

The Roles of Negative Career Thinking and Career Problem-Solving Self-Efficacy in Career Exploratory Behavior



The Professional Counselor
Volume 2, Issue 2 | Pages 102–114
© 2012 NBCC and Affiliates
www.nbcc.org
<http://tpcjournal.nbcc.org>
doi:10.15241/eby.2.2.102

Emily Bullock-Yowell
Sheba P. Katz
Robert C. Reardon
Gary W. Peterson

The respective roles of social cognitive career theory and cognitive information processing in career exploratory behavior were analyzed. A verified path model shows cognitive information processing theory's negative career thoughts inversely predict social cognitive career theory's career problem-solving self-efficacy, which predicts career exploratory behavior. The model suggests an intervention sequence to facilitate college student career development and exploration. A hypothetical case is provided as well as a depiction of the cycle of information processing in career decision making.

Keywords: career exploratory behavior, self-efficacy, negative career thoughts, college student career development, career problem-solving

Case of Sue

Sue, a young woman about to graduate from college with a degree in finance came to the university career center seeking career assistance in finding employment. Given some uncertainty about her interests and goals, she completed an interest inventory that produced a summary code (Holland, 1997) of IAS indicating interests in the investigative, artistic, and social areas. However, when occupational alternatives were identified for exploration following the assessment, she slumped in her chair and indicated that she was unable to concentrate on careers or the future and was unsure about the benefits of career counseling. At this point, the counselor invited her to complete the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996) and the results revealed considerable negative career thinking across several domains. Further exploration in counseling revealed that a music teacher in high school had advised her to abandon her dreams of a music career because of a poor audition performance. She immediately decided to major in business finance without resolving the apparent loss of her future in music, or undertaking careful contemplation regarding viable career options.

This hypothetical case (although not an uncommon one) suggests that Sue was not ready to engage in a job campaign because she was mired in an emotional state that precluded her focusing on herself (goals, interests) or potential career options. In terms of cognitive information processing theory (CIP; Sampson, Reardon, Peterson, & Lenz, 2004), she lacked *readiness* (Sampson, Peterson, Reardon, & Lenz, 2000) to engage in career decision-making. She was unable to pursue the process of analyzing alternatives related to self and option knowledge because of longstanding emotional aftereffects associated with grieving the loss of an anticipated career in music performance. In effect, she was not emotionally available to engage effectively in the career problem-solving and decision-making process. This study examines how a negative emotional state, coupled with a lack of career decision self-efficacy, interferes with environmental and self-exploration precursors to the formulation of viable career options.

The CIP approach differentiates between career-related problem-solving and decision-making. Sampson, Reardon, Peterson, and Lenz (2004) defined problem-solving as “a series of thought processes in which information about a problem is used to arrive at a plan of action necessary to remove the gap between an existing and a desired state of affairs”

Emily Bullock-Yowell, NCC, is an Assistant Professor at the University of Southern Mississippi. Sheba P. Katz is in private practice, Fort Myers, FL. Robert C. Reardon, NCC, is Professor Emeritus at Florida State University. Gary W. Peterson is Professor Emeritus at Florida State University. Correspondence can be addressed to Emily Bullock-Yowell, University of Southern Mississippi, Department of Psychology, 118 College Drive #5025, Hattiesburg, MS 39406-0001, emily.yowell@usm.edu.

(p. 5). Sampson et al. state that decision-making “includes problems solving, along with the cognitive and affective processes needed to develop a plan for implementing the solution and taking the risks involved in following through to the complete the plan” (p. 5). Difficulties in career decision making (as in Sue’s case) may stem from a variety of factors, including emotional distress, a lack of confidence in ability to perform certain tasks, lack of experience in varied life roles, lack of self-insight, negative expectations associated with a particular pursuit, fear of failure and conflicts with important people. Some career decision-making theories emphasize the use of self-knowledge (e.g., values, interests, and skills) and options knowledge (e.g., what jobs or majors of study are available), but they have less to offer regarding how beliefs, stress and affect associated with these two areas can impede progress in career decision-making. CIP (Sampson et al., 2004) and SCCT (Lent, 2005; Lent, Brown, & Hackett, 1994) address these issues.

Cognitive Career Theories

CIP (Peterson, Sampson, & Reardon, 1991; Sampson et al., 2004) and SCCT (Lent et al., 1994) have focused on the role of thinking in career decision-making. Independent of each other, these theories have defined types of dysfunctional cognitions, speculated about the role of these cognitions on academic and career decidedness, and developed self-report measures pertaining to these cognitions.

Within the career field, some career theorists have expressed the value of incorporating multiple career theories to provide the field with a more integrative framework for understanding career decision-making (Borgen, 1991; Hackett & Lent, 1992; Osipow, 1990). Specifically, such theorists have suggested that theories should integrate conceptually related constructs, further examine the relationship between dissimilar constructs and clarify commonly theorized outcome objectives within career decision-making. There are multiple cognitive constructs presented in CIP and SCCT career theories, but few studies have explored the interrelationships between them (Bullock-Yowell, Andrews, & Buzzetta, 2011).

Cognitive Information Processing Theory

CIP theory can be applied to understand the link between deficits in psychological functioning and career indecision (Peterson et al., 1991; Peterson, Sampson, Lenz, & Reardon, 2002). CIP theory utilizes the information-processing pyramid to explain the components involved in a career decision (Peterson et al., 1991). Four domains comprise the pyramid (Figure 1).

