my career plans into action

Appendix F: Influence of Others on Academic and Career Decision Making Scale (IOACDS; Nauta & Kokaly, 2001)

Instructions: Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements.

Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree
1	2	3	4	5

1. There is someone I can count on to be there if I need support when I make academic and career choices.

2. There is someone who helps me weigh the pros and cons of academic and career choices I make.

3. There is someone who helps me consider my academic and career options.

4. There is no one who shows me how to get where I am going with my education or career. (R)

5. There is someone who supports me in the academic and career choices I make.

6. There is someone who stands by me when I make important academic and career decisions.

7. There is no one who supports me when I make academic and career decisions. (R)

8. There is someone who tells or shows me general strategies for a successful life.

Appendix G: Conscientiousness Scale (John et al., 2008)

Instructions: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Using the scale below, please indicate the extent to which you agree or disagree with each statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1	2	3	4	5

I see myself as someone who...

1. … Does a thorough job
2. … Can be somewhat careless (R)
3. … Is a reliable worker
4. … Tends to be disorganized
5. … Tends to be lazy (R)
6. … Perseveres until the task is finished
7. … Does things efficiently
8. … Makes plans and follows through with them
9. … Is easily distracted (R)

Appendix H: Neuroticism Scale (John et al., 2008)

Instructions: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Using the scale below, please indicate the extent to which you agree or disagree with each statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1	2	3	4	5

I see myself as someone who...

1. … Is depressed, blue
2. … Is relaxed, handles stress well (R)
3. … Can be tense
4. … Worries a lot
5. … Is emotionally stable, not easily upset (R)
6. … Can be moody
7. … Remains calm in tense situations (R)
8. … Gets nervous easily

Appendix I: Extraversion Scale (John et al., 2008)

Instructions: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Using the scale below, please indicate the extent to which you agree or disagree with each statement.

Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly
1	2	3	4	5

I see myself as someone who...

1. … Is talkative
2. … Is reserved (R)
3. … Is full of energy
4. … Generates a lot of enthusiasm
5. … Tends to be quiet (R)
6. … Has an assertive personality
7. … Is sometimes shy, inhibited (R)
8. … Is outgoing, sociable

Appendix J: Brief (3-item) Career Decidedness Scale (Lent et al., 2017)

Instructions: Please respond to the following questions regarding your level of career decidedness.

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

1. 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.

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

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1	2	3	4	5	6

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

Completely Undecided	Moderately Undecided	Slightly Undecided	Slightly Decided	Moderately Decided	Very Decided
1	2	3	4	5	6

Appendix K: Demographics

Instructions: Please answer the following questions about yourself.

1. Age: ____

2. Year in school:

O Freshman
O Sophomore
O Junior
O Senior
O Other (please specify) _____

3. Gender: _____

4. Race/Ethnicity:

O Black or African American
O Hispanic American or Latino/a
O White or European American
O Asian/Pacific Islander-American
O Native American
O Multiracial
O Other (please specify) _____

5. Current or intended academic major (please specify) _____

6. What occupation do you expect to have when you complete college?
   _____

7. How important is making or remaking a *career decision* to you at this point in time?

Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
1	2	3	4	5	6

Appendix L: Informed Consent

Project Title	Career Exploration and Decision-Making Learning Experiences
Purpose of the Study	This research is being conducted by Glenn Ireland, M.Ed., and Robert W. Lent, PhD, from the 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. The purpose of this research is to develop and assess the usefulness of new measure of career exploration and decision-making learning experiences, as well as test a theory of the career decision-making process. The survey includes several career-related and personality measures that will enable us to examine factors that help students to make satisfying career decisions.
Procedures	The procedures of this study involve your completing a brief survey. It should require about 15 to 20 minutes of your time. The survey will ask you about your attitudes toward and experiences with career exploration and decision-making activities. The survey contains various statements that ask you to rate the extent to which each statement applies to you. The statements ask about specific aspects of career exploration and decision-making.
Compensation	As a result of your participation, you will be eligible for .5 units of experimental credit.
Potential Risks and Discomforts	There are no known risks associated with participating in this research study.
Potential Benefits	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 enable the investigators to develop measurement tools and design career counseling interventions that can help future students make better career decisions.
Confidentiality	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.
Right to Withdraw and Questions	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. Your academic standing at UMD will also not be affected by your participation or non-participation in this study. 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): Glenn Ireland, M.Ed. at gireland@umd.edu; 3214 Benjamin Building, University of Maryland, College Park, MD 20742; (301) 405-2858
Participant Rights	If you have questions about your rights as a research participant or wish to report a research-related injury, please contact: **University of Maryland College Park** **Institutional Review Board Office** **1204 Marie Mount Hall** **College Park, Maryland, 20742** **E-mail: irb@umd.edu** **Telephone: 301-405-0678** This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.
Statement of Consent	By selecting your choice below you are indicating your right to consent or not consent electronically. 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. If you do NOT wish to participate in this study, please select "No, I DO NOT Consent" and click "Continue" to decline participation. If you would like a copy of this consent form, please print this page for your records.

