

ABSTRACT

Title of Dissertation: THE ROLE OF NEGATIVE OUTCOME
EXPECTATIONS IN CAREER
EXPLORATION AND DECISION-MAKING

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This study had two objectives. First, responding to calls for improved measurement of outcome expectations in the domain of career exploration and decision-making (Fouad & Guillen, 2006), a measure of outcome expectations was developed that incorporates Bandura's (1997) conceptualization of *both* positive and negative outcomes, as well as classes of physical, social, and self-evaluative effects. Second, the replicability of the scale's factor structure and evidence of its validity were examined. Social cognitive career theory (SCCT; Lent & Brown, 2013) was used to explore the theoretical relationships between positive and negative outcome expectations, and other domain-specific variables, including (a) self-efficacy, (b) learning experiences, (c) social support, and (d) career exploration goals. In addition to exploring direct relationships proposed by the SCCT career self-management model, negative outcome expectations were also explored for their theorized moderation of the relations of self-efficacy to goals and positive outcome expectations to goals. Data were collected via an online survey in two

separate samples of college students who were in the process of making initial career decisions. Exploratory and confirmatory factor analyses of the new outcome expectations measure indicated a 22-item, four-factor scale with distinct positive and negative factors. Subsequent measure and hypothesis testing analyses offered support for the convergent and discriminant validity of the scale in the samples, found that exploratory intentions was linked with both self-efficacy and positive outcome expectations, and indicated a potential moderator role for negative outcome expectations in these relationships.

THE ROLE OF NEGATIVE OUTCOME EXPECTATIONS IN CAREER
EXPLORATION AND DECISION-MAKING

by

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Introduction

Navigating career development challenges, such as gaining self-understanding and exploring the world of work, are part of expected maturation for adolescents and young adults (Super et al., 1996). Yet, the shifting career landscape and economic trends have added new pressures for emerging adults, complicating this developmental process with new risk, challenge, and uncertainty (Lent, 2013). It is not a stretch, then, to imagine that some students may be motivated and excited to discover a meaningful career route, while others may avoid or flounder in this process, struggling with inner barriers (Neureiter & Traut-Mattausch, 2016), anticipating decisional difficulties (Gati et al., 2011), and experiencing financial, interpersonal, or decisional anxieties (Hacker et al., 2013).

According to social cognitive theory (Bandura, 1977, 1997), outcome expectations are the consequences or rewards individuals anticipate from engaging in a behavioral task or process. Bandura viewed outcome expectations as important alongside self-efficacy in understanding individuals' goal setting and actions within a given behavioral domain. Bandura maintained that expected outcomes could be either positive, and thus direct individuals toward action, or negative, and thus deter action. Additionally, he proposed that outcome expectations revolved around three outcome types: physical (e.g., sensations of excitement or fear in the body), social (e.g., social approval or rejection; conferral of financial reward and social status), and self-evaluative (e.g., feelings of pride and self-worth, or a sense of personal dissatisfaction or self-devaluation).

Built on general social cognitive theory, social cognitive career theory (SCCT; Lent et al., 1994) has become a useful theoretical framework for understanding career development processes and outcomes. Outcome expectations play key roles in each of SCCT's five models, the latest of which is the career self-management model (CSM; Lent & Brown, 2013). The CSM model has been applied to various *process-* (versus *content-*) oriented domains, such as workplace sexual identity management (Tatum, in press; Tatum et al., 2017) and job searching (Lim et al., 2016). It has also been used to study the career exploration and decision-making process of college students (Ireland & Lent, 2018; Lent et al., 2016, 2017). The model has been shown to have utility both cross-sectionally and longitudinally (Lent, Morris, et al., 2019), and as a means for organizing sources of career indecision into a coherent framework (Lent, Wang, et al., 2019).

According to the CSM model, career exploration and decision-making self-efficacy (CEDSE), referring to one's confidence for engaging in various career exploration and decision-making tasks and for coping with setbacks, fosters more positive outcome expectations. Together, an individual's self-efficacy and outcome expectations lead to career decision-related *goals*, such as an intention to meet with a career or academic advisor, or to research potential career options online. In turn, these three variables jointly predict the adaptive career behaviors people enact, leading to important outcomes such as increased career decidedness and reduced decisional anxiety. Beyond these key constructs, SCCT also incorporates relevant antecedent variables, including person inputs (i.e., race, ethnicity, gender,

socioeconomic status, personality), previous learning experiences, and contextual supports and barriers that promote or hinder decisional progress (See Figure 1).

While self-efficacy is reliably associated with lower levels of career indecision (Choi et al., 2012), contrary to theory, it has sometimes not explained significant variance in an individual's exploratory intentions (or goals), above and beyond outcome expectations (Betz & Vuyten, 1997; Ireland & Lent, 2018). Indeed, Bandura (1997) maintained that self-efficacy ought to be the key predictor of goals when success is clearly defined and tasks are straightforward. Yet, when that is not the case, it may be that outcome expectations play a more prominent role in dictating how individuals form goal intentions and move to take action in a given domain. Ireland and Lent (2018) have speculated that outcome expectations play a more pronounced role in students' career exploratory goal-setting and actions because decisional success is not clearly defined. They have also noted that measures of outcome expectations in this domain may not be ideal because, among other things, such measures capture a limited range of outcomes. The current study sought to address certain gaps in the literature by developing a more comprehensive measure of career exploration and decision-making outcome expectations than currently exists, and by using this measure to test the SCCT CSM model.

Career Exploration and Decision-Making Outcome Expectations in the CSM Model

Outcome expectations have been studied within a variety of career development applications, such as enrolling in math courses (Lent et al., 1991, 1993), pursuing STEM degrees (Hackett et al., 1992), pursuing psychology majors

(Diegelman & Subich, 2001), and obtaining a college education (Flores et al., 2008; Gibbons & Borders, 2010). In the domain of career exploration and decision-making, Fouad and Guillen (2006) have called for increased attention to this construct, citing the need for more theoretically sound measures. Two measures of outcome expectations have been used most often within SCCT research in this domain: the career decision making outcome expectations measure (CDMOE; Betz & Vuyten, 1997; Fouad, Smith, & Enochs, 1997; Lent et al., 2016) and the vocational outcome expectation scale (VOE and VOE-R; McWhirter, Crothers, & Rasheed, 2000; Metheny & McWhirter, 2013). However, before looking into research findings more extensively, some discussion of conceptual nuance is necessary when considering outcome expectations among other SCCT constructs.

SCCT posits that outcome expectations ought to be predicted directly by self-efficacy, learning experiences, and contextual supports and barriers (Lent & Brown, 2013), and each of these relationships is touched on briefly below. First, Bandura (1977, 1997) viewed self-efficacy as predictive of more positive outcome expectations in situations where success was clearly defined and where performance level is closely associated with rewards. This idea was also adopted in SCCT, with the hypothesis that the more confidence one has in their ability to perform a given task well, the more likely they would be to expect positive outcomes tied to that performance (Lent et al., 1994; Lent & Brown, 2013). However, it has also been speculated that in domains where success is more ambiguous or outcomes are not guaranteed, possibly including the domain of career exploration and decision-making, outcome expectations may play a more prominent role in determining goals and

actions (Ireland & Lent, 2018). In this domain, it is expected that the more confidence one has in career exploration tasks (e.g., researching career options online), the more likely they would be able to perceive positive outcomes. However, given the complexity of this process and the many challenges in reaching a decision, the outcomes individuals anticipate, either good or bad, may not be tied as strongly to self-efficacy. For example, individuals who feel they are competent decision-makers may still wrestle with negative decisional outcome expectations such as feeling overwhelmed or experiencing negative pressure from family members. Even though outcome expectations may play a greater role in dictating goals and actions within this domain, career decision making self-efficacy is expected to correlate positively with positive outcome expectations, and negatively with negative outcome expectations.

In SCCT, *learning experiences* correspond to several aspects of what Bandura (1997) proposed as the sources of efficacy information, namely previous mastery experiences, vicarious learning from role models, verbal persuasion from significant others, and emotional arousal from previous related efforts. Lent, Brown, and Hackett (1994) hypothesized in SCCT that these learning experiences would also play a role in predicting outcome expectations. For example, an individual who engages in preliminary exploration of career options, leading to positive personal insight in the decision-making process, may develop future expectations of excitement or inspiration when thinking about engaging further in exploration and decision-making. Similarly, an individual who tells a trusted family member about tentative career

plans, only to feel dismissed or discouraged, may begin to formulate expectations for interpersonal conflict when thinking about engaging in decision-making tasks.

Finally, there has been some theoretical dispute about how outcome expectations may differ from, or overlap with, contextual supports and barriers (Lent et al., 2000; Swanson et al., 1996). Contextual factors are separated into distal (e.g., one's "social address" within larger social systems of privilege and inequality, or background factors influencing their education and development), and more proximal factors (i.e., those shaping one's immediate decisional context) (Lent et al., 2000). Challenges delineating proximal supports and barriers from outcome expectations have arisen from defining what constitutes a support or barrier. Lent et al. suggested that these contextual factors can be parsed by whether they are internal or external to the individual, how they are referenced in time (i.e., past, present, or future), and whether items ask participants to rate the impact of the factor or its likelihood.

Lent et al. (2000) have conceded that barrier items, for example, seem to appear a lot like those of outcome expectations for the given process an individual is going through (i.e., process expectations). They also speculated that previous measures of career barriers may be eliciting an individual's belief in their ability to cope with various obstacles (i.e., coping efficacy). So, in this regard, there is potential conceptual overlap between several constructs in SCCT that is not always possible to fully distinguish, especially when conducting cross-sectional research.

In the present project, the belief is that the temporal reference point delineates these constructs. That is, learning experiences are thought to constitute *past* experiences where individuals encountered a decision-making task with some level of

success or failure. Supports and barriers are believed to be aspects that an individual would rate as *present*, or not, within their current decision-making context. Finally, an outcome expectation would be distinct in that it asks individuals to think about what they expect in the *future*. In other words, an individual contemplating their potential engagement in future career decisional tasks will likely consider what past experiences have taught them about this process (learning experiences), how confident they feel about their ability to complete various tasks involved in the process (self-efficacy), and what supports and barriers they currently see within their immediate context (proximal contextual factors). An individual's cognitive heuristics and dispositional tendencies will shape how all of this information is weighted and filtered (see Bandura, 1997), but the combination of these sources of information will influence the outcomes (good and bad) they most expect as a result of taking action.

Empirically speaking, and perhaps due to some of these conceptual overlaps, findings regarding the relationships among these variables have been mixed. In most prior studies, self-efficacy and social supports have been significantly correlated with positive outcome expectations (Choi et al., 2012; Ireland & Lent, 2018; Lent et al., 2016). However, studies incorporating measures of learning experiences have produced mixed findings and generally explained only modest amounts of variance in outcome expectations (Ireland & Lent, 2018; Lent et al., 2016, 2017). More interpersonally-oriented variables, such as vicarious learning and social support, have tended to produce the most consistent relationships with outcome expectations, suggesting that students' support networks play an integral role in shaping positive outcome expectations regarding the career decision-making process.

In considering the possible connection between structural barriers and outcome expectations, perceived educational barriers have produced negative correlations with measures of positive outcome expectations (Ma & Yeh, 2011; McWhirter et al., 2000a), though the relationship of socioeconomic status and social status variables has been non-significant, or counter-intuitively, slightly negative (Ali et al., 2005; Metheny & McWhirter, 2013). High school students' outcome expectations were found to be enhanced through a career course designed to foster career development, though initial gains from the course were not sustained beyond 9 weeks (McWhirter et al., 2000a).

The SCCT CSM model also hypothesizes that outcome expectations would predict both exploratory intentions and decision-making behaviors. While self-efficacy and positive outcome expectations have both been found to explain unique variance in exploratory intentions, outcome expectations often yield a larger path coefficient than does self-efficacy (Betz & Vuyten, 1997; Ireland & Lent, 2018; Lent et al., 2016, 2017). In a longitudinal study across three time points, self-efficacy and outcome expectations at time one (T1) were found to predict exploratory intentions at time two (T2) (Lent, Morris, et al., 2019). However, outcome expectations did not uniquely predict exploratory actions beyond the other model predictors. Exploratory intentions and self-efficacy at T1 accounted for unique variance in actions at T2, suggesting that positive outcome expectations are linked to actions via exploratory intentions. Interestingly, T2 outcome expectations were not predicted by T1 self-efficacy beliefs, but only by T1 social supports.

Researchers have critiqued the frequently used Betz and Vuyten (1997) measure, and its variations, for containing easily endorsable items that may lead to problems with skew and kurtosis (Lent et al., 2017). Another possible reason for the mixed findings surrounding outcome expectations in this domain is that existing measures do not tap negative outcome expectations (e.g., anticipated decisional anxiety or interpersonal conflict). In addition, they do not represent all outcome types (physical, social, and self-evaluative) and may include items that actually tap other constructs (e.g., general optimism). Such limitations may also be present in outcome expectation measures used in other applications of SCCT (Lent et al., 1991; Wright et al., 2013).

It is possible that outcome expectation measures that better align with Bandura's (1997) specifications will help to clarify the role that this construct plays in career development. Because studies of career exploration outcome expectations have focused on positive outcomes only, it is not clear what type of contribution negative outcome expectations would make in relation to exploratory intentions or how other variables in the CSM model (e.g., social supports, self-efficacy, experiential source variables) may relate to negative outcome expectations. While Lent and Brown (2013) have acknowledged the presence of negative outcome expectations as a part of the overall construct, they have not offered differential hypotheses regarding the predictive utility of positive and negative outcome expectations. It is possible that positive and negative outcome expectations would predict the same dependent variables, only in opposite directions (e.g., the one may promote exploratory intentions, the other may discourage them) or that negative

outcome expectations may moderate the relationships of other variables in the CSM model (e.g., between self-efficacy and exploratory intentions).

The Decision-Making Context Shaping Students' Outcome Expectations

In assessing what outcomes students may anticipate from their career exploration and decision-making efforts, it is important to consider the difficulties present in the current context. Exploring options and deciding upon a career has inherent developmental challenges, but has been further complicated by current financial, economic, and social pressures that exacerbate difficulty with this normative rite of passage. Thus students may expect to encounter typical decisional difficulties and rewards, in addition to navigating ever-evolving environmental challenges.

Developmentally speaking, students engaging in this career development process must build accurate self-knowledge, explore occupations, and match occupational information with relevant interests, strengths, and values (Parsons, 1909). Gati, Krausz, and Osipow (1996) proposed a model of career decision difficulties in which 9 out of the 10 subcategories of difficulty involved what they considered as normative, developmental indecision. In other words, difficulties were typically seen as developmental rather than as chronic and emotionally- or personality-related (Gati & Levin, 2014). In one example of developmental indecision, Baker et al. (2018) examined community college students' use of labor market (occupational) information and found that only 15% of students in the sample had accurate information, a case where more engagement in career exploration would have been beneficial in the decision-making process. While these students may have

experienced decisional difficulty due to lacking information, others struggle with more chronic indecisiveness that can limit their approach to career exploration and decision-making.

Exploring the history of research on career indecision and decisional difficulties, Brown et al. (2012) sought a more parsimonious model of career indecision as encompassing four areas: neuroticism/negative affect; choice/commitment anxiety; interpersonal conflict; and lack of readiness. In this model, neuroticism/negative affect encompasses general traits that make decisions difficult (e.g., tendency to focus on negative experiences, dependence on others, general anxiety); choice/commitment anxiety involves fears about deciding on a career (e.g., fear that interests will change after deciding, worry about not having enough career information, and anxiety about making a commitment); lack of readiness refers to shortcomings in confidence and effort to persevere; and interpersonal conflict captures anticipated discrepancy between individuals' career plans and the expectations of important others (e.g., receiving contradictory information from others or letting others down). Mounting financial, economic, and social trends may thus further complicate an already challenging developmental process.

Chief among these environmental difficulties may be the financial burdens of rising tuition and increasing student debt. A college degree continues to offer chances at higher income, yet the cost of the annual tuition for a 4-year public institution was \$12,750 in 2013-2014, with average annual student loans growing by 23% in the past 10 years (Kena et al., 2016). Indeed, student debt is expected to

represent an increasingly growing share of US debt overall (U.S. Board of Governors of the Federal Reserve System, 2018). Responding to financial pressures, students are increasingly concerned with earning enough to pay back loans. Deciding as quickly as possible on a career path (sometimes without carefully exploring options) may appear to be a means to avoid accruing additional debt. In a 2012 annual survey of college students, more than 55 percent listed job and earning prospects as influencing the major they chose, while financial concerns were also reported by 36% of respondents as interfering with academic performance (Sander, 2012). Exploring career alternatives and taking the time to identify meaningful career options, as opposed to the most lucrative ones, is a luxury some students may feel they do not have.

Augmenting their financial worries, students must also wrestle with an increasingly shifting and unpredictable economy. Though some markers indicate the economy has recovered from the recent recession, rising income inequality, the increase in precarious work, and the growth in artificial intelligence capabilities (and thus, declining labor needs in some sectors) are trends that foster uncertainty about selecting a career field (Frey, 2013; Kalleberg & Vallas, 2017). Perhaps it is these trends that have led some vocational researchers to speculate about the new paradigm of “boundaryless” careers (Arthur & Rousseau, 2001) and to focus on the importance of developing students’ skills for being adaptable in a dynamic marketplace (Creed et al., 2009).

An additional area of mounting pressure stems from the college social culture – that is, actual or anticipated judgments from other students about one’s decisional

status, and the general social status or prestige of certain academic majors/career choices. Pesch, Larson, and Seipel (2018) explored college students' personal judgments in relation to vignettes describing decided and undecided students. They found that students tended to ascribe significantly more positive personality traits to the decided student vignette. Anticipating the feelings of social exclusion undecided students may feel, Pesch et al. experimentally manipulated students' sense of career-related inclusion/exclusion in a second study. They found that psychological variables like a sense of belonging, sense of control, and meaning in life (boosted or deflated by the manipulation), made significant contributions to student's career decision self-efficacy and vocational outcome expectations.

In another study exploring the social microcosm of the university culture, Binder, Davis, and Bloom (2016) explored how students at Harvard and Stanford came to differentiate and pursue high status or prestigious academic majors. This qualitative study identified organizational factors, such as how campus career centers privilege certain occupations, or how employers' campus recruitment efforts can create a sense of competitiveness for their jobs that raises the prestige of majors tied to their industry (e.g., finance, computer science). These researchers noted how students internalized the sense of social status for some occupations, which then triggered insecurities when students felt they could not attain these prestigious jobs, or the safety and security tied to them. Naturally, the perceived lack of prestige around certain occupations impacted students' career exploration by narrowing the range of alternatives they considered. These findings point to the complex ways in which students expected outcomes could be shaped by the social context.

Finally, the current economic environment in the US also contains structural barriers that promote inequality and marginalization. Recovery from the 2008 recession has been uneven across various racial and ethnic groups, and educational resources, access, and retention inequities still dampen opportunities for marginalized groups (Kena et al., 2016). Awareness of these forces have prompted researchers to explore whether all individuals have the same capacity and volition to exercise agency in their vocational pursuits (Duffy et al., 2016). Indeed, the effects of perceived educational and social barriers on marginalized groups has been a topic of investigation within SCCT for many years (e.g., Chartrand & Rose, 1996). Lent et al. (1994) had observed, "...Impediments to career development may stem both from environmentally precipitated forces (e.g., differential socialization processes and opportunities for skill development) and from the internalization of these forces, e.g., via self and outcome beliefs" (p. 105).

The above lines of theory and research suggest several directions for expanding the measurement of career exploration and decision-making outcome expectations. For example, it may be useful to assess a wider range of positive outcomes associated with decisional activities and to include a focus on negative outcome expectations, that is, the drawbacks of engaging in career exploration and decision-making. These may include anticipation of decisional difficulties, adverse economic conditions, uncertainty, interpersonal conflict, loss of status, and discrimination.

The Value of Engaging in Career Exploration and Decision-Making Actions

Despite the rapidly shifting and complex context, fostering career-life preparedness through engagement in adaptive career behaviors (e.g., career exploration) remains a worthwhile and impactful goal for career counselors and practitioners working with today's college students (Hirschi et al., 2014; Lent, 2013). Theoretically, outcome expectations ought to play a significant role in helping students set goals and take necessary actions to reach a career decision (Lent & Brown, 2013). Engaging in the career development process has been conceptualized as involving career planning (e.g., Gould, 1979), self and environmental career exploration (e.g., Hirschi, 2009; Stumpf, Colarelli, & Hartman, 1983), networking behaviors (Wolff et al., 2011), and, more broadly, career engagement (Hirschi et al., 2014).

Researchers have also examined career decision-making strategies, specifically in the face of indecision, finding that students either employ strategies to approach the decision (i.e., productive and support-seeking strategies) or to avoid it (i.e., non-productive strategies) (Lipshits-Braziler et al., 2016, 2017). Outcome expectations have been shown to predict approach intentions (i.e., to explore career options; Lent et al., 2016, 2017; Ireland & Lent, 2018), though there has been relatively little study of their direct role in spurring approach actions (Lent, Morris, et al., 2019).

Engagement in career decision-making has been shown to benefit students and workers in numerous ways. For example, Hirschi et al. (2014) found that higher career engagement for students during college resulted in higher job and career

satisfaction several months after graduation. Creed and Hughes (2013) found that using proactive behaviors (e.g., seeking guidance) resulted in less career distress, even when students were making career compromises among options (i.e., choosing alternatives after a primary option is no longer available). Similarly, though modest in effect size, Creed, Wamelink, and Hu (2015) found that using career planning and exploration strategies may lessen career distress in the face of career goal discrepancies (i.e., when ideal goals do not match up with current progress).

Across the US, colleges and universities have seen an increase in the use of career services, and career indecision may be one of the primary drivers of students seeking career counseling (Gati & Levin, 2014). According to a Purdue-Gallup poll in 2016, 61% of students reported using career services at their college/university, an increase over previous years (New, 2016). Yet, even as service use has increased, ratings of the benefits of services was low, with less than half of students saying the services were helpful or very helpful. Thus, even while students are frequently seeking help, they may not be getting adequate or appropriate assistance with the difficulties they face, and may be missing out on the benefits of career exploration and planning. Among other things, this may point to the need for a better understanding of what students expect from engaging in the career exploration process and what factors may prevent them from doing so.

The Present Research

The present project was split into two parts. Study 1 sought to create and validate a new measure of outcome expectations. After exploring reliability, factor structure, and validity estimates for the new scale, Study 2 attempted to replicate the

factor structure and further validate the measure by using it to test hypotheses presented in the CSM model. The new outcome expectation measure contained item content from all three of Bandura's outcome types (i.e., physical, social, and self-evaluative) and considered both positive and negative outcomes.

Study 1 examined the factor structure and reliability estimates of the new measure as well as evidence of its convergent validity relative to an established measure of positive outcome expectations (Betz & Vuyten, 1997; Lent et al., 2017) and relations to other known CSM model predictors (Lent & Brown, 2013). Discriminant validity was examined by exploring the relationship of the outcome expectation measure to scales of optimism and pessimism, to establish whether outcome expectations are distinct from general dispositions to positive and negative thinking (Scheier et al., 1994). Finding that the factor structure of the new measure proved to be replicable, and that the measure yielded promising reliability and validity estimates, it was then used to test several social cognitive hypotheses focusing on the theoretical sources and consequences of outcome expectations in Study 2. The specific hypotheses for both studies follow.

Study 1

Structure and Reliability of the New Outcome Expectations Measure

Three basic research questions of the study included (a) are positive and negative outcome expectations differentiable?; (b) if so, will scores on each dimension produce adequate internal reliability estimates?; and, (c) what is the extent and nature of the relationship between positive and negative outcome expectations? Bandura (1997) separated outcome types into three classes, physical, social, and self-

evaluative, each of which could be positive or negative in valence. While it is possible that students may view these as six distinct dimensions (i.e., three positive types and three negative types), it is also possible that students may view them more simply (e.g., as two broad classes of positive and negative outcomes).

The dimensionality of the new outcome expectations scale was approached as an empirical question via exploratory factor analysis. While there is not a strong empirical basis for hypothesizing an a priori factor structure of the new measure, it is noteworthy that Gibbon and Borders (2010), studying college-going outcome expectations, found support for a 2-factor (positive and negative) structure. They also found that the two factors did not interrelate significantly ($r = .05, p > .05$). In the domain of career exploration and decision-making, if students similarly view outcome expectations as either positive or negative, it is possible that they may not be substantially interrelated. In other words, students could simultaneously entertain positive and negative expectations about the outcomes of engaging in career exploration and decision-making activities.

Research Question 1: What is the factor structure of the new measure of outcome expectations?

Hypothesis 1: Assuming they compose distinct factors, scores on the positive and negative outcome expectation scales will each produce adequate internal consistency values.

Hypothesis 2: Assuming they compose distinct factors, there will be, at most, only a small correlation between positive and negative outcome expectations.

Convergent and Discriminant Validity

Study 1 of this project also sought to provide preliminary evidence for the validity of the new measure. Using the SCCT CSM model as a guide, the outcome expectations construct should, theoretically, correlate with other model variables at the bivariate level. Also, if positive and negative outcome expectations are distinct factors, they ought to relate to these other variables in opposite directions. For example, career exploration and decision-making self-efficacy ought to correlate positively with positive outcome expectations, and negatively with negative outcome expectations. That is, those with higher confidence in their career exploration and decision-making capabilities will anticipate more favorable outcomes and fewer negative outcomes.

Regarding the experiential sources of self-efficacy and outcome expectations, SCCT predicts that (1) previous *mastery experiences* with decision-making, (2) *verbal encouragement* from trusted sources, (3) *vicarious learning* from observing role models, and (4) previous *positive emotional arousal* in career exploration and decision-making activities would promote more positive outcome expectations, while (5) *negative emotional arousal* would correlate negatively with positive outcome expectations. The opposite relationships may apply to negative outcome expectations.

Outcome expectations are hypothesized to lead to the formation of domain-specific goals (or intentions) to explore various career options (Lent & Brown, 2013). Previous studies have shown that positive career exploration and decision-making outcome expectations correlate positively with measures of exploratory intentions (Lent et al., 2016). It was expected that the negative outcome expectations would

correlate negatively with exploratory intentions, such that anticipating more negative outcomes would be associated with lower intentions to explore career paths or engage in decision-making activities.

Regarding social supports, previous studies have found bivariate correlations between positive outcome expectations and social supports (Ireland & Lent, 2018; Lent et al., 2016, 2017). This same positive relationship was expected with the new measure of positive outcome expectations. It was also expected that social support would correlate negatively with negative outcome expectations. That is, the presence of greater social support may be associated with lower negative outcome expectations.

Finally, the CSM model for career exploration and decision-making suggests a role for person-inputs like predispositions and personality traits (Lent & Brown, 2013). Previous research in the domain has often looked at “Big 5” personality traits in relation to SCCT variables (Ireland & Lent, 2018; L. Penn, 2016). For example, in the realm of career exploration and decision-making, extraversion tends to support career exploration and planning, while neuroticism often inhibits success with career development tasks (cf. S. D. Brown & Hirschi, 2013). The current study drew upon traits that seemed most relevant to the design of a new measure of outcome expectations. Linked to research on expectancy-value and motivational models of behavior, optimism and pessimism are conceptualized as traits reflecting individual differences in generalized expectations about the future. That is, optimism reflects a tendency to hold positive views about one’s future, while pessimism represents a tendency toward holding a more negative perspective.

Separate from the career exploration and decision-making context of the present study, optimism has been tied to higher subjective well-being, use of proactive and adaptive coping strategies in the face of adversity, more and higher-quality interpersonal relationships, and improved educational and career outcomes (cf. Carver et al., 2010). Optimism and pessimism are most often measured using the Life Orientation Test-Revised scale (Scheier et al., 1994), which tends to produce relatively stable measurement over time (test-retest values range from .58 to .71 over periods of weeks to years) (Carver et al., 2010).

In the current study, the relationship between outcome expectations and both optimism and pessimism will be explored. It follows that individuals predisposed to optimistic tendencies will report higher positive outcome expectations, while those with a more pessimistic outlook may report higher negative outcome expectations. However, according to Lent and Brown (2013), “[G]iven their global nature, traits might ordinarily be expected to yield modest relations to domain or task-specific social cognitive measures...” (p. 563). Thus, optimism and pessimism are expected to have significant, but no more than medium-sized, correlations with positive and negative outcome expectations, respectively. These relationships may provide evidence of discriminant validity for the new outcome expectations measure if relationships between the global and domain-specific expectation measures are only moderate to small in size.

In accordance with these CSM model predictions, this project proposed the following hypotheses regarding bivariate relations of positive and negative outcome expectations to other variables in the CSM model:

Positive Outcome Expectations

Hypothesis 3: Positive outcome expectations, as reflected by the new measure, will be positively and substantially correlated with an existing measure of positive outcome expectations in the career exploration and decision-making domain.

Hypothesis 4: Positive outcome expectations will be significantly, positively correlated with self-efficacy.

Hypothesis 5: Positive outcome expectations will be significantly positively correlated with (a) mastery experiences, (b) verbal persuasion, (c) vicarious learning, and (d) positive emotional arousal; and (e) significantly negatively correlated with negative emotional arousal.

Hypothesis 6: Positive outcome expectations will be significantly, positively correlated with exploratory intentions.

Hypothesis 7: Positive outcome expectations will be significantly, positively correlated with social supports.

Hypothesis 8: Positive outcome expectations will be significantly, positively correlated with optimism but the relationship will be no more than medium-sized.

Negative Outcome Expectations

Hypothesis 9: Negative outcome expectations will be significantly, negatively correlated with an existing measure of positive outcome expectations.

Hypothesis 10: Negative outcome expectations will be significantly, negatively correlated with self-efficacy.

Hypothesis 11: Negative outcome expectations will be significantly, negatively correlated with (a) mastery experiences, (b) verbal persuasion, (c) vicarious learning,

and (d) positive emotional arousal; and (e) positively correlated with negative emotional arousal.

Hypothesis 12: Negative outcome expectations will be significantly, negatively correlated with exploratory intentions.

Hypothesis 13: Negative outcome expectations will be significantly, negatively correlated with social supports.

Hypothesis 14: Negative outcome expectations will be significantly, positively correlated with pessimism but the relationship will be no more than medium-sized.

Study 2

Study 2 focused on assessing the stability of the factor structure of the new outcome expectations measure. After replicating the factor structure obtained in Study 1, Study 2 employed the new measure in testing CSM hypotheses, shifting the bivariate focus of Study 1 to a multivariate focus. In particular, Study 2 assessed the extent to which outcome expectations assessed by the new measure are explained by self-efficacy, social support, and the experiential source variables hypothesized in the CSM model. It also examined whether negative outcome expectations, as assessed by the new measure, contributed uniquely to the prediction of exploratory intentions. Finally, Study 2 explored a potentially novel role of negative outcome expectations as a moderator in the relations of both self-efficacy and positive outcome expectations to exploratory intentions (goals).