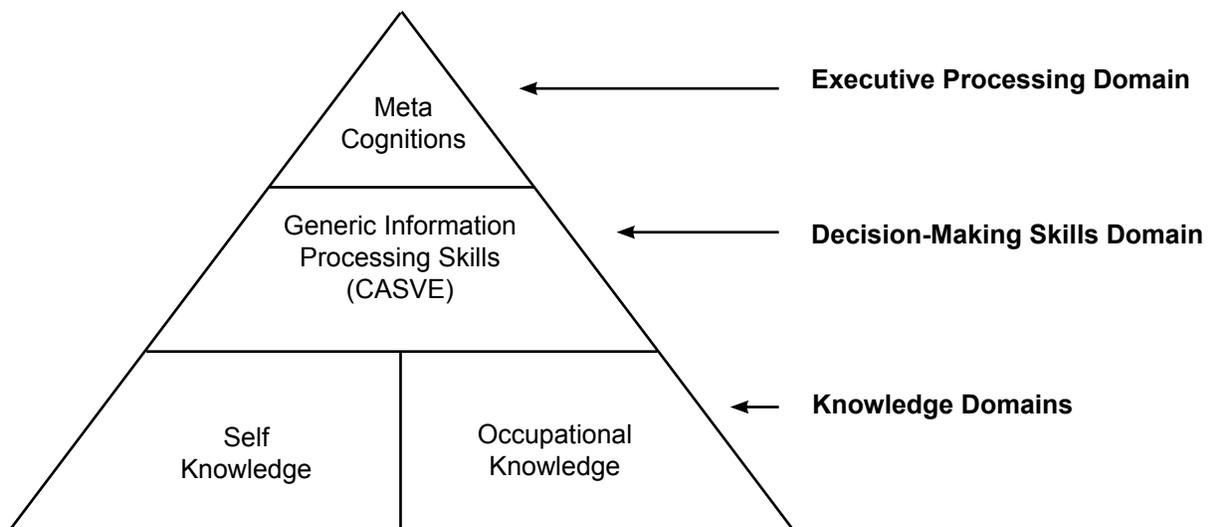


Figure 1. Information processing pyramid. Reprinted from *Career development and services: A cognitive approach* by G. W. Peterson, J. P. Sampson, and R. C. Reardon. Copyright ©1991 Brooks/Cole Publishing Company, Pacific Grove, CA 93950, a division of International Thomson Publishing, Inc.

At the base of the pyramid are two knowledge domains, self-knowledge and occupational knowledge. Self-knowledge is knowledge about one's values, interests and abilities, while occupational knowledge is knowledge about the world of work and specific occupations (e.g., work setting, income and occupational tasks). These two areas provide the basic information that needs to be acquired in order to formulate appropriate occupational alternatives.

The decision-making skills domain is at the second level of the pyramid and involves individuals moving through the five phases of the cycle to process information for career decisions. The five-cycle phases include communication, analysis, synthesis, valuing and execution (Figure 2). These phases are referred to as the CASVE cycle. During the communication phase, individuals realize that they need to make a decision based on internal (e.g., anxiety) and external (e.g., notice from the university a major must be declared) cues they receive from themselves and their environment.

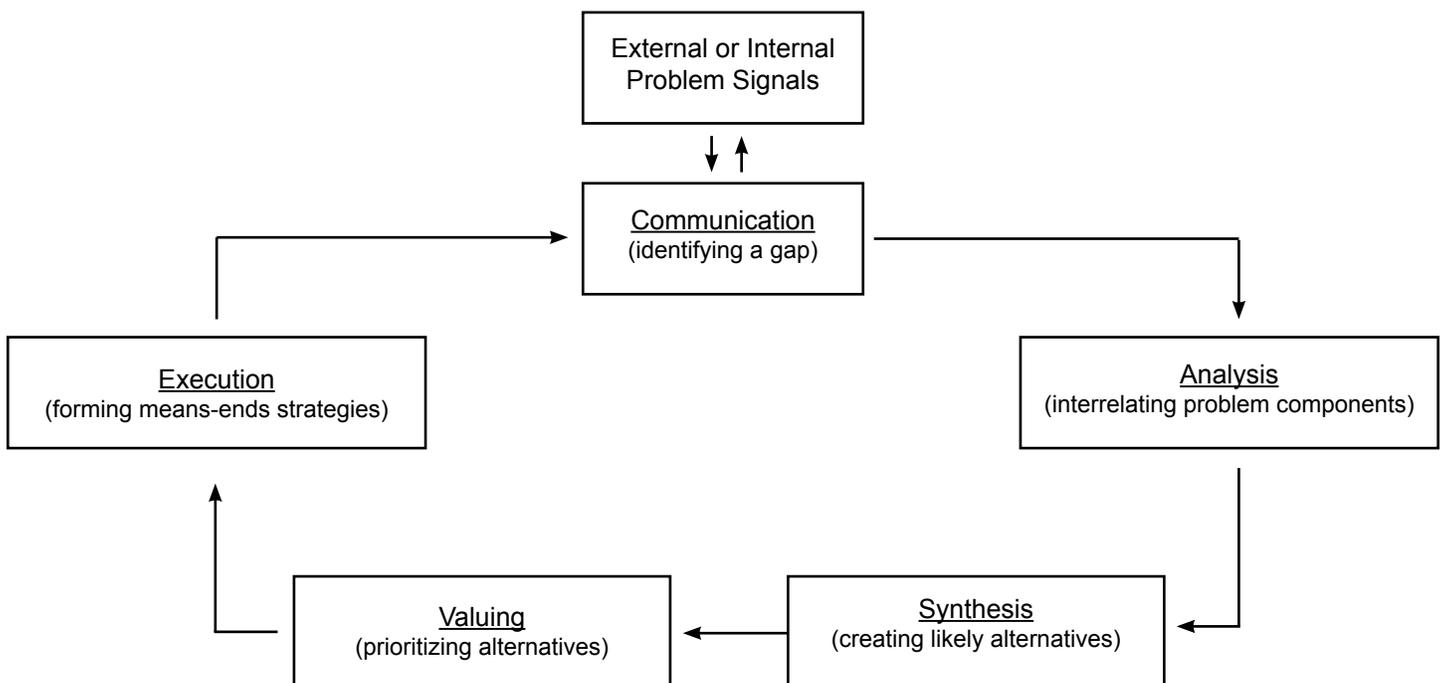


Figure 2. Cycle of information processing skills used in career decision-making. Reprinted from *Career development and services: A cognitive approach* by G. W. Peterson, J. P. Sampson, and R. C. Reardon. Copyright ©1991 Brooks/Cole Publishing Company, Pacific Grove, CA 93950, a division of International Thomson Publishing, Inc.

In the analysis phase, individuals seek to fully assess their career problem or the gap between their existing state of indecision and a desired state of decidedness. This phase involves determining the cause of the career problem and understanding the problem's relationships themselves, their options and the factors that influence both themselves and their options (Sampson et al., 2004). This phase typically entails understanding assessments of interests, skills, values and engaging in occupational exploration. (Sue was unable to move from the communication phase to the analysis phase in the case example.)