References

Ali, S. R., McWhirter, E. H., & Chronister, K. M. (2005). Self-Efficacy and Vocational Outcome Expectations for Adolescents of Lower Socioeconomic Status: A Pilot Study. *Journal of Career Assessment*, *13*(1), 40–58. https://doi.org/10.1177/1069072704270273

Ali, S. R., Yang, L.-Y., Button, C. J., & McCoy, T. T. H. (2011). Career Education Programming in Three Diverse High Schools. *Journal of Career Development*, *39*(4), 357–385. https://doi.org/10.1177/0894845311398131

Anderson, S. L., & Betz, N. E. (2001). Sources of Social Self-Efficacy Expectations: Their Measurement and Relation to Career Development. *Journal of Vocational Behavior*, *58*(1), 98–117. https://doi.org/10.1006/jvbe.2000.1753

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Betz, N. E. (2007). Career Self-Efficacy: Exemplary Recent Research and Emerging Directions. *Journal of Career Assessment*, *15*(4), 403–422. https://doi.org/10.1177/1069072707305759

Betz, N. E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*, *28*(5), 399–410. https://doi.org/10.1037/0022-0167.28.5.399

Betz, N. E., & Hackett, G. (2006). Career Self-Efficacy Theory: Back to the Future. *Journal of Career Assessment*, *14*(1), 3–11. https://doi.org/10.1177/1069072705281347

Betz, N. E., Hammond, M. S., & Multon, K. D. (2005). Reliability and Validity of Five-Level Response Continua for the Career Decision Self-Efficacy Scale. *Journal of Career Assessment*, *13*(2), 131–149. https://doi.org/10.1177/1069072704273123

Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a Short Form of the Career Decision-Making Self-Efficacy Scale. *JOURNAL OF CAREER ASSESSMENT*, *4*(1), 47–58.

Betz, N. E., & Luzzo, D. A. (1996). Career Assessment and the Career Decision-Making Self-Efficacy Scale. *JOURNAL OF CAREER ASSESSMENT*, *4*(4), 413–428.

Betz, N. E., & Voyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *Career Development Quarterly*, *46*(2), 179–189.

Bike, D. H. (2013). *Career decision learning experiences: Development and validation of a scale* (Ph.D.). University of Missouri - Columbia, United States -- Missouri. Retrieved from http://search.proquest.com/pqdtft/docview/1492329332/abstract/7229FA952E1841D4PQ/1?accountid=14696

Brown, S. D., & Hirschi, A. (2013). Personality, Career Development, and Occupational Attainment. In S. D. Brown & R. W. Lent (Eds.), *Career Development and*

Counseling: Putting Theory and Research to Work (2nd ed., pp. 299–328). New York, NY: Wiley.

Byars, A. M., & Hackett, G. (1998). Applications of social cognitive theory to the career development of women of color. *Applied and Preventive Psychology*, *7*(4), 255–267. https://doi.org/10.1016/S0962-1849(98)80029-2

Chartrand, J. M., & Rose, M. L. (1996). Career interventions for at-risk populations: Incorporating social cognitive influences. *Career Development Quarterly*, *44*(4), 341.

Choi, B. Y., Park, H., Yang, E., Lee, S. K., Lee, Y., & Lee, S. M. (2012). Understanding Career Decision Self-Efficacy A Meta-Analytic Approach. *Journal of Career Development*, *39*(5), 443–460. https://doi.org/10.1177/0894845311398042

Chronister, K. M., & McWhirter, E. H. (2006). An experimental examination of two career interventions for battered women. *Journal of Counseling Psychology*, *53*(2), 151–164. https://doi.org/10.1037/0022-0167.53.2.151

Creed, P. A., Patton, W., & Bartrum, D. (2004). Internal and External Barriers, Cognitive Style, and the Career Development Variables of Focus and Indecision. *Journal of Career Development (Springer Science & Business Media B.V.)*, *30*(4), 277–294.