Factor Structure Stability

It was assumed that the factor structure of the new outcome expectations measure obtained in Study 1 would cross-validate with a separate sample in Study 2.

Hypothesis 15: The factor structure identified in Study 1 will offer a good fit to data in an independent sample.

Prediction of Outcome Expectations

This set of hypotheses assumed that both positive and negative outcome expectations would be predicted by self-efficacy, social supports, and the experiential sources of self-efficacy and outcome expectations. In particular:

Hypothesis 16: Learning experiences, self-efficacy, and social supports will (a) collectively and (b) individually explain unique variance in positive outcome expectations.

Hypothesis 17: Learning experiences, self-efficacy, and social supports will (a) collectively and (b) individually explain unique variance in negative outcome expectations.

Prediction of Exploratory Intentions

This set of hypotheses posited several ways in which negative outcome expectations may contribute to the prediction of exploratory intentions. According to social cognitive theory, self-efficacy is believed to be the more significant predictor of goals and actions, especially when performance is closely linked to outcomes (Bandura, 1997). However, in a domain like career exploration and decision-making, where success is not always clearly defined and where actions may not be tied directly to outcomes, it is expected that outcome expectations may offer a unique contribution to understanding students' exploratory intentions, above and beyond self-efficacy and social supports. In addition, negative outcome expectations may explain unique variation beyond that attributable to positive outcome expectations.

Hypothesis 18: Self-efficacy, social supports, positive outcome expectations, and negative outcome expectations will (a) collectively and (b) individually explain unique variance in exploratory intentions.

Negative outcome expectations as a moderator. In addition to contributing directly to the prediction of exploratory intentions, it is possible that negative outcome expectations may moderate the relation of other predictors to intentions. In particular, negative outcome expectations may diminish the power of self-efficacy and positive outcome expectations to motivate exploratory behavior. In other words, it is possible that negative outcome expectations may moderate the relationship of both self-efficacy and positive outcome expectations to exploratory intentions, such that the presence of higher negative outcome expectations (e.g., fear of failure, anticipated interpersonal conflict) may neutralize the beneficial effects of these predictors on exploratory intentions.

Although these particular moderation possibilities have not been studied in the career exploration and decision-making literature, some prior research has examined the interaction between self-efficacy and outcome expectations in other contexts. In a study of mathematical choice using social cognitive theory, Lent, Lopez, and Bieschke (1991) split a sample of 138 college students into groups of those with high and low positive expectations about pursuing math as a career. They found that the relationship of self-efficacy to choice of mathematics-oriented careers was moderated by positive outcome expectations. In particular, when students lacked positive outcome expectations, the self-efficacy to choice correlation was weaker than when

outcome expectations were high. This interaction was not, however, replicated in a subsequent study (Lent et al., 1993)

The following two hypotheses are offered as a way to capture the potentially de-motivating effects of negative outcome expectations:

Hypothesis 19: Negative outcome expectations will moderate (neutralize) the relationship between self-efficacy and exploratory intentions, such that the relationship of self-efficacy to exploratory intentions will be significantly lower when negative outcome expectations are high.

Hypothesis 20: Negative outcome expectations will moderate (neutralize) the relationship between positive outcome expectations and exploratory intentions, such that the relationship of positive outcome expectations to exploratory intentions will be significantly lower when negative outcome expectations are high.

Methods

Study Design

The proposed research employed a descriptive, correlational design investigating the career exploration and decision-making process of undergraduate students through self-report surveys. The project was composed of two parts. Study 1 examined the factor structure, reliability, and validity estimates of a new measure of career exploration and decision-making outcome expectations. Study 2 sought to replicate the factor structure of the new measure and provide further validation of the new measure by testing CSM regression hypotheses. After cross-validating the new measure, Study 2, assessed the extent to which positive and negative outcome expectations were explained by career exploration and decision-making self-efficacy, learning experiences, and social supports. Study 2 also assessed whether negative outcome expectations explain unique variance in exploratory intentions, above and beyond hypothesized CSM model predictors. Finally, Study 2 explored whether negative outcome expectations moderated the relations of self-efficacy to intentions and of positive outcome expectations to intentions.

Participants

The participants of both studies were undergraduate college students, age 18 and above. For Study 1, the sample was obtained from a mid-Atlantic, Research I institution. Study 2 included a national sample of students obtained via the Qualtrics Research Services. It is commonly believed that college students are engaged in a normative process of exploring career options and making initial career decisions during this stage of life (Super et al., 1996). Thus, they were a meaningful population

to target for investigating outcome expectations for career exploration and decision-making, as many were likely to be in the midst of career exploration and planning. No specific exclusion criteria beyond the minimum age were used.

Study 1 Sample Demographics

Demographic data were available for all Study 1 participants and the summary of sample characteristics can be found in Table 1. The participants in Study 1 were 291 undergraduate students enrolled at a Mid-Atlantic, Research I university. The first subset of 222 participants was composed of first- and second-year students identified by the campus Registrar's office by accumulated credit hours, and recruited via email (Registrar sample). The second subset of participants contained another 69 undergraduate students recruited through their enrollment in psychology department courses (SONA sample). These two samples were combined to create a total sample of 291 participants for Study 1 analyses. For a rationale behind the decision to combine these samples, see the Results section.

The age of participants in the Study 1 sample ranged from 18-23 years old ($M=18.9$, $SD=.97$) and included 192 first-year students (66%), 70 sophomores (24%), 19 juniors (7%), and 10 seniors (3%). There were 168 women (58%), 118 men (41%) and 4 students who self-identified as "non-binary" or "queer" as their gender identity (~1%). The racial/ethnic composition of the sample included 27 who identified themselves as Black or African American (9%), 16 as Hispanic American or Latino/a (6%), 150 as White or European American (52%), 82 as Asian/Pacific Islander American (28%), and 16 as Multiracial (6%).

When asked to rate their current level of decidedness on a career direction, participants were split among several categories: very decided ($n = 53$, 18%), moderately decided ($n = 103$, 54%), slightly decided ($n = 65$, 22%), slightly undecided ($n = 25$, 9%), moderately undecided ($n = 25$, 9%), and completely undecided ($n = 20$, 7%). Among the participants, 186 (64%) indicated that making or remaking a career decision was moderately or very important to them at the present time. Participants identified as having a diverse array of currently declared and undeclared majors within the university, reflecting a broad sample of academic disciplines.

Study 2 Sample Demographics

Demographic data were available for all 263 participants in the sample. Details about the sample can be found in Table 1, which displays both the Study 1 and Study 2 sample characteristics. Participants in the Study 2 sample also received additional demographic questions related to region, family income, and subjective socioeconomic status, which are presented alongside national averages according to U.S. Census Bureau statistics (*Income and Poverty in the United States: 2018*, n.d.; *Population Clock*, n.d.). The Study 2 sample was restricted by age, so participants ranged from age 18-20 years old ($M=19.1$, $SD=.78$). However, some participants still self-reported across a mix of college class years, including 96 first-year students (37%), 85 sophomores (32%), 60 juniors (23%), 21 seniors (8%) and 1 student who was fifth year or other (<1%). The sample was composed predominantly of women, with 216 students identifying as women (82%), 45 as men (17%) and 2 as non-binary or queer (<1%). The racial/ethnic composition of the sample included 70 students

who identified themselves as Black or African American (27%), 33 as Hispanic American or Latino/a (13%), 106 as White or European American (40%), 28 as Asian/Pacific Islander American (11%), 4 as Native American (2%) and 22 as Multiracial (8%).

When asked to rate their current level of decidedness on a career direction, participants were split among several categories: very decided ($n = 53$, 20%), moderately decided ($n = 73$, 28%), slightly decided ($n = 64$, 24%), slightly undecided ($n = 40$, 15%), moderately undecided ($n = 16$, 6%), and completely undecided ($n = 17$, 7%). Among the participants, 222 (65%) indicated that making or remaking a career decision was moderately or very important to them at the present time. Participants identified as pursuing a broad range of academic majors.

Compared to the Study 1 sample (Registrar + SONA sample), the Study 2 sample (Qualtrics sample) included a greater proportion of women and students who identified as Black or African American and Hispanic American or Latino/a, and a smaller percentage of students who identified as White or European American and Asian/Pacific Islander American. Age ranges were similar across both samples, but the Study 2 sample contained less first-year students (and thus more upper-class students) than the Study 1 sample. The Study 2 sample, though, had more students indicating they were less decided on an academic major and career direction at present.

The Study 2 sample had a distribution of participants that roughly matched the national distribution of populations by region, with 48 participants residing in the Midwest (18%), 56 in the Northeast (17%), 86 in the Southeast (33%), 35 in the West

(13%), and 38 in the Southwest (14%). While regional data were not collected for the Study 1 sample, it is fair to assume this sample was composed mainly of individuals from the Northeast and Mid-Atlantic, given the university's location. Regarding socioeconomic characteristics, participants in Study 2 reported family income closely matching national averages for income brackets. The sample contained more participants in the \$75K-\$100K range than national averages, and less representation from the highest income brackets (\$150K-\$200K, and \$200K+).

Procedure

Given that the proposed study required two separate samples for exploratory and confirmatory factor analyses of the new outcome expectations measure, every effort was made to recruit an initial sample of at least 500-600 participants so that the sample could be randomly divided in half for exploratory and confirmatory factor analyses. In other words, the first sample was intended for exploratory factor analysis and initial measure validation (Study 1), and the second half of the sample for confirmatory factor analysis and theory testing (Study 2). However, not enough data were collected through initial recruitment strategies (i.e., the Registrar listserv email recruitment), so additional methods (i.e., SONA and Qualtrics Research Services) were utilized as the study progressed. All participants completed the same survey measures across all recruitment methods. A caveat, however, is that the ordering of measures differed between Qualtrics recruitment methods after the first half of data had been gathered (i.e., between Qualtrics method "Wave 1" and "Wave 2").

The primary data collection method for the project involved online survey delivery hosted on the Qualtrics survey platform, but occurred through three distinct

strategies: (a) sending recruitment emails to a listserv of 6000 randomly-selected first- and second-year undergraduate students compiled in coordination with the University Registrar's office, (b) posting the study in the Psychology department's "SONA" platform for undergraduate students enrolled in psychology courses, and (c) soliciting a third-party vendor (Qualtrics Research Services) to recruit undergraduate students through a variety of national research networks.

It should be noted that the Qualtrics survey delivery platform, used to host the online survey across all three recruitment methods, is distinct from the Qualtrics Research Services group, which is a service arm of the Qualtrics organization that can recruit participants for a fee. For simplicity, the three samples collected for the project are referred to respectively as (a) the Registrar sample, (b) the SONA sample, and (c) the Qualtrics sample. The Registrar and SONA samples combined, comprised the Study 1 sample and the Qualtrics sample, collected in two separate waves (Wave 1 and Wave 2) comprised the Study 2 sample. The recruitment materials and informed consent documents for each data collection method are listed in Appendices A and B.

For the Registrar recruitment method, an email listserv of undergraduate participants was obtained from the University Registrar. In order to maximize participation, collaboration on the project was established with the University Career Center (UCC) on campus to lend credibility to the study and to provide incentives for students to participate. The UCC logo was included in recruitment materials, and the UCC offered university-themed drawstring bags to all participants who completed the entire survey. Once the survey was completed, students voluntarily picked up their

incentive item at the UCC, thus increasing foot traffic and awareness of career services among selected students. In addition, upon completing the survey, all participants were provided a list of campus resources for career exploration and planning designed in consultation with the UCC.

Because the Registrar's office controlled the listserv creation, participants' names and email addresses remained anonymous to the researcher. The listserv contained a representative sample 2168 randomly selected first-year students, and 3832 randomly selected second-year students (for a total of 6000 first- and second-year undergraduate students). Based on the university's general education requirements, which typically require two years of coursework for most majors, students at this stage of their academic careers were believed to be in the process of solidifying academic major plans and making initial forays into career exploration and decision-making. A mass email was sent to this listserv containing a copy of the recruitment letter detailing the study, and three follow-up reminder emails were sent one week apart after the initial email. Data were collected using this recruitment method from February 2019 through April 2019.

In order to supplement the data collected via the Registrar recruitment method, data were simultaneously collected through the SONA research system in the Psychology department at the same institution. An administrator in the Psychology department manages the SONA system and students enrolled in most Psychology department courses have access to the SONA portal, which hosts a range of psychological research studies students can sign up for to earn course credit. The current study was displayed in random order among a list of many ongoing campus

research projects that participants could self-select. Participants enrolling in the study through this recruitment method were offered .5 units of experimental credit in their respective psychology course for completing the entire survey. Data were collected in the SONA system from February 2019 through early May 2019.

The online survey platform used for data collection allowed for the tracking of IP addresses from respondents. To avoid duplicate responders from the initial Registrar email recruitment strategy, IP addresses from secondary data collection were compared to existing participants to avoid duplicate responses. No duplicate IP addresses were discovered between the Registrar and SONA samples.

Finally, after noticing the response rate for earlier recruitment methods was low, it was decided to collect additional data using a third recruitment method to have enough data for a separate Study 2 sample. Thus, additional data were subsequently gathered between May 2019 and July 2019 in partnership with the Qualtrics Research Services (<https://www.qualtrics.com/research-services/>). Participants recruited via this method received the opportunity to enroll through a variety of national research networks via online advertisement. Students who accessed the study were provided three screening criteria prior to being allowed to participate: (a) ages 18-20, (b) enrolled in a four-year institution, and (c) in the process of deciding upon an academic major or career (See Appendix M). These criteria were selected to match characteristics of the campus samples collected in the Registrar and SONA methods.

The Qualtrics Research Services recruitment method offered participants an online credit incentive valued at up to \$2 for survey completion, which could be redeemed for a variety of gift cards. Arrangements with Qualtrics Research Services

originally stipulated collecting a sample of 250 participants at a cost to the researcher of \$5.00 per participant (\$1250.00 total). The cost of recruitment was partially funded by a departmental grant (SPARC grant) obtained by the principal researcher (valued at \$1000.00), and partially paid for via out-of-pocket contributions (\$250.00).

The Qualtrics Research Services consultants advised against the use of the validity item used in the other data collection methods, so it was omitted at first. The Qualtrics Research Services group also proposed using a time-cut-off to screen out responses less than a third of the average response time of the first 10% of collected responses (this ended up being initially set at 135 seconds, or 2 minutes and 15 seconds). No responses were screened out due to falling short of this response time. After 10% of the data had been collected (25 responses) it appeared that there was a high presence of problematic response patterns reflecting careless responding (i.e., short survey duration compared to previous samples, presence of patterned responses like ‘straight-lining’ and ‘zig-zagging’). Because about 25% of responses appeared to be problematic, it was negotiated with Qualtrics Research Services to include a validity question to future participants, and to increase the number of provided responses from 250 to 316 total responses (~25%).

Due to the suspicion of careless responding from early responses, data collection was again paused at 50% of data gathered (i.e., at 158 responses) for review. This first 50% of responses was dubbed “Wave 1” for ease of reference. Upon initial inspection of the data, careless response patterns continued to persist, and an unexpected positive correlation between positive and negative outcome expectations was discovered. It was hypothesized that the positive correlation may

have resulted from a method approach that presented all positive outcome expectation items prior to the negative outcome expectation items (i.e., this ordering may have caused less attentive participants to assume that all outcome expectation items were positively valenced). Thus, a decision was made to reverse item ordering in the remaining data collection (i.e., Wave 2). Participants in Wave 2 were shown the negative outcome expectations item block first, followed by other survey measures (including the new positive outcome expectations items) in random order, and concluding with the existing measure of positive outcome expectations (Betz and Voyten scale) and demographic items.

This methodological shift did not cause a significant difference in sample characteristics, but also did not reduce the presence of careless responding, or reduce the positive correlation between positive and negative outcome expectations items (See Results section for further discussion). Given the continued presence of potentially problematic responses, Qualtrics Research Services also provided an additional 20 responses in Wave 2, above what was expected, for a total of 336 complete responses.

For both Study 1 and Study 2, participants who agreed to participate were directed to the Qualtrics online survey platform. Participants were first shown the consent form (see Appendix B) and minimum age requirement for the study. Students who consented and met participation criteria were directed to complete each of the measures in the study, including the following: the new measure of outcome expectations developed for this survey, an established measure of positive outcome expectations (Betz & Voyten, 1997), the Career Exploration and Decision Self-

Efficacy-Brief Decisional scale (Lent et al., 2017), the Career Exploration and Decisional Learning Experiences scale (CEDLE; Ireland & Lent, 2018; Lent et al., 2017), the Influence of Others on Academic and Career Decisions support/guidance subscale (IOACDS; Nauta & Kokaly, 2001), the expanded version of the Career Decision-Making Exploratory Intentions scale (Betz & Vuyten, 1997; Lent et al., 2017), and the Life Orientation Test-Revised (Scheier et al., 1994) See Appendices C through M for all scales and items.

Given the intention of developing a new measure of outcome expectations and comparing the scale with an existing measure of outcome expectations (i.e., Betz and Vuyten's scale), the new measure was placed at the beginning of the survey while the existing measure was placed always at the end of the survey. With the exception of Wave 2 in the Qualtrics recruitment method, participants always completed positive outcome expectation items first, followed by negative outcome expectations items. All other measures in the study were administered in random order to avoid bias due to ordering effects. At the end of the survey battery, participants were asked to complete a demographics form, including age, race/ethnicity, gender identity, year in school, current academic major, and questions about level of career and academic decidedness, and how important making a career decision is to them at this time (see Appendix L). Participants in the Qualtrics Research Services recruitment method additionally completed demographic questions about region, family income, and subjective social status (See Appendix M).

Upon completion of the study, participants had the opportunity to read about the purpose of the study and were thanked for their participation. Participants in the

Registrar sample were invited to share their email address if they wished to obtain available incentives from the UCC, but survey responses were not linked to their email address. Participants in the SONA method were automatically redirected back to the SONA system to receive experimental credit. Qualtrics sample participants were able to obtain appropriate monetary credit for their completion through the Qualtrics Research Services group.

Measures

New Outcome Expectations Measure (see Appendices D and E)

The Career Exploration and Decisional Outcome Expectations scale (CEDOE) was developed for this study. The proposed scale follows calls to improve the measurement of outcome expectations in the domain of career exploration and decision-making (Fouad & Guillen, 2006), and takes into account Bandura's (1997) conceptual considerations. Namely, the scale includes both positive and negative outcomes representing each of three outcome types or classes: physical, social, and self-evaluative.

In a recent qualitative study on outcome expectations for pursuing STEM degrees, Shoffner et al. (2015) offered an expanded classification of outcome expectation types including expanded aspects of what are considered physical outcome expectations (e.g., time/energy considerations), as well as two new types (i.e., Generativity and Relational). While these novel classes offer nuanced ways to think about outcomes, these outcome types were classified in the current study within the self-evaluative and social types proposed by Bandura (1997). Thus, *physical* outcome types are conceptualized to include physical sensations and feelings (e.g.,

anticipated excitement or anxiety), as well as considerations related to time and energy (e.g., a belief that career exploration is a waste of time). *Social* outcomes, perhaps the broadest category type, include anticipated social approval (or rejection), impact of career exploration on interpersonal relationships (e.g., conflict, expanded relationships), conferral of social status, power, and financial gain, and experiences with discrimination or inequality. Finally, *self-evaluative* outcomes are focused on judgments about the self and a sense of personal meaning, including satisfaction or dissatisfaction, sense of self-worth or self-devaluation, and sense of purpose.

Following best practices for scale development in SCCT (Lent & Brown, 2006), outcome expectation items were crafted using a *general* format. That is, participants were given the following general statement stem prior to each item: “If I were to spend time exploring different careers and deciding on a career path, I would most likely...” Each item represents a possible anticipated outcome, and participants rate their level of agreement that the outcome is likely on a scale from 1 (*Strongly disagree*) to 5 (*Strongly Agree*). As discussed above, items were constructed for each of six outcome areas, including positive-physical, positive-social, positive-self-evaluative, negative-physical, negative-social, and negative-self-evaluative.

In order to develop content for the items, the relevant literature was reviewed, including existing studies of positive outcome expectations and career indecision and decisional difficulties (Brown et al., 2012; Gati et al., 1996; Hacker et al., 2013). New negative outcome items reflect the complexities and pressures of deciding on a career in a competitive and changing economy (cf. Lent, 2013). Efforts were made to consider how items might be interpreted by members of various groups (e.g., students

forced to re-decide upon a career after their first choice is no longer an option), as well as students of various social identity groups (e.g., women, students of color).

As a precursor to writing items, some qualitative, archival data from an online career exploration class taught in the University Career Center (UCC) were reviewed. As an effort to understand how students think about career exploration and decision-making, students in the class could respond to a pre-course survey that asked them two questions of relevance: (a) What are the various individual, emotional, interpersonal, and societal outcomes you most anticipate if you were to take steps to explore options and decide on a career in the next 3 months?, and (b) What are the primary reasons you have been motivated toward, or avoided, putting time and effort into exploring career options and making a decision? Researchers reviewed 187 qualitative responses from 128 women (68.4%), 57 men (30.5%) and two students who identified as gender non-conforming. The respondents were mostly upper-class students, with a mix of 3 first-year students (1.6%), 32 sophomores (17.1%), 60 juniors (32.1%), 82 seniors (43.9%), and 10 fifth year students (5.3%).

As an informal exercise, qualitative responses were coded based on Bandura's (1997) outcome categories to explore what outcomes students reported. Qualitative responses could be coded into more than one category if a student touched on more than one outcome in their response. Among all 187 responses to both questions, 114 students mentioned at least one positive-physical outcome (e.g., "excitement"), 86 students mentioned a positive-social outcome (e.g., "I think my friends and family would support me in my pursuits"), and 88 students mentioned a positive-self-evaluative outcome (e.g., "I would be very happy with myself with a sense of pride

and achievement”). Conversely, 120 students identified a negative-physical outcome (e.g., “I would feel scared, pressured, and would have anxiety”), 46 identified a negative-social outcome (e.g., “In terms of family, I feel pressured to not pursue certain careers as my mother does not agree with the job, thus limiting my options”), and 36 identified a negative-self-evaluative outcome (e.g., “I have a career goal set but I am really afraid that I don't have a chance because my grades are not the best. My fear to fail makes me not want to put a huge effort into achieving my goal and I kind of look for career options that I can settle for”).

While on the whole students tended to report more positive than negative outcomes, of importance to the current study was the finding that many students ($n = 95$, 50.8%) responded with a mix of *both* positive and negative outcome expectations. For example, one student responded by anticipating a mix of positive and negative physical outcomes: “I will anticipate the feelings of nervousness and being a little scared. However, I will be mostly excited. I also know I can anticipate a lot of hard work and dedication in my future.” Though the respondents were, on average, more advanced in class level than the students to be targeted for the current study, they offered a helpful window on outcome expectations that may be generally relevant to college students’ career exploration. Their responses also helped to guide item phrasing, for example, regarding students’ beliefs about family expectations.

Combining these qualitative data with item content derived from existing measures and other relevant literature, a preliminary pool of 56 items was created. Outcome expectation definitions for the domain and the outcome classifications were shared with a research team consisting of four PhD-level graduate students in

counseling psychology program, and a faculty member with over 30 years of expertise designing SCCT measures. Team members were asked to place items into the various categories (e.g., positive or negative; physical, social, or self-evaluative) to establish consistency, and to examine items for potential conceptual issues, grammar, wording concerns, and missing content. The initial item list of 56 items was trimmed down to 39 items, and the team consultation led to rewording of several of the retained items for conceptual clarity. Some items were removed because they were redundant, ambiguous, or did not seem directly tied to engaging in career exploration and decision-making. Item wording for 10 items was also adjusted to explicitly focus on career decisions (compared to other decision or choice-making domains).

Regarding item conceptual placement, there were no disagreements about what constituted a positive or negative outcome expectation. However, while efforts were made to maintain conceptual clarity of items, the team did experience some difficulties in placing items exclusively within a single physical, social, or self-evaluative category. For example, in considering a student's anticipation of family discord from engaging in the career exploration process (theoretically, a social outcome type), team members felt that there were also physical sensations associated with feeling rejected, as well as self-evaluative shame at not having lived up to expectations. This feedback was used to refine item wording. A preliminary draft of scale items (see Appendix D) was subsequently pilot tested with 56 participants recruited via SONA. Based on the pilot results and further consultation with the research team, a final pool of 30 items was selected for use in Study 1 and 2 (see

Appendix E for this revised measure). The resulting (4-factor) factor structure and reliability estimates (all above .80 in Study 1) will be presented in the Results section.

Existing Measure of Outcome Expectations (see Appendix F)

In order to provide convergent validity for the new outcome expectations measure being developed in this study, a commonly used and validated measure of outcome expectations was included in the study. Betz and Vuyten (1997) initially developed the 4-item Career Decision Making Outcome Expectancies scale (CDMOE) and Lent et al. (2017) added an additional 4 items to improve internal consistency and construct representation (α improved from .81 to .90). The 8-item version of the scale contains positively framed outcome expectations for engaging in exploratory actions, asking respondents to rate their agreement with each statement from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Sample items include, “If I learn more about different careers, I will make a better decision,” and, “If I put enough time into deciding on career options, it will increase my chances of making a better career decision.” Item scores are averaged to produce a total scale score ranging from 1 to 5, with higher scores reflecting greater anticipation of positive outcomes from engaging in exploratory behaviors.

Though the scale was designed to assess outcome expectations as described by Bandura (1997), the scale does not include negative items, and may conflate the outcome types proposed by Bandura (i.e., physical, social, and self-evaluative) with performance markers (i.e., a successful decision). Thus, it is not clear what the referent is for making a “better career decision.” This may be part of the reason why scores on the scale have tended to skew positively (Ireland & Lent, 2018), since it

seems natural to agree, for example, that more time spent will lead to better outcomes. Still, the Betz and Vuyten measure has been widely used and has demonstrated significant correlations with expected variables, including vicarious learning (learning experience), social support, self-efficacy, and exploratory intentions (Ireland & Lent, 2018; Lent et al., 2016, 2017). Coefficient alphas for scores on the expanded scale have been above .90 for samples involving college students in these studies. Coefficient alphas in the current samples were above .91.

Self-Efficacy (see Appendix G)

The Career Exploration and Decision Making Self-Efficacy – Brief Decisional scale (CEDSE-BD; Lent et al., 2016, 2017) was used to assess the confidence participants have in gathering occupational information and identifying options that are a good fit for an individual’s strengths, personality, and values. The self-efficacy required to manage tasks in the career exploration and decision-making process is hypothesized, along with outcome expectations, to be a key driver of goal-setting, action, and outcomes within the domain (Lent & Brown, 2013). The CEDSE-BD contains 8 items rated on a 5-point Likert-type scale, from 0 (*No confidence at all*) to 4 (*Complete confidence*). For example, participants rate their confidence in their ability to, “Make a well-informed choice about which career path to pursue,” and “Match your skills, values, and interests to relevant occupations.” Scores on each individual item are averaged to produce a total score ranging from 0 to 4, with higher scores reflecting greater confidence in one’s career decision-making abilities.

Developed for the brevity necessary in model-testing with a large number of variables, the CEDSE-BD has shown substantial correlation with a longer, established

measure of career decision self-efficacy (Betz et al., 1996, 2005). Across a series of studies on college students, the CEDSE-BD has also related in theory-consistent ways with experiential source variables, positive outcome expectations, Big-5 personality traits, social support, exploratory intentions, career exploratory behaviors, career decidedness, and (lower) decisional anxiety (Ireland & Lent, 2018; Lent et al., 2016, 2017; Lent, Morris, et al., 2019). Scores on the scale have shown reliability coefficients consistently above .93 in studies involving college students. Coefficient alphas in the present samples were above .91.

Learning Experiences (see Appendix H)

The Career Exploration and Decision Making Learning Experiences scale (CEDLE) was developed to assess five types of learning experiences believed to inform individual's self-efficacy and outcome expectation appraisals: (a) prior mastery experiences with exploration and decision making (ME); (b) verbal persuasion from others regarding one's abilities (VP); (c) vicarious learning from career role models; and (d) positive and (e) negative emotional arousal experienced in relation to past decisional efforts (Ireland & Lent, 2018; Lent et al., 2017). For the first three subscales, individuals rate their agreement with statements on a Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Sample items include, "The way I have approached important career-related decisions has worked well for me in the past" (ME); "Important others (e.g., family, friends, teachers, mentors) have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions" (VP); and "I have role models who are good at making important career decisions" (VL).

Items for the emotional arousal subscales are adapted from the international version of the Positive and Negative Affect Schedule Short-form (Thompson, 2007), but modified slightly for emotions thought to be most associated with the career exploration and decision making domain. On a Likert-type scale from 1 (*Very slightly or not at all*) to 5 (*Extremely*), the items ask participants to what extent they have felt various positive and negative emotions (e.g., excited, nervous) related to career exploration and decision making tasks over the past year. Thus, each CEDLE subscale contains 4-items, and averaged scores on each subscale range from 1 to 5. Higher subscale scores represent the presence of greater levels of either positive or negative sources of decisional self-efficacy and outcome expectations.

Each of the subscales correlated moderately with a measure of past engagement in career and self-exploration efforts, with the exception of NEA, which produced a small, non-significant correlation (Lent et al., 2017). In addition, three of the subscales (ME, PEA, and NEA) have consistently explained unique variance in self-efficacy, while VL has consistently explained unique variance in outcome expectations, above and beyond self-efficacy (Ireland & Lent, 2018; Lent et al., 2017). The VP subscale has not produced significant pathways to self-efficacy or outcome expectations in path analysis, perhaps due to its high correlation with the ME subscale and the effects of multicollinearity (Lent et al., 2017). Together the source variables have significantly explained a moderate to large amount of variance in self-efficacy ($R^2 = .45$ to $.54$), and a more modest amount of variance in outcome expectations ($R^2 = .19$ to $.20$). Scores on each of the subscales have produced

coefficient alphas ranging from .80 to .89. Coefficient alphas in the present samples were ME (.78, .79), VP (.78, .85), VL (.79, .82), PEA (.80, .82) and NEA (.80, .80).

Social Support (see Appendix I)

The presence of contextual support in career exploration and decision making was assessed using the support/guidance subscale of the Influence of Others on Academic and Career Decision Making scale (IOACDS; Nauta & Kokaly, 2001). The 8-item subscale uses a 5-point Likert rating scale (*Strongly Disagree* to *Strongly Agree*) to assess respondents' agreement with such statements as, "There is someone who helps me consider my academic and career options," or "There is no one who shows me how to get where I am going with my education or career" (reverse scored). After reverse-scoring negatively phrased items, scores on each item are averaged to yield a total scale score ranging from 1 to 5, with higher scores indicating a greater presence of social support for academic and career decision making efforts.