In the third phase of the CASVE cycle, synthesis, individuals seek to determine a possible course of action which may involve developing alternatives for making a decision, including brainstorming an exhaustive list of options (synthesis elaboration) and narrowing this list to obtainable options (synthesis crystallization). (Sue was unable to successfully engage this phase of the CASVE cycle.) Throughout the fourth phase, valuing, individuals make judgments about these

options based on their personal beliefs and preferences and arrive at a first choice. Finally, individuals put their thoughts into action in the execution phase of the CASVE cycle (e.g., completing a major field of study, applying for a job; Sampson et al., 2004).

The apex of the information processing pyramid consists of the executive processing domain. In this domain, people examine cognitions regarding the career decision process itself. There are three skills that need to be developed in order to engage in executive processing: self-talk, self-awareness, and control and monitoring. Self-talk is the internal conversation that individuals have about their decision-making abilities, e.g., “I can make good decisions for myself.” Self-awareness is the perception of one’s self as the performer of a task (Peterson et al., 1991), e.g., “I am nervous about meeting the timeline of my plans.” Control and monitoring is using self-awareness and understanding of the problem to guide and evaluate decision-making. For example, individuals are aware of anxious feelings about meeting a deadline and they decide they need more time. The executive function failed to operate in Sue’s case by allowing her to go prematurely from communication to synthesis without thoroughly becoming aware of her thoughts and feelings in the communication phase, and by not clarifying and acquiring adequate self and occupational knowledge in the analysis phase.

The strength of the CIP theory of career development is that it offers a framework of the cognitive and behavioral factors that guide career decidedness. Specifically, it provides a structure and sequence for gathering, transforming and utilizing information, while acknowledging the importance of thoughts and feelings.

Social Cognitive Career Theory

The framework for SCCT was derived primarily from general social cognitive theory (Bandura, 1986), and focuses on three variables: self-efficacy beliefs, outcome expectations, and personal goals. Self-efficacy is defined as beliefs about one’s ability to successfully perform given tasks or behaviors required to produce specific goal attainments (Bandura, 1977). It is hypothesized to be composed of beliefs linked to specific tasks or performance domains that vary across situations. Self-efficacy can be attained through four primary sources: (a) personal performance accomplishments, (b) vicarious learning (e.g., modeling), (c) social persuasion, and (d) the individual’s physiological and affective states (Bandura, 1977; Lent, 2005). According to SCCT, self-efficacy is a mediating factor for proactive behavior and behavioral change, regardless of ability level (Bandura, 1986).

Outcome expectations are defined as “beliefs about consequences or outcomes of performing particular behaviors” (Lent & Brown, 2006, p. 17). More specifically, outcome expectations influence behavior—when individuals expect that a behavior will lead to positive results, they are more likely to engage in the behavior. For example, if students expect that career options exploration will be helpful in their career decision-making, then they are more likely to engage in seeking and acquiring information (e.g., theory of reasoned behavior).

Personal goals refer to the individual’s intention to engage in a particular activity or produce an outcome (Bandura, 1986). The two types of goals identified by SCCT are choice-content goals and performance goals. Choice-content goals are goals related to activities or interest areas the individual wishes to pursue (e.g., choosing an academic major). Performance goals are goals regarding the individual’s level of performance needed to obtain the choice-content goal (e.g., maintaining a certain GPA to get into a particular field of study).

Choice and performance goals are theorized to be related to one’s self-efficacy and outcome expectation (Lent, 2005). Figure 3 provides a graphic depiction of the interrelationship among these constructs and an SCCT explanation of how interests develop over time. Additionally, SCCT outlines three related, yet distinct choice models related to the development of career-related interests, formation of career-related choices, and career/work-related performance. Strengths of SCCT theory include the acknowledgment of one’s confidence or self-efficacy associated with the development of interests and willingness to pursue and maintain work-related tasks. SCCT also acknowledges the many barriers to career development that exist in the environment, while promoting a sense of self-agency in clients.

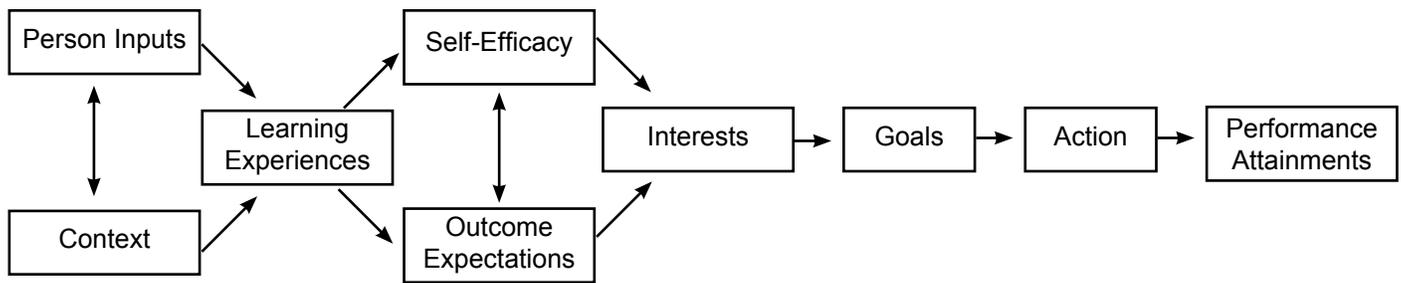


Figure 3. Social Cognitive Career Theory (SCCT). Reprinted from Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79–122.

Exploratory Behavior in Career Decision-Making

In the case of Sue, she was unable to engage in exploratory behavior associated with career problem-solving and decision-making, specifically identifying an appropriate job opening. In this section, career exploratory behavior is examined from the standpoint of CIP and SCCT theories. Only one study was found examining exploratory behavior in relation to CTI scores (McHugh, Lenz, Reardon, & Peterson, 2012) which indicated that viewing a 10-minute model-reinforced video led to increased information-seeking behavior.

SCCT (Lent et al., 1994) suggests that self-efficacy beliefs influence behavioral intentions (e.g., planned career exploration) because it affects an individual's perceived outcome expectation. Blustein (1989) found that self-efficacy and goal-directedness were related to environmental and self-exploration, but domain-specific self-efficacy proved to be a stronger predictor of exploratory behavior than goal stability. This finding provided evidence that self-efficacy does influence behavioral intentions and performance of an action so that a desired outcome is achieved (i.e., exploratory behavior).