Creed, P. A., Patton, W., & Prideaux, L.-A. (2006). Causal Relationship Between Career Indecision and Career Decision-Making Self-Efficacy A Longitudinal Cross-Lagged Analysis. *Journal of Career Development*, *33*(1), 47–65. https://doi.org/10.1177/0894845306289535

Crites, J. O. (1978). *Career Maturity Inventory*. California: CTB/McGraw-Hill.

Downing, H. M., & Nauta, M. M. (2009). Separation-Individuation, Exploration, and Identity Diffusion as Mediators of the Relationship Between Attachment and Career

Indecision. *Journal of Career Development*, *36*(3), 207–227. https://doi.org/10.1177/0894845309345848

Fouad, N. A., & Guillen, A. (2006). Outcome Expectations: Looking to the Past and Potential Future. *Journal of Career Assessment*, *14*(1), 130–142. https://doi.org/10.1177/1069072705281370

Fritz, M. S., & MacKinnon, D. P. (2007). Required Sample Size to Detect the Mediated Effect. *Psychological Science*, *18*(3), 233–239. https://doi.org/10.1111/j.1467-9280.2007.01882.x

Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology*, *78*(6), 1135–1149. https://doi.org/10.1037/0022-3514.78.6.1135

Gainor, K. A. (2006). Twenty-Five Years of Self-Efficacy in Career Assessment and Practice. *Journal of Career Assessment*, *14*(1), 161–178. https://doi.org/10.1177/1069072705282435

Gati, I., & Levin, N. (2014). Counseling for Career Decision-Making Difficulties: Measures and Methods. *The Career Development Quarterly*, *62*(2), 98–113. https://doi.org/10.1002/j.2161-0045.2014.00073.x

Gushue, G. V., Clarke, C. P., Pantzer, K. M., & Scanlan, K. R. L. (2006). Self-Efficacy, Perceptions of Barriers, Vocational Identity, and the Career Exploration Behavior of Latino/a High School Students. *The Career Development Quarterly*, *54*(4), 307–317. https://doi.org/10.1002/j.2161-0045.2006.tb00196.x

Gushue, G. V., & Whitson, M. L. (2006). The Relationship Among Support, Ethnic Identity, Career Decision Self-Efficacy, and Outcome Expectations in African American High

School Students. *Journal of Career Development*, *33*(2), 112–124. https://doi.org/10.1177/0894845306293416

Hacker, J., Carr, A., Abrams, M., & Brown, S. D. (2013). Development of the Career Indecision Profile Factor Structure, Reliability, and Validity. *Journal of Career Assessment*, *21*(1), 32–41. https://doi.org/10.1177/1069072712453832

Hackett, G., & Betz, N. E. (1981). A Self-Efficacy Approach to the Career Development of Women. *Journal of Vocational Behavior*, *18*(3), 326–339. https://doi.org/10.1016/0001-8791(81)90019-1

Hoyle, R. H., & Panter, A. T. (1995). Writing About Structural Equation Models. In R. H. Hoyle (Ed.), *Structural Equation Modeling: Concepts, Issues, and Applications* (pp. 158–176). Thousand Oaks, CA: Sage.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Işik, E. (2013). Perceived Social Support and Locus of Control as the Predictors of Vocational Outcome Expectations. *Educational Sciences: Theory & Practice*, *13*(3), 1427–1430. https://doi.org/10.12738/estp.2013.3.1520

John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research, 3rd ed* (pp. 114–158). New York, NY, US: Guilford Press.

Jones, L. K. (1989). Measuring a three-dimensional construct of career indecision among college students: A revision of the Vocational Decision Scale: The Career Decision Profile. *Journal of Counseling Psychology*, *36*(4), 477–486. https://doi.org/10.1037/0022-0167.36.4.477

Lent, R. W. (2013). Career-Life Preparedness: Revisiting Career Planning and Adjustment in the New Workplace. *The Career Development Quarterly*, *61*(1), 2–14. https://doi.org/10.1002/j.2161-0045.2013.00031.x

Lent, R. W., & Brown, S. D. (2006a). Integrating person and situation perspectives on work satisfaction: A social-cognitive view. *Journal of Vocational Behavior*, *69*(2), 236–247. https://doi.org/10.1016/j.jvb.2006.02.006