Studying undergraduate students, Nauta and Kokaly (2001) found that the support/guidance subscale of the IOACDS correlated with a general measure of social support and did not correlate with a measure of social desirability. In addition, they showed that social supports were correlated with having occupational information and with less career indecision, suggesting that having social supports is instrumental in facilitating the career exploration process. Indeed, as hypothesized in the CSM model, a series of studies involving undergraduate students have shown that social support correlates in expected ways with measures of self-efficacy, positive outcome expectations, exploratory goals and actions, and career decidedness. Scores on the scale have also yielded internal consistency estimates ranging from .82 to .90 (Ireland

& Lent, 2018; Lent et al., 2016, 2017). Coefficient alphas in the present samples were .86 (Study 1) and .79 (Study 2).

Goals (see Appendix J)

The Career Decision-Making Exploratory Intentions scale, first developed by Betz and Vuyten (1997), and expanded by Lent et al. (2016), was used to assess the SCCT construct of goals. The scale originally consisted of 5 items, but was expanded to 10 items by Lent et al. in order to improve internal consistency and broaden construct representation. Whereas Betz and Vuyten found that the original scale yielded a coefficient alpha of .79, the initial estimate for the expanded scale was .88 (Lent et al., 2016). All items ask respondents to rate their level of agreement with statements about their intentions to engage in self-exploration, gather occupational information, and put a career decision into action within the next two months. The items all use a 5-point Likert scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) and scores are averaged to produce a total scale score ranging from 1 to 5. Higher scores reflect greater intentions to engage in exploratory and decision-making behaviors within the next two months.

In previous studies, self-efficacy and outcome expectations have explained significant variance in exploratory goals, as has a measure of social support (Lent et al., 2016). Often the path coefficient from positive outcome expectations is larger than that of self-efficacy, and occasionally self-efficacy does not explain unique variance in exploratory intentions above and beyond outcome expectations. These findings mirror those of Betz and Vuyten (1997), who found that when exploratory intentions were regressed on outcome expectations and self-efficacy together, only

outcome expectations explained unique variance. In a longitudinal study, exploratory intentions were found to contribute significantly, along with self-efficacy, to the prediction of exploratory actions at a later time point (Lent, Morris, et al., 2019).

Across all studies with college students, including in the current two samples, scores on the 10-item measure have produced internal consistency estimates at or above .87.

Optimism and Pessimism (see Appendix K)

The most common measurement used for optimism and pessimism is the Life Orientation Test-Revised (LOT-R; Scheier et al., 1994). The 10-item LOT-R assesses an individual's expectations for their future at a global level, asking participants to rate their level of agreement with various statements on a scale of 1 (*I disagree a lot*) to 5 (*I agree a lot*). The scale includes four filler items (e.g., "I enjoy my friends a lot") that do not represent either the optimism or pessimism construct. Three items are considered as optimism items (e.g., "In uncertain times, I usually expect the best.") and three items comprise a sense of pessimism (e.g., "If something can go wrong for me, it will."). Scores on optimism and pessimism can be considered as distinct scales, or pessimism items can be reverse-scored to create a single dimension measure of optimism. Scores for the Optimism and Pessimism scales are calculated by summing responses to each item, with higher scores reflecting higher levels of optimism and pessimism, respectively.

Optimism and pessimism scales were chosen for the present study because career exploration and decision-making outcome expectations may reflect domain-specific optimism or pessimism linked to exploratory actions. Evidence for conceptualizing optimism and pessimism as a unidimensional continuum, versus as

separate dimensions, is mixed (Herzberg et al., 2006; Hinz et al., 2017; Rauch et al., 2007). For the present study, the LOT-R was used to conceptualize them as distinct constructs.

In previous research, optimism was tied to approach or engagement related problem-solving strategies, while pessimism was tied to avoidance or disengagement strategies (Nes & Segerstrom, 2006). Optimism and pessimism are generally thought of as trait-like, though there is evidence that situational factors like socioeconomic success and access to resources may engender greater optimism (Heinonen et al., 2006). Optimists have also been found to have more numerous and higher quality interpersonal relationships, which may form the foundation of the supportive social network conducive for career exploration and decision-making success (Segerstrom, 2007). Though research focused on optimism and pessimism in career exploration and decision-making domain is sparse, some research suggests better educational and career outcomes for optimists compared to pessimists (Nes et al., 2009; Segerstrom, 2007). For a past sample of college students, researchers found a coefficient alpha of .78 for the six-item Optimism scale (with reverse-scored pessimism items) (Scheier et al., 1994), and .70 for Optimism and .63 for Pessimism when the scales were separated (Hinz et al., 2017). Treated as distinct, 3-item scales, coefficient alphas in the present samples were .65 and .74 (Optimism) and .74 and .79 (Pessimism).

Data Analysis

Prior to proceeding with data analysis, the collected responses were examined for missing data, careless responding patterns, normality of score distributions, and outliers.

Study 1 Analyses

In Study 1, the focus was on conducting an exploratory factor analysis (EFA) on the new outcome expectations measure. According to best-practice considerations with EFA, an adequate sample size generally is above 200, provided communalities are higher than .50 (Worthington & Whittaker, 2006). Thus, the target sample size for Study 1 was 200-250 students. The factorability of the correlation matrix was established using Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) statistic (Tabachnick & Fidell, 2013). Because any potential underlying factors were likely to be correlated, principal axis factoring with oblique rotation was used. The number of factors was established using a mix of parallel analysis, scree plots, and eigenvalues. Individual items were evaluated for removal by examining low communalities as well as low primary factor loadings and/or high cross-loadings in the pattern matrix (Tabachnick & Fidell, 2013; Worthington & Whittaker, 2006).

After factor analysis, internal consistency values for all scales included in the study were computed. Means and standard deviations were computed and assumptions for bivariate correlation testing checked. Correlations were computed for all scales and relationships of interest were evaluated for significance (Hypotheses 3 – 14).

Study 2 Analyses

Prior to data analyses in Study 2, similar preliminary assumption checking for regression analyses and scale reliabilities was completed. After confirming the factor structure of the new outcome expectations measure, Study 2's hypotheses were tested using multiple regression.

The CFA was run using MLM estimation in Mplus 7.4 (Muthén & Muthén, 1998-2015). Criteria used to establish adequate model fit included the chi-square test statistic, the Standardized Root Mean Square Residual (a SRMR value $\leq .08$ indicates a good fitting model), the Root Mean Square Error of Approximation (a RMSEA value $\leq .06$ 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 $\geq .95$ indicates good fit, though $\geq .90$ is considered as acceptable by some researchers (Hoyle & Panter, 1995; Hu & Bentler, 1999; Worthington & Whittaker, 2006). This analysis was used to test Hypothesis 15.

To test the multivariate hypotheses predicting outcome expectations, simultaneous entry regressions were run (one each for the Self Benefits, Social Benefits, Self Costs and Social Costs outcome expectation variables). Identical tests were also run using the existing measure of outcome expectations for comparison. These outcome expectation variables were each separately regressed on the same set of expected CSM model predictors (i.e., self-efficacy, the five learning experiences variables, and social support). The significance of explained variance in each regression model, as well as individual beta weights of the predictors, was evaluated in testing Hypotheses 16 and 17.

To test the contribution of negative outcome expectations to the explained variance in exploratory intentions, two varied-entry hierarchical regressions were used. In the first step of both hierarchical regressions, established CSM model predictors were entered into the equation, including self-efficacy, social support, and

positive outcome expectations. In the first model, the new benefits factors were added in Step 1, followed by the new costs factors in Step 2, and the existing measure of positive outcome expectations in Step 3. In the second model, the existing measure of positive outcome expectations was added in Step 1, the new benefits factors in Step 2, and the new costs factors in Step 3. The overall R^2 statistic for the full model was examined to determine whether the addition of all model predictors, including negative outcome expectations, explained significant variance in exploratory intentions (Hypothesis 18a), and to explore differences in incremental variance accounted for by the new and existing measures of outcome expectations depending on entry order. The standardized regression coefficients for the full model were evaluated to test Hypothesis 18b.

Finally, it is possible that in addition to its potential direct “effect” on exploratory intentions, negative outcome expectations may moderate the relationships between (a) self-efficacy and exploratory intentions and (b) positive outcome expectations and exploratory intentions. Consistent with procedures described by Hayes and Rockwood (2017), multiple regression with exploratory intentions as the outcome variable was run to test hypotheses 19 and 20. Rather than testing individual relationships separately for each outcome expectations factor, which would increase chances of Type 1 error and be overly simplified, a single regression was run including all mean-centered variables and interaction terms. If interactions were found to be significant in this full regression model, significant interaction effects were explored and graphed to aid in the interpretation of the nature of the interaction.

In order to achieve 80% power to detect a medium effect size in regression analyses (for an F test, R^2 deviation from zero), given an alpha value of .05, and up to ten independent predictor variables, the sample size needed was at least 172. Because there were 8 multiple regressions run, and effect sizes may be variable, the target sample size needed for Study 2 was increased to at least 200 participants. This sample size was also considered adequate for the confirmatory factor analysis proposed in Study 2 for a scale with up to 30 items and a participant to item ratio greater than 5:1 (Worthington & Whitaker, 2006).

Results

Missing Data and Sample Response Rates

Data for the research project were collected across the time period of February 2019 through July 2019 using three different recruitment methods: (a) Emails sent to first- and second-year students through a campus listserv compiled by the University Registrar, (b) recruitment through campus Psychology department courses where participants were awarded experimental course credit for participation in the “SONA” system, and (c) national recruitment through a third-party vendor (Qualtrics Research Services). As participation in the study always occurred online via Internet survey delivery, the responses for all participants were explored for missing data, careless responding, and validity. The response patterns for each method subset (i.e., Registrar sample, SONA sample, and Qualtrics sample) are presented in detail below. Careless responding metrics are presented and compared across samples, and a rationale for removal of careless responders from the data set is presented. Finally, choices to combine sample groups (i.e., Registrar and SONA samples; Qualtrics sample first and second waves) were evaluated empirically.

Registrar Sample

In the Registrar sampling method, 6000 first- and second-year students (by credit hours, according to Registrar’s office information) were anonymously sent emails recruiting them to participate in the study. A total of 395 students clicked on the link to the survey (6.6% click rate). Of this group, 139 did not reach the final survey question. There were 106 cases where individuals consented to the survey, but never completed any additional items. Another 33 cases were partial responses

(13 did not complete any measures, 14 completed less than half the measures, and only 6 completed up to 7 out of 9 measures) and these responses were discarded as incomplete since the overall number of cases with missing data was small and the majority of partial cases were left more than 50% incomplete when student's closed their browser. This left 256 total responses (4.3% effective response rate).

SONA Sample

In the SONA sample, 71 students accessed the survey through a recruitment link posted on the SONA online portal. Of these respondents, only one student consented and did not complete any items. The other 70 responses were complete responses with no missing data.

Qualtrics Sample

Prior to accessing the informed consent form for the study, participants accessing the study through Qualtrics Research Services recruitment were first screened using the following criteria: (a) Age (must be between 18-20 years old), (b) Enrollment at a 4-year institution (Yes/No), and (c) In the process of deciding on an academic major/career (Yes/No). Qualtrics advertised the study through a variety of national networks and research group partners, and 2,119 individuals accessed the survey. Response patterns are explored for the entire Qualtrics dataset here, while the choice to combine the Wave 1 and Wave 2 subsets is considered further below.

Of the total 2,119 individuals who accessed the survey through Qualtrics Research Services recruitment, 618 were screened out prior to accessing the consent form (190 did not meet age criteria; 295 said they were not enrolled in a 4-year institution; and 133 said they were not in the process of making a career decision).

Another 1,061 individuals attempted to access the survey during a time when Qualtrics Research Services had paused data collection, so they were not provided access to the survey. There were 18 individuals who never responded to all screening questions or did not respond to the consent question before stopping out of the survey. Of individuals who met screening criteria, 23 did not consent to the survey.

There were 78 partial responses, though most of these involved completion of only one to three measures out of 9 total measures, so these data were omitted from analysis since more than 50% of their items were incomplete. Finally, prior to the collection of the final 20 study participants in the Qualtrics sample, there was a more stringent speed check applied than was in place for earlier responses. This more stringent speed check (set at 1/3 of the mean response time, or 3 minutes and 42 seconds) filtered out three total cases with response times below the threshold, while the original speed check (set at 2 minutes and 15 seconds) had not screened out any earlier cases. All of this resulted in a total of 336 completed responses from the Qualtrics sample.

Careless Responding Patterns

An individual participant who does not adequately attend to the content in each item, who carelessly fills in items at random, or who completes items in a patterned way, may significantly bias relationships between variables within the data (Credé, 2010; Maniaci & Rogge, 2014; Meade & Craig, 2012). In online data collection, it has been recommended that researchers consider several factors for determining the validity of online responses, including answers to validity questions,

time duration checks, and other post-hoc statistical strategies (Johnson, 2005; Maniaci & Rogge, 2014; Meade & Craig, 2012)

Validity Question

Following this guidance, participants in this study were asked to self-assess the integrity of their responses via a single validity check item at the end of the survey. Participants responded to the following question, which did not impact their eligibility for compensation: *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?***

In previous research utilizing this question, approximately 10% of respondents answered, “No,” indicating they believed their data should not be used in the study (Ireland & Lent, 2018). This subset of responders also overlapped with other criteria indicative of careless responding (i.e., straight-lining or zigzag patterns evident in a visual inspection of their responses, or shorter survey duration time). In the current study, this pattern continued in the Registrar sample ($n=28$, 10.9%) and Qualtrics sample ($n=33$, 9.8%); however, the SONA sample did not include any participants who self-reported their inattention. Given the presence of some other problematic patterns in these subsets, and the respondents' own indication of their data as unusable, it was determined to remove these cases from the data set prior to analyses.

Post-Hoc Strategies for Identifying Careless Responding

Several researchers have confirmed the presence of latent classes of careless responders falling into either general inattentiveness or patterned responses (e.g., identified by straight line response patterns) (Maniaci & Rogge, 2014; Meade & Craig, 2012). For assessing patterned responses, visual inspections of the data were used since scales included in the study were delivered in random order, making the computation of a maximum string length of the same response across measures impossible to compute post-hoc (i.e., data were examined for multiple scales that included the same response for every item). Meade and Craig (2012) also recommend (at a minimum) that data be examined for response time outliers (i.e., extremely short or long duration responses) as well as measures of internal consistency of item responses (this latter strategy may highlight potential random responding). For time duration, Qualtrics Research Services project leaders recommended using a time cut-off set conservatively at one-third of the mean response time. While this was initially set very low (at approximately two minutes and fifteen seconds), it did not actually screen out any responses. Upon further review of the final samples, 11 minutes appeared to be the mean of survey response time (660 seconds). The Registrar and SONA samples, which included a few high-end outliers for survey duration, had a median response time right at 11 minutes as well. Using a cut-off of one-third of this time (i.e., a response taking less than 3 minutes and 42 seconds in duration, or 220 seconds) may capture potential careless responses.

In other efforts to examine careless responders, Huang and colleagues (2012) have suggested a logical short response time cut-off of two seconds per item. Given that the Registrar/SONA surveys contained 109 items, and the Qualtrics sample method included 114 items (several additional screening and demographic items), the range, using the two-second-per-item criteria, would be between 218 and 228 seconds. Thus, it was decided to use 220 seconds as the cut-off criteria for short-survey duration responses. Long duration responses were not excluded from the data set because it was believed that some students may begin a survey, leave their Internet browser open, and return to it later. Long survey duration responses also did not have any obvious problematic response patterns when visually inspected. The cut-off criteria selected screened out 31 responses (12.1%) from the Registrar sample, 1 response (1.4%) from the SONA sample, and 54 responses (16.1%) from the Qualtrics sample. This suggested there was a higher presence of short survey responses in the Qualtrics sample than in the campus samples.

Regarding internal consistency of survey responses, Meade and Craig (2012) suggested creating an “Even-Odd” index for select, unidimensional scales. For unidimensional scales, especially those where scores on the scale have historically produced large and stable Cronbach alphas, items on the scale can be split into even and odd item “subscales.” Correlations between an individual respondent’s average scores on these subscales, across several internally consistent, unidimensional scales, can potentially detect instances where respondents may not have been attentive in responding. If even-odd consistency scores are created for several unidimensional measures, an *intra-individual* correlation index can show whether a given respondent

has inconsistently responded to items across several scales (it should be noted that occasional random or inattentive responding may not be picked up by these indices). The calculated intra-individual correlations are corrected using the Spearman Brown split-half formula correction. In the current data sets, this index was looked at for consideration using the Career Exploration and Decision-Making Self-Efficacy (8-items), Exploratory Intentions (10-items), Social Support (8-items), and Betz and Vuyten's Outcome Expectancies (8-items) scales because of their unidimensional nature, and high Cronbach alphas in previous research in the domain (Ireland & Lent, 2018; Lent et al., 2016, 2017).

In addition to the validity question ("No" responses), and short duration criteria (i.e., less than 220 seconds), the Even-Odd consistency index was used to examine additional cases of random or careless responding. Though there are not guidelines for selecting a cut-off score for these correlations, as with other criteria, Meade and Craig (2012) suggested setting a conservative cut-off. Thus, it was decided to select a cut-off of zero. This value was chosen based on the assumption that scores on even-numbered and odd-numbered subsets of items on unidimensional scales have a high likelihood of being positively correlated. Respondents with an even-odd consistency index value less than or equal to zero did overlap with other validity criteria (validity question, short survey duration), but only resulted in removal of two additional respondents in the Registrar sample and one in the SONA sample. However, using the even-odd criteria resulted in removal of an additional 19 responses from the Qualtrics sample. Again, the Qualtrics sample contained a higher percentage of potentially careless responses as flagged by this criterion. Perhaps the

higher percentages of careless responding in the Qualtrics sample could be attributed to the different incentives and motivations participants had compared to campus respondents, and these differences are worth considering when interpreting findings from the data set as a whole (Maniaci & Rogge, 2014).

In summary, employing the selected screening criteria for careless responses discussed above, there were 222 usable responses in the Registrar sample, 69 usable responses in the SONA sample, and 263 usable responses in the Qualtrics sample. Demographics for these populations are presented in the Method section above. A summary table comparing how many responses were removed as careless for each sample is also presented in Table 2.

Combining Samples

Given sample size differences, there was a dilemma of how to use the SONA data set since it was not substantial enough in size ($n = 69$) to be used independently in analyses. Demographically speaking, the SONA data may be a better match to the Registrar sample in terms of gender and race/ethnicity proportions, though not perfectly. In addition, these two samples appeared to be more similar in terms of the samples' relative decidedness on academic major. However, the SONA sample contains a higher percentage of junior and senior level students, which was more on par with the Qualtrics sample. In addition to considering demographic similarities, the three samples were subject to the Hotelling's Trace test to assess multivariate mean similarities. Differences among means on the set of study variables were evaluated using the Hotelling-Lawley trace statistic (this was done because running a

separate t test for each variable independently would increase the risk of a Type I error) (Tabachnick & Fidell, 2013).

Combining the Registrar and SONA Samples

Looking at the Registrar and SONA samples, a multivariate analyses of variance test, with data source as a fixed factor, produced a non-significant Hotelling's trace result (*Hotelling – Lawley Trace* = .036, $F(13, 277) = .767, p = .695$). This non-significant result suggested that there were not substantial mean differences between the Registrar and SONA samples, supporting the decision to treat them as a combined group in subsequent analyses. However, limited statistical power might have affected the mean difference findings.

Decision Not to Combine the Qualtrics and SONA Samples

Looking at the Qualtrics and SONA samples, the analyses produced a significant Hotelling's trace variable (*Hotelling – Lawley trace* = .156, $F(13, 319) = 4.713, p < .001$). This significant result suggested that there are significant differences between the Qualtrics and SONA groups on the set of variable means and, therefore, the samples should probably not be treated as a single, combined group in subsequent analyses. To further explore this decision, results of Levene's test for each study variable, and Box's M test for homogeneity of covariance, were run on the groups using multivariate analysis of variance in SPSS. The Levene's tests indicated several significant ($p < .05$) results, suggesting that there were potentially unequal variances between the SONA and Qualtrics samples on the following variables: positive outcome expectations, self-efficacy, positive and negative emotional arousal,

exploratory intentions, and Betz's outcome expectations scale. Further, the Box's M test ($Box's M = 174.58, F(91, 49600) = 1.79, p < .001$) of the homogeneity of covariance was also significant, suggesting significant differences in the covariance matrices between the two sample groups. This evidence further confirmed the decision not to combine these two samples.

Hierarchical Regression Analyses for Combining Samples

Based on demographic and sample mean analyses, it was tentatively decided that the Registrar and SONA samples would be combined. In order to strengthen the case for combining these samples, relational patterns among variables in the Registrar and SONA data sets were explored. In this case, a dummy variable was created ("Sample") that was coded with "0" for those in the Registrar sample and "1" for those in the SONA sample. Interaction terms between the Sample dummy variable and self-efficacy, positive outcome expectations, negative outcome expectations, Betz and Voyten's outcome expectations, and social support variables were also created.

A main focus of the research is exploring the theoretical predictors for a student's exploratory intentions, with direct predictors being self-efficacy, outcome expectations, and social supports. Thus, exploratory intentions was regressed onto the set of predictor variables including, self-efficacy, positive outcome expectations, negative outcome expectations, Betz and Voyten's outcome expectancies and social support (in step 1), and then additionally onto the Sample dummy variable in Step 2. The addition of the Sample dummy variable in step 2 did not explain significant additional variance in exploratory intentions, suggesting that there are not significant sample differences in the predictive equation ($\Delta F(1,284) = .022; p = .882$). To be

thorough, exploratory intentions were regressed onto the same set of predictors, and this time the regression analysis included all interaction terms for variables in the equation in Step 2. Again, the second model (including interaction terms) did not explain additional variance in exploratory intentions. In the full model, none of the interaction terms were individually significant. It was decided that it was appropriate to combine the Registrar and SONA data sets for subsequent analyses in Study 1.

Combining Qualtrics Wave 1 and Wave 2 Samples

Splitting the two sub-samples (“Sample” dummy variable is “0” for Wave 1 and “1” for Wave 2) allowed for examining mean differences on all scales. Here, the MANOVA test produced a Hotelling’s trace statistic for the two samples that was non-significant, indicating the sample means may be similar enough to combine the two groups into one data set (*Hotelling – Lawley trace* = .085, $F(13, 249) = 1.620, p = .080$). The p-value is relatively close to a cut-off of .05 and, consulting univariate findings, it did appear there were significant mean differences between the two waves on positive outcome expectations, exploratory intentions, and Betz and Voyten’s outcome expectancies scales.

To test this further, similar hierarchical regression tests were run (on exploratory intentions) as was done when considering combining the Registrar and SONA samples. Results suggested the samples (Wave 1 and Wave 2) of the Qualtrics dataset can be combined: the addition of the Sample dummy variable in step 2 of the hierarchical regression did not explain significant additional variance in exploratory intentions, suggesting that there are not significant sample differences between the two waves ($\Delta F(1, 256) = 1.193; p = .276$). Similarly, entering

interaction terms for each of the independent variables with the Sample dummy variable in a separate hierarchical regression did not explain additional variance, and did not contain individually significant interaction terms in the full model. Thus, despite the mean differences, the methodological changes between the two waves (e.g., the reversed ordering of the positive and negative outcome expectation item sets) did not appear to affect the relations of the predictors to the dependent variable. The Wave 1 and Wave 2 data from Qualtrics Research Services were, therefore, combined in subsequent analyses.

Summary of Sample Characteristics

The data collection strategies used in this project involved very similar approaches across multiple methods of recruitment. Sample characteristics were presented for the Registrar, SONA, and Qualtrics samples. Patterns of careless responding were examined for each sample, resulting in the screening out of some respondents based on visual inspection of the data (i.e., for straight-lining, zigzag patterns), participants' own responses to a validity question (i.e., "No," responses), short survey duration times (less than 220 seconds), and responses that may have been careless and random in a way that impacted internal consistency (Even-Odd consistency index correlations less than zero). After removing cases with missing data and careless response patterns, the possibility for combining different samples was examined. Regression analyses supported the decisions to combine (a) the Registrar and SONA samples and (b) the Wave 1 and Wave 2 subsets of the Qualtrics sample. The Registrar/SONA sample ($N=291$) was used to test Study 1 hypotheses, and the Qualtrics sample ($N=263$) was used to test Study 2 hypotheses.

Study 1 Results

Exploratory Factor Analysis

A primary focus of this study was on testing the factor structure and validity of a new measure of career exploration and decision-making outcome expectations (CEDOE). The new CEDOE measure was initially conceptualized around Bandura's (1997) physical, social, and self-evaluative types, and later, around broader categories of self- and social-related outcomes (pilot data suggested that participants may not have been differentiating clearly among all six outcome classes as initially anticipated). In addition, the scale was designed to assess both positive and negative outcome expectations within the categories, and it was hypothesized that (a) positive and negative items would form distinct factors, where scores on items for each factor would have adequate internal consistency values, and (b) these positive and negative factors would have only a small relationship to one another.

In order to test these hypotheses, an exploratory factor analysis (EFA) using principal axis factoring and oblique rotation (Direct Oblimin) was conducted using SPSS 25.0. All 30 of the CEDOE items were included in the EFA with the goal of investigating the latent dimensions in the scale. Parallel analysis, scree plots and eigenvalues were used to determine a factor solution (Worthington & Whittaker, 2006). Parallel analysis, run with 10,000 randomly generated data sets, pointed to the presence of four latent factors (See Table 3 for parallel analysis results and Table 4 for results of the EFA). Examining the scree plot and eigenvalues for the factors also supported the conclusion that there were four latent factors. In the resulting four factor solution, the Kaiser-Meyer-Olkin (KMO) statistic was .878 and Bartlett's test

of sphericity was significant ($p < .001$), indicating the factorability of the correlation matrices (Tabachnick & Fidell, 2013). The four-factor solution explained 58.5% of the variance in the CEDOE items.

Following guidelines proposed by Worthington and Whitaker (2006), items with low communalities ($<.4$), low primary factor loadings ($<.4$), and high cross-loadings ($>.15$) in the pattern matrix were removed. It should be noted that some researchers have argued for evaluating these factor-loading criteria from within the structure matrix results (e.g., Kahn, 2006) regardless of EFA approach. In the context of using oblique rotation though, where the rotation is not orthogonal, the pattern matrix was chosen for analysis in the present EFA because it represents the unique correlation between items and a factor. That is, the pattern matrix takes into account correlations an item has among multiple correlated factors (akin to the beta coefficient in multiple regression analysis). This allows the researcher to make a clearer determination of the pattern of item loadings while controlling for items that may load on several factors, or may correlate with one factor through a correlation with another (Tabachnick & Fidell, 2013). Using these criteria, 22 items were retained and 8 items were deleted. One item (#24) met criteria for primary factor loading and minimal cross loading, but contained a low communality value (.33). This item was retained on conceptual grounds because it was one of the few items intended to capture aspects related to social inequality (“Be frustrated because of outside factors restricting [my] career options”).

The first factor was comprised of outcomes conceptualized as self-related and positive. These “Self Benefits” were represented by seven retained items, all with

primary factor loadings $>.6$ (e.g., "...Feel better about the direction my life is taking."). The second, "Self Costs," factor was comprised of six items focusing on self-related and negative outcomes (e.g., "...Feel stressed and overwhelmed by the process."). The third factor was comprised of four items reflecting positive, socially-related outcome expectations (e.g., "...Make my friends or loved ones happy."; it was labeled "Social Benefits"). The fourth factor contained five items reflecting negative, socially-related outcomes (e.g., "...Be afraid of disappointing my family based on the career options I consider."), or "Social Costs." Scales based on the four factors each produced adequate internal consistency values: Self Benefits ($\alpha = .86$, 95% CI [.83, .88]), Self Costs ($\alpha = .83$, 95% CI [.80, .86]), Social Benefits ($\alpha = .84$, 95% CI [.81, .87]), and Social Costs ($\alpha = .81$, 95% CI [.78, .84]).

Although only two factors (i.e., positive and negative) had, strictly speaking, been hypothesized, the four factors did fall into positive and negative categories (i.e. benefits and costs) and were, moreover, partly aligned with Bandura's outcome types (self and social types were observed, though the physical type did not compose a separate category). On balance, then, the findings partly supported Hypothesis 1. Large correlations were found between the two benefit factors ($r = .55, p < .01$) and between the two cost factors ($r = .58, p < .01$). Correlations between costs and benefits factors, though, were non-significant. The latter finding was consistent with Hypothesis 2 (i.e., that positive and negative outcome expectations are relatively distinct). The four new outcome expectations scales (two positive and two negative) were used to represent positive and negative outcome expectations in subsequent hypothesis tests.

Convergent and Discriminant Validity Estimates

Descriptive statistics for variables in Study 1 are presented in Table 5. Initially, hypotheses to test convergent and discriminant validity for the new CEDOE measure were constructed based on only two anticipated, positive and negative, outcome expectations factors. The associated correlational hypotheses were intended to assess theoretically postulated relationships between both positive and negative outcome expectations factors, and other variables in the same domain (including an existing measure of positive outcome expectations). Relationships between positive outcome expectations and optimism, and between negative outcome expectations and pessimism, were included in hypotheses to establish discriminant validity (i.e., correlations to these more global traits were hypothesized to be no more than medium-sized). With the discovery of four factors in factor analysis, Hypotheses 3-8 were tested independently for both the Self and Social Benefits factors, and Hypotheses 9-14 were independently tested for both the Self and Social Costs factors. See Table 6 for a summary of correlational results for Study 1 variables.

Self Benefits ($r = .40$) and Social Benefits ($r = .32$) were each positively and significantly correlated with a previous measure of positive outcome expectations (Hypothesis 3). These medium-sized correlations indicate some overlap between the newly conceptualized outcome expectations factors and an established positive outcome expectations measure (Betz & Vuyten, 1997; Lent et al., 2016); however, this modest relationship size also suggests the new factors represent relatively distinct variables. The pattern of relations (i.e., a slightly larger correlation of Self than Social Benefits to Betz and Vuyten's measure) is consistent with the observation that

all items on the Betz and Voyten measure refer to benefits to the self from engaging in career exploration activities.

The Self Benefits and Social Benefits factors are also each positively and significantly correlated with domain-specific self-efficacy (Hypothesis 4), learning experiences variables (Hypotheses 5a-5d), exploratory intentions (Hypothesis 6), and social supports (Hypothesis 7), with the exception of the negative emotional arousal variable, which had a non-significant relationship with both positive outcome expectations variables (Hypothesis 5e). As hypothesized, the presence of higher self-efficacy for career exploration and decision-making tasks was associated with more positive outcome expectation beliefs. Having previous mastery experiences with decision-making tasks, receiving more verbal persuasion from others about decision-making ability, having more access to vicarious learning opportunities, and recalling more positive emotions from past decision-making attempts are also associated with these more positive outcome expectation beliefs. However, recall of negative emotions linked to prior decisional efforts (e.g., past fear or anger) was not related to the positive outcome expectations. Endorsing the presence of social support for one's career exploration and decision-making process was related to more positive anticipated self- and social-benefits. Finally, the expectation for more positive outcomes is also associated with stronger career exploration intentions.