Several studies provided empirical support for the application of SCCT in the examination of exploratory behavior (Bartley & Robitscheck, 2000; Betz & Voyten, 1997; Blustein, 1989; Fouad & Sprea, 1996; Ochs & Roessler, 2001, 2004). These studies examined how career decision-making self-efficacy and related variables (e.g., behavioral intention and outcome expectation) can contribute to the completion of career decision-making activities (e.g., career exploration). In one study, self-efficacy was found to aid students in developing and maintaining a commitment to career goals (i.e., behavioral intention; Blustein, 1989). As previously noted, behavioral intention is theorized to be the best predictor of actual behavior (Ajzen, 1988; Ajzen & Fishbein, 1980). Career exploratory behavior in undergraduate students was examined by Betz and Voyten (1997), and the results indicated that career outcome expectation was the best predictor for behavioral intentions ($r = .50$) in both males and females with academic outcome expectation and career decision-making self-efficacy accounting for some of the variance. The overall model for behavioral intention accounted for 25–29% of the variance. Taken together, research indicates that self-exploration and options exploration are related to career decision-making self-efficacy and other related SCCT constructs (Bartley & Robitscheck, 2000; Betz & Voyten, 1997; Blustein, 1989).

The Present Study

Both CIP and SCCT theories hypothesize that career beliefs influence goal development and ultimately behavioral outcomes. In CIP theory, the influences of meta-cognitions that regulate the career decision-making process are components of the executive processing domain of the information-processing pyramid (Peterson et al., 1991). As noted earlier, CIP theory suggests there are three key skills that need to be developed in order to examine and alter one's thoughts: self-talk, self-awareness, and control and monitoring. CIP theory identifies three aspects of dysfunctional career thinking using the Career Thoughts Inventory (CTI): (a) decision-making confusion, (b) commitment anxiety, and (c) external conflict (Sampson et al., 1996), which can function to improve self-awareness. These thoughts can

lead to avoidance in career problem-solving, insufficient processing of information during the phases of the CASVE cycle, and failure to complete the career problem-solving process. These difficulties can affect individuals' abilities to progress through the CASVE cycle, thus increasing career indecision. The current study utilizes the CTI subscale scores to determine the extent to which the cognitive constructs presented in CIP theory predict for successful engagement of exploratory behavior in the analysis phase of the CASVE Cycle.

SCCT identifies three types of beliefs including self-efficacy, outcome expectations, and behavioral intention. One instrument, the Career Decision Self-efficacy Scale (CDSE; Betz & Luzzo, 1996) further defines these beliefs related to career decision-making self-efficacy into the subtypes of self-appraisal, occupational exploration, goal selection, planning, and problem-solving. These beliefs reciprocally interact to influence behavior. For example, past experience influences individuals' current thoughts about themselves and their environment (e.g., self-efficacy beliefs and outcome expectations). These beliefs then influence goal setting (e.g., behavioral intention) and ultimately behavioral outcomes (e.g., self-exploration, environmental exploration and career decidedness).

Although the basic definitions of these cognitive variables are different across the two theories, the item content on the respective measurement scales appears to be very similar. CTI items to which test-takers are asked to rate their level of agreement (e.g., "My interests are always changing." "Even though I've taken career tests, I still don't know what field of study or occupations I like") are similar to items on the self-appraisal subscale of the CDSE in which test-takers are asked to rate their confidence that they could accomplish the task (e.g., "Determine what your ideal job would be." "Accurately assess your abilities"). In addition, items from the CDSE problem-solving subscale (e.g., "Persistently work at your major or career goal even when you get frustrated." "Change occupations if you are not satisfied with the one you enter.") are similar to "If I change my field of study or occupation, I will feel like a failure" and "I'll never find a field of study or occupation I really like" on the CTI.

In the only study found to explore relationships among CIP and SCCT constructs, Bullock-Yowell, Andrews, and Buzzetta's (2011) research demonstrated that negative career thoughts as measured by the CTI, along with three of the big five personality factors, explained 45.8% of the variance in career decision-making self-efficacy. This study provides a basis for better understanding the overlap and distinctness of these theories' constructs. The five self-efficacy dimensions have some similarity to the CIP executive processing domain as they bear on the higher order regulation of the lower order decision-making process. In the case of Sue, she failed to engage in sufficient problem-solving and self-appraisal. As stated earlier, the CIP approach differentiates the career problem-solving process from the more comprehensive career decision-making process (Sampson et al., 2004). As Sue's issues seem to be more directly related to the problem-solving process and her self-concept, the current study also examined the relationship between self-efficacy and the problem-solving process.

Within the context of CIP theory, the relationships between career indecision, exploratory behavior and negative career thoughts have theoretical support, but still need further empirical support. Research has consistently found moderate to strong correlations between career indecision and negative career thoughts (Saunders, Peterson, Sampson, & Reardon, 2000). Correlations between career decidedness and exploratory behavior are significant, but weak (Barak, Carney, & Archibald, 1975). In addition, no published articles have focused on the relationship between negative career thoughts and career exploration. Many career theorists have suggested that information processing is influenced by attitudes, values and cognitions (Kinnier & Krumboltz, 1986; Osipow, 1973; Sampson et al., 2004), and that the relationship between exploratory behavior and career decidedness may be mediated by career thoughts. Further research is needed to examine the theorized relationship between these variables. Thus, this study sought to address this gap by exploring the relationship between negative career thoughts and career exploration.

In order to better inform practitioners about effective ways to assist their clients using cognitive career theories, the following research question was posed: When are clients ready to move from the communication phase to the analysis phase of the CASVE cycle? More specifically, do negative career thoughts and career problem-solving self-efficacy predict successful engagement of self-exploration and environmental exploration in pursuit of self-knowledge and occupational knowledge? Three constructs of negative career thoughts from CIP theory (i.e., decision-making confusion (DMC), commitment anxiety (CA), and external conflict (EC) and two domains of career decision-making self-efficacy from SCCT (i.e., self-appraisal and problem-solving) were selected as predictors of career exploratory behavior (i.e., self-

exploration and environmental exploration). These were framed in terms of a causal model amenable to analysis through structural equation modeling (SEM). Therefore, a model was proposed (See Figure 4) with a bi-directional relationship between the career thinking and career problem-solving self-efficacy latent variables, as well as career thinking and career problem-solving self-efficacy predicting career exploratory behavior.

This theorized model can be illustrated by returning to the case of Sue. Her level of negative thought together with the lack of perceived competency in self-appraisal and problem-solving severely impeded her ability to engage in self-exploration and environmental exploration. The model graphically portrays Sue's circumstance and the hypothetical relationships among these theoretical constructs.