Lent, R. W., & Brown, S. D. (2006b). On Conceptualizing and Assessing Social Cognitive Constructs in Career Research: A Measurement Guide. *Journal of Career Assessment*, *14*(1), 12–35. https://doi.org/10.1177/1069072705281364

Lent, R. W., & Brown, S. D. (2008). Social Cognitive Career Theory and Subjective Well-Being in the Context of Work. *Journal of Career Assessment*, *16*(1), 6–21. https://doi.org/10.1177/1069072707305769

Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal of Counseling Psychology*, *60*(4), 557–568. https://doi.org/10.1037/a0033446

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a Unifying Social Cognitive Theory of Career and Academic Interest, Choice, and Performance. *Journal of Vocational Behavior*, *45*(1), 79–122.

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, *47*(1), 36–49. https://doi.org/10.1037/0022-0167.47.1.36

Lent, R. W., Ezeofor, I., Morrison, A., Penn, L. T., & Ireland, G. W. (2016). Applying the Social Cognitive Model of Career Self-Management to Career Exploration and Decision-Making. *Journal of Vocational Behavior*, *93*, 47–57.

Lent, R. W., Ireland, G. W., Penn, L. T., Morris, T. R., & Sappington, R. (2017). Sources of self-efficacy and outcome expectations for career exploration and decision-making: A test of the social cognitive model of career self-management. *Journal of Vocational Behavior*, *99*, 107–117. https://doi.org/10.1016/j.jvb.2017.01.002

Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology*, *38*(4), 424–430. https://doi.org/10.1037/0022-0167.38.4.424

Lewin, K., Dembo, T., Festinger, L., & Sears, P. S. (1944). Level of aspiration. In J. M. Hunt (Ed.), *Personality and the behavior disorders* (Vol. 1, pp. 333–378). New York: Ronald Press.

Luzzo, D. A., & Day, M. A. (1999). Effects of Strong Interest Inventory Feedback on Career Decision-Making Self-Efficacy and Social Cognitive Career Beliefs. *Journal of Career Assessment*, *7*(1), 1–17. https://doi.org/10.1177/106907279900700101

Luzzo, D. A., & Taylor, M. (1994). Effects of verbal persuasion on the career self-efficacy of college freshmen. *CACD Journal, 1993-94.*, 34.

Matthews, G., Deary, I. J., & Whiteman, M. C. (2009). *Personality Traits*. Cambridge University Press.

McWhirter, E. H., Crothers, M., & Rasheed, S. (2000). The effects of high school career education on social–cognitive variables. *Journal of Counseling Psychology*, *47*(3), 330–341. https://doi.org/10.1037/0022-0167.47.3.330

McWhirter, E. H., & McWhirter, B. T. (2015). Critical Consciousness and Vocational Development Among Latina/o High School Youth Initial Development and Testing of a Measure. *Journal of Career Assessment*, 1069072715599535. https://doi.org/10.1177/1069072715599535

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, *17*(3), 437–455. https://doi.org/10.1037/a0028085

Metheny, J., & McWhirter, E. H. (2013). Contributions of Social Status and Family Support to College Students' Career Decision Self-Efficacy and Outcome Expectations. *Journal of Career Assessment*, *21*(3), 378–394. https://doi.org/10.1177/1069072712475164

Morrow, S. L., Gore, J., Paul A., & Campbell, B. W. (1996). The Application of a Sociocognitive Framework to the Career Development of Lesbian Women and Gay Men. *Journal of Vocational Behavior*, *48*(2), 136–148. https://doi.org/10.1006/jvbe.1996.0014

Muthén, L. K., & Muthén, B. O. (1998). *Mplus User's Guide* (Seventh Edition). Los Angeles, CA: Muthén & Muthén.

Nauta, M. M., & Kokaly, M. L. (2001). Assessing Role Model Influences on Students' Academic and Vocational Decisions. *Journal of Career Assessment*, *9*(1), 81–99. https://doi.org/10.1177/106907270100900106

Okubo, Y., Yeh, C. J., Lin, P.-Y., Fujita, K., & Shea, J. M.-Y. (2007). The Career Decision-Making Process of Chinese American Youth. *Journal of Counseling & Development*, *85*(4), 440–449. https://doi.org/10.1002/j.1556-6678.2007.tb00612.x

Olle, C. D., & Fouad, N. A. (2015). Parental Support, Critical Consciousness, and Agency in Career Decision Making for Urban Students. *Journal of Career Assessment*, *23*(4), 533–544. https://doi.org/10.1177/1069072714553074