Self Benefits ($r = .12, p < .05, 95\% \text{ CI } [.01, .23]$) and Social Benefits ($r = .14, p < .05, 95\% \text{ CI } [.03, .25]$) each had only small correlations with optimism. This result provides evidence in support of Hypothesis 8 that positive outcome expectations would have no more than a medium-sized correlation with the optimism

construct. Thus, while being more optimistic is associated with having slightly more positive outcome expectations for the career exploration and decision-making process, these constructs appear to reflect largely distinct (global vs. domain specific) constructs. Thus, trait optimism, which reflects a general tendency toward positive expectations, is distinct from the positive outcomes one anticipates from engaging in career exploration and decision-making. This finding provides support for the discriminant validity for the new CEDOE measure.

Regarding negative outcome expectations, similar hypotheses for convergent and discriminant validity were tested using the Self Costs and Social Costs factors in the new CEDOE measure. While negative outcome expectations were hypothesized to have a significant, and negative, relationship with an existing measure of positive outcome expectations, Self Costs ($r = .00$) and Social Costs ($r = .03$) were found to have non-significant relationships with Betz and Vuyten's measure of outcome expectations. Thus, holding positive outcome expectations for career exploration and decision-making tasks (according to the Betz and Vuyten scale) is not associated with the presence of negative self-related or social-related outcome expectations in the same domain. Though contrary to Hypothesis 9, this finding lends support to viewing positive and negative outcome expectations as distinct constructs.

The Self Costs and Social Costs factors are also each negatively and significantly correlated with domain-specific self-efficacy (Hypothesis 10), positive learning experiences variables (Hypotheses 11a – 11d), and social supports (Hypothesis 13), and positively correlated with the negative emotional arousal variable (Hypothesis 11e). As hypothesized, the presence of higher self-efficacy for

career exploration and decision-making tasks was associated with holding less negative outcome expectation beliefs. Having previous mastery experiences, receiving more verbal persuasion from others about one's decision-making ability, having more access to vicarious learning opportunities, and recalling more positive emotions from past decision-making attempts are also associated with holding less negative outcome expectation beliefs. In addition, having more past decisional experiences that evoke negative feelings is associated with holding more negative outcome expectations. The presence of social support for career exploration and decision-making is related to expecting less self- and social-related costs from engaging in this process.

Contrary to Hypothesis 12, neither Self Costs nor Social Costs correlated significantly with exploratory intentions. Thus, expectations for more negative outcomes were unrelated to intentions to engage in future career exploration, which runs counter to theoretical relationships expected on the basis of SCCT. Self Costs ($r = .27$, 95% CI [.16, .37]) and Social Costs ($r = .36$, 95% CI [.26, .46]) each correlated with a measure of pessimism, with no more than medium-sized correlations. The 95% confidence intervals for the Pearson correlations also provide added support that the correlation is very likely to be under the benchmark for a large correlation size (i.e., $r > .50$). These significant correlations were consistent with Hypothesis 14. Though holding a pessimistic outlook in general is associated with negative outcome expectation beliefs for career exploration, these trait and domain-specific measures do not overlap greatly.

Summary of Study 1 Results

The results from the EFA and correlational analyses are promising and supported most of Study 1's hypotheses. While the new CEDOE measure contains four rather than two latent factors, the factors are aligned with positive (benefits) and negative (costs) outcome types. The four factors each supported hypothesized relationships within the career exploration domain, with just a few exceptions. In particular, positive outcome expectations were not significantly related to negative emotional arousal (learning experiences), and negative outcome expectations were not significantly related to exploratory intentions. On balance, the findings provide convergent and discriminant validity support for the new CEDOE measure and thereby support the decision to move on to confirmatory factor analysis and the model testing hypotheses of Study 2.

Study 2 Results

Confirmatory Factor Analysis of the CEDOE Measure

In order to establish and confirm the factor structure of the new CEDOE measure, the results of the EFA analysis in Study 1 were used to explore several potential models to organize items on latent factors in confirmatory factor analysis (CFA). This analysis was also intended to establish a final scale to be utilized in the additional theory testing of hypotheses proposed by the SCCT Career Self Management model in Study 2. The EFA from Study 1 revealed a 22-item scale with four distinct latent factors: Self Benefits, Social Benefits, Self Costs and Social Costs. Previous measurement of outcome expectations in this domain has often been done

using unidimensional scales (Betz & Vuyten, 1997; Lent et al., 2016), though these scales focused on positive outcome expectations only.

In the present study, it was hypothesized that the factor structure from Study 1 would replicate in Study 2 (Hypothesis 15). In addition to testing the four-factor model that emerged through EFA, results of the four-factor model were compared to one-factor and two-factor models since it was initially hypothesized there might be two factors (i.e., positive and negative), and because some previous outcome expectations models have been unidimensional. In the one-factor model, all 22 items were set to load on the same factor. In the two-factor model, Self and Social Benefits items were set to load on a single “positive” factor and Self and Social Costs items were fixed to load on a single “negative” factor. The two-factor and four-factor models are visually depicted in Figures 2 and 3.

Model fit statistics for all three models are shown in Table 7. For the one-factor model, the fit criteria showed a poor fit to the data (Santorra-Bentler $\chi^2(209, N = 263) = 1213.63, p < .001$; SRMR = .16, RMSEA = .14, 90% CI [.128, .143]; CFI = .57). The two-factor model showed better fit indices but was still less than optimal (Santorra-Bentler $\chi^2(208, N = 263) = 520.08, p < .001$; SRMR = .06, RMSEA = .08, 90% CI [.067, .084]; CFI = .87). The best fitting model was the four-factor model, which aligned with the factor structure discovered in Study 1 (Santorra-Bentler $\chi^2(203, N = 263) = 412.65, p < .001$; SRMR = .06, RMSEA = .06, 90% CI [.054, .071]; CFI = .91). The chi-square difference test for nested models (reflecting change in Santora-Bentler scaled χ^2) indicated that the four-factor model produced significantly better fit than the two-factor model ($T_d(5, N = 263) =$

109.66, $p < .001$). In the four-factor model, factor loadings for all items were significant and substantial (.59 to .84) (see Table 8 for individual factor loadings in the four-factor model).

These findings provide support for Hypothesis 15, however, the four-factor model also appeared to have highly correlated factors, which might cause multicollinearity issues if used in regression testing. Furthermore, while the self and social dimensions of the scale may be meaningful aspects of the construct, it was also decided to investigate modeling these dimensions as method effects, perhaps due to item wording or other method variance tied to the four groupings of Self Benefits, Social Benefits, Self Costs, and Social Costs.

At first, a more complex model such as a hierarchical or bifactor model was considered to examine whether there was potential to better model the positive and negative latent factors. In the case of a hierarchical model, there would only be two first-order factors (e.g., Self Benefits and Social Benefits) per higher order factor (e.g. Positive), so this model approach was discarded. The bifactor approach offered potential promise but did not fit conceptually because it was not initially hypothesized that there would be a general OE factor for the scale, and because this type of model would also not allow for comparing the relative benefits of positive and negative latent factors to the four-factor approach. So, because there was a desire to model positive and negative latent factors, as well as model the covariance due to potential effects of the measurement approach, a Multitrait-Multimethod (MTMM) model was selected (T. A. Brown, 2015)

In choosing an MTMM approach, one needs to decide between modeling method effects as correlated method factors, or as correlated uniqueness (Marsh & Grayson, 1995). Because the correlated methods models require at least three traits, the correlated uniqueness model was chosen. In this model, each item is set to load on an individual trait factor (in this case, a Positive factor or a Negative factor) with all other cross-loadings fixed to zero. The correlations among the trait factors are freely estimated (T. A. Brown, 2015). Additionally, as Brown indicates, "...Method effects are estimated by specifying correlated uniqueness (errors) among indicators based on the same assessment method" (p. 193). In this case, errors among items on the Self Benefits, Social Benefits, Self Costs, and Social Costs subscales were allowed to covary. Figure 4 shows the MTMM model that was tested.

The overall MTMM model provided an adequate fit to the data (Santorra-Bentler $\chi^2(156, N = 263) = 288.74, p < .001$; SRMR = .05, RMSEA = .05, 90% CI [.047, .067]; CFI = .94). When analyzing the results of correlated uniqueness models, it is suggested to look first at the trait factor loadings to examine for convergent validity, that is, asking "Do the items load similarly on each trait?" In this case, the standardized factor loadings are high for both the positive trait (range from .528 - .792) and for the negative trait (range from .470 - .795). Further, the correlation between the positive and negative trait factors is .36, which is significant, but not too high. This suggests the model also has discriminant validity in that the factors are not highly correlated with one another. Finally, the model can be examined for the various correlated uniqueness among items. While most correlations among the self-related item sets (i.e., Self Benefits and Self Costs) were

non-significant, the social item sets had a greater number of items with significant correlations (see the results in Table 9). This may indicate significant method effects tied to the measurement of social items (e.g., perhaps there is similar wording or phrasing that creates an artificial correlation among items), but that the size of these correlations is no more than moderate in size. While there is no straightforward way to compare method effects across methods (Brown, 2015), the MTMM model showed promise in terms of its validity, while also accounting for potential method effects.

While a more straightforward comparison between the relative fit of the MTMM model and the four factor model is not possible through a Chi-square difference test (because the models are not nested), the MTMM model is considered a significantly better fit, per the Chi-square difference test, than the two factor model (without correlated uniqueness terms) ($T_d(52, N = 263) = 218.42, p < .001$). Widaman (2019) suggests other practical criteria for comparing non-nested structural equation models, including examining information indices (AIC, Akaike information criterion, and BIC, Bayesian information criterion), as well as comparing the RMSEA, CFI and TLI values. With the exception of BIC value, the MTMM model (AIC = 15,619.59 ; BIC = 16044.67; RMSEA = .05; CFI = .94, TLI = .91) offered superior indexes of practical fit to the four-factor model (AIC = 15,695.13 ; BIC = 15,952.32; RMSEA = .06; CFI = .91, TLI = .90).

Given the early stage of measurement development, the fact that the four-factor model did provide adequate fit to the data while replicating the factor structure from Study 1, the relatively smaller correlations between the two positive factors, and the two negative factors in Study 1, and the caution that careless responding may be

biasing some of the data in the Study 2 sample, the choice was made to utilize the four-factor model for testing regression hypotheses for Study 2. This allowed for a direct comparison to Study 1 bivariate hypotheses, while also fitting the theme of exploratory analyses for the purpose of the project. Future data collection is warranted to continue exploring the factor structure of the CEDOE scale while modeling potential method variance to better understand the scale's properties.

Preliminary Analyses Prior to Model Testing

Prior to running regression analyses for additional Study 2 hypotheses, the assumptions for multiple regression analyses were examined, including normality, linearity, and homoscedasticity. Individual variables were first examined for normality; the results of descriptive statistics, including skew and kurtosis, can be seen in Table 10. Four individual variables were both slightly negatively skewed and leptokurtic (Self Benefits, Betz and Voyten's Outcome Expectations, Verbal Persuasion, and Exploratory Intentions). However, the values did not exceed acceptable cut-offs for skew (less than 3) and kurtosis (less than 10) proposed by Weston and Gore (2006), so no transformations for the scales were applied. The histogram of standardized residuals for each regression appeared normally distributed, and points on the P-P and Q-Q plots lied close to the diagonal. Examining the plots of standardized predicted values by residuals were reviewed and assumptions for linearity and homoscedasticity appeared to be reasonably satisfied. To examine potential multicollinearity, scores for VIF (scores below 3.5 are acceptable) and tolerance (scores above .03 are acceptable) suggested there were no potential issues with multicollinearity (Tabachnick & Fidell, 2013). Correlations,

means, standard deviations, and internal consistency values can be found for Study 2 variables in Table 11.

Predicting Outcome Expectations

According to the Career Self-Management model of Social Cognitive Career Theory (Lent & Brown, 2013), it is postulated that outcome expectations are predicted directly by three sets of domain-specific variables included in the study: learning experiences, self-efficacy, and social support. Hypotheses 16 and 17 proposed that these predictor variables would (a) collectively, and (b) individually, explain unique variance in the new measures of positive and negative outcome expectations. Because four factors (two positive and two negative) were confirmed in factor analysis for the new outcome expectations measure, each of the four factors was explored in regression analyses separately (resulting in four distinct regression analyses with the same set of independent variables). In addition, for comparison purposes, a fifth regression analysis was run with Betz and Vuyten's measure of positive outcome expectation as a dependent variable. A summary of these regression results can be viewed in Table 12.

All regression analyses supported Hypotheses 16a and 17a, finding that the set of predictor variables (learning experiences, self-efficacy, and social support) accounted for a statistically significant, medium- to large-sized, proportion of variance in each outcome expectations factor, including: Self Benefits ($R^2 = .27, p < .01$), Social Benefits ($R^2 = .17, p < .01$), Self Costs ($R^2 = .29, p < .01$), and Social Costs ($R^2 = .18, p < .01$). For comparison purposes, the same set of predictor

variables accounted for a higher amount of explained variance in scores on Betz and Voyten's outcome expectation measure ($R^2 = .43, p < .01$).

Regarding Hypothesis 16b, there were mixed results in each regression analysis that was run, showing only partial support for this hypothesis. For Betz and Voyten's outcome expectations measure, negative emotional arousal ($\beta = .21, p < .01$), self-efficacy ($\beta = .26, p < .01$), and social support ($\beta = .22, p < .01$) each explained unique variance in outcome expectations after controlling for the other predictors in the model. This suggested that an individual having confidence about their ability to explore careers and make decisions, and having others in their life to support their decision-making process, was associated with more positive outcome expectations. Interestingly, having had past decisional experiences that conjure negative emotional arousal was actually predictive of having more positive outcome expectations about future efforts. This finding, though a somewhat small effect, suggests that past negative emotional experiences are associated with more hopeful expectations regarding future career exploration and decision-making efforts.

Regression results for the new positive outcome expectations scales (Self Benefits and Social Benefits) produced similar results to those of the Betz and Voyten measure. For the regression model predicting Self Benefits, negative emotional arousal ($\beta = .11, p < .05$), self-efficacy ($\beta = .17, p < .05$), and social support ($\beta = .28, p < .01$) each explained significant variance in outcome expectations above and beyond other predictors. However, for the Social Benefits model, only social support ($\beta = .16, p < .05$), was individually significant when controlling for other predictors. These results suggested that individuals with social support for career

exploration and decision-making tasks are likely to have more positive outcome expectations related to personal and social benefits from engaging in future career exploration. In addition, individuals with greater confidence in their ability to explore and make career decisions are more likely to report expecting positive self-related outcomes for future decisional efforts. Finally, and again somewhat counter-intuitively, negative emotional arousal linked to past decisional experiences was marginally associated with expecting more positive self-related benefits for future career exploration engagement.

For the models predicting Self Costs and Social Costs, only a few variables were individually significant above and beyond other independent variables in the model (Hypothesis 17b). In modeling Self Costs, positive emotional arousal ($\beta = -.15, p < .05$), social support, ($\beta = .16, p < .05$), and negative emotional arousal ($\beta = .49, p < .01$) each explained significant, unique variance in these negative, self-related outcome expectations. That is, the valence of emotions recalled about past decisional experiences in the present (positive vs. negative) is associated with holding negative self-related outcomes for future exploratory efforts. However, negative emotions about past decisional efforts shows a larger relationship with negative than with positive self-oriented outcome expectations. For Social Costs, the only significant individual predictor in the model was negative emotional arousal ($\beta = .37, p < .01$). This suggests that previous negative experiences with decisional tasks is important in how likely it is that someone will expect more negative outcomes in future career exploration efforts.

In summary, each regression model accounted for a significant amount of variance in outcome expectations as predicted (Hypotheses 16a and 17a), though the amount of explained variance differed by the type of outcome expectation being modeled. Models explained a smaller amount of variance for social-related outcome expectations compared to self-related outcome expectations. The model variables (learning experiences, self-efficacy, and social supports) explained the most variance in Betz and Votyen's measure of outcome expectations. Social support is a consistently significant individual variable when modeling positive outcome expectations, while negative emotional arousal was the individual predictor variable accounting for the most unique variance in negative outcome expectations. Some learning experiences variables, namely mastery experiences, verbal persuasion, and vicarious learning were not individually significant in any of the models tested. Self-efficacy, a robust predictor of outcome expectations in previous research (Ireland & Lent, 2018; Lent et al., 2016, 2017) was only individually significant in the prediction of self-related positive outcome expectations. Collectively, these results fully supported Hypotheses 16a and 17a, but produced only partial support for Hypotheses 16b and 17b.

Predicting Exploratory Intentions

Career exploration goals, conceptualized in the present study as individuals' exploratory intentions, reflect the extent to which individuals are setting goals to take future action toward exploring academic majors and careers in the coming two months. According to the SCCT CSM model, in the domain of career exploration and decision-making, these exploratory intentions are hypothesized to lead to

eventual action and engagement in the decision-making process, which would in turn lead to relevant outcomes like career decidedness and reduced decisional anxiety. In the present study, an individual's domain-specific self-efficacy, social supports, and outcome expectations are expected predictors of goals. A focus of the current study was to examine the way that negative outcome expectations may explain additional variance in exploratory intentions not considered in previous research efforts in this domain.

As a part of this approach, exploratory intentions was regressed on the SCCT model predictors using two hierarchical regression with varied entry order of predictors to look at differences in incremental variance accounted for. In both models, variables used in past research were added in Step 1 (i.e., self-efficacy, social supports and positive outcome expectations). In the first hierarchical regression model, Step 1 used the new positive outcome expectations variables (Self Benefits and Social Benefits), followed by the new negative outcome expectations variables (Self Costs and Social Costs) in Step 2, and, finally, an existing measure of outcome expectations in Step 3.

In the second hierarchical regression model, the existing measure of positive outcome expectations was added with self-efficacy and social support in Step 1, followed by the benefits factors in Step 2, and the costs factors in Step 3. Results were examined to test Hypothesis 18 that these factors would (a) collectively, and (b) individually, explain unique variance in exploratory intentions. A summary of these hierarchical regression results can be found in Tables 12 and 13.

In both models, whether representing positive outcome expectations using the new benefits factors (Table 13) or Betz and Voyten's outcome expectancies scale (Table 14), the first step of the model accounted for a very similar amount of variance: ($R^2 = .55$ and $R^2 = .54$, respectively). When varying entry order of the new outcome expectations factors (benefits and costs factors together), compared to the existing measure of outcome expectations, the new scale seems to account for slightly more variance (12% to 8%, respectively), though, when comparing only positive outcome expectations variables at later steps, the incremental change in overall variance accounted for between the new and existing measures of positive outcome expectations is the same ($\Delta R^2 = .08, p < .01$, in both models). Finally, when entering the negative outcome expectations variables into the model (occurring in Step 2 in the first model, and Step 3 in the second model), the change in variance accounted for is significant and the same size ($\Delta R^2 = .04, p < .01$, in both models). The increase in explained variance when adding the cost factors in both models provided support that negative outcome expectations account for additional variance in exploratory intentions, though the effect was small in size (only an additional 4% of variance in exploratory intentions was accounted for when adding the Self Costs and Social Costs factors to the model).

In the full model, all predictors collectively accounted for significant variance in exploratory intentions ($R^2 = .66, F(2, 255) = 117.66, p < .01$), providing support for Hypothesis 18a. There were five variables that were individually significant when accounting for the impact of other predictors: self-efficacy ($\beta = .17, p < .01$) Betz and Voyten's outcome expectations ($\beta = .39, p < .01$), Self Benefits ($\beta = .38, p <$

.01), Social Benefits ($\beta = -.11, p < .05$), and Social Costs ($\beta = .17, p < .05$).

These results suggested that individuals with higher career exploration and decision-making self-efficacy and more positive self-related outcome expectations would be more likely to endorse goals for future career exploration in the coming two months.

These results also indicated that the existing measure of outcome expectations and the Self Benefits scale complemented one another as predictors. That is, both scales added unique variance in exploratory intentions above and beyond variance accounted for by the other measure. Interestingly, individuals expecting more positive social benefits were likely to hold slightly lower exploratory intentions, while individuals expecting more negative social costs were likely to hold slightly higher exploratory intentions (though, these findings could be due to effects of statistical suppression). The social support and Self Costs variables were not individually significant in the model of exploratory intentions when accounting for the variance explained by other model predictors. These findings thus provided only partial support for Hypothesis 18b.

Negative Outcome Expectations as a Moderator

In addition to looking at the direct, predicted relationships between negative outcome expectations and other SCCT CSM model variables, a final aspect of the present study was to explore the novel possibility of negative outcome expectations as a moderator in two theoretical relationships: that between self-efficacy and exploratory intentions (Hypothesis 19), and that between positive outcome expectations and exploratory intentions (Hypothesis 20). A single multiple regression test was run using all mean-centered model predictors, including: self-efficacy, social

support, an existing measure of positive outcome expectations, Self Benefits, and Social Benefits, as well as a negative outcome expectations variable representing the combination of costs factors. The choice to combine Self Costs and Social Costs factors for this analysis was made for mainly pragmatic reasons because: (a) the factors are highly intercorrelated in the Study 2 sample ($r = .70$), (b) the items were shown to load significantly on a single negative outcome expectations trait factor in the MTMM CFA model, (c) it simplified the moderation analysis, and (d) it limited the familywise error rate. All interaction terms were added in a second step of entry. If individual interaction term beta-coefficients were significant in the full model, individual moderation tests, simple slope analysis and interaction graphs were generated using the Interaction software designed by Daniel Soper (<https://www.danielsoper.com/Interaction/>). Table 15 shows the results of regression analyses for moderation testing, and Figure 5 depicts the one significant moderation relationship discovered in testing (i.e., Negative outcome expectations moderating the relationship between Self Benefits and exploratory intentions).

There did not appear to be support for Hypothesis 19 because neither of the interaction terms involving self-efficacy was significant. Regarding Hypothesis 20, there were also no significant interactions discovered when representing positive outcome expectations by the Betz and Vuyten scale, and by the new Social Benefits factor. However, there was partial support provided for Hypothesis 20 involving interaction between the Self Benefits factor and negative outcome expectations ($\beta = -.27, p < .01$). Analysis of the simple slopes revealed that Self Benefits predicted exploratory intentions at high (1 *SD* above the mean, $B = .16, SE = .07$,

$p < .05$), average ($B = .34$, $SE = .05$, $p < .01$), and low (1 SD below the mean, $B = .52$, $SE = .07$, $p < .01$) levels of negative outcome expectations. This suggests that the presence of more negative outcome expectations has a neutralizing effect on the relationship between Self Benefits and exploratory intentions (see Figure 5) – that is, self-benefit outcome expectations relate less strongly to exploratory intentions when they are accompanied by high levels of negative outcome expectations, whereas low levels of negative outcome expectations are associated with stronger self-benefit-intentions relations.

Discussion

In the hopes of better understanding the career decision-making process for college students, the current project sought to develop and validate a theoretically sound measure of career exploration and decision-making outcome expectations (CEDOE). A primary goal was to construct a scale that included both positive and negative outcomes from Bandura's (1997) three theoretical classes (physical, social, and self-evaluative) in the conceptualization of the construct, and that improved on empirical shortcomings of existing measures (Fouad & Guillen, 2006; Ireland & Lent, 2018). The results of this effort are a new, 22-item, four-factor measure with promising psychometric properties, albeit with mixed validity evidence. The scale's factor structure, properties, and validity are explored in more detail below.

While the four-factor structure of the scale appeared replicable across two separate samples, and scores on the scale appeared reliable, the interrelationships between the four factors, and between those factors and other SCCT CSM model variables, suggested a need for caution in fully embracing the new scale without further research. Relatedly, the findings of the project raise questions about the conceptualization of outcome expectations in the domain of career exploration and decision-making, and potentially in other domains of social-cognitive research as well. Based on the results of the current project, implications for career counselors and practitioners (e.g., academic and career advisors) are explored, limitations of the project are presented, and future directions for research are discussed below.

Development and Validation of the CEDOE Measure

Results of the exploratory factor analysis produced a 22-item scale with four factors, organized along positive and negative, as well as self- and social-related dimensions: Self Benefits, Social Benefits, Self Costs, and Social Costs. These factors were replicated using CFA in a separate, confirmatory sample. Self Benefits reflected individuals' expected outcomes from career exploration and decision-making tasks focused on positive feelings and progress toward a successful career decision. Social Benefits reflected expected outcomes tied to social approval and support from significant others. Self Costs reflected potential negative outcomes like increased stress and anxiety, while Social Costs reflected anticipated outcomes from social disapproval or the negative loss of time and finances.

While the four-factor structure of the CEDOE measure from EFA in Study 1 was confirmed in the Study 2 sample using CFA, it should also be noted that a more complex MTMM correlated uniqueness model was suggestive of a simpler two-factor structure when accounting for potential method effects among the four EFA factors, particularly among Social Benefits and Social Costs items. The MTMM model offered better practical fit than the four-factor model and aligned with prior assumptions about the structure of the scale. Given the exploratory nature of this study, concerns about careless responding bias, and the differences observed in correlations between negative outcome expectations and other variables in Study 1 compared to Study 2, it was elected to go with the four-factor model for analyses in Study 2 given that it replicated what was found

in Study 1. However, future research is needed to continue to examine which factor representation is most plausible.

Regardless of the factor structure (two vs. four), findings aligned with the study hypothesis that there would be empirically based differences between positive and negative outcome expectations, and suggest that college students' expected outcomes regarding the career decision-making process are multidimensional and complex. Scores on each of the four individual factors provided adequate reliability ($.78 \leq \alpha \leq .91$). In addition, across both studies, the two benefits factors ($.55 \leq r \leq .65$) and the two costs factors ($.58 \leq r \leq .70$) were always interrelated. However, the relationships between positive and negative factors differed between Study 1 and Study 2. In Study 1, the relationships between positive and negative factors (i.e., between benefits and costs) were non-significant, while, in Study 2, there was a significant, small-to-medium sized *positive* relationship between benefits and costs.

Social-cognitive researchers have long been interested in the dimensionality and impact of outcome expectations on behavior in academic and career domains (Betz & Veyten, 1997; Flores et al., 2008; Gibbons & Borders, 2010; Lee et al., 2018; Metheny & McWhirter, 2013) as well as health-related domains like exercise and nutrition behaviors (Anderson et al., 2007; Carcioppolo et al., 2019; Resnick et al., 2000; Thind et al., 2017). There has historically been a bias toward measuring only positive outcome expectations. Evidence from the current project supports the conceptualization of distinct positive and negative outcome expectations factors, however, there is almost no

precedent for finding a positive relationship between positive and negative outcome expectations in other domains.

Almost universally, a small- to moderate-sized negative correlation is reported. The one exception to this trend was discovered in a follow-up study on nutrition behaviors for church congregants using the Food Beliefs Survey (Anderson et al., 2000). While the scale initially showed four distinct factors at initial development (Anderson et al., 2000), Anderson, Winett, and Wojciki's (2007) exploratory factor analysis showed a two-factor solution (positive and negative) where the factors were positively correlated ($r = .18$). However, in path modeling using other social cognitive variables, the negative outcome expectations for adopting healthier nutrition patterns was negatively correlated with domain specific self-efficacy and negatively correlated with healthier nutrition behaviors, counter to results in the current project.

The current project also found that there might be additional dimensions to outcome expectations scales beyond just positive and negative outcome types. Most research involving the construct has relied on the physical, social, and self-evaluative outcome classes outlined in Bandura's (1997) social cognitive theory. Through pilot study and item design, initial results from the current project indicated that participants might see an overlap in the physical and self-evaluative categories, while social outcomes remained empirically distinct. Like other outcome expectations scale development studies, dimensions may be reflective of the design approach or sample characteristics. For example, in the realm of Engineering outcome expectations, Lee et al. (2018) tried to

incorporate cultural factors with Bandura's three outcome types and discovered four underlying dimensions for their negative outcome expectations scale including culture-related stressors, personal life and work balance challenges, negative job characteristics, and social costs. Alternatively, the Multidimensional Outcome Expectations for Exercise Scale, though only focused on positive outcome expectations, showed three distinct factors aligning with Bandura's physical, social, and self-evaluative rewards (Wójcicki et al., 2009).

Bivariate Correlational Validity Evidence

In both Study 1 and Study 2, benefits factors, reflecting positive outcome expectations, related significantly, and in expected directions, with the included variables in the study: an existing measure of positive outcome expectations, learning experiences (i.e., mastery experiences, verbal persuasion, vicarious learning, and positive and negative emotional arousal), self-efficacy, social support, and exploratory intentions. Thus, bivariate correlations provided important convergent validity evidence for the Self Benefits and Social Benefits scales. However, for the costs factors, relationships were discrepant between Study 1 and Study 2, raising questions about how to interpret the findings.

Interestingly, in Study 1, negative outcome expectations (i.e., anticipated costs) were non-significantly correlated with an individual's exploratory intentions (i.e., goals). This result was counter to expectations that negative outcome expectations would have a direct, negative relationship with an individual's goals to engage in future exploratory behavior (Lent & Brown, 2013). The lack of a direct relationship could be sample-specific. It is also

possible that negative outcome expectations have more indirect influences on intentions, perhaps through moderation (explored below), or that the study is not accounting for other important variables. For example, perhaps an individual's fear of anticipated outcomes from *inaction* (not measured in the present study) is ultimately the more significant determinant of setting positive intentions to explore career options in the future. Nevertheless, the present findings are consistent with prior findings showing the robust relations of positive outcome expectations and self-efficacy to career exploratory intentions (Betz & Vuyten, 1997; Ireland & Lent, 2018; Lent et al., 2016).

In Study 2, cost variables actually had positive, rather than negative, relationships with several study variables. In addition, the cost variables were found to have significant, medium-sized, positive correlations with exploratory intentions. These counter intuitive results suggested for example, that having greater confidence in one's decision-making ability is slightly correlated with holding more negative outcome expectations, and that the more an individual holds negative outcome expectations about taking future exploratory actions, the more likely they are to set intentions to pursue those actions.

In the relationship with exploratory intentions, it may be that anticipated anxiety (a negative outcome expectation) about future actions has a motivating effect in driving future actions to alleviate this worry (Ireland & Lent, 2018). While it may be assumed that individuals with positive thinking (i.e., those who assume the most benefits) will have the strongest positive intentions for future action, researchers studying motivation and performance offer more nuanced

cognitive, emotional, dispositional, and contextual factors that can account for discrepancies.

Watkins (2008) suggests that not all forms of negative thinking are the same, highlighting instances where worry or pessimism can actually promote positive actions. So called, defensive pessimism, or a strategy to intentionally set lower expectations before thinking through and imagining many potential outcomes may be a constructive form of pursuing goals (Norem & Chang, 2002). Tamir (2005) showed that individuals high in neuroticism may prefer to regulate their affect toward worry as a preferred strategy to promote performance in demanding tasks. In health domains, worry has also been shown to foster goals for quitting smoking (Dijkstra & Brosschot, 2003) and to (slightly) increase actual engagement in proactive breast cancer screening behaviors (Hay et al., 2006). Indeed, whether the consequences of negative outcome expectations promote constructive goal-setting and action may depend on other variables like the importance and value of the goal (Geers et al., 2010), the general disposition of the individual (Tamir, 2005) and the interpersonal or situational context (Watkins, 2008). However, the paradoxical results of the current project may also indicate other potentially unaccounted for variables, sample characteristics, or worse, a careless responding pattern in the Study 2 sample.