Method

Participants

Participants were 145 undergraduate students (51% female and 49% male, age range 18–36, mean age 21.8) enrolled in multiple sections of an introductory career development course at a research university. The common reason for enrolling in this elective course was to receive assistance in making a career decision or to solve a problem related to career issues. Ethnicity and classification demographics of the sample include: European American 71%, African American 21.4%, Hispanic American 5.5%, American Indian 0.7%, Other 1.4%, seniors 62.1%, sophomores 16.6%, juniors 15.9%, freshmen 4.8% and graduate students 0.7%.

Procedures

College students enrolled in an introductory level career development course were recruited to participate in this study. During a regularly scheduled class period, students in the course were read consent information by a research assistant. It was explained that the purpose of the study was to learn more about college students' experiences. Participants were then administered a demographics questionnaire, the Career Thoughts Inventory, the Career Decision-Making Self-Efficacy Scale, and the Career Exploratory Survey: Environmental Exploration and Self-Exploration. The order in which the instruments were administered was randomly alternated to control for possible order effects. Students who agreed to participate received extra credit in the course. All measures were simultaneously collected on the first or second day of class to help control for missing data and environmental factors.

Instruments

Demographic Questionnaire. The demographic questionnaire included information such as age, gender, year in school, major, previous work experience, extracurricular activities and ethnicity. This measure was used to describe the study sample.

Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1998). The CTI is a 48-item self-report inventory designed to measure career thoughts. The CTI measures negative thoughts that impede career decision-making using a four-point Likert scale. The CTI yields three subscale scores: Decision-Making Confusion (DMC), Commitment Anxiety (CA), and External Conflict (EC). Higher scores indicate negative career thinking. In the present study, the CTI subscales were the observed variables' measures that defined the latent variable, Career Thinking. The CTI's content validity is based on its consistency with the cognitive information processing (CIP) approach of career decision-making. The internal consistency for this measure is high with a coefficient alpha of $r = .96$ (Sampson et al., 1998) and .95 for the current sample. Subscale internal consistency for the current sample was Decision-Making Confusion (.92), Commitment Anxiety (.84) and External Conflict (.75). Test-retest reliability was measured in college and high students across 4 weeks and ranged from .74–.82 (Sampson et al., 1998). CTI total score converged with Indecision Scale of the Career Decision Scale at .70.

Career Decision Self-Efficacy Scale-Short Form (CDSES-SF; Betz & Luzzo, 1996). The CDSES-SF is a 25-item self-report inventory designed to measure career decision-making self-efficacy. Using a five-point Likert scale, the CDSES-SF measures confidence to perform decision-making tasks in five competency areas: performing accurate self-appraisals, gathering occupational information, selecting goals, making plans to implement career decisions and problem-solving. These five competency areas that make up the factor structure of the CDSES-SF are based on Crites' (1969) theory of career maturity. The latent variable, career problem-solving self-efficacy, was comprised of two observed

variables measured by the self-appraisal and problem-solving subscales of the CDSES-SF. Coefficient alphas for the self-appraisal and problem-solving subscales have been reported as .73 and .75, respectively (Betz & Luzzo, 1996). The coefficient alphas for the current sample were .79 for self-appraisal and .77 for problem-solving. The test-retest reliability for the total scale across a 6-month period was reported to be .83 (Betz & Luzzo, 1996). Concurrent validity has been established with the Career Decision Scale indecision and certainty scales (Osipow, 1980) and the My Vocational Situation: Identity scale (Holland, Daiger, & Power, 1980). Convergent validity has been established with a generalized measure of self-efficacy (Betz & Klein, 1996).

Career Exploratory Survey: Environmental Exploration and Self-Exploration (CES-EE & CES-SE; Blustein & Phillips, 1988; Stumpf, Colarelli, & Hartman, 1983). In the present study, the 6-item Environmental Exploration and the 9-item Self-Exploration scales from the Career Exploration Survey (CES) were used to measure the observed variables that defined the present study's latent variable, Career Exploratory Behavior. The CES-SE measures "the extent of career exploration involving self-assessment and retrospection within the last 3 months" and the CES-EE measures "the extent of career exploration regarding occupations, jobs, and organizations within the last 3 months" (Stumpf et al., 1983, p.196). Internal consistency for the two scales has been adequately demonstrated in the literature (CES-SE alpha = .82 to .88 and CES-EE alpha = .88 to .89) (Blustein & Phillips, 1988; Stumpf et al., 1983) and in the current sample (CES-SE alpha = .85 and CES-EE alpha .87). In addition, Blustein and Phillips (1988) reported two-week test-retest reliabilities of .85 and .83 for the CES-SE and CES-EE, respectively. Content validity for the scales has been confirmed with a theoretically consistent factor structure (Stumpf et al.). Convergent validity for both scales has been established with a variety of constructs (Blustein, 1989; Blustein & Phillips, 1988; Hamer & Bruch, 1997; Luzzo, James, & I.una, 1996; Stumpf et al., 1983).

Results

The relationships among career exploratory behavior, career thinking and career problem-solving self-efficacy were analyzed. All analyses were conducted using AMOS 7.0 (Arbuckle, 2006) and SPSS 16.0. Structural equation modeling (SEM) served as the framework for the analysis. The majority of the correlations among the present study's observed variables were statistically significant (See Table 1) with a few exceptions. Self-exploration, a defining variable for the career exploratory behavior latent variable, was not significantly correlated with any of the career thinking observed variables. Environmental exploration, another defining variable for the career exploratory behavior latent variable, was not significantly correlated with external conflict, one of the defining variables of the career thinking latent variable.

Table 1

Correlations, Means, and Standard Deviation of Study's Observed Variables (N=145)

	1	2	3	4	5	6	7
1. Environ. Exploration	—	.34**	-.37**	-.25**	-.15	.32**	.36**
2. Self Exploration		—	-.15	.01	.01	.23**	.44**
3. Decision-Making Confusion			—	.71**	.56**	-.45**	-.51**
4. Commitment Anxiety				—	.53**	-.34**	-.36**
5. External Conflict					—	-.28**	-.23**
6. Problem Solving						—	.71**
7. Self-Appraisal							—
Mean	15.16	28.74	25.13	23.56	9.63	17.26	18.83
Standard Deviation	5.73	7.29	7.06	5.26	2.90	3.75	3.3

$p < .001^{**}$

Measurement Model

The measurement model was evaluated to determine how well the observed variables combined to represent the underlying latent constructs of the model (Anderson & Gerbing, 1988). The initial measurement model was constructed with three latent constructs: career exploratory behavior, career thinking and career problem-solving self-efficacy (See figure 4). For this step, all latent variables were allowed to co-vary, and observed indicators were restricted to load only on their respective factor. Career problem-solving self-efficacy’s observed variables, problem-solving and self-appraisal, were significantly correlated ($r = .71; p < .01$). Career thinking’s observed variables—decision-making confusion (DMC), commitment anxiety (CA) and external conflict—were significantly intercorrelated ($r = .53-.71; p < .01$). Exploratory behavior’s observed variables, self-exploration and environmental exploration, were significantly correlated ($r = .34; p < .01$). The loadings of the measured variables on the latent variables were all statistically significant ($p < .001$) and ranged from .55 to .95, providing evidence that each of the latent variables was adequately measured by their respective observed variables.