Patel, S. G., Salahuddin, N. M., & O'Brien, K. M. (2008). Career Decision-Making Self-Efficacy of Vietnamese Adolescents. *Journal of Career Development*, *34*(3), 218–240. https://doi.org/10.1177/0894845307308488

Patton, W., & Creed, P. A. (2007). The Relationship Between Career Variables and Occupational Aspirations and Expectations for Australian High School Adolescents. *Journal of Career Development*, *34*(2), 127–148. https://doi.org/10.1177/0894845307307471

Quimby, J. L., & O'Brien, karen M. (2004). Predictors of Student and Career Decision-Making Self-Efficacy Among Nontraditional College Women. *Career Development Quarterly*, *52*(4), 323–339.

Roberts, B. W., Caspi, A., & Moffitt, T. E. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology*, *84*(3), 582–593. https://doi.org/10.1037/0022-3514.84.3.582

Rogers, M. E., & Creed, P. A. (2011). A longitudinal examination of adolescent career planning and exploration using a social cognitive career theory framework. *Journal of Adolescence*, *34*(1), 163–172. https://doi.org/10.1016/j.adolescence.2009.12.010

Rogers, M. E., Creed, P. A., & Ian Glendon, A. (2008). The role of personality in adolescent career planning and exploration: A social cognitive perspective. *Journal of Vocational Behavior*, *73*(1), 132–142. https://doi.org/10.1016/j.jvb.2008.02.002

Rollins, V. B., & Valdez, J. N. (2006). Perceived Racism and Career Self-Efficacy in African American Adolescents. *Journal of Black Psychology*, *32*(2), 176–198. https://doi.org/10.1177/0095798406287109

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1–28. https://doi.org/10.1037/h0092976

Schaub, M. (2003). *Social cognitive career theory: Examining the mediating role of sociocognitive variables in the relation of personality to vocational interests* (Ph.D.). The University of Akron, United States -- Ohio. Retrieved from http://search.proquest.com/pqdtft/docview/305333959/abstract/8F1904BBD2654304PQ/1?accountid=14696

Schaub, M., & Tokar, D. M. (2005). The role of personality and learning experiences in social cognitive career theory. *Journal of Vocational Behavior*, *66*(2), 304–325. https://doi.org/10.1016/j.jvb.2004.09.005

Sullivan, K. R., & Mahalik, J. R. (2000). Increasing Career Self-Efficacy for Women: Evaluating a Group Intervention. *Journal of Counseling & Development*, *78*(1), 54–62.

Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown, L. Brooks, & Associate (Eds.), *Career Choice and*

Development: Applying Contemporary Theories to Practice (3rd ed., pp. 121–178). San Francisco, CA: Jossey-Bass.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed). Boston: Allyn and Bacon.

Taylor, K. M., & Betz, N. E. (1983). Applications of Self-Efficacy Theory to the Understanding and Treatment of Career Indecision. *Journal of Vocational Behavior*, *22*(1), 63–81. https://doi.org/10.1016/0001-8791(83)90006-4

Thompson, E. R. (2007). Development and Validation of an Internationally Reliable Short-Form of the Positive and Negative Affect Schedule (PANAS). *Journal of Cross-Cultural Psychology*, *38*(2), 227–242. https://doi.org/10.1177/0022022106297301

Thompson, M. N., & Dahling, J. J. (2012). Perceived social status and learning experiences in Social Cognitive Career Theory. *Journal of Vocational Behavior*, *80*(2), 351–361. https://doi.org/10.1016/j.jvb.2011.10.001

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin*, *98*(2), 219–235.

Williams, C. M., & Subich, L. M. (2006). The gendered nature of career related learning experiences: A social cognitive career theory perspective. *Journal of Vocational Behavior*, *69*(2), 262–275. https://doi.org/10.1016/j.jvb.2006.02.007

Worthington, R. L., & Whittaker, T. A. (2006). Scale Development Research A Content Analysis and Recommendations for Best Practices. *The Counseling Psychologist*, *34*(6), 806–838. https://doi.org/10.1177/0011000006288127

Wright, S. L., Perrone-McGovern, K. M., Boo, J. N., & White, A. V. (2014). Influential Factors in Academic and Career Self-Efficacy: Attachment, Supports, and Career Barriers. *Journal of Counseling & Development*, *92*(1), 36–46. https://doi.org/10.1002/j.1556-6676.2014.00128.x