The current project also included measures of optimism and pessimism (Scheier et al., 1994) to provide discriminant validity evidence for the new outcome expectations scale. True to hypotheses, positive outcome expectations

had no more than medium sized correlations with a measure of optimism ($.12 \leq r \leq .30$), and negative outcome expectations had no more than medium sized correlations with a measure of pessimism ($.27 \leq r \leq .36$). This result, consistent across both Study 1 and Study 2, suggested that the new outcome expectations scales were distinguishable from global forms of positive and negative thinking represented by dispositional optimism and pessimism. In other words, even if someone were generally optimistic or pessimistic about the future, it would be important to understand their specific outcome expectations for taking future exploratory actions in order to best understand their process of career decision-making.

In summary, the new CEDOE scale showed a promising factor structure and reliability evidence, with some evidence of convergent and discriminant validity. Mixed findings related to the validity of the new scale occurred for the negative outcome expectations factors (Self Costs and Social Costs) in Study 2, though this could be sample specific or an artifact of careless responding that was not fully detected. An existing measure of outcome expectations (Betz & Voyten, 1997; Lent et al., 2016) included in the project was consistently positively correlated with Self Benefits ($.40 \leq r \leq .58$) and Social Benefits ($.32 \leq r \leq .37$) factors. The relationships between each of these three positive outcome expectations variables (the existing measure, and the new Self Benefits and Social Benefits factors) and other study variables were very similar, though the Betz and Voyten measure produced slightly larger correlations. The new outcome expectations factors do capture outcome types not measured in the

Betz and Voyten scale (e.g., Social Benefits), so the new benefits scales alone may show promise as a more theoretically comprehensive means of capturing positive outcome expectations in future research in the career exploration domain.

Further study is warranted to further explore the factor structure of the new CEDOE measure as well as the relationships between negative outcome expectations and other SCCT CSM model variables. In addition, future testing of temporal stability for the new measure is needed, as is testing that varies item ordering for the CEDOE measure to eliminate potential biases due to ordering effects (in the present project, the benefits and costs items were always presented in separate blocks with a uniform order). The new scale showed enough promising indicators to proceed with testing SCCT CSM model hypotheses in Study 2 using the four-factor structure of the CEDOE, and these results are discussed below.

Discussion of Findings from the Career Self-Management Model

Developing an improved measure of outcome expectations was intended to foster better understanding of the career exploration and decision-making process of college students using the SCCT CSM model. The newly created CEDOE measure offered the chance to test empirically whether positive and negative outcome expectations conform with predicted model relationships, and potentially to explore puzzling findings from previous research such as the smaller than expected variance accounted for in outcome expectations variables (Ireland & Lent, 2018). In addition, the new scales offered the chance to explore

potentially novel ways for negative outcome expectations to moderate other model relationships, previously only tentatively explored in other domains of SCCT research (Lent et al., 1991, 1993). Of course, given mixed validity evidence for the scale, some negative skew and leptokurtosis on the positive outcome expectations measures in the sample, and potential bias from careless responding, results should be interpreted with caution. Comparisons between the new CEDOE benefits factors and the existing measure of positive outcome expectations used in the study are presented for discussion as well.

Prediction of Outcome Expectations

The current project involved a number of domain-specific, theoretical predictors of outcome expectations according to the SCCT CSM Model: the five types of learning experiences, self-efficacy, and social supports. Previous studies of college students' career decision-making process have only explained a modest amount of variance in positive outcome expectations (using the modified Betz and Vuyten measure) with this set of independent variables in regression analysis (Ireland & Lent, 2018; Lent et al., 2016, 2017). In the current project, the set of predictor variables accounted for 43% of the variance in the positive outcome expectations captured by the Betz and Vuyten measure, with self-efficacy ($\beta = .26$), social support ($\beta = .22$), and negative emotional arousal ($\beta = .21$) accounting for significant unique variance above and beyond other predictors. Of note, the more negative emotional arousal that an individual has when thinking about their past decisional efforts (conceptualized as a type of learning experience), the more likely they were to hold positive outcome

expectations for the future. Perhaps recalling that past decisional efforts have gone poorly prompts individuals to feel they have learned positively from previous mistakes and are due for success in future attempts. The regression results were similar, but with less variance accounted for, when regressing Self Benefits onto the set of independent variables ($R^2 = .27$). In this second model, social support, self-efficacy, and negative emotional arousal were again the individually significant predictor variables. The regression model accounted for somewhat less variance in Social Benefits ($R^2 = .17$), with social support as the only individually significant predictor in this third model ($\beta = .16, p < .05$). Overall, as has been the case in much of previous research in this domain, self-efficacy for career decision-making tasks and social support for this process increase the likelihood that students will expect positive outcomes for their future career exploration actions (Ireland & Lent, 2018; Lent et al., 2016; Lent, Morris, et al., 2019).

When substituting negative outcome expectations factors as the criterion variables in regression analysis, the independent variables accounted for 29% of variance in Self Costs and 17% of the variance in Social Costs. In both models, negative emotional arousal, a type of learning experience, accounted for the most unique variance in both factors ($\beta = .49$ and $\beta = .37$, respectively). Thus, considering the ways individuals have affectively experienced previous setbacks to their career decision-making efforts is likely to forecast their negative outcome expectations regarding future action. However, it should be recalled that negative emotional arousal was also related to Self Benefits. Perhaps a

small amount of past anxiety is, to an extent, motivational, while too much may serve mostly as a deterrent to future action.

Although in each regression the predictors did explain a medium to large amount of variance in outcome expectations, depending on how the latter was measured, the results nevertheless raise questions about the variance *unaccounted for* in both positive and negative outcome expectations. Other researchers have looked at model variables not included in the current study, such as domain-specific barriers and background variables like social class, with mixed results (Ali et al., 2005; Metheny & McWhirter, 2013), though these studies only included measures of positive outcome expectations. Originally Fouad and Guillen (2006) suggested several variables as sources of outcome expectations not included in the SCCT model, including locus of control (one of Bandura's initial influences) and individual qualities like self-reflectiveness. Indeed, exploring alternative models to the SCCT framework may be necessary to fully comprehend how individuals form outcome expectations. Drawing from other theories might be a direction for future study. For example, the Theory of Planned Behavior (Ajzen, 1991, 2002) and Theory of Normative Social Behavior (Rimal, 2008; Rimal & Real, 2005) are models used in other social science research that include outcome expectations and related variables (e.g., descriptive norms, subjective norms). Provided the newly developed CEDOE measure continues to prove valid and reliable, research comparing the predictive utility of a variety of models might offer future insight into the antecedents of career exploration outcome expectations.

Prediction of Exploratory Intentions

Exploratory intentions, an individual's plans to explore career options in the next 2 months, represent a precursor to taking future actions in the SCCT CSM model (Lent & Brown, 2013). The benefits of engaging in these behaviors to explore options include obtaining better career information before arriving at a decision, a greater level of decidedness in the eventual decision, and less decisional anxiety (Baker et al., 2018; Choi et al., 2012; Lent, Morris, et al., 2019; L. T. Penn & Lent, 2016). Thus, understanding the ways various SCCT variables contribute to an individual's career goals was an important component of the current study, with the novel contribution of considering ways in which negative outcome expectations relate to exploratory intentions.

The possible complementary roles of positive and negative outcome expectations were tested in two hierarchical regressions with exploratory intentions as the criterion variable. The entry order of the predictors was varied to explore the relative size of unique variance explained by the original Betz and Vuyten measure and the new outcome expectation measures. Known model predictors of exploratory intentions (self-efficacy, social support) were always entered in Step 1. In the first hierarchical model, the Betz and Vuyten measure of positive outcome expectations was added in Step 1, while in the second model, this variable was added in Step 3 to compare relative changes in the variance accounted for. The two benefits factors were always entered a step ahead of the two costs factors.

Whether using the existing positive outcome expectations measure or the new benefits factors, findings suggested that these variables accounted for very similar variance when added in Step 1 (55% compared to 54%, respectively), and similar incremental variance was found when these factors were added in later steps (9% compared to 8%, respectively). This finding added to the notion that these measures of positive outcome expectations are behaving relatively similarly to one another in predicting exploration intentions, even though they contain substantive differences in item content.

The full model (i.e., with all predictors entered) accounted for 66% of the variance in exploratory intentions, with Betz and Voyten's outcome expectations ($\beta = .39, p < .01$), Self Benefits ($\beta = .38, p < .01$), self-efficacy ($\beta = .17, p < .01$), Social Costs ($\beta = .17, p < .01$), and Social Benefits ($\beta = -.11, p < .05$) each accounting for unique variance in the presence of other predictor variables in the equation. Of note, positive outcome expectations factors ended up accounting for relatively more variance than self-efficacy, replicating similar results from past research (Ireland & Lent, 2018). It is also noteworthy that the preexisting measure of outcome expectations and the new Self Benefits factor, each accounted for a similar amount of unique variance in exploratory intentions. Self Benefits are the most similar conceptually to outcomes captured in Betz and Voyten's scale (compared to Social Benefits, which are not assessed by that scale), however, Self Benefits still account for unique variance beyond that accounted for by the Betz-Voyten measure. This evidence suggests that the

new Self Benefits scale is capturing a somewhat unique aspect of the outcome expectations construct.

These results raise a few questions about the Betz and Voyten (1997) outcome expectancies scale, namely, about what the scale actually measures and how is it different from the Self Benefits scale. One critique has been that some items in the Betz and Voyten measure appear to reflect general optimism (see Literature Review). However, in the present study, the Betz and Voyten measure did not correlate significantly with a measure of optimism in Study 1, and only produced a small correlation in Study 2 ($r = .17, p < .05$).

It is possible that since Betz and Voyten (1997) developed their outcome expectancies scale in the same study as the exploratory intentions scale used in the present study, perhaps the two were designed to closely match one another, for example, in terms of their content and level of generality. By comparison, the outcome expectation scale developed in this study reflected a greater level of specificity (e.g., in that it distinguished between self and social benefits and costs). In keeping with Ajzen and Fishbein's principle of compatibility (Ajzen & Fishbein, 1970; Ajzen, 1988), one might expect that the Betz and Voyten outcome expectations measure (vs. the new OE measure) may relate somewhat more highly with the Betz and Voyten exploration intention measure. From a measurement perspective, the interrelation of the two Betz and Voyten measures may be somewhat inflated by common method variance. Though it was designed to more closely capture Bandura's (1997) theoretical distinctions between types of outcome expectations, this added specificity may,

paradoxically, have somewhat attenuated its relation with the exploration intention scale.

Interestingly, both socially oriented outcome expectation factors (Social Benefits and Social Costs) explained unique variance in exploratory intentions. However, the direction of the relationship was surprising. Interpreted at face value, it appears that the more social benefits an individual anticipates from taking action, the less likely they are to take action. Conversely, but equally counter-intuitive, the more social costs an individual anticipates, the more likely they are to set positive intentions for action. In the case of Social Costs, the direction of the relation to exploratory intentions in regression testing mirrors the sign of the bivariate correlation between the two, which, while unexpected, was at least consistent. However, with Social Benefits, it may be possible that the valence of this relationship is influenced by statistical suppression.

Social Benefits seems to meet the criteria for a suppressor variable (MacKinnon et al., 2000; Tzelgov & Henik, 1991). In order to test this hypothesis further, a two-step hierarchical regression was run to see if Social Benefits added in the second step both accounted for a significant increase in variance in exploratory intentions (beyond the other predictors entered at Step 1), and whether it strengthened the individual relationships (beta weights) of any model variables. Indeed, the ΔR^2 was significant ($\Delta R^2 = .007, F(1, 255) = 5.11, p < .05$) and two variables showed a positive change in beta weights (Self Benefits increased from .307 to .377 and Social Costs increased from .146 to .172). In this way, it appears that Social Benefits actually improves model fit by *suppressing*

the criterion-irrelevant variance in Self Benefits and Social Costs (Tzelgov & Henik, 1991). MacKinnon et al.'s (2000) procedures were used to estimate suppressor effects for Social Benefits on Self Benefits ($\alpha\beta = -.070$, 95% CI [-.25, .11]) and on Social Costs ($\alpha\beta = -.026$, 95% CI [-.050, -.002]). While the appearance of both sets of relationships clearly fit the pattern of statistical suppression, it cannot be stated with confidence that suppression was occurring with Self Benefits because the confidence interval of the suppressor effect included zero. However, it does appear likely that Social Benefits was creating a suppressor effect on Social Costs in the full model. These patterns deserve study in further research.

While the relative amount of explained variance in exploratory intentions is smaller for social factors, anticipated social outcomes appear to have a statistically significant relation to exploratory intentions. As discussed before, findings in this sample may be unique given the positive bivariate correlations between positive and negative outcome expectations found in Study 2. It is also possible that negative outcome expectations may be playing a different or indirect role in shaping individuals exploratory intentions.

In fact, one novel aspect of this project involved exploring a potential moderating role that negative outcome expectations may play in the relationships between other predictors in the CSM model (i.e., the pathways from self-efficacy to goals, and from positive outcome expectations to goals). While three of the four tested interactions were non-significant, negative outcome expectations were found to moderate the relationship between Self

Benefits and exploratory intentions. This relationship suggested that as the level of negative outcome expectations increases, the strength of relationship between positive outcome expectations (Self Benefits) and goals (exploratory intentions) diminishes. This finding, though tentative, suggests how negative outcome expectations may operate in this domain, apart from producing direct paths to exploratory intentions. It also offers some support for conceptualizing positive and negative outcome expectations as distinct constructs and points to the need for additional research to replicate and extend the current findings.

Implications for Career Counseling and Career Advising

Career counselors, and other practitioners providing academic and career advising, stand to benefit from findings in the current research to improve their work with college students on the career exploration and decision-making process. While there are typical developmental challenges in this process (Super et al., 1996), today's college students may face increased pressure and competitiveness given economic, social, multicultural, and institutional forces that may shake a sense of confidence for career decision-making and diminish positive outcome expectations students hold (Lent, 2013). This in turn may make it difficult to approach (versus avoid) a process where having accurate information and the chance to dispel harmful myths may combat the increased anxiety facing today's students (Hirschi et al., 2014; Lipshits-Braziler et al., 2016, 2017).

While researchers have often focused on the positive connection between self-efficacy and decidedness, and the negative connection with decisional

anxiety (Choi et al., 2012; L. T. Penn & Lent, 2018), other researchers have suggested that students' positive outcome expectations play an important role in shaping their continued intentions to explore majors (Ireland & Lent, 2018). Very few researchers have looked at the impact of career development interventions designed to increase positive outcome expectations (McWhirter et al., 2000b), and prior research has not included a theoretically comprehensive measure of outcome expectations (Fouad & Guillen, 2006). Extant findings from research on career decision-making learning experiences have pointed to the importance of fostering outcome expectations indirectly, through providing mastery experiences and positive emotional arousal that enhances self-efficacy (Ireland & Lent, 2018; Lent et al., 2017).

Findings from the current project suggest that students engage in the process of career decision-making holding both positive and negative outcome expectations, which may offer additional points of intervention for career practitioners. For example, not only is it important to help students understand the benefits they may acquire from engaging in the exploration process, but it can also be important to examine past and current obstacles leading to negative outcome expectations. For example, in beginning counseling or advising with students who have initiated help-seeking for decision-making, it may be useful to acknowledge the potential anxiety, financial obstacles, or social pressure they may be experiencing.

Furthermore, by taking time to explore a student's past negative emotional arousal around choosing a career, a part of their learning experiences

with significant ties to negative outcome expectations, may offer chances to normalize their feelings, and reframe their past efforts as important learning opportunities that will help them moving forward. According to results from this project, taking time to minimize negative outcome expectations may help to strengthen the likelihood that students' positive outcome expectations will be more influential in increasing their openness to exploring career options and maintaining engagement in career development in the future.

Finally, students may face additional negative pressures from confusion about the process, or even being turned away from their first career choices. For example, colleges and universities with competitive enrollment criteria for certain popular academic majors (e.g., GPA minimums, prerequisite courses, or separate application process) may compound students' negative outcome expectations for wasting time or money, or alienating them from family members. Using items from the negative outcome expectations scale may offer a way to frame guidance to students in approaching their most salient negative outcomes. Indeed, finding ways to reach students at critical junctures (e.g., early in the decision-making process, after decisional setbacks) may prevent them from getting stuck in a decisional rut. Collectively, efforts by career practitioners to diminish negative outcome expectations, enhance positive outcome expectations, provide students with social support, and enhance students' decisional self-efficacy may improve the odds of their bouncing back with future decisional action and success.

Limitations

Results of the study should be interpreted with caution in light of the limitations of the present study. As addressed in prior sections, the study faces some potential limitations due to the change in survey ordering related to concerns about careless responding in the Study 2 sample, and results may still contain bias despite careful choices about removal of data deemed careless based on established criteria (Meade & Craig, 2012). In addition, the findings may face limitations due to the poor response rate in Study 1 and the composition of the sample that limit its generalizability. For instance, both Study 1 (58%) and Study 2 (82%) contained samples with predominantly female-identified participants. The samples also contained a majority of students who identified as mostly decided on their academic major (60-75%) and career direction (48-53%). Future research should focus on samples more balanced in terms of gender identity and more actively engaged in the academic major and career decision-making process (e.g., testing the CEDOE measure and CSM hypotheses among high school students might provide this opportunity). Furthermore, finding more intentional ways to draw on students' intrinsic motivation for participation may provide a way to enhance the response rate and also to decrease the presence of careless responding (Maniaci & Rogge, 2014).

The four-factor model of the new CEDOE measure discovered in exploratory factor analysis and confirmed in factor analysis with a second sample provided adequate fit to the data. However, the CFI value (.91) did not

meet the most ideal cut-off for good fit. In addition, the two benefits factors ($r = .65$) and the two costs factors ($r = .70$) are fairly highly intercorrelated. The results of the MTMM model offers a way to model method effects as well as improve model fit and meaning of the factor structure of the CEDOE measure. While the new measure was designed to potentially improve upon normality issues with existing measures, the Betz and Vuyten scale (1997) and the Self Benefits factor produced similarly high (though not extreme) skew and leptokurtosis compared to past results (Ireland & Lent, 2018).

The new outcome expectations scale was developed in consultation with input from experienced researchers and experts at SCCT measurement. However, item content was not investigated with sample-similar students as some other scale development studies have done (e.g., Lee et al., 2018). Sharing items with current students or seeking additional qualitative input (e.g., perhaps through cognitive interviewing) could be a future direction to explore the meaning of items in the new scale (García, 2011). Similarly, potential cultural biases in item development may mean items hold different meanings across populations, or fail to capture relevant content or phrasing across demographic groups. In addition, there may be difficulties in capturing students' opinions on process (i.e., career decision-making process), without also understanding the relevant choices they are considering (e.g., outcome expectations for specific career choices like engineering or business). This area underscores where theoretical lines between SCCT's various models (i.e., career self-management

and choice models) may blur in the eyes of participants who do not see these theoretical distinctions.

Finally, results were captured using cross-sectional, self-report data only. The potential for mono-source, mono-method bias may have distorted the findings. Longitudinal study is needed to enhance support for the causal-related hypotheses proposed by the study. Future research to improve upon these limitations is needed to gain confidence in the new measure of outcome expectations and understanding of the roles that negative outcome expectations may play in students' career exploration and decision-making process.

Future Directions

First and foremost, more data collection is needed to further establish the validity, reliability and factor structure of the new CEDOE measure, especially with the negative outcome expectations scales. Second, further efforts could explore whether the factor structure holds up when presenting items in random-order. Third, it would be useful to test the scale's temporal stability, gather data with more diverse populations, and target those at earlier stages of career development (e.g., high school students) or those facing decisional setbacks. Fourth, the scale can be use in the context of longitudinal study. Fifth, the scale may be used as a manipulation check for current career development interventions. In general, future efforts utilizing Internet surveys as the primary data collection method should draw more on recommendations from researchers to use validity checks or measures within data collection, and to

conduct latent profile analysis on careless responders to better understand trends within the data (Maniaci & Rogge, 2014; Meade & Craig, 2012).

Conceptually, the current scale asks participants about anticipated costs and benefits of taking exploratory action. However, given contradictory findings about the relationship between negative outcome expectations and exploratory intentions, caution is warranted in interpreting the findings and there may also be value in examining the anticipated outcomes of *inaction* versus active efforts at career exploration. Given the support for conceptualizing negative outcome expectations as distinct from positive outcome expectations, it may also be worth expanding conceptual understanding of other SCCT concepts as well. For example, a new measure was recently designed focused on capturing the mostly positive learning experiences that foster self-efficacy and outcome expectations (Ireland & Lent, 2018; Lent et al., 2017). Are there instances of failure, discouragement, or isolation that may act differently from the positive learning experiences? For example, perhaps particularly memorable instances of discouragement have the potential to diminish the positive effects of more positive learning experiences.

Within the realm of SCCT, positive outcome expectations continue to be relevant in understanding how students move through their career exploration and decision-making process, and further testing of potential novel moderation effects discovered in the current study is warranted to better understand this construct. However, questions still remain about what additional variables may account for variance in both positive and negative outcome expectations, which

may mean studying variables beyond those within the SCCT domain. For example, the theory of planned behavior (Ajzen, 1991, 2011) and theory of normative social behavior (Rimal, 2008; Rimal & Real, 2005) may offer some additional opportunities. These theories bring insight into the influence of norms on shaping expectations and behaviors. Among college students, understanding of the normative decision-making process may be an important area for further research, especially in light of the social pressures faced by college students in this process (Binder et al., 2016; Pesch et al., 2018). Building on the current project, continuing to explore what factors influence engagement with career exploration and decision-making behaviors remains important in light of the evolving context of this developmental process.

In sum, the current project produced a 22-item scale with four factors, organized along self- and social-related dimensions, as well as positive and negative dimensions. The findings showed that the positive, benefits scales were correlated with an existing measure of positive outcome expectations, and provided evidence in favor of conceptualizing positive and negative outcome expectations as distinct. Correlational findings provided important convergent validity for the new scale and some support for hypothesized relationships, while also providing support for discriminant validity between domain-specific and global variables.

Using the SCCT CSM model, it was discovered that domain specific learning experiences, self-efficacy, and social support accounted for 17%-29% of variance in each of the new outcome expectations scales. Negative outcome

expectations factors (Self Costs and Social Costs) were also found to explain a small, but significant, amount of additional variance in exploratory intentions in multiple regression testing. Finally, results indicated the presence of some significant moderation suggesting that higher levels of negative outcome expectations may serve to dampen the direct relationships between positive outcome expectations and exploratory intentions.

Table 1*Demographics Characteristics for Study 1 and Study 2 Samples*

	Study 1		Study 2	
	Registrar + SONA Sample (N=291)		Qualtrics Sample (N=263)	
	n	%	n	%
Total Sample	291	100	263	100
Gender				
Men	118	40.5	45	17.1
Women	168	57.7	216	82.1
Non-binary, queer, or other	4	1.4	2	.8
Race/Ethnicity				
Black or African American	27	9.3	70	26.6
Hispanic American or Latino/a	16	5.5	33	12.5
White or European American	150	51.5	106	40.3
Asian/Pacific Islander American	82	28.2	28	10.6
Multiracial	16	5.5	22	8.3
Native American	0	0	4	1.5
Age				
18	119	40.9	72	27.4
19	111	38.1	104	39.5
20	39	13.4	87	33.1
21	17	5.8	0	0
22	4	1.4	0	0
23	1	.3	0	0
Year in School				
First-Year	192	66.0	96	36.5
Sophomore	70	24.1	85	32.3
Junior	19	6.5	60	22.8
Senior	10	3.4	21	8.0
Fifth Year or Other	0	0	1	.4
Special Populations				
Transfer	22	7.6	38	14.4
Honors	54	18.6	75	28.5
Student Athlete	5	1.7	50	19.0
Student Veteran	0	0	6	2.3
First-Generation	25	8.6	71	27.0
Denied First Choice Major	43	14.8	86	32.7
Decidedness on Academic Major				
Moderately to Very Decided	218	74.9	159	60.5
Cmptly. Undecided to Slightly Decided	73	25.1	104	39.5

Decidedness on Career				
Moderately to Very Decided	156	53.6	126	47.9
Cmptly. Undecided to Slightly Decided	135	46.4	137	52.1

Qualtrics Sample (N=263)	n	%	National Average ^a
Region			
Midwest	48	18.3	20.9
Northeast	56	21.3	17.2
Southeast	86	32.7	38.1
West	35	13.3	23.8
Southwest	38	14.4	
Family Income			
\$0-<\$25K	49	18.6	17.6
\$25K-<\$50K	55	20.9	22.5
\$50K-<\$75K	55	20.9	19
\$75K-<\$100K	50	19	13.6
\$100K-<\$150K	33	12.5	15.2
\$150K-<\$200K	10	3.8	6
\$200K+	11	4.2	6.3
Subj. Socioeconomic Status (Ladder)			
0	2	0.8	
1	2	0.8	
2	4	1.5	
3	13	4.9	
4	32	12.2	
5	55	20.9	
6	54	20.5	
7	51	19.4	
8	29	11	
9	8	3	
10	12	4.6	
***1 missing from this set			

^a Region and Family Income comparisons based on US Census Data;

Note. US Census uses only categories of Midwest, Northeast, South, and West, which differed from categories shown to participants.

Table 2*Participants Removed for Careless Responding by Sample*

Criteria	Registrar (N=256)		SONA (N=70)		Study 1 Reg. + SONA Combined (N=326)		Study 2 Qualtrics (N=336)	
	n	%	n	%	n	%	n	%
Duration < 220s	6	2.3	1	1.4	7	2.1	25	7.4
Validity Item = "No"	28	10.9	0	0	28	8.6	33*	9.8*
Even-Odd Index ≤ 0	3	1.2	0	0	3	0.9	23	6.8
Duration < 220s and Validity Item = "No"	31	12.1	1	1.4	32	9.8	54*	16.1*
Duration < 220s and Even-Odd Index ≤ 0	9	3.5	1	1.4	10	3.1	47	14
Validity Item = "No" and Even-Odd Index ≤ 0	31	12.1	0	0	31	9.5	53*	15.8*
Total Removed (all criteria combined)	34	13.3	1	1.4	35	10.7	73*	21.7*
Total Remaining (for use in Analyses)	222	86.7	69	98.6	291	89.3	263	78.3

*Note. There were 25 participants in the Qualtrics sample who did not receive the Validity Item question.

Table 3*Parallel Analysis Results for New Outcome Expectations Scale Items*

Cases	291		
Variables	30		
Data Sets	10,000		
Percent	95		
Root	Raw Data Eigenvalues	Mean of Random Data Eigenvalues	Percentile of Random Data Eigenvalues
1	6.411	.763	.860
2	5.876	.668	.742
3	1.144	.596	.658
4	.798	.535	.592
5	.430	.481	.533
6	.394	.431	.479
7	.346	.384	.429
8	.284	.340	.383
9	.264	.298	.339
10	.233	.258	.297
11	.157	.220	.258
12	.148	.183	.219
13	.075	.148	.182
14	.056	.113	.147
15	.024	.079	.112
16	.021	.047	.078
17	.006	.015	.045
18	-.043	-.017	.012
19	-.061	-.047	-.019
20	-.090	-.078	-.051
21	-.114	-.107	-.081
22	-.128	-.137	-.111
23	-.130	-.166	-.141
24	-.153	-.195	-.170
25	-.178	-.224	-.200
26	-.186	-.253	-.229
27	-.199	-.283	-.259
28	-.218	-.315	-.289
29	-.229	-.348	-.321
30	-.243	-.389	-.357

Note. Output from PAF/Common Factor Analysis & Raw Data Permutation script run in SPSS 25.0

Table 4*Exploratory Factor Analysis of New Outcome Expectation Items (N=291)*

If I were to spend time exploring different careers and deciding on a career path, I would most likely...