Structural Models

The initial model tested (See Figure 4) proposed a bi-directional relationship between the career thinking and career problem-solving self-efficacy latent variables, along with variables explaining direct variance in career exploratory behavior. During the analysis process in AMOS 16.0, the model was deemed inadmissible. Therefore, a second path

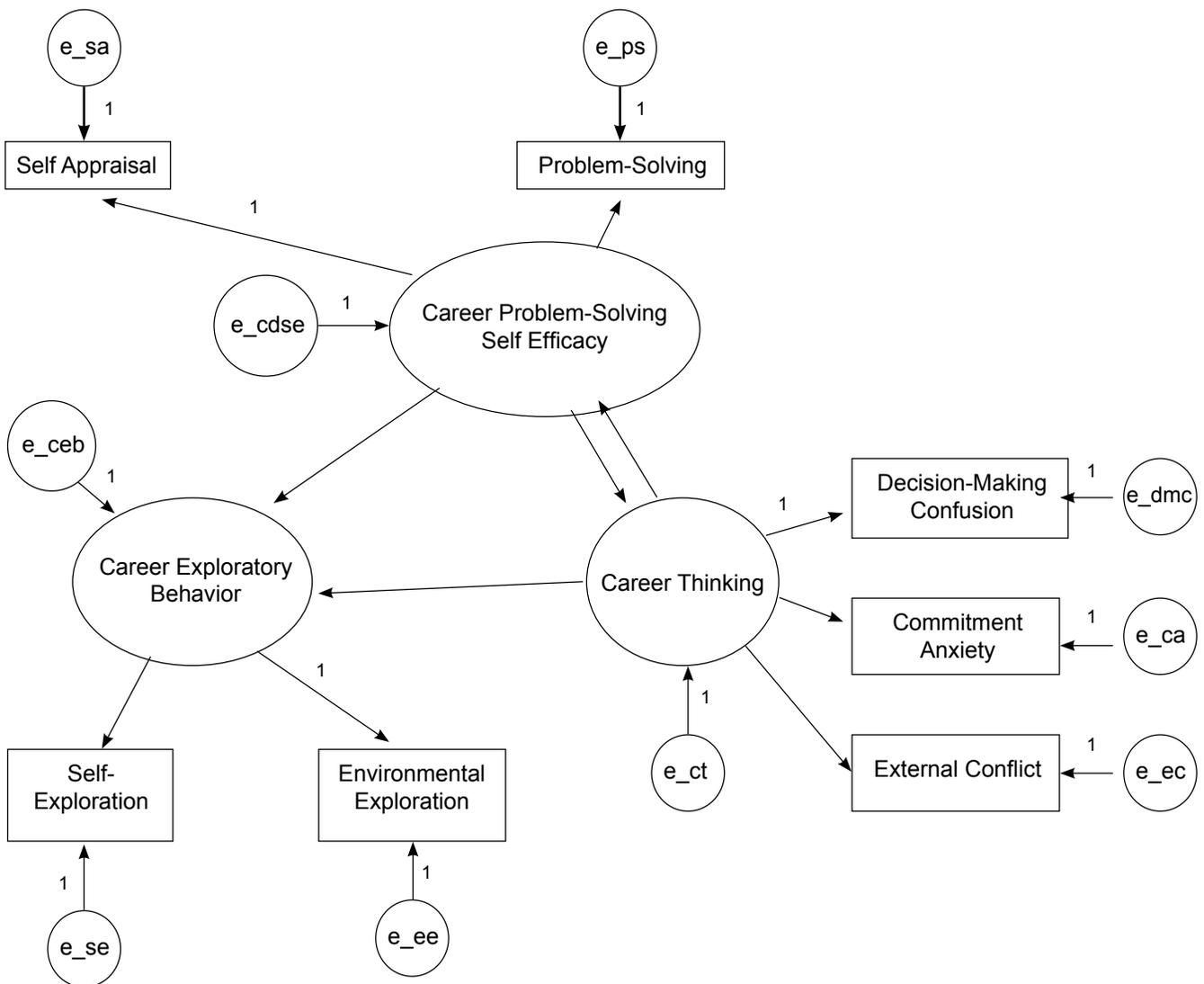


Figure 4. Initially proposed model.

model (see Figure 5) was proposed in which the relationship between the career thinking and career problem-solving self-efficacy latent variables was modified to indicate that career thinking captured direct variance in career problem-solving self-efficacy, which in turn had a direct effect on career exploratory behavior. This path model had an adequate to low fit with the data, $\chi^2(11, N = 145) = 31.14, p < .001, \chi^2/df = 2.831, CFI = .946, TLI = .897, RMSEA = .113$ (90% CI: .67, .160). Models with CFI and TLI between .90 and .94, and RMSEA values between .06 and .10, indicate an adequate fit to the data when models are not complex and samples sizes are smaller than 500 (Hu & Bentler, 1999; Weston & Gore, 2006). This path model met most of these specifications of adequate fit. The TLI and RMSEA coefficients fell slightly outside the recommended parameters.