Factor name and items	Loadings				λ^2
<i>Factor one: Self Benefits</i>	1	2	3	4	
#9: ...Come up with career options that I am passionate about.	.740	-.015	.155	.040	.452
#11: ...Have a sense of accomplishment and achievement.	.693	.098	-.126	.112	.604
#7: ...Feel good about myself.	.661	-.047	-.110	-.026	.529
#3: ...Clarify what it is I want from a career.	.654	-.045	.008	-.011	.424
#15: ...Feel more secure and stable about who I am.	.629	.096	-.081	-.075	.475
#5: ...Increase my chances of making a better career decision.	.623	.085	-.102	.020	.473
#1: ...Feel better about the direction my life is taking.	.605	-.117	-.079	-.057	.433
<i>Factor two: Self Costs</i>					
#18: ...Feel lost because I don't know where to start.	.041	.767	.083	.086	.529
#19: ...Worry that I'll end up wasting time or money on the wrong decision.	.008	.716	.078	-.060	.577
#16: ...Feel stressed and overwhelmed by the process.	-.049	.646	-.075	.038	.390
#26: ...Worry about making a decision I'll later regret.	-.014	.580	-.052	-.107	.421
#22: ...Become more uncertain about the direction I want to take.	.017	.537	.092	-.213	.478
#30: ...Face pressure to decide too quickly because of academic requirements.	.025	.486	-.030	-.230	.421
<i>Factor three: Social Benefits</i>					
#6: ...Get approval from friends and family about the direction my life is taking.	.004	.011	-.820	.039	.675
#8: ...Find career options that reflect well on my family.	-.013	-.071	-.748	-.093	.565
#2: ...Make my friends or loved ones happy.	.090	.034	-.689	.119	.556
#4: ...Help other people in my life to see me as responsible.	.123	-.026	-.641	-.046	.516

Factor name and items	Loadings				λ^2
<i>Factor four: Social Costs</i>	1	2	3	4	
#25: ...Experience conflict between what I want to do and what important others in my life want me to do.	.053	-.107	.094	-.866	.650
#21: ...Be afraid of disappointing my family based on the career options I consider.	-.070	.046	-.085	-.676	.509
#17: ...Face difficult choices between my work and family values.	-.015	.068	.004	-.614	.432
#29: ...Risk that important others in my life will get impatient with me.	-.039	.118	-.046	-.612	.478
#24: ...Be frustrated because of outside factors restricting my career options	.035	.089	-.002	-.518	.330

Extraction Method: Principal Axis Factoring

Rotation Method: Oblimin with Kaiser Normalization

Factor loadings depicted are from the Pattern Matrix

Items Removed: 10, 12, 13, 14, 20, 23, 27, 28

Table 5*Descriptive Statistics for Study 1 Variables*

Variable	Mean	Std. Dev.	Minimum Value	Maximum Value	Skew Statistic	S.E.	Kurtosis Statistic	S.E.
Self Benefits Outcome Expectations	4.17	.59	1.00	5.00	-.109	.143	3.119	.285
Social Benefits Outcome Expectations	3.55	.83	1.00	5.00	-.493	.143	.067	.285
Self Costs Outcome Expectations	3.55	.82	1.00	5.00	-.445	.143	-.184	.285
Social Costs Outcome Expectations	2.98	.92	1.00	5.00	.112	.143	-.752	.285
Betz and Voyten Outcome Expectations	4.14	.60	1.50	5.00	-.709	.143	1.461	.285
Self-Efficacy (CEDSE-BD)	2.53	.72	.00	4.00	-.221	.143	.059	.285
Mastery Experiences	3.52	.75	1.00	5.00	-.247	.143	.184	.285
Verbal Persuasion	3.64	.83	1.00	5.00	-.508	.143	.195	.285
Vicarious Learning	3.78	.82	1.00	5.00	-.750	.143	.395	.285
Positive Emotional Arousal	3.49	.85	1.00	5.00	-.407	.143	-.107	.285
Negative Emotional Arousal	3.35	.91	1.00	5.00	-.255	.143	-.585	.285
Exploratory Intentions	3.86	.63	1.60	5.00	-.666	.143	1.136	.285
Social Support	3.97	.72	1.38	5.00	-.787	.143	1.081	.285
Optimism	6.80	2.67	.00	12.00	-.157	.143	-.540	.285
Pessimism	5.97	2.82	.00	12.00	-.040	.143	-.639	.285

Note. N=291

Table 6*Correlations Table, Means, Standard Deviations, and Internal Consistency Estimates for Study 1 Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Self Benefits	--														
2. Social Benefits	.55	--													
3. Self Costs	-.01	-.07	--												
4. Social Costs	-.03	.01	.58	--											
5. Betz and Voyten OE	.40	.32	-.01	-.03	--										
6. Self-Efficacy (CEDSE-BD)	.20	.19	-.29	-.13	.29	--									
7. Mastery Experiences	.20	.23	-.36	-.19	.24	.60	--								
8. Verbal Persuasion	.22	.30	-.27	-.15	.22	.43	.72	--							
9. Vicarious Learning	.14	.26	-.21	-.20	.24	.39	.58	.63	--						
10. Pos. Emotional Arousal	.32	.26	-.27	-.11	.23	.52	.57	.50	.38	--					
11. Neg. Emotional Arousal	.03	-.05	.47	.36	.05	-.22	-.23	-.15	-.15	-.05	--				
12. Exploratory Intentions	.38	.38	-.10	.03	.44	.35	.28	.30	.25	.34	.00	--			
13. Social Supports	.21	.27	-.19	-.28	.25	.30	.39	.54	.61	.29	-.13	.23	--		
14. Optimism	.12	.14	-.28	-.17	.10	.38	.30	.27	.19	.36	-.26	.17	.23	--	
15. Pessimism	-.05	-.02	.27	.36	-.02	-.16	-.11	-.11	-.10	-.10	.29	.00	-.30	-.41	--
Mean	4.17	3.55	3.55	2.98	4.14	2.53	3.52	3.64	3.78	3.49	3.35	3.86	3.97	6.80	5.97
Standard Deviation	.59	.83	.82	.92	.60	.72	.75	.83	.82	.85	.91	.63	.72	2.67	2.82
Cronbach's Alpha	.86	.84	.83	.81	.91	.92	.79	.85	.82	.82	.80	.87	.86	.74	.79

Note. N=291. Pearson Correlations with two-tailed test of significance; correlations $\geq |.12|$ are significant, $p < .05$; correlations $\geq |.15|$ are significant, $p < .01$

Table 7*Fit Statistics for Confirmatory Factor Analysis Measurement Models*

Model	S-B χ^2	df	SRMR	RMSEA	90% CI for	CFI	TLI
					RMSEA		
One-Factor Model	1213.632	209	.160	.135	.128 - .143	.568	.523
Two-Factor Model	520.075	208	.064	.076	.067 - .084	.866	.851
Four-Factor Model	412.654	203	.058	.063	.054 - .071	.910	.897
MTMM Model	288.738	156	.050	.057	.047 - .067	.943	.915

Notes. S-B χ^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; TLI = Tucker-Lewis Index; The one-factor model loads all 22 OE items on a single factor; the two-factor model creates two separate factors, one containing all self and social benefit items, and one factor containing all self and social cost items; the four-factor model includes is composed of self benefits, social benefits, self costs, and social costs factors; the multitrait-multimethod (MTMM) model proposes that all items load onto two trait factors (positive and negative), while errors for items from the four factors were allowed to covary (correlated uniqueness).

Table 8*Confirmatory Factor Analysis for Latent Variables in the CEDOE Scale: Four-Factor Model (N=263)*

If I were to spend time exploring different careers and deciding on a career path, I would most likely...

Latent variable and indicators	Standardized estimate	S.E.	Estimate/S.E.
<i>Factor one: Self Benefits</i>			
#9: ...Come up with career options that I am passionate about.	.727	.036	20.392
#11: ...Have a sense of accomplishment and achievement.	.814	.026	31.669
#7: ...Feel good about myself.	.812	.026	30.785
#3: ...Clarify what it is I want from a career.	.726	.037	19.879
#15: ...Feel more secure and stable about who I am.	.839	.026	32.265
#5: ...Increase my chances of making a better career decision.	.729	.037	19.708
#1: ...Feel better about the direction my life is taking.	.710	.036	19.655
<i>Factor two: Social Benefits</i>			
#6: ...Get approval from friends and family about the direction my life is taking.	.737	.036	20.444
#8: ...Find career options that reflect well on my family.	.712	.040	18.008
#2: ...Make my friends or loved ones happy.	.715	.034	20.996
#4: ...Help other people in my life to see me as responsible.	.652	.040	16.133
<i>Factor three: Self Costs</i>			
#18: ...Feel lost because I don't know where to start.	.734	.032	23.109
#19: ...Worry that I'll end up wasting time or money on the wrong decision.	.789	.027	28.886
#16: ...Feel stressed and overwhelmed by the process.	.726	.030	24.363
#26: ...Worry about making a decision I'll later regret.	.694	.037	18.857
#22: ...Become more uncertain about the direction I want to take.	.670	.039	17.171
#30: ...Face pressure to decide too quickly because of academic requirements.	.669	.040	16.806

Latent variable and indicators	Standardized estimate	S.E.	Estimate/S.E.
<i>Factor four: Social Costs</i>			
#25: ...Experience conflict between what I want to do and what important others in my life want me to do.	.746	.030	24.554
#21: ...Be afraid of disappointing my family based on the career options I consider.	.604	.041	14.883
#17: ...Face difficult choices between my work and family values.	.585	.049	11.847
#29: ...Risk that important others in my life will get impatient with me.	.643	.037	17.439
#24: ...Be frustrated because of outside factors restricting my career options	.666	.036	18.592

Bolded items = $p < .01$.

Table 9

Completely Standardized Estimates for the Correlated Uniqueness Model of the MTMM Matrix of Career Exploration and Decision-Making Outcome Expectations Items

	Trait Factor Loadings		SMC	Uniqueness	SelfBen1	SelfBen2	SelfBen3	SelfBen4	SelfBen5	SelfBen6	SelfBen7
	Pos.	Neg.									
SelfBen1	.657		.432	.568	1.000						
SelfBen2	.753		.567	.433	.236	1.000					
SelfBen3	.754		.569	.431	.070	.201	1.000				
SelfBen4	.714		.510	.490	.230	.119	.000	1.000			
SelfBen5	.725		.526	.474	.223	.307	.462	.169	1.000		
SelfBen6	.739		.546	.454	.039	.046	.128	.023	.131	1.000	
SelfBen7	.792		.627	.373	.250	-.053	-.152	-.091	.045	-.246	1.000
					SocBen1	SocBen2	SocBen3	SocBen4			
SocBen1	.529		.280	.720	1.000						
SocBen2	.534		.285	.715	.370	1.000					
SocBen3	.667		.445	.555	.296	.238	1.000				
SocBen4	.528		.279	.721	.342	.209	.080	1.000			
					SelfCosts1	SelfCosts2	SelfCosts3	SelfCosts4	SelfCosts5	SelfCosts6	
SelfCosts1		.676	.457	.543	1.000						
SelfCosts2		.795	.632	.368	.164	1.000					
SelfCosts3		.773	.598	.402	.205	-.171	1.000				
SelfCosts4		.734	.539	.461	-.055	-.011	-.208	1.000			
SelfCosts5		.738	.545	.455	.043	-.211	-.194	-.319	1.000		
SelfCosts6		.688	.473	.527	-.043	-.038	-.148	.026	-.151	1.000	

				SocCosts1	SocCosts2	SocCosts3	SocCosts4	SocCosts5
SocCosts1	.592	.350	.650	1.000				
SocCosts2	.470	.221	.779	.201	1.000			
SocCosts3	.500	.250	.750	.153	.315	1.000		
SocCosts4	.473	.224	.776	.360	.356	.089	1.000	
SocCosts5	.638	.407	.593	.263	.012	.051	.073	1.000

	Trait Factor Correlations	
	Pos.	Neg.
Positive	1.000	
Negative	.364	1.000

Note: SMC, squared multiple correlations (i.e., λ^2). **Bolded** terms represent correlation where $p < .05$ (Output from Mplus). Self Ben = Self Benefits; Social Ben = Social Benefits

Table 10*Descriptive Statistics for Study 2 Variables*

Variable	Mean	Std. Dev.	Minimum Value	Maximum Value	Skew		Kurtosis	
					Statistic	S.E.	Statistic	S.E.
Self Benefits Outcome Expectations	3.90	.87	1.00	5.00	-1.081	.150	1.320	.299
Social Benefits Outcome Expectations	3.53	.87	1.00	5.00	-.393	.150	.077	.299
Self Costs Outcome Expectations	3.55	.94	1.00	5.00	-.582	.150	-.072	.299
Social Costs Outcome Expectations	3.18	.93	1.00	5.00	-.047	.150	-.563	.299
Betz Outcome Expectations	3.90	.84	1.00	5.00	-1.044	.150	1.409	.299
Self-Efficacy (CEDSE-BD)	2.54	.78	.00	4.00	-.166	.150	.255	.299
Mastery Experiences	3.54	.50	1.00	5.00	-.553	.150	.662	.299
Verbal Persuasion	3.52	.83	1.00	5.00	-.769	.150	1.097	.299
Vicarious Learning	3.52	.86	1.00	5.00	-.539	.150	.154	.299
Positive Emotional Arousal	3.48	.88	1.00	5.00	-.421	.150	.210	.299
Negative Emotional Arousal	3.30	.99	1.00	5.00	-.202	.150	-.418	.299
Exploratory Intentions	3.78	.80	1.00	5.00	-1.057	.150	1.943	.299
Social Support	3.55	.75	1.00	5.00	-.276	.150	.109	.299
Optimism	6.94	2.71	1.00	5.00	-.077	.150	-.367	.299
Pessimism	6.89	2.81	1.00	5.00	-.089	.150	-.447	.299

Note. N=263

Table 11*Correlations Table, Means, Standard Deviations, and Internal Consistency Estimates for Study 2 Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Self Benefits	--														
2. Social Benefits	.65	--													
3. Self Costs	.33	.23	--												
4. Social Costs	.22	.27	.70	--											
5. Betz and Voyten OE	.58	.37	.30	.16	--										
6. Self-Efficacy (CEDSE-BD)	.43	.33	.15	.15	.55	--									
7. Mastery Experiences	.36	.33	.07	.14	.48	.61	--								
8. Verbal Persuasion	.35	.30	.10	.14	.44	.50	.68	--							
9. Vicarious Learning	.36	.31	.17	.19	.47	.54	.66	.73	--						
10. Pos. Emotional Arousal	.29	.26	.01	.10	.36	.50	.45	.37	.38	--					
11. Neg. Emotional Arousal	.13	.06	.48	.38	.24	.05	.04	.03	.05	.10	--				
12. Exploratory Intentions	.66	.40	.40	.34	.71	.55	.52	.46	.50	.38	.25	--			
13. Social Supports	.44	.31	.21	.08	.48	.53	.38	.44	.53	.27	.01	.46	--		
14. Optimism	.29	.30	-.02	.11	.17	.26	.36	.28	.35	.40	-.07	.27	.16	--	
15. Pessimism	.11	.13	.29	.31	.08	.03	.00	-.01	.01	-.01	.34	.15	-.03	-.04	--
Mean	3.90	3.53	3.55	3.18	3.90	2.54	3.54	3.52	3.52	3.48	3.30	3.78	3.55	6.94	6.89
Standard Deviation	.87	.87	.94	.93	.84	.78	.50	.83	.86	.88	.99	.80	.75	2.71	2.81
Cronbach's Alpha	.91	.80	.86	.78	.93	.91	.78	.78	.79	.80	.80	.91	.79	.65	.74

Note. N=263. Pearson Correlations with two-tailed test of significance; correlations $\geq |.12|$ are significant, $p < .05$; correlations $\geq |.16|$ are significant, $p < .01$

Table 12*Regression Analyses Predicting Outcome Expectations Variables (N=263)*

Variable	B	SE B	β	df	R	R²	F
Model: Predicting Betz and Voyten OE				7, 255	.66	.43	27.48**
Mastery Experiences	.14	.08	.13				
Verbal Persuasion	.08	.08	.08				
Vicarious Learning	.03	.08	.03				
Positive Emotional Arousal	.04	.05	.05				
Negative Emotional Arousal	.18	.04	.21**				
Self-Efficacy (CEDSE)	.28	.07	.26**				
Social Support	.25	.07	.22**				
Model: Predicting Self Benefits				7, 255	.52	.27	13.70**
Mastery Experiences	.10	.09	.09				
Verbal Persuasion	.07	.09	.07				
Vicarious Learning	-.02	.09	-.02				
Positive Emotional Arousal	.06	.06	.06				
Negative Emotional Arousal	.09	.05	.11*				
Self-Efficacy (CEDSE)	.18	.09	.17*				
Social Support	.32	.08	.28**				
Model: Predicting Social Benefits				7, 255	.41	.17	7.33**
Mastery Experiences	.13	.10	.12				
Verbal Persuasion	.05	.10	.05				
Vicarious Learning	.02	.10	.02				
Positive Emotional Arousal	.09	.07	.09				
Negative Emotional Arousal	.03	.05	.04				
Self-Efficacy (CEDSE)	.11	.09	.10				
Social Support	.19	.08	.16*				

Variable	<i>B</i>	<i>SE B</i>	β	<i>df</i>	<i>R</i>	<i>R</i>²	<i>F</i>
Model: Predicting Self Costs				7, 255	.54	.29	15.11**
Mastery Experiences	-.09	.10	-.07				
Verbal Persuasion	-.02	.10	-.02				
Vicarious Learning	.13	.10	.12				
Positive Emotional Arousal	-.15	.07	-.15*				
Negative Emotional Arousal	.46	.05	.49**				
Self-Efficacy (CEDSE)	.13	.09	.11				
Social Support	.20	.08	.16*				
Model: Predicting Social Costs				7, 255	.42	.18	7.77**
Mastery Experiences	.00	.11	.00				
Verbal Persuasion	.02	.10	.01				
Vicarious Learning	.16	.10	.14				
Positive Emotional Arousal	-.03	.07	-.03				
Negative Emotional Arousal	.35	.05	.37**				
Self-Efficacy (CEDSE)	.09	.10	.08				
Social Support	-.05	.09	-.04				

Note. * $p < .05$, ** $p < .01$; CEDSE-BD = Career Exploration and Decision-Making Self-Efficacy

Table 13*Hierarchical Regression Analysis Predicting Exploratory Intentions (N=263), Entry Order 1*

Variable	<i>B</i>	<i>SE B</i>	β	<i>df</i>	<i>R</i>	<i>R</i> ²	ΔR^2	ΔF
Model 1: CSM Model Predictors + New Positive OE Scales				4, 258	.73	.54	.54	75.41**
Self-Efficacy	.31	.05	.30**					
Social Support	.09	.06	.09					
Self Benefits	.52	.06	.56**					
Social Benefits	-.08	.05	-.09					
Model 2: Adding New Negative OE Scales				2, 256	.76	.58	.04	13.34**
Self-Efficacy	.30	.05	.29**					
Social Support	.09	.05	.08					
Self Benefits	.48	.05	.52**					
Social Benefits	-.11	.05	-.12*					
Self Costs	.09	.05	.10					
Social Costs	.12	.05	.13*					
Model 3: Adding Betz and Voyten OE Scale				1, 255	.81	.66	.08	58.21**
Self-Efficacy	.17	.05	.17**					
Social Support	.04	.05	.04					
Self Benefits	.35	.05	.38**					
Social Benefits	-.10	.05	-.11*					
Self Costs	.03	.05	.03					
Social Costs	.15	.05	.17**					
Betz and Voyten Outcome Expectations	.37	.05	.39**					

Notes. * $p < .05$, ** $p < .01$; OE = Outcome Expectations

Table 14*Hierarchical Regression Analysis Predicting Exploratory Intentions (N=263), Entry Order 2*

Variable	<i>B</i>	<i>SE B</i>	β	<i>df</i>	<i>R</i>	<i>R</i>²	ΔR^2	ΔF
Model 1: CSM Model Predictors				3, 259	.74	.55	.55	104.45**
Self-Efficacy	.21	.06	.20**					
Social Support	.10	.06	.09					
Betz and Voyten OE	.53	.05	.56**					
Model 2: CSM Model Predictors + New Positive OE Scales				2, 257	.79	.63	.08	26.51**
Self-Efficacy	.18	.05	.18**					
Social Support	.03	.05	.03					
Betz and Voyten OE	.38	.05	.40**					
Self Benefits	.36	.05	.39**					
Social Benefits	-.07	.05	-.07					
Model 3: Adding Negative OE				2, 255	.81	.66	.04	13.21**
Self-Efficacy	.17	.05	.17**					
Social Support	.04	.05	.04					
Betz and Voyten OE	.37	.05	.39**					
Self Benefits	.35	.05	.38**					
Social Benefits	-.10	.05	-.11*					
Self Costs	.03	.05	.03					
Social Costs	.15	.05	.17**					

Note. * $p < .05$, ** $p < .01$; OE = Outcome Expectations

Table 15*Moderation Analysis Predicting Exploratory Intentions (N=263)*

Variable	B	SE B	β	df	R	R²	ΔR^2	ΔF
Model 1: CSM Model Predictors				6, 256	.81	.66	.66	81.64**
Self-Efficacy	.18	.05	.18**					
Betz and Voyten OE (BetzOE)	.36	.05	.38**					
Social Support	.03	.05	.03					
Self Benefits	.34	.05	.37**					
Social Benefits	-.09	.05	-.10*					
Negative OE (NegOE)	.18	.04	.19**					
Model 2: Adding Interaction Terms				4, 252	.83	.68	.02	4.70**
Self-Efficacy	.22	.05	.22**					
Betz and Voyten OE (BetzOE)	.31	.05	.33**					
Social Support	-.01	.05	.00					
Self Benefits	.34	.05	.37**					
Social Benefits	-.10	.04	-.11*					
Negative OE (NegOE)	.15	.04	.16**					
NegOE * Self-Efficacy	-.06	.05	-.07					
NegOE * BetzOE	.08	.06	.09					
NegOE * Self Benefits	-.21	.06	-.27**					
NegOE * Social Benefits	.10	.05	.13					

Note. All predictor variables and interaction terms are mean centered; * $p < .05$, ** $p < .01$; OE = Outcome Expectations

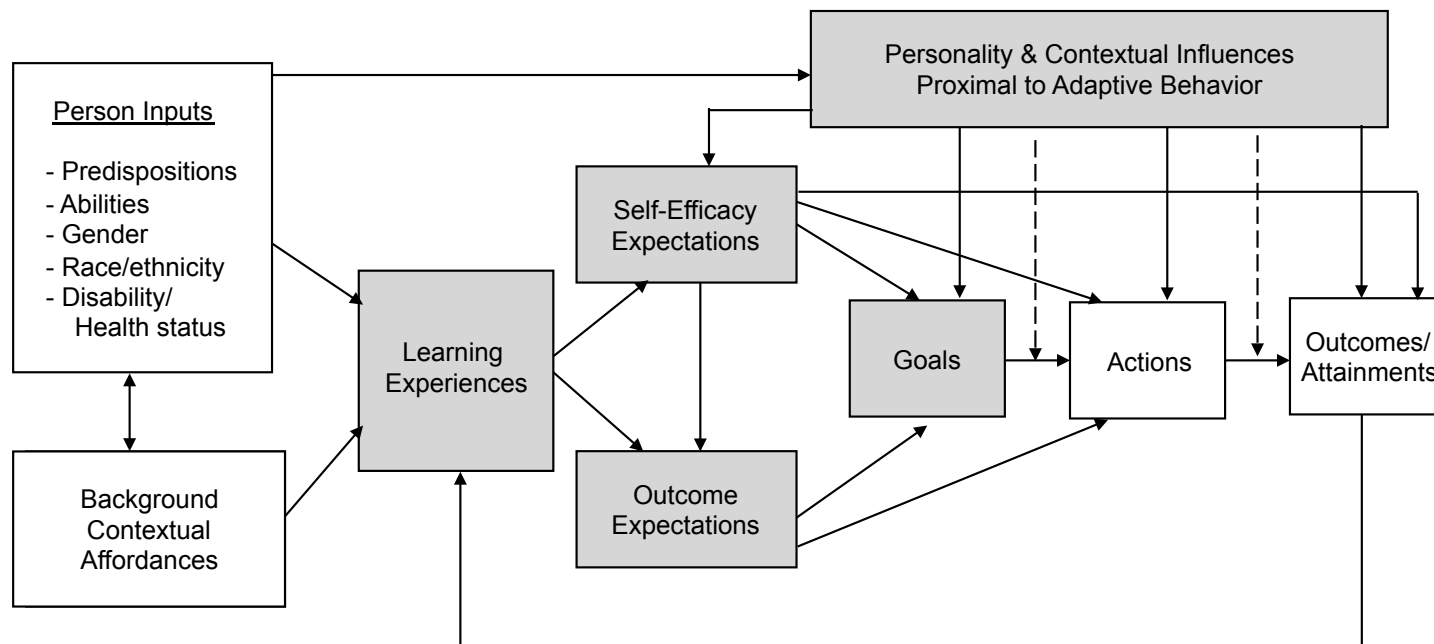


Figure 1. Model of Career Self Management. Variables shaded in gray are relevant to the present study. Reprinted from Lent, R. W. & Brown, S. D. (2013) with permission. Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. *Journal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

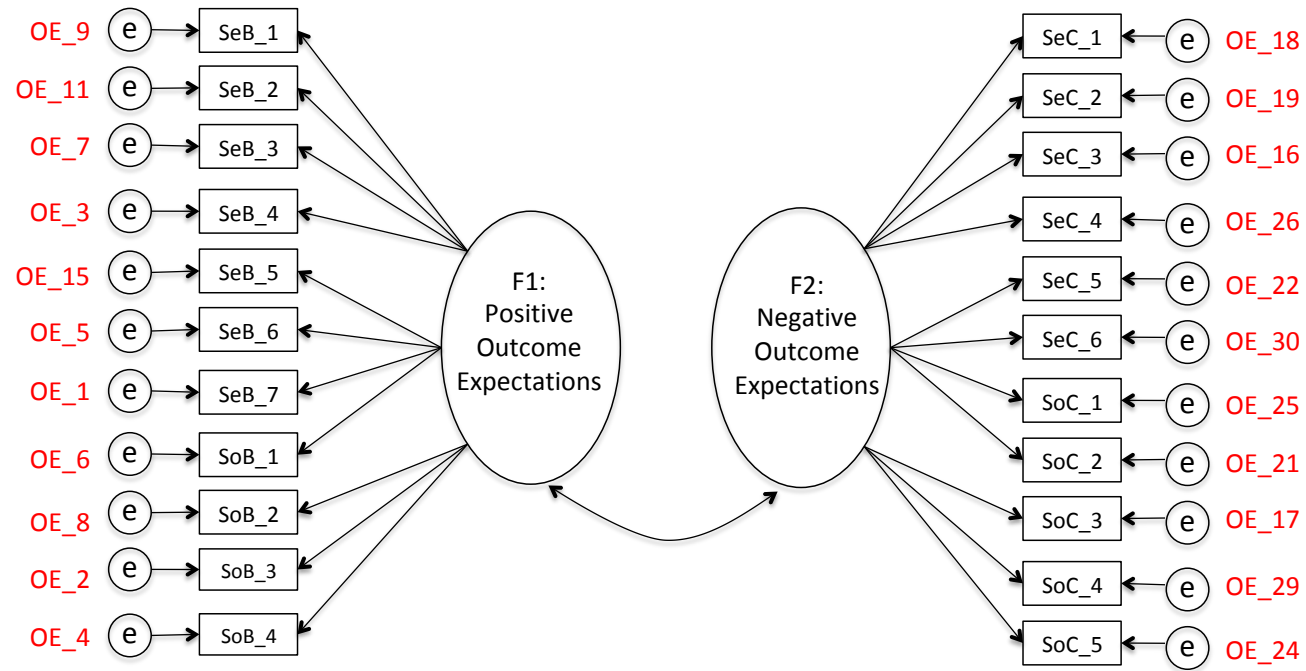


Figure 2. Two-Factor Model Tested in Confirmatory Factor Analysis. Red item numbers reflect items from the version of the scale in Appendix E.

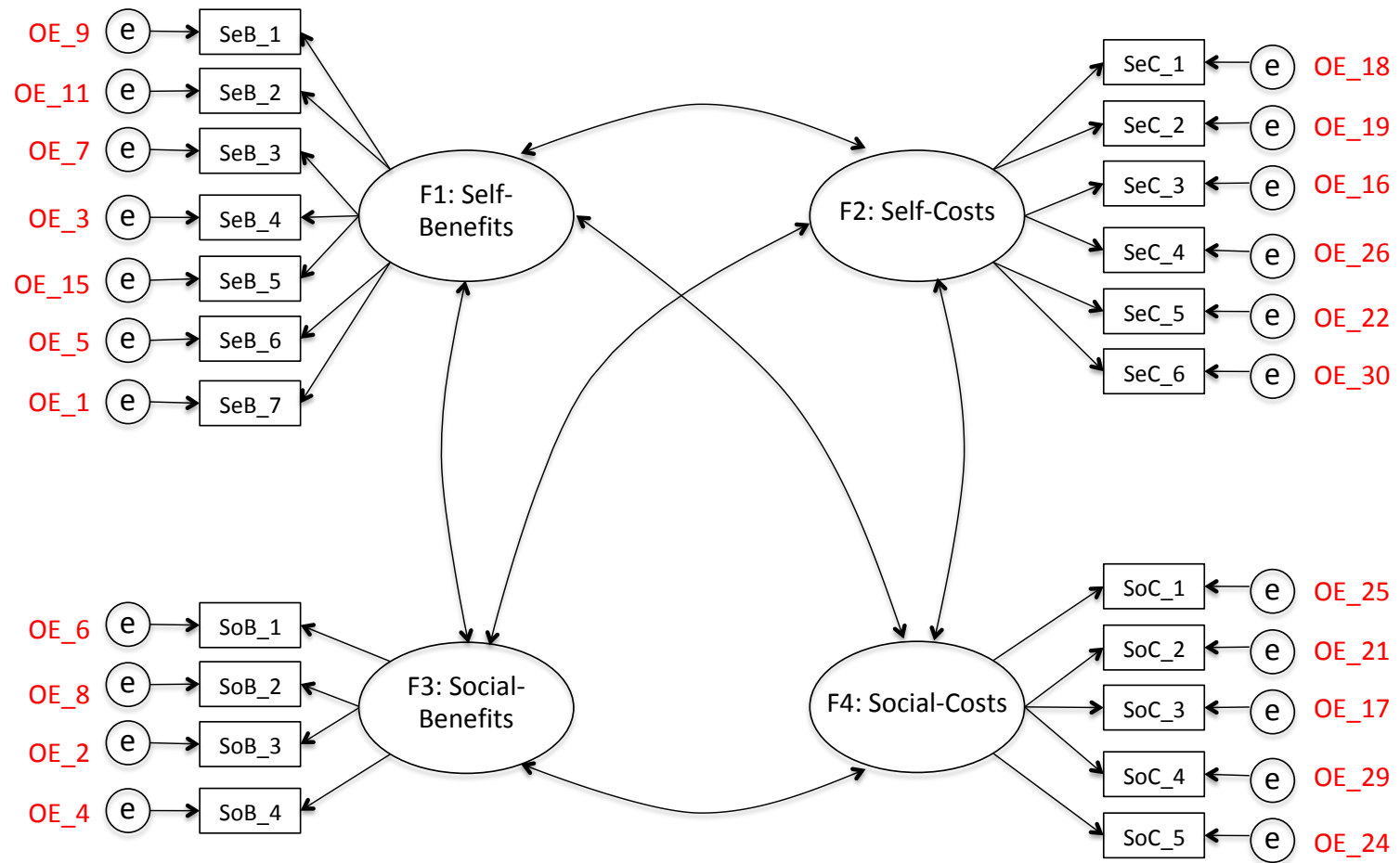


Figure 3. Four-Factor Model Tested in Confirmatory Factor Analysis. Red item numbers reflect items from the version of the scale in Appendix E.

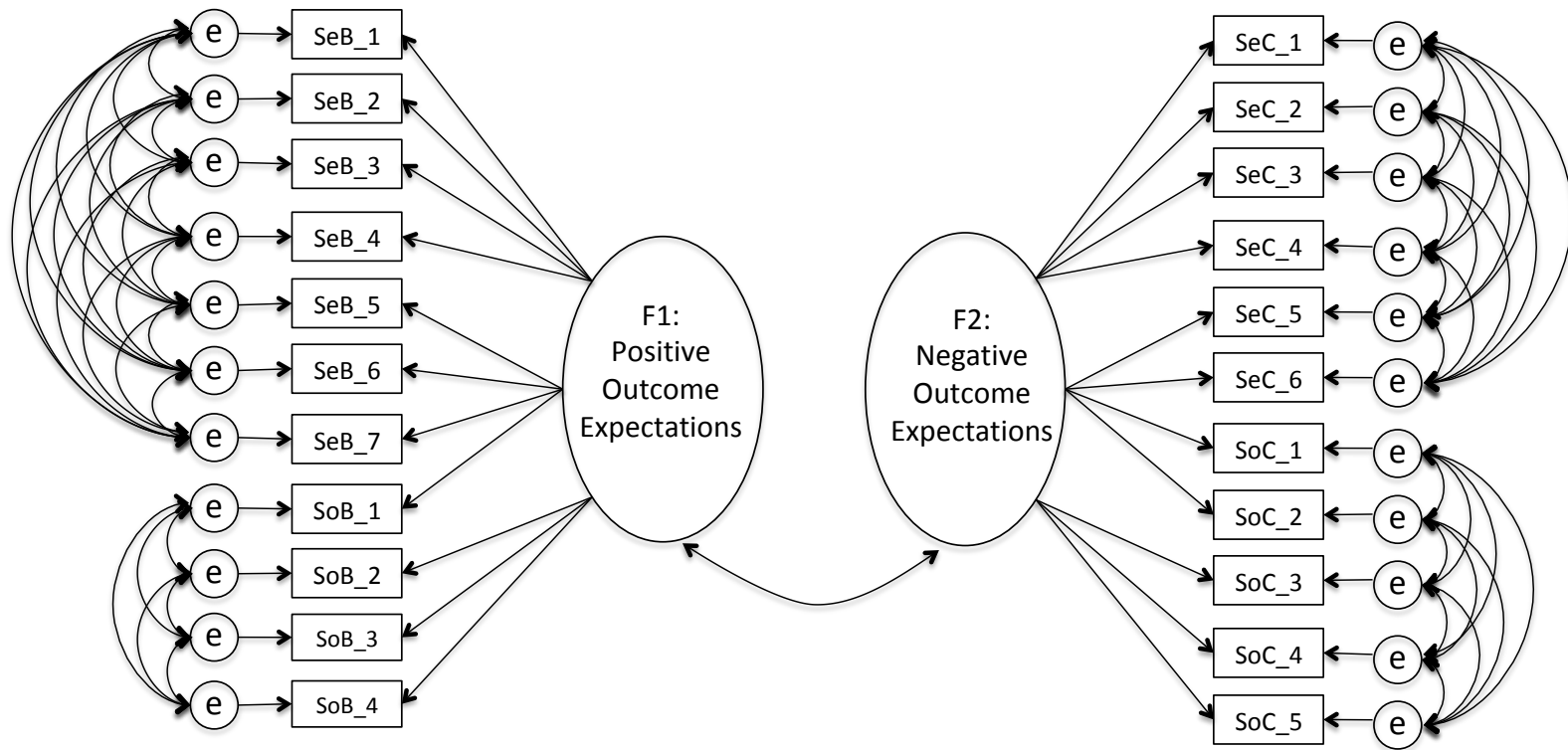


Figure 4: Multitrait Multimethod model (MTMM) with Correlated Uniqueness Tested in Confirmatory Factor Analysis.

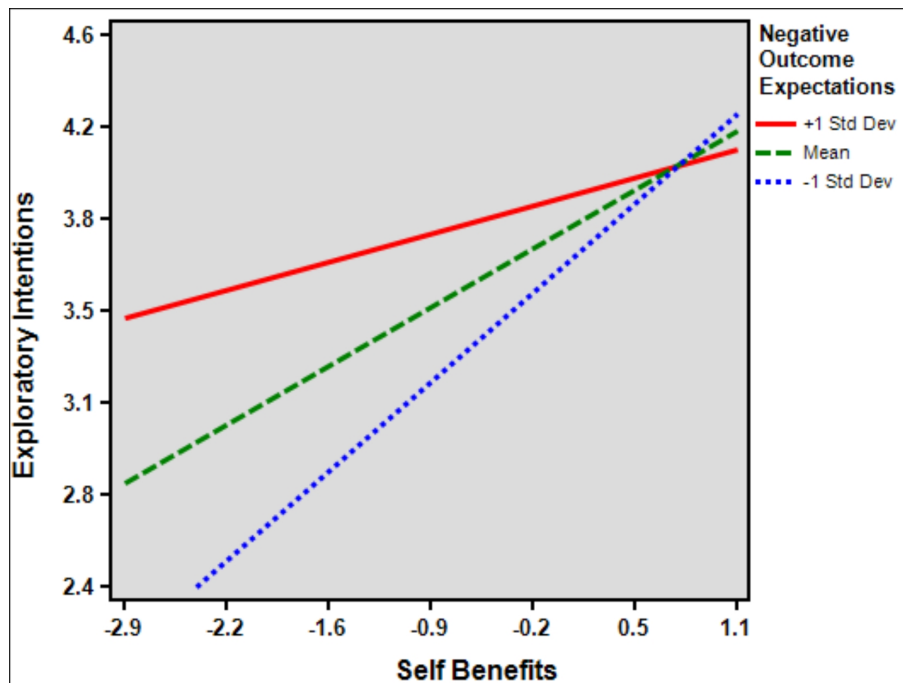


Figure 5. Negative outcome expectations as a moderator of the relation of Self Benefits to Exploratory Intentions.

Appendix A: Recruitment Materials for All Recruitment Methods

Initial Email Recruitment Letter for Registrar Listserv Recruitment Method:

***Receive a free University of Maryland drawstring backpack
after completing a brief survey!***



UNIVERSITY CAREER CENTER
& THE PRESIDENT'S PROMISE



Invitation to Participate in the *Career Exploration and Decision-Making Study*

Dear Student,

Are you in the process of exploring career directions or trying to decide on an academic major? Or have you made a tentative decision but aren't 100% sure yet? Or are you just starting to think about these kinds of decisions or maybe re-thinking your earlier plans?

If any of these questions describes your situation, the University Career Center & The President's Promise encourages you to take part in a study about your experiences as a first-year or second-year student. Regardless of how involved you are in career planning, and regardless of how decided you currently are on a career direction, your responses to the survey may be very helpful.

To participate, you would complete a *10-15 minute online survey*. **In return for completing the survey, you will be eligible to obtain a free University of Maryland drawstring backpack**, which can be picked up from the University Career Center & The President's Promise. At the end of the survey, you would just enter your email address to receive instructions and be eligible to pick up your item. Your survey responses will not be tied to your email address.

If you are at least 18 years old, in the process of making a decision on an academic major or career, and would like to participate in this study, please click on the link below. It will take you to an informed consent form and then to the research survey. Thanks in advance for considering this request! If you have any questions, feel free to contact our research lab at scct-lab@umd.edu.

You can access the *Career Exploration and Decision-Making* survey through the following secure URL:

<Insert Survey Link>

Note: This survey is best taken on a computer.

Please do not try to complete the survey more than once or share the survey link with anyone else. Please do not complete this survey if you have signed up to for the *Career Exploration and Decision-Making* survey through SONA at UMD.

Sincerely,

The Social Cognitive Career Lab
in collaboration with The University Career Center & The President's Promise

Follow-Up Email Recruitment Letter for Registrar Listserv Recruitment Method:

***Receive a free University of Maryland drawstring backpack
after completing a brief survey!***



UNIVERSITY CAREER CENTER
& THE PRESIDENT'S PROMISE



Note: **Please disregard this message if you have already participated in this project.**

Invitation to Participate in the *Career Exploration and Decision-Making Study*

Dear Student,

Are you in the process of exploring career directions or trying to decide on an academic major? Or have you made a tentative decision but aren't 100% sure yet? Or are you just starting to think about these kinds of decisions or maybe re-thinking your earlier plans?

If any of these questions describes your situation, the University Career Center & The President's Promise encourages you to take part in a study about your experiences as a first-year or second-year student. Regardless of how involved you are in career planning, and regardless of how decided you currently are on a career direction, your responses to the survey may be very helpful.

To participate, you would complete a *10-15 minute online survey*. **In return for completing the survey, you will be eligible to obtain a free University of Maryland drawstring backpack**, which can be picked up from the University

Career Center & The President's Promise. At the end of the survey, you would just enter your email address to receive instructions and be eligible to pick up your item. Your survey responses will not be tied to your email address.

If you are at least 18 years old, in the process of making a decision on an academic major or career, and would like to participate in this study, please click on the link below. It will take you to an informed consent form and then to the research survey. Thanks in advance for considering this request! If you have any questions, feel free to contact our research lab at scct-lab@umd.edu.

You can access the *Career Exploration and Decision-Making* survey through the following secure URL:

<Insert Survey Link>

Note: This survey is best taken on a computer.

Please do not try to complete the survey more than once or share the survey link with anyone else. Please do not complete this survey if you have signed up to for the *Career Exploration and Decision-Making* survey through SONA at UMD.

Sincerely,

The Social Cognitive Career Lab
in collaboration with The University Career Center & The President's Promise

Recruitment/Advertisement Language Presented to Students Accessing the Survey via SONA:

Title: Career Exploration and Decision-Making Study

Duration: 10-15 minutes

Credits: 0.5 credits

Description:

Dear Student,

Are you in the process of deciding on an academic major or a career direction? Have you thought about this process or begun to explore your options? Maybe you plan to do so, or maybe you are avoiding this process altogether. It's also possible that you've made a tentative decision but aren't 100% sure yet.

If any of these situations apply to you, you would be an excellent candidate for this research project.

The project is designed to examine the potential of several new or revised career exploration and decision-making scales, as well as assess the viability of a theoretical model of the career decision-making process. In return for your completing an online survey that should take about 10-15 minutes, you would receive .5 unit of experimental credit through the SONA system.

While the study is not designed to benefit you directly, you might find it helpful to think about the tasks involved in making career decisions that are mentioned on the scales. The scales we are developing may be used to better understand the decision-making process and, possibly, help future students to make academic major and career decisions.

If you are at least 18 years old, in the process of making a decision on an academic major or career, and would like to participate in this study, please click on the link, below. It will take you to an informed consent form and then to the questionnaire. Thanks in advance for considering this request!

You can access the *Career Exploration and Decision-Making Study* survey through the following secure URL: [Insert Study Link]

Sincerely,

Glenn Ireland, M.A.

Doctoral Candidate

Counseling Psychology Program

Appendix B: Informed Consent Forms for All Recruitment Methods

Informed Consent for Registrar Email Listserv Recruitment

CONSENT TO PARTICIPATE

Project Title	<i>Career Exploration and Decision-Making Study</i>
Purpose of the Study	<p><i>This research is being conducted by Glenn Ireland, M.A., and Robert W. Lent, Ph.D., 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, a first- or second-year undergraduate student, and may be in the process of deciding on a career or academic major.</i></p> <p><i>The purpose of this research is to assess the usefulness of a new measure of career exploration and decision-making beliefs, as well as test a theory of the career decision-making process. The survey includes several career-related measures that will enable us to examine factors that help students to make satisfying career decisions.</i></p>
Procedures	<p><i>The procedures of this study involve your completing a brief survey. It should require about 15-20 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. Two sample items are: "I see myself as someone who makes plans and follows through with them (Disagree strongly to Agree strongly)" and "How much confidence do you have in your ability to learn more about careers you might enjoy (No confidence at all to Complete confidence)?"</i></p>
Potential Risks and Discomforts	<p><i>There are no known risks associated with participating in this research study.</i></p>

Potential Benefits	<i>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.</i>
Confidentiality	<p><i>You will not be required to provide any information that may link your identity to your survey responses. Any potential loss of confidentiality will be minimized by collecting data via an online survey provider and storing responses 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 to access the data will only be granted to the investigators.</i></p> <p><i>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</i></p>
Compensation	<i>As a result of your participation, you will be eligible to claim a drawstring backpack from the University Career Center & The President's Promise. At the end of the survey, please be sure to follow a link to a separate page to enter your email address and receive instructions for picking up your item. Your email address will not be tied to your survey responses and will only be used to verify your participation in the survey, and to notify you about instructions for picking up your item at the University Career Center & The President's Promise in Hornbake Library, South Wing.</i>
Right to Withdraw and Questions	<i>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. However, the drawstring backpack is only available to</i>

	<p><i>those who complete the entire survey.</i></p> <p><i>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 contact the investigator:</i></p> <p style="text-align: center;">Glenn Ireland, M.A. 3214 Benjamin Building University of Maryland College Park, MD 20742 gireland@umd.edu (301)-405-2858</p>
Participant Rights	<p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p style="text-align: center;">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</p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p>
Statement of Consent	<p><i>By selecting your choice below you are indicating your right to consent or not consent electronically.</i></p> <p><i>Selecting “Yes, I Consent, am at least 18 years old” 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.</i></p> <p><i>If you do NOT wish to participate in this study or are not 18 years old, please select “No, I DO NOT Consent” and click “Continue” to decline participation.</i></p>

CONSENT TO PARTICIPATE

Project Title	<i>Career Exploration and Decision-Making Study</i>
Purpose of the Study	<p><i>This research is being conducted by Glenn Ireland, M.A., and Robert W. Lent, Ph.D., 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, and may be in the process of deciding on a career or academic major.</i></p> <p><i>The purpose of this research is to assess the usefulness of a new measure of career exploration and decision-making beliefs, as well as test a theory of the career decision-making process. The survey includes several career-related measures that will enable us to examine factors that help students to make satisfying career decisions.</i></p>
Procedures	<p><i>The procedures of this study involve your completing a brief survey. It should require about 15-20 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. Two sample items are: "I see myself as someone who makes plans and follows through with them (Disagree strongly to Agree strongly)" and "How much confidence do you have in your ability to learn more about careers you might enjoy (No confidence at all to Complete confidence)?"</i></p>
Potential Risks and Discomforts	<p><i>There are no known risks associated with participating in this research study.</i></p>
Potential Benefits	<p><i>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</i></p>

	<i>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.</i>
Confidentiality	<p><i>You will not be required to provide any information that may link your identity to your survey responses. Any potential loss of confidentiality will be minimized by collecting data via an online survey provider and storing responses 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 to access the data will only be granted to the investigators.</i></p> <p><i>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</i></p>
Compensation	<i>As a result of your participation, you will be eligible for .5 units of experimental credit.</i>
Right to Withdraw and Questions	<p><i>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.</i></p> <p><i>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 contact the investigator:</i></p> <p style="text-align: center;">Glenn Ireland, M.A. 3214 Benjamin Building University of Maryland College Park, MD 20742 gireland@umd.edu (301)-405-2858</p>

Participant Rights	<p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p>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</p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p>
Statement of Consent	<p><i>By selecting your choice below you are indicating your right to consent or not consent electronically.</i></p> <p><i>Selecting “Yes, I Consent, am at least 18 years old” 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.</i></p> <p><i>If you do NOT wish to participate in this study or are not 18 years old, please select “No, I DO NOT Consent” and click “Continue” to decline participation.</i></p>

CONSENT TO PARTICIPATE

Project Title	<i>Career Exploration and Decision-Making Study</i>
Purpose of the Study	<p><i>This research is being conducted by Glenn Ireland, M.A., and Robert W. Lent, Ph.D., 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, and may be in the process of deciding on a career or academic major.</i></p> <p><i>The purpose of this research is to assess the usefulness of a new measure of career exploration and decision-making beliefs, as well as test a theory of the career decision-making process. The survey includes several career-related measures that will enable us to examine factors that help students to make satisfying career decisions.</i></p>
Procedures	<p><i>The procedures of this study involve your completing a brief survey. It should require about 10-15 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. Two sample items are: "I see myself as someone who makes plans and follows through with them (Disagree strongly to Agree strongly)" and "How much confidence do you have in your ability to learn more about careers you might enjoy (No confidence at all to Complete confidence)?"</i></p>
Potential Risks and Discomforts	<p><i>There are no known risks associated with participating in this research study.</i></p>
Potential Benefits	<p><i>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</i></p>

	<i>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.</i>
Confidentiality	<p><i>You will not be required to provide any information that may link your identity to your survey responses. Any potential loss of confidentiality will be minimized by collecting data via an online survey provider and storing responses 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 to access the data will only be granted to the investigators.</i></p> <p><i>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</i></p>
Compensation	<i>As a result of your participation, you will be eligible for compensation through Qualtrics Online Sample and Research Services valued at up to \$2.00.</i>
Right to Withdraw and Questions	<p><i>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.</i></p> <p><i>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 contact the investigator:</i></p> <p style="text-align: center;">Glenn Ireland, M.A. 3214 Benjamin Building University of Maryland College Park, MD 20742 gireland@umd.edu (301)-405-2858</p>

Participant Rights	<p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p>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</p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p>
Statement of Consent	<p><i>By selecting your choice below you are indicating your right to consent or not consent electronically.</i></p> <p><i>Selecting “Yes, I Consent, am at least 18 years old” 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.</i></p> <p><i>If you do NOT wish to participate in this study or are not 18 years old, please select “No, I DO NOT Consent” and click “Continue” to decline participation.</i></p>

Appendix C: Survey Instructions

General Survey Instructions

Thank you for consenting to participate in the Career Exploration and Decision-Making Study. We have developed several scales to measure different aspects of career exploration and decision-making, such as your beliefs about this process, the things you have done, or may do, to help you to choose a career direction, and the decision-making resources you have available to you.

This is a measurement development study, so **you may see some items that look very similar, but are actually different**. This is because this study will help us to identify the best way to ask these questions. **Please read carefully and respond as best you can to each item based on your interpretation.**

Please answer each question honestly and carefully. If you do not wish to complete the entire survey, you may close your browser at any time without penalty, but the opportunity for compensation can only be earned by completing the entire survey.

Thank you once again!

Appendix D: The Career Exploration and Decision-Making Outcome Expectations Scale (Pilot Version)

Instructions: These items involve your beliefs about the pros and cons of engaging in career exploration and decision-making activities. These activities can include, for example, gathering career information online or through interviews, talking with trusted family or advisors, spending time thinking about which career options would best fit your interests, considering the career paths that different academic majors could lead to, or taking other steps aimed at finding a career path for yourself.

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

Spending time exploring my career (and academic major) options, and taking steps to make a career-related decision will most likely...

Positive-Physical

1. ...lead to a feeling of excitement.
2. ...help me feel less stressed out.
3. ...allow me to feel a sense of relief.
4. ...be energizing for me.
5. ...help me to feel more secure and stable.
6. ...reassure me that I will graduate on time.
7. ...help me to feel more calm about my future.

Positive-Social

8. ...please my family members.
9. ...help me to meet my parents' expectations of me.
10. ...help me feel like I fit in more among my peers.
11. ...assure financial security for me in the future.
12. ...help me to support my family in the future.
13. ...help me to show others I am "on the right track" in life.

Positive-Self-Evaluative

14. ...lead to a satisfying career for me in the future.
15. ...provide a greater sense of purpose in my academic studies.
16. ...lead to a personally meaningful career.
17. ...give me a personal sense of accomplishment and achievement.
18. ...increase my confidence in my decision.
19. ...help me feel good about myself.

Spending time exploring my career (and academic major) options, and taking steps to make a career-related decision will most likely...

Negative-Physical

- 20. ...require facing my feelings of uncertainty.
- 21. ...be stressful and overwhelming for me.
- 22. ...be frustrating because of outside factors restricting my career options
- 23. ...feel like a waste of time and energy for me.
- 24. ...cause me to feel anxious about making the wrong career decision.
- 25. ...make me worry that I'll regret my current career decision.
- 26. ...feel too burdensome because of my current schedule.

Negative-Social

- 27. ...mean admitting to others that I don't have a plan yet for my career.
- 28. ...lead to conflicts between my family and myself.
- 29. ...be too much for me because of the family responsibilities I have.
- 30. ...bring up difficult choices between my work and family values.
- 31. ...mean dealing with conflicting values I have (e.g., choosing between a high-paying career versus a career that will allow me to help others).
- 32. ...mean facing discrimination or bias in what I want to pursue.
- 33. ...risk increasing my student debt beyond what I can pay.

Negative-Self-Evaluative

- 34. ...make me worry that I am not a good decision-maker.
- 35. ...lead to a dissatisfying career for me.
- 36. ...bring up self-doubt about whether I'm qualified to pursue certain career options.
- 37. ...make me feel bad about myself for not having it all figured out already.
- 38. ...require giving up on my first choice for a career.
- 39. ...make me feel like I am a failure for not being able to pursue careers I want.

Appendix E: The Career Exploration and Decision-Making Outcome Expectations Scale (Revised Version)

Instructions: This scale is concerned with your beliefs about the pros and cons of engaging in career exploration and decision-making activities, which can also include exploring and deciding on academic majors.

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

If I were to spend time exploring different careers and deciding on a career path, I would most likely...

Benefits

- 1...Feel better about the direction my life is taking.
- 2...Make my friends or loved ones happy.
- 3...Clarify what it is I want from a career.
- 4...Help other people in my life to see me as responsible.
- 5...Increase my chances of making a better career decision.
- 6...Get approval from friends and family about the direction my life is taking.
- 7...Feel good about myself.
- 8...Find career options that reflect well on my family.
- 9...Come up with career options that I am passionate about.
- 10...Help my family to feel that I am using my time in school wisely.
- 11...Have a sense of accomplishment and achievement.
- 12...Feel more at ease among my peers who have already made a career decision.
- 13...Find ways to “stay on track” academically.
- 14...Receive support and encouragement from important others.
- 15...Feel more secure and stable about who I am.

Self: 1, 3, 5, 7, 9, 11, 13, 15

Social: 2, 4, 6, 8, 10, 12, 14

**If I were to spend time exploring different careers and deciding on a career path,
I would most likely...**

Costs

- 16...Feel stressed and overwhelmed by the process.
- 17...Face difficult choices between my work and family values.
- 18...Feel lost because I don't know where to start.
- 19...Worry that I'll end up wasting time or money on the wrong decision.
- 20...Lose valuable time that I could be spending on my studies.
- 21...Be afraid of disappointing my family based on the career options I consider.
- 22...Become more uncertain about the direction I want to take.
- 23...Feel pressure from others to have it all figured out already.
- 24...Be frustrated because of outside factors restricting my career options.
- 25...Experience conflict between what I want to do and what important others in my life want me to do.
- 26...Worry about making a decision I'll later regret
- 27...Feel alone in the process of making a decision.
- 28...Need to make difficult choices (e.g., between careers I would prefer to do and ones that might offer better pay)
- 29...Risk that important others in my life will get impatient with me.
- 30...Face pressure to decide too quickly because of academic requirements.

Self: 16, 18, 20, 22, 24, 26, 28, 30

Social: 17, 19, 21, 23, 25, 27, 29

**Appendix F: Betz and Voyten's Career Decision-Making Outcome Expectancies
Scale (Betz & Voyten, 1997; Lent et al., 2016)**

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 G: Career Exploration and Decisional Self-Efficacy – Brief Decisional Scale (CEDSE-BD; 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 H: Career Exploration and Decision-Making Learning Experiences Scale (Ireland & Lent, 2018)

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. I have done a good job of weighing the positives and negatives of different options when I have had to make career-related decisions.
4. I have observed people I admire who are resourceful at gathering the information they need to make career-related decisions.
5. Important others (e.g., family, friends, teachers, mentors) have let me know that I am resourceful when it comes to gathering information needed to make career-related decisions.
6. I have been good at putting my career-related decisions into action.
7. I have role models who are knowledgeable about how their interests and abilities fit different career options.
8. 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.
9. 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.
10. I have been resourceful at gathering the information I need to make career-related decisions.
11. I have role models who have explained to me how they chose an academic major or career path.
12. Important others have let me know that I am good at managing challenges that arise when making career-related decisions.

Mastery Experiences – Items 1, 3, 6, 10
Verbal Persuasion – Items 5, 8, 9, 12
Vicarious Learning – Items 2, 4, 7, 11

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

- 13. ...Upset
- 14. ...Nervous
- 15. ...Determined
- 16. ...Inspired
- 17. ...Afraid
- 18. ...Active
- 19. ...Overwhelmed
- 20. ...Excited

Negative Emotional Arousal – Items 13, 14, 17, 19

Positive Emotional Arousal – Items 15, 16, 18, 20

**Appendix I: Influence of Others on Academic and Career Decision Making Scale
(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 J: Career Decision-Making Exploratory Intentions Scale (Betz & Voyten, 1997; Lent et al., 2016)

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 K: Optimism/Pessimism - Life Orientation Test – Revised (Scheier et al., 1994)

Instructions: Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

Please rate your agreement with the following statements.

I disagree a lot	I disagree a little	I neither agree nor disagree	I agree a little	I agree a lot
1	2	3	4	5

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will. (R)
4. I'm always optimistic about my future.
5. I enjoy my friends a lot.
6. It's important for me to keep busy.
7. I hardly ever expect things to go my way. (R)
8. I don't get upset too easily.
9. I rarely count on good things happening to me. (R)
10. Overall, I expect more good things to happen to me than bad.

Pessimism: 3, 7, and 9

Optimism: 1, 4, and 10

Unidimensional Optimism: 1, 4, 10, and reverse-scored items 3, 7, and 9

Filler Items: 2, 5, 6, and 8

Appendix L: Demographics

Instructions: Please answer the following questions about yourself.

1. Age: _____
2. Year in school:
☐ Freshman ☐ Sophomore
☐ Junior ☐ Senior
☐ Other (please specify) _____
3. Gender Identity: _____
4. Race/Ethnicity:
☐ Black or African American ☐ Hispanic American or Latino/a
☐ White or European American ☐ Asian/Pacific Islander-American
☐ Native American ☐ Multiracial
☐ Other (please specify) _____
5. Are you a member of any of the following groups (SELECT ALL THAT APPLY):
☐ Transfer student ☐ Freshman Connection
☐ Honors program ☐ Student-Athlete
☐ First-Generation College Student ☐ Student-Veteran
6. Current or intended academic major (please specify) _____
7. Have you ever been prevented from pursuing your first-choice of academic major due to not meeting qualifications for the program of study?
 - a. Yes
 - b. No
8. What occupation do you expect to have when you complete college? _____
9. 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

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

10. 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.

11. 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

12. How decided about your *academic major* are you at this time?

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

13. 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 M: Additional Screening and Demographics Questions for Respondents in Qualtrics Research Services Sample

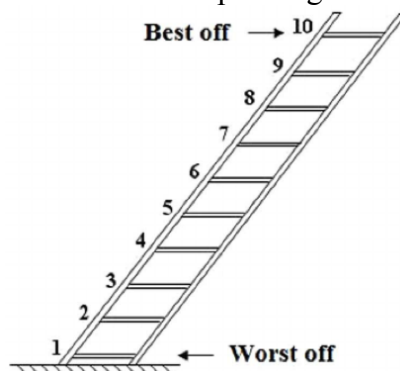
Screening Criteria Questions:

1. Please enter your current age: _____
2. Are you currently a full-time student, enrolled at a four-year college or university? (Yes/No)
3. Are you in the process of making a decision (or reconsidering an earlier decision) on an academic major and/or career path? (Yes/No)

Note: Participants were screened out if their entered age in question 1 was not 18-20, if they entered “No” for question 2, or if they entered, “No” for question 3.

Additional Demographic Items:

1. Imagine that this ladder pictures how American society is set up. At the **top** of the ladder are the people who are the best off—they have the most money, the highest amount of schooling, and the jobs that bring the most respect. At the **bottom** are people who are the worst off—they have the least money, little or no education, no job or jobs that no one wants or respects. Now think about your own standing. Please tell us where you think you would be on this ladder. Use the slider below corresponding to the rungs of the ladder.



(Participants ranked their position as 1 through 10 on the ladder).

2. What is your family's annual household income?
 - a. \$0 - \$24,999
 - b. \$25,000 - \$49,999
 - c. \$50,000 - \$74,999
 - d. \$75,000 - \$99,999
 - e. \$100,000 - \$149,999
 - f. \$150,000 - \$199,999
 - g. Greater than \$200,000
3. In which region of the United States do you reside?
 - a. Midwest
 - b. Northeast
 - c. Southeast
 - d. Southwest
 - e. West

Appendix N: Extended Literature Review

Outcome expectations, the anticipated rewards or consequences a person believes are likely from attempting a given course of action, have received attention for many years in the context of cognitive learning and expectancy-value theories (Ajzen, 1991; Ajzen & Fishbein, 1980; Bandura, 1977, 1997; Vroom, 1964). More recently, they have also been conceptualized within social cognitive frameworks like Social Cognitive Career Theory (SCCT; Lent & Brown, 2013; Lent, Brown, & Hackett, 1994). Bandura (1977, 1986, 1997), whose Social Cognitive Theory underlies the SCCT framework, outlined his view of outcome expectancies in relation to self-efficacy, or the confidence one has to achieve a particular level of performance in a given behavior. Though Bandura critiqued some learning theories for their lack of attention to self-efficacy, he posited that self-efficacy was closely tied to outcome expectations, because the outcomes someone expects from a given behavior likely depend on the confidence they have to achieve success when they attempt action.

Bandura (1997) maintained that outcome expectations could be both positive, propelling people toward action, and negative, discouraging action. He organized outcomes into three categories, including physical effects, social effects, and self-evaluative reactions. Physical outcomes constitute the experience of physical sensations like pleasure, pain, or discomfort. Social outcomes include judgment from peers, parents, and significant others, as well as the societal-level conferral of material rewards, status, and power. Self-evaluative effects include the internal sense of self-satisfaction or dissatisfaction. Presumably, a person planning goals to organize a set of actions would consider both their confidence in the tasks (self-

efficacy), as well as the physical, social, and self-evaluative outcomes they believe are likely from their actions.

This concept of outcome expectations also closely maps onto the theory of planned behavior, which attempts to showcase how individuals form intentions for performing a given behavior (e.g., Ajzen, 1991; Ajzen & Fishbein, 1980). In this theory, *attitudes* toward a given behavior are presumed to be a global evaluation of the favorability or un-favorability of a course of action, and thus, a key predictor of an individual's intentions for action (conceptually identical to setting goals).

Underlying attitudes are a variety of *salient beliefs* about the likely consequences of a given behavior. Each belief would have both an outcome evaluation (an appraisal of how positive or negative the particular outcome is to the individual), and strength (a measure of how strongly the individual believes the outcome is to occur from completing the behavior in question). Thus, attitudes and salient beliefs contain similar features to Bandura's (1997) definition of outcome expectations.

Bandura (1997) argued that outcome expectations should be measured in a specific domain or context for their effect to be most apparent. For example, when considering the domain-specific actions individuals take to explore and make decisions about their career options, the outcomes ought to be directly connected to these actions (e.g., the praise anticipated from significant others for taking appropriate career exploration steps, or the anxiety anticipated from making career choices). These outcomes are tied to the behaviors of the career exploration and decision-making process, and while related, may be different from the outcomes anticipated from choosing a specific path (e.g., the financial outcomes expected from pursuing a

career field like engineering). This is the distinction that various SCCT models have made between process domains (e.g., the process of exploring and deciding upon a career) versus content domains (e.g., the choice of a STEM career) (see Lent & Brown, 2013).

In addition to being domain specific, outcome expectations have a personal context that determines their potency in directing a person's behaviors. The more an individual values (or dislikes) the particular outcome they expect, the stronger likelihood they will set consistent goals and, eventually, orchestrate career decision-making actions (or inaction). Indeed, Lent and Brown (2006) suggested a conceptual overlap between outcome expectations and traditional work values. This reality can make the measurement of outcome expectations challenging because individuals may weight outcomes differently, yet many measures of outcome expectations do not tap individual's value preferences in this way. This may be of practical concern because asking individual's to rate both the likelihood of particular outcomes (as is commonly done) *and* the valence is tedious. Additionally, though a multiplicative composite score (i.e., likelihood x valence) may best reflect outcome expectations conceptually, the scoring systems for likelihood and valence ratings (when multiplied) may complicate the interpretability of correlations between the resulting composite scores and other variables (French & Hankins, 2003). Though outcome expectation measures generally assess only likelihood, as the proposed measure in this study has done, they tend to perform in theoretically expected ways (Lent & Brown, 2006).