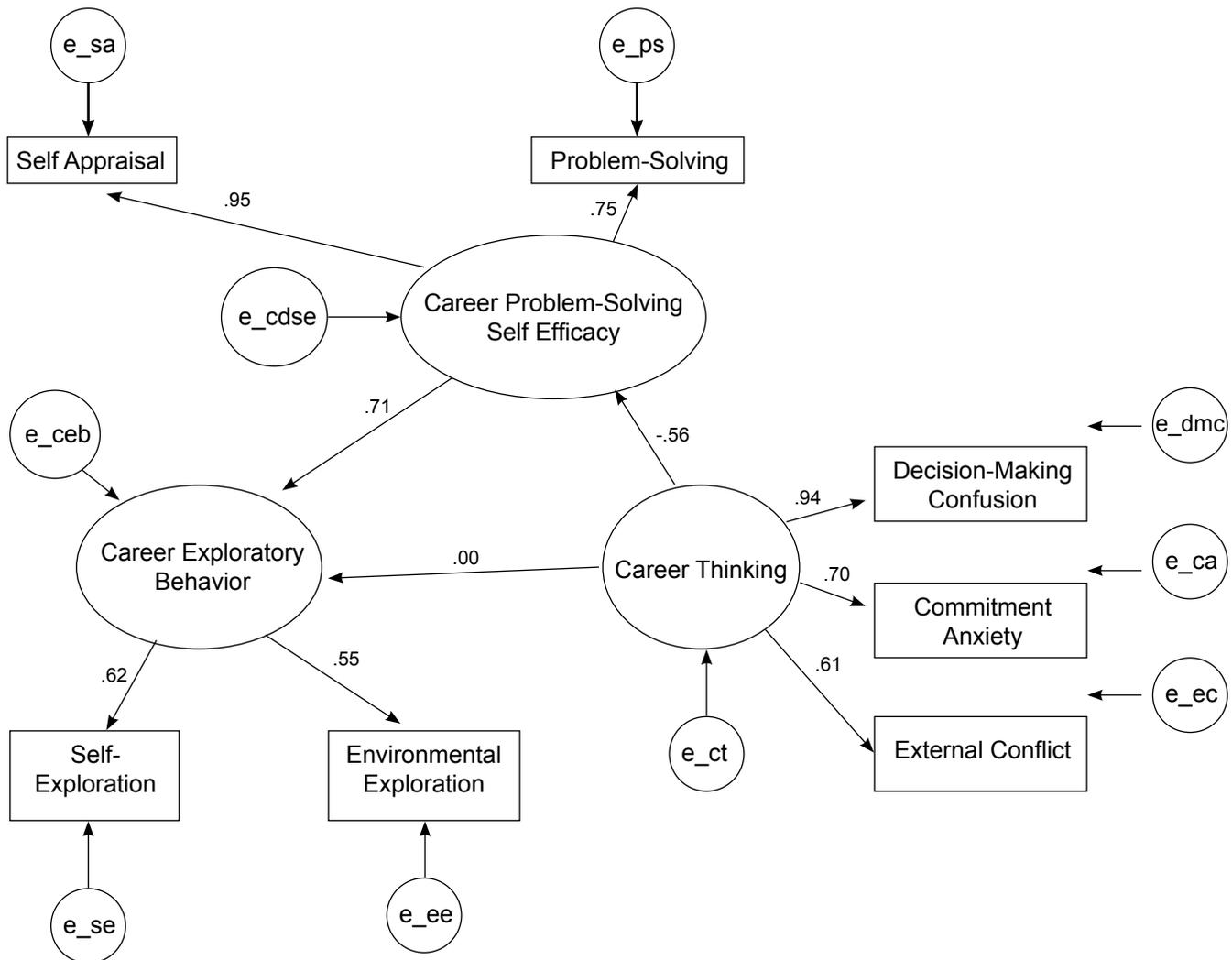


Figure 5. Final model.

Discussion

The model initially hypothesized and proposed (Figure 4) was not admissible. According to most indicators the final path model (Figure 5) was moderately verified. The model suggests that there is an important sequence of interventions when working to facilitate environmental and self-exploratory behavior in career counseling clients. The model indicates that negative career thinking explains some portion of career problem-solving self-efficacy. Also, career problem-solving self-efficacy in turn directly explains a portion of exploratory behavior, while negative career thinking does not. Self-efficacy appears to affect the relationship between negative thoughts and exploratory behavior. Thus, the presence of negative thinking appears to support a person’s level of self-efficacy. Perhaps the key for practitioners is to intervene on negative career thoughts initially to free clients for more successful building later upon problem-solving self-efficacy.

Problem-solving self-efficacy can then be addressed once negative thinking is resolved through attending to the sources of self-efficacy (Bandura, 1977; Lent, 2005).

How do this model and these indicated interventions address the research question and hypotheses? It appears to be important to address negative career thinking prior to working with clients on building self-confidence in career decision-making. In terms of the CIP pyramid (Peterson et al., 1991) that would mean addressing issues in the decision-skills domain before engaging the apex or executive processing domain. Thus, the successful progression from the communication to analysis phase of the CIP CASVE cycle would first involve resolution of negative career thoughts followed by building career problem-solving self-efficacy. Upon increasing self-efficacy, the probably of engaging in career exploratory behavior to clarify self-knowledge and to acquire occupational knowledge at the base of the pyramid is enhanced.

This potentially generalizable model has direct implications for the specific case of Sue described at the beginning of this article, which will be used to demonstrate how the findings from this study could be utilized in specific counseling situations. Sue presented with low readiness (Sampson et al., 2004) to engage the career development process. She seemed frustrated and unwilling to explore her interest inventory results. This may be linked back to the disappointment, regret and perhaps even grief associated with the “loss” of her music aspirations. It is very likely she developed some negative career thoughts in that process.

The verified path model indicates the importance of identifying, challenging and altering these negative thoughts to allow Sue to act upon a new, more accurate version of these thoughts. The use of the Career Thoughts Inventory (CTI) assessment and workbook (Sampson et al., 1996) could aid Sue’s counselor in this process by identifying and challenging negative career thoughts.

When Sue’s negative thinking is transformed and becomes more realistic and positive, career-related self-efficacy should be ready for enhancement. In fact, Lent (2005) mentions that self-efficacy building attempts may be enhanced from some preliminary cognitive restructuring procedures. Bandura (1977) and Lent (2005) suggest targeting the four sources of self-efficacy to accomplish this positive change. One possible career counseling goal could target the personal performance accomplishments source of self-efficacy. Sue’s counselor could work with Sue to break down her present goal of finding employment into more discrete, attainable steps and milestones to build Sue’s confidence (or self-efficacy) in such tasks. For instance, during the next week Sue could look at the career center’s job listings and indicate three she likes and three for which she would never apply. This would allow for discussion of jobs of interest and areas to avoid in the next session as well as supporting Sue’s efforts to engage in the tasks necessary to explore career information and make an eventual choice. Sue and the counselor could work at Sue’s pace to accomplish a list of associated, small goals to build self-efficacy while simultaneously working toward Sue’s initial goal of finding employment.