Bandura (1997) was careful to distinguish the specified levels of *performance* an individual expects to achieve from the *outcomes* expected to follow from that

performance. In this performance/outcome distinction, the “markers” of performance (e.g. the letter grade achieved on a mathematics exam) are separate from the potential outcomes being assessed (e.g., the social praise from getting an “A”, or the shame anticipated from doing poorly). In domains where performance is closely linked to outcomes and where success is clearly defined, Bandura believed self-efficacy would largely be determinative of the resulting outcomes. However, in a domain where completing certain actions is not directly linked to success, or where success is more ambiguous (such as in the case of career exploration and decision making), outcome expectations may play a more important role in determining the goals an individual sets and the actions they take (Lent et al., 2016).

In addition to the ambiguity of outcomes in some domains, Bandura (1997) also tried to delineate notions about locus of control when thinking about outcome expectations, mainly from the work of Rotter (1966). Importantly, some individuals believe their actions influence outcomes, while others view outcomes as more externally determined. This raises considerations about the way structural forces, which distribute opportunity and resources in unequal ways, shape outcomes differently for members of marginalized groups. Bandura explained that while social systems may just not have arrived yet at positive solutions, “More often... they are negatively biased against certain classes of people but promote and reward the competencies of the members they favor” (p. 19). In measuring outcome expectations in SCCT, Lent and Brown (2006) echo these considerations, suggesting for example that, “[The] anticipation of negative consequences—like discrimination, loneliness, social disapproval, or difficulty in negotiating work/family roles—may

help to explain why many people avoid career options that are gender-typed for the opposite sex” (p. 28). Thus, outcome expectations related to career exploration and decision-making may be partly influenced by one’s social location.

Beyond considering more distal factors like race, gender, and social class, which SCCT views as impacting access to career-relevant learning experiences, the CSM model also proposes that proximal, contextual affordances and environmental barriers directly relate to an individuals’ self-efficacy and outcome expectation appraisals. Fouad and Guillen (2006), in addition to their calls for further outcome expectation measure development, also pointed to the importance of extrapolating the relations of supports and barriers to outcome expectations. Indeed, researchers have examined how supports and barriers (e.g., perceived educational barriers) have been linked to positive outcome expectations in the domain of career exploration and decision-making (e.g., Lent et al., 2016; McWhirter et al., 2000a). However, researchers have generally failed to assess negative outcome expectations or their relations to supports and barriers.

Drawing from Bandura’s (1997) conceptualization, the measurement of outcome expectations should be domain-specific, take into account both positive and negative outcomes, consider each of the three different classes of anticipated outcomes (physical, social, self-evaluative), and not mistake the markers of performance for the types of outcomes being assessed. In addition, the measurement of outcome expectations may be most informative (beyond self-efficacy) where success in the task at hand, or the path toward success, is ambiguous. Finally, sociocultural and structural forces are also likely to have an effect on the self-efficacy

one feels as well as on the outcomes they anticipate from taking action within a given domain.

Social Cognitive Career Theory and Career Self-Management

Following Bandura's seminal work (1977, 1997), several researchers have pursued the application of social cognitive theory in career-related domains (Betz & Hackett, 1981; Lent et al., 1994). This line of research eventually led to the development of a series of social cognitive career models (Lent et al., 1994, 2000; Lent & Brown, 2008), including the most recent career self-management model (Lent & Brown, 2013). It is this most recent model that includes the domain of career exploration and decision-making, the domain of interest in the current study. The SCCT CSM model and extant literature retained Bandura's focus on self-efficacy, and existing findings showcased the relation of career decision-making self-efficacy to important career outcomes like career decidedness, indecision, and decisional anxiety (e.g., Choi et al., 2012). Bandura's beliefs about the sources of self-efficacy have also been born out in this domain, with studies focused on the learning experiences that inform career exploration and decision-making self-efficacy appraisals (Ireland & Lent, 2018; Lent et al., 2017).

SCCT and the CSM model extend Bandura's (1997) hypotheses about the sources of self-efficacy by proposing that learning experiences ought to inform outcome expectations as well as self-efficacy beliefs (Lent et al., 1994). That is, the mastery experiences, vicarious learning opportunities, verbal persuasion, and affective arousal experiences related to past attempts at career exploration and decision-making likely play a role in shaping the outcomes that are anticipated to

result from similar future actions. Like other SCCT models, learning experiences in CSM model inform *both* self-efficacy and outcome expectations. These two factors jointly predict an individual's goals (or intentions) and eventual actions to undertake career exploration tasks, and to persevere through setbacks. SCCT also includes a range of proximal and distal factors that influence the variables and relationships in the model, including person-level factors like race, gender, and personality, as well as environmental factors like social supports and barriers. Figure 1 presents an overview of the SCCT CSM model in the domain of career exploration and decision-making.

Research applying the CSM model to the domain of career exploration and decision-making has largely included high school and college-aged students, and has generally supported the model's major propositions (Betz & Vuyten, 1997; Ireland & Lent, 2018; Lent et al., 2016, 2017; Rogers et al., 2008; Rogers & Creed, 2011). Specific to the construct of outcome expectations, meta-analysis of literature involving the career decision-making self-efficacy construct has revealed support for the key relationship hypothesized between self-efficacy and outcome expectations ($r_c = .49, p < .001$; Choi et al., 2012).

Interestingly, in the relationship between outcome expectations and goals (operationalized as career exploratory intentions), a few studies have found a stronger relationship than the relationship between self-efficacy and exploratory intentions (Betz & Vuyten, 1997; J.-T. Huang & Hsieh, 2011; Lent et al., 2016), and at times, self-efficacy has not produced a significant relationship to goals in path analysis (Lent et al., 2017). Given the role that intentions are expected to play in fostering adaptive

career behaviors, this strong outcome expectations-intentions link may offer a rationale for studying negative outcome expectations, and for exploring how negative outcome expectations might interact with self-efficacy and positive outcome expectations in predicting intentions.

Some SCCT model relationships involving outcome expectations have shown mixed findings. For example, two studies found that outcome expectations were not a significant predictor of career exploration and planning actions among Australian high school students (Rogers et al., 2008; Rogers & Creed, 2011). Gushue and Whitson (2006) found that teacher support was related to outcome expectations among African American high school students, but that parent support and ethnic identity were not significantly related to outcome expectations. While self-efficacy is often the central predictor in SCCT studies, researchers have also noted the need to include outcome expectations more explicitly in studies focused on career indecision (Creed et al., 2007; Fouad & Guillen, 2006).

Recent efforts in this domain have also called into question the way in which outcome expectations are operationalized (Ireland & Lent, 2018). Though finding support for proposed relationships involving outcome expectations, Lent et al. (2016, 2017) and Ireland and Lent (2018) have observed smaller than expected relationships between self-efficacy and outcome expectations among college students, and pointed to problems with the way outcome expectations have been assessed in this domain. These problems with existing measures include easily endorsable items, positively skewed and leptokurtic scale scores, and failure to assess negative outcomes beliefs.

Researchers calling for attention to measurement issues and underscoring the importance of outcome expectations as a variable in social cognitive career theory is not a new phenomenon. Fouad and Guillen (2006) provided the most complete overview of theoretical, conceptual, and empirical issues related to outcome expectations in career domains, calling for future measurement design focused on Bandura's (1997) theoretical propositions about outcome expectations, and the exploration of the role of outcome expectations in career exploration and decision-making among diverse groups of people. At the time, the authors called for further domain-specific measurement development that incorporated Bandura's three outcome classes and considered *both* positive and negative outcomes. In addition, they called for studies investigating the overlap of outcome expectations with related constructs in the domain of career decision-making, an attention to the sources of outcome expectations, the examination of relationships between career supports and barriers and outcome expectations, and interventions designed specifically to address outcome expectations.

Existing Measures of Outcome Expectations

Since the time of Fouad and Guillen's (2006) article, there have been several new and revised outcome expectation scales, as well as qualitative studies that have expanded upon the classes of anticipated outcomes. This section will explore the two main approaches to outcome expectation measurement in the context of career exploration and decision making (Fouad et al., 1997; McWhirter et al., 2000a), as well as consider alternative attempts at measuring this construct.

Career Decision-Making Outcome Expectancy scale (CDMOE)

One of the most common measures used to assess career exploration and decision making outcome expectations was derived from an outcome expectations measure designed to assess middle school students outcome expectations for math and science career choices (Fouad et al., 1997). Betz and Vuyten (1997) modified the original items from that scale to place the focus on outcomes expected from educational efforts (five items) and career exploration actions (four items) in their Career Decision-Making Outcome Expectancy scale (CDMOE). Sample career exploration items included, “If I spend enough time gathering information about careers, I can learn what I need to know when I make a decision,” and “If I know my interests and abilities, then I will be able to choose a good career for me.” The nine-item scale asks respondents to rate their agreement with the scale items from *strongly disagree* (1) to *strongly agree* (5), and scores are summed to create a total scale score. Higher scores reflect more positive outcome expectations.

The Betz and Vuyten (1997) scale follows an “If-Then” item structure used in outcome expectation measurement practice in other domains, for example in the choice of mathematics career field (Lent et al., 1991). Because researchers have used this type of item structure in other domains, the practice has gained acceptance through historical precedent and been utilized in career choice (Fouad et al., 2002; Gore & Leuwerke, 2000), educational achievement (Flores et al., 2008), and research involvement domains (Bieschke, 2000).

It should be noted that the If-Then structure creates a burden on measurement developers to name both the actions and anticipated outcomes in the domain of

interest (i.e., If-Action, Then-Outcome). To adequately measure the construct, a researcher must assume that the actions sampled are comprehensive (i.e., all of the most relevant actions are assessed), or that the actions are phrased broadly enough so as to encompass a wide range of approaches. It is possible that writing items in this way may privilege or bias certain ways of approaching career decision making, including certain decision making styles (Appelt et al., 2011; Dewberry et al., 2013), neurobiological aspects (cf. Krieschok et al., 2009), and cultural values considerations (Hofstede, 2001).

The If-Then sentence structure similarly requires comprehensive sampling of the outcomes of interest. Fouad and Guillen (2006) pointed out that the Betz and Voyten (1997) measure only emphasizes symbolic outcomes (e.g., “I will make a better career decision”) and does not explicitly tap Bandura’s (1997) physical, social, and self-evaluative categories. In addition, this symbolic outcome may confuse the immediate outcomes that follow career exploration actions (e.g., social approval, pride in self) with the longer term, ambiguous markers of making a career choice (i.e., believing that one has made a good choice, based on events that may take years to unfold and that are not entirely under agentic control).

Despite these shortcomings, the measure has been used in similar lines of research among high school and college students, including among rural and Appalachian youth, Latino immigrants, and students in Taiwan (Ali et al., 2011; Ali & Menke, 2014; Ali & Saunders, 2009; Betz & Voyten, 1997; J.-T. Huang & Hsieh, 2011; Ireland & Lent, 2018; Lent et al., 2016, 2017; Tansley et al., 2007). Each of these studies has used the CDMOE, though some have included both academic and

career outcome expectations, while others have just focused on the career-specific outcome expectations. In a more recent series of studies of the career exploration and decision-making process, Lent et al. (2016) expanded upon the Betz and Vuyten (1997) measure, increasing the number of career-focused items from 4 to 8. Cross-sectional findings have shown that the CDMOE scale is correlated as expected with domain-specific self-efficacy ($r = .31$ to $.61$) and goals ($r = .48$ to $.67$). Also consistent with SCCT, researchers have found correlations between outcome expectations and environmental supports and barriers (Ali & Saunders, 2009; Lent et al., 2016; Tansley et al., 2007).

Using regression and path analyses, several SCCT variables have been found to predict outcome expectations; these include self-efficacy, social supports, and learning experiences (Ireland & Lent, 2018; Lent et al., 2016, 2017). The amount of explained variance has been somewhat lower than expected (R^2 ranges from .19 to .33), especially compared to the prediction of self-efficacy. This may suggest that some important predictors have been missing or that there are problems with the ways in which outcome expectations have been assessed (Ireland & Lent, 2018).

Using the CDMOE measure in the prediction of goals (often operationalized as either exploratory intentions or more distal career aspirations), the amount of explained variance has ranged from 25% to 52%. Like the initial Betz and Vuyten (1997) study, others have often found that outcome expectations are a stronger individual predictor of exploratory intentions than is self-efficacy (or, that outcome expectations produce a stronger beta weight when both predictors are included) (J.-T. Huang & Hsieh, 2011; Ireland & Lent, 2018; Lent et al., 2016, 2017). However,

some studies have also found that self-efficacy explained more of the predictive variance (Ali & Saunders, 2009) or that neither self-efficacy nor outcome expectations explained significant variance in intentions (Ali & Menke, 2014).

In one experimental study, Tansley et al. (2007) used a written message about career exploration designed to prompt a sample of 126 college students to take exploration and decision-making action. The message was conceptualized as a type of learning experience (verbal persuasion) and three groups were evaluated for changes in exploratory intentions and exploratory behaviors based on message framing (gain-framed message, loss-framed message, control group). The gain-framed message focused on the benefits of proactive career exploration, and the loss-framed message focused on the negative outcomes of failing to take action. The control message simply referenced academic success strategies without tapping into career exploration and decision-making constructs. In the study, outcome expectations was correlated with exploratory intentions ($r = .55, p < .01$) and exploratory behaviors ($r = .28, p < .01$). Those receiving a persuasive message (gain- or loss-framed) experienced gains in outcome expectations, exploratory intentions, and behaviors (but not in self-efficacy) compared to the control group, regardless of message framing. While message framing (positive vs. negative) did not have significantly different effects on outcome expectations or intentions, those receiving a loss-framed message reported more exploratory behaviors in the week following the intervention. This suggests that students may be more motivated to avoid losses when faced with career decision-making tasks (Bandura, 1997).

Finally, in a longitudinal study of career exploration and decision-making among first- and second-year college students, Lent et al. (2019) administered the expanded CDMOE along with other social-cognitive variables at multiple intervals during an academic year. Despite robust relationships between self-efficacy and outcome expectations in cross-sectional studies, Lent et al. found that self-efficacy at time 1 was not predictive of outcome expectations at time 2 as hypothesized. In addition, outcome expectations were not found to significantly predict actions at later time points. This may suggest that the effect of outcome expectations on actions is more indirect (e.g. through intentions) than direct. In the study, self-efficacy was most predictive of exploratory actions (e.g., taking steps to explore careers that fit their interests).

Some researchers have found measurement problems with the expanded CDMOE measure, including positive skew and leptokurtosis (Ireland & Lent, 2018; Lent et al., 2017). These studies, focused on developing a domain-specific learning experiences measure, have also only shown modest relations between learning experiences and outcome expectations. One interpretation of the findings in these studies has been that perhaps the indirect effect of learning experiences on outcome expectations (through self-efficacy) is most significant. However, it is also possible that this outcome expectation measure needs further development. The CDMOE scale, even with additional items, still does not focus theoretically on Bandura's outcome types (i.e., it lacks physical and self-evaluative outcome classes), includes only positive outcome expectation items, and includes items that may be too easily endorsable (e.g., "If I learn more about different careers, I will make a better career

decision”). The aim of the current study was to develop and validate a more conceptually sound measure of both positive and negative outcome expectations and Bandura’s (1997) three outcome types.

Vocational Outcome Expectancies scale (VOE and VOE-R)

A second, commonly-used outcome expectations scale in this domain is the Vocational Outcomes Expectancies scale (VOE; McWhirter et al., 2000a), and its revised version (VOE-R; Metheny & McWhirter, 2013). The VOE scale was originally designed to measure career outcome expectations among high school students taking a career education class. The VOE and VOE-R have been used in research on domestic and international samples of high school and college students, especially in studies that have tried to explore career outcome expectations in relation to contextual supports and barriers (Ali et al., 2005; Gushue & Whitson, 2006; Isik, 2013; Ma & Yeh, 2011; Reynolds & Constantine, 2007).

The original six-item scale asked participants to rate their level of agreement with positively framed statements about their future, with anchor ratings from *Strongly Agree* (4) to *Strongly Disagree* (1). Responses were summed for a total scale score between 6 and 24, with higher scores reflecting more positive outcome expectations. The scale included some items similar to the CDMOE measure (e.g., “My career planning will lead to a satisfying career for me”), but other items did not connect expected outcomes to relevant behaviors. A few items even confound the career exploration and decision-making process with outcomes resulting from choice of a specific career path (e.g., “I will be successful in my chosen career/occupation”) or confuse domain-specific outcome expectations with general optimism (e.g., “The

future looks bright to me”) or locus of control (e.g., “I can make my future a happy one”). Collectively, such problematic items raise questions about the construct validity of the scale in the career exploration and decision-making domain.

The VOE-R was expanded to 12 items when McWhirter and Metheny (2013) added two items to specifically assess each of Bandura’s (1986) physical (e.g., “My career/occupation choice will provide the income I need”), social (e.g., “I will have a career/occupation that is respected in society”) and self-evaluative (e.g., “I will achieve my career/occupational goals”) outcome classes. It should be noted that Bandura’s (1986) outcome classifications had earlier placed material gain (e.g., financial reward) in the physical category, but this type of outcome expectation was subsequently categorized as social (Bandura, 1997).

The newly added VOE-R items more adequately reflected Bandura’s theoretical definitions of outcome types, and improved internal consistency estimates for scores on the scale (from .87 to .93). However, the new VOE-R items still do not appropriately assess expected outcomes in relation to relevant behaviors, do not include negative outcomes, and retain the potentially problematic items from the VOE. Finally, the VOE has not been used to predict SCCT-relevant outcomes, such as career exploration goals or actions. Though such problems raise questions about the utility of the VOE/VOE-R as a measure of outcome expectations, some findings are reviewed here for comparison with the CDMOE and to highlight future areas for measurement improvement.

The VOE was significantly correlated with the CDMOE measure (Betz & Voyten, 1997) at initial development ($r = .54$), suggesting that a person who

endorses the idea that more engagement in career exploration behaviors will lead to a more successful career decision (CDMOE) is likely to also have general expectations for positive future career prospects (VOE). The test-retest reliability for both the VOE ($r = .59$) and VOE-R ($r = .85$) was significant across periods of nine and seven weeks, respectively (Isik, 2013; McWhirter et al., 2000a). High school students' VOE scores showed some malleability through intervention (i.e., 9-week career development course), though increases in positive outcome expectations were not maintained nine weeks after the course (McWhirter et al., 2000).

Individuals' career decision self-efficacy scores have significantly correlated with their scores on the VOE/VOE-R ($r = .50$ to $.59$). In a study of lower socioeconomic status high school students, Ali et al. (2005) discovered that a measure of educational and vocational self-efficacy explained 21% of the variance in vocational outcome expectations. When including family and peer support, barriers, and socioeconomic status (SES) as predictors, Ali et al. reported that self-efficacy was the only individually significant predictor of outcome expectations. Metheny and McWhirter (2013) found that self-efficacy and SES factors explained 40% of the variance in outcome expectations, with self-efficacy having the largest path coefficient ($\beta = .52$).

Several researchers have also explored relationships of outcome expectations with contextual supports using the VOE/VOE-R. In these studies, VOE scores have been correlated with family, teacher and peer supports (Ali et al., 2005; Gushue & Whitson, 2006; Isik, 2013; Metheny & McWhirter, 2013). Exploring family support mechanisms, Metheny and McWhirter (2013) included a measure of family

interactions, which captured the way families intentionally spent time buoying students' skill acquisition, personal responsibility, and relational skills. This measure, conceptually similar to learning experiences in SCCT, also had a moderate correlation with VOE-R ($r = .33$). Collectively, these findings suggest that different student groups may receive support from different sources, but support is generally modestly correlated with the positive expectations assessed by the VOE/VOE-R.

Research using the VOE has often focused on marginalized groups and the way societal barriers influence the career development of youth. In particular, researchers have explored how socioeconomic status, gender, and race/ethnicity may influence career decision-making. SCCT conceptualizes these person-level variables as distal factors that influence the career decision-making process indirectly, by delimiting access to career-relevant learning experiences and exposing students to different levels of environmental supports and barriers (Lent & Brown, 2013; Ireland & Lent, 2018).

Researchers have often found non-significant direct relationships between vocational outcome expectations and person-level variables such as age, gender, and ethnic identity (Baglama & Uzunboyly, 2017; Gushue & Whitson, 2006; Isik, 2013). While these non-significant findings are not surprising, it is also possible that studies exploring distal factors, like SES, have used samples with a limited range of class representation (e.g., Baglama & Uzunboyly, 2017). After finding a slightly *negative*, though significant, relationship between SES and VOE-R in path analysis, Metheny and McWhirter (2013) speculated that high school individuals facing financial or

class barriers may develop stronger coping efficacy for achieving future career success from having overcome these barriers throughout their lives.

Across several studies, researchers have discovered negative correlations between the VOE and a measure of perceived educational barriers (PEB), which has respondents rate the perceived likelihood and magnitude of potential educational barriers like discrimination, financial obstacles, and lack of instrumental support (McWhirter et al., 2000). However, the amount of explained variance of vocational outcome expectations accounted for by the PEB has been mixed, with some studies finding only small to negligible effects (Kenny et al., 2003; Ma & Yeh, 2011).

In addition to perceived educational barriers, researchers have examined how cultural adjustment may act as a barrier for international college students' career development. This population was believed to have less access to social/familial supports, and the authors speculated that dealing with the cultural adjustment process might be a task that detracts from career development goals, perhaps by lowering outcome expectations. In a study of 261 African, Asian, and Latin international students, Reynolds and Constantine (2007) used the Cultural Adjustment Difficulties Checklist (CADC) to predict vocational outcome expectations and career aspirations. The two subscales of the CADC, acculturative distress and intercultural competence concerns, were found to jointly account for significant variance in vocational outcome expectations.. Of note, the effect size for acculturative distress was small ($\eta^2 = .02$), while intercultural competence concerns, which may be conceptually related to coping self-efficacy, had a much larger (negative) effect size ($\eta^2 = .14$). In summary, multiple studies have shown some evidence that the perception of

environmental barriers is associated with lower positive vocational outcome expectations, though relationships have often been small in size and researchers have not incorporated consideration of negative outcome expectations.

The VOE and VOE-R represent a popular and widely used measure of vocational outcome expectations, albeit one that has notable conceptual shortcomings for use in the domain of career exploration and decision-making. While the correlations of vocational outcome expectations with self-efficacy, supports, and barriers were often significant, the small amount of explained variance in vocational outcome expectations in some studies may be indicative of measurement or conceptual issues. Seeking to improve upon these shortcomings, the proposed study sought to create a conceptually improved measure of career exploration and decision-making outcome expectations, and also to test how this construct relates to students' exposure to past learning experiences and to current exploratory intentions.

Other Attempts to Measure Outcome Expectations

Within SCCT domains of career interest, choice, and achievement, measures of outcome expectations have been developed to assess outcomes expected for enrolling in math courses (Lent et al., 1991); engaging in research (Bieschke, 2000); pursuing degrees in engineering (Hackett et al., 1992) and psychology (Diegelman & Subich, 2001); for obtaining a college education (Flores et al., 2008; Gibbons & Borders, 2010); for choosing a variety of occupations (Gore & Leuwerke, 2000); and for general future career opportunities (Ali & McWhirter, 2006). Still others have developed measures for younger, elementary school populations (Oliveira et al.,

2016) and explored qualitatively how individuals conceptualize outcome expectation types for pursuing STEM degrees (Shoffner et al., 2015).

These studies and scales collectively offer some guidance for the present study, namely in considering item-wording and scale anchors, conceptualizing the theoretical outcome types, and considering negative outcome expectations. Regarding item wording, scales have predominantly followed an If-Then structure, premised on what a broad accomplishment will bring (e.g., obtaining a specific college degree, or obtaining career goals), or what a more specific task would bring (e.g., gaining information about specific careers). Anchors have most commonly been four or five point Likert scales of agreement (i.e., “Strongly Disagree” to “Strongly Agree”), though some anchors ask respondents to rate an expected outcome probability (i.e., “Very low probability” to “Very high probability”), or the strength of belief in a particular outcome (i.e., “Don’t believe at all” to “Definitely believe”) (Gibbons & Borders, 2010; Oliveira et al., 2016). No particular anchor has functioned better than another, though Oliveira et al. suggested that low-responding participants responded similarly to anchors at the low point (e.g., “Very low” and “Low” probability rankings), and advised that future efforts include consideration of social desirability of responses.

In one of the only qualitative efforts to understand the outcome expectations construct, Shoffner et al. (2015) asked a group of youth (ages 10-14) about their expectations for pursuing STEM-related education. Focus group and coding analysis was used to help classify and rank the importance of outcomes that emerged. Interestingly, categories aligning with Bandura’s three outcome types emerged,

though some new categories became apparent. For example, Shoffner et al. identified the categories of *Social Approval* (i.e., provision of status, recognition, and awards) and *Relational* (i.e., the ability to participate in social activities and engage in interpersonal relationships), perhaps splitting Bandura's (1997) social category in two. A new category, dubbed *Generativity*, also emerged from the data. This outcome type captured outcomes related to students' ability to help shape their community environment; their ability to create, invent or discover something new; and their ability to pursue altruistic motivations (Shoffner et al., 2015).

Students also mentioned both positive and negative outcomes in each of the categories. For example, students talked about the potential to succeed as well as the potential to fail; and they talked about costs of pursuing an action like the loss of time, energy, or finances. This study sheds light on the notion that the outcomes students consider may be somewhat different than the ones that researchers have operationalized in outcome expectations measures in the past, and underscores the notion that students may hold mixes of both positive and negative outcome expectations concurrently.

While researchers have often neglected negative outcome expectations in measurement, scales that include negative outcome expectation items are not without precedent in career-related domains outside of career exploration and decision-making. For example, using the CSM model to explore sexual identity management in the workplace, Tatum, Formica and Brown (2017) designed an outcome expectations measure that included both positive and negative expectations an individual had for disclosing their sexual identity at work. Although the inclusion of

both positive and negative items is a strength of the scale, Tatum et al. simply summed positive and (reverse-scored) negative items to create a total scale score. This perspective on outcome expectation places positive and negative outcome expectations at opposite ends of a single spectrum, with the implication that outcome expectations represent a unidimensional structure. Unfortunately, Tatum et al. did not include a factor analysis of the measure in their study.

In a study focused on the academic achievement of undergraduate engineering students, Hackett and colleagues (1992) developed a scale measuring outcome expectations for successful completion of an undergraduate degree in engineering. The scale had 12 items asking students to rate their agreement with a series of outcome expectation statements on a 10-point Likert-type scale from *strongly disagree* (0) to *strongly agree* (9). There were nine positive (e.g., “A degree in engineering/science will allow me to obtain a well-paying job”) and three negative (e.g., “I worry that I won’t get a ‘fair shake’ in the job market”) items (Hackett et al., 1992, p. 530). Ratings for the positive and negative items were separately averaged to produce two scores reflecting positive and negative outcome expectations, respectively, and the scores for each subscale had adequate internal consistency ($\alpha = .81$ and $.77$, respectively), though no factor analytic analysis was reported on the scale. The positive and negative outcome expectations scores had a significant, moderate correlation ($r = -.21$).

In regression analyses predicting academic performance in college (i.e., GPA), domain-specific self-efficacy emerged as the strongest predictor, while neither positive outcome expectations nor negative outcome expectations were significant

individual predictors (Hackett et al., 1992). This could be reflective of Bandura's (1997) proposition that outcome expectations should become less important in domains with clear delineations of performance and outcomes closely tied to success. Self-efficacy scores were, however, moderately correlated with both positive and negative outcome expectations in expected directions. In addition, negative outcome expectations were significantly, moderately correlated with stress and strain as measured by academic and familial pressures. Hackett et al. did not find significant differences in outcome expectations between members of different racial/ethnic groups, though they reported that men possessed significantly higher positive outcome expectations compared to women ($F(1, 187) = 7.43, p < .007$).

In the domain of student's choice to attend college, researchers have used SCCT to look at positive and negative outcome expectations for obtaining a college education. Flores et al.'s (2008) College Outcome Expectations scale includes a single negative item (19 total items on the scale) that is reverse-scored and summed with other positive items. However, Gibbons and Borders (2010) designed a College-Going Outcome Expectations scale for younger adolescents that included a better balance of positive and negative outcome expectation items.

The Gibbons and Borders (2010) scale has 28 items (13 positive, 15 negative) and asked participants to rate their belief about various outcomes, using a *Don't believe at all* (1) to *Definitely believe* (4) scale. For example, "It will be hard for me to pass my classes" (negative) and "I will gain respect from others" (positive) are two sample items. Through factor analysis, Gibbons and Borders (2010) found that positive and negative items represented two distinct latent factors, with higher scores

representing the presence of higher positive and negative outcome expectations, respectively. Group level analysis revealed that first-generation students had lower positive outcome expectations than non-first-generation students, while no significant differences in negative outcome expectations were found. However, when looking at racial groups, White students had significantly lower perceived negative outcome expectations than did students of color. In a path analysis, positive and negative outcome expectations were modeled separately, each having significant, directionally opposite relations to college going intentions.

These findings from other career-related domains offer support for the idea of measuring both positive and negative outcome expectations in the domain of career exploration and decision-making, and exploring how they each relate to goals. The findings of Gibbons and Borders (2010) suggest that items designed to tap each of Bandura's (1997) three outcome categories may still represent only two latent factors reflecting positive and negative outcome expectations. Other findings suggest that positive and negative outcome expectations have opposite, though significant relationships with self-efficacy (Hackett et al., 1992). This raises questions about whether they may operate differently in relation to goal setting and actions.

Summary

Outcome expectations may be an important variable in domains like career exploration and decision-making where definitions of success are unclear and positive outcomes are less directly tied to actions (Bandura, 1997; Lent & Ireland, 2018). However, commonly used measures in the domain, like the CDMOE (Betz & Vuyten, 1997) and the VOE/VOE-R (McWhirter et al., 2000; Metheny & McWhirter, 2013),

may fall short of theoretical definitions and have notable room for improvement in assessing all outcome types and including both positive and negative outcomes (Fouad & Guillen, 2006). These measures have also shown empirical shortcomings (e.g., skew, leptokurtosis) that may indicate the need for improvement (Ireland & Lent, 2018).

Though only positive outcome expectations have been assessed by previous measures in the career exploration domain, extant findings offer some support for expected relationships between outcome expectations and self-efficacy, learning experiences, social supports, barriers, and exploratory intentions. The current study sought to design an improved measure of both positive and negative career exploration and decisional outcome expectations. The study explored the underlying factor structure to see if it aligned with a two-factor (or more complex) structure, similar to measurement in other domains (e.g., Gibbons and Borders, 2010). After conducting cross-validation in a confirmatory factor analysis sample, and finding sufficient evidence that the scale possessed adequate psychometric properties, it was also used in testing hypotheses derived from the CSM model.

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