This case and model indicate that even when a client presents with a need to explore career information it may not be the most prudent move for a counselor to initially engage in career exploration with the client. There may be steps that are necessary, or at least allow for the attainment of readiness in order to successfully engage in career exploration. These steps seem to include addressing negative career thinking followed by adequately addressing career problem-solving self-efficacy, indicating that both CIP and SCCT theories function in complementary ways.

Limitations and Implications

Given all of this discussion of counseling with Sue, it is important to note limitations of this research. Most SEM indicators verify the adequacy of the final model provided in this study. However, because it is not fully verified by all relevant indicators and not all possible related variables are taken into account, there may be a better fitting model that explains career exploratory behavior. Future research could focus on finding a better fitting model with a larger sample size to explain career exploratory behavior. Additionally, the sample was made up of college students, the majority of which were European American, and this may limit the generalizability of these findings to dissimilar groups. Additionally, research outside of the career realm may benefit from the consideration of such a model as it relates to other important life choices and exploration in which career counseling clients typically engage (e.g., choice of spouse, major

purchases). Perhaps negative thinking resulting from regrets, disappointments, and grief have similar effects on client's life-choice self-efficacy and exploratory behavior. There are many areas of life where clients prematurely make choices and there are ways for counselors to better prepare them for this decision-making process.

The suggested counselor interventions also are limited in several ways. The verified path model does not inform us as to whether intervention on career thinking followed by self-efficacy is necessary or if intervention on career thinking alone would be adequate. Additionally, the effects of the four sources of self-efficacy are not fully empirically supported (e.g., Alliman-Brissett, Turner, & Skovholt, 2004) and should be implemented with that in mind.

The case of Sue demonstrated some of the specific practice implications suggested by the model. It is important to consider whether a measure of negative career thinking, such as the Career Thoughts Inventory (Sampson et al., 1996), and of career-related self-efficacy, such as the Career Decision Self-Efficacy scale (Betz & Luzzo, 1996), should be integrated into the career counseling assessments as a standard procedure to help monitor and inform treatment.

References

- Ajzen, I. (1988). *Attitudes, personality and behaviors*. Milton Keynes, England: Open University Press.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Alliman-Brissett, A. E., Turner, S. L., & Skovholt, T. M. (2004). Parent support and African American adolescents' career self-efficacy. *Professional School Counseling, 7*, 124–132.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411–423.
- Arbuckle J. (2006). *Amos 7.0 User's Guide*. Spring House, PA: Amos Development Corporation.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychology Review, 84*, 629–644.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Barak, A., Carney, C. G., & Archibald, R. D. (1975). The relationship between vocational information seeking and educational and vocational decidedness. *Journal of Vocational Behavior, 7*, 149–159.
- Bartley, D. F., & Robitschek, C. (2000). Career exploration: A multivariate analysis of predictors. *Journal of Vocational Behavior, 56*, 63–81.
- Betz, N. E., & Luzzo, D. A. (1996). Career assessment and the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment, 4*, 413–428.
- Betz, N., & Klein, K. (1996). Relationships among measures of career self-efficacy, generalized self-efficacy and global self-esteem. *Journal of Career Assessment, 4*, 285–298.
- Betz, N., & Voyten, K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *The Career Development Quarterly, 46*, 179–189.
- Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. *Journal of Vocational Behavior, 35*, 194–203.
- Blustein, D. L., & Phillips, S. D. (1988). Individual and contextual factors in career exploration. *Journal of Vocational Behavior, 33*, 203–216.
- Borgen, F. H. (1991). Megatrends and milestones in vocational behavior: A 20-year counseling psychology perspective. *Journal of Vocational Behavior, 39*, 263–290.
- Bullock-Yowell, E., Andrews, L., & Buzzetta, M. (2011). Explaining career decision making self-efficacy: Personality, cognitions, and cultural mistrust. *The Career Development Quarterly, 59*, 400–411.
- Crites, J. O., (1969). *Vocational psychology: The study of vocational behavior and development*. New York, NY: McGraw-Hill.
- Fouad, N. A., & Spreda, S. L. (1996). Translation and use of career decision-making self-efficacy assessment for Hispanic middle school students. *Journal of Vocational Education Research, 21*, 67–85.
- Hackett, G., & Lent, R. W. (1992). Theoretical advances and current inquiry in career psychology. In S. D. Brown & R. W.

- Lent (Eds.), *Handbook of counseling psychology* (2nd ed.) (pp. 419–452). New York, NY: Wiley.
- Hamer, R. J., & Bruch, M. A. (1997). Personality factors and inhibited career development: testing the unique contribution of shyness. *Journal of Vocational Behavior, 50*, 382–400.
- Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. Odessa, FL: Psychological Assessment Resources.
- Holland, J. L., Daiger, D. C., & Power, P. G. (1980). *My vocational situation*. Palo Alto, CA: Consulting Psychologists Press.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
- Kinnier R. T., & Krumboltz, J. D. (1986). Procedures for successful career counseling. In N. C. Gysbers (Ed.), *Designing careers* (pp. 307–335). San Francisco, CA: Jossey-Bass.
- Lent, R.W. (2005). A social cognitive view of career development and counseling. In S.D. Brown, & R.W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 101–127). New York, NY: Wiley.
- Lent, R. W., & Brown, S. D. (2006). On conceptualizing and assessing social cognitive constructs in career research: A measurement guide. *Journal of Career Assessment, 14*, 12–35.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79–122.
- Luzzo, D. A., & James, T., (1996). Effects of attributional retraining on the career beliefs and career exploration behavior of college students. *Journal of Counseling Psychology, 43*, 415–422.
- McHugh, E. R., Lenz, J. A., Reardon, R. C., & Peterson, G. W. (2012). The effects of using a model-reinforced video on information-seeking behaviour. *Australian Journal of Career Development, 21*(1), 16–23.
- Ochs, L. A., & Roessler, R. T. (2004). Predictors of career exploration intentions: A social cognitive theory perspective. *Rehabilitation Counseling Bulletin, 47*, 224–233.
- Ochs, L. A., & Roessler, R. T. (2001). Student with disabilities: How ready are they for the 21st century? *Rehabilitation Counseling Bulletin, 44*, 170–176.
- Osipow, S. H. (1990). Convergence in theories of career choice and development: Review and prospect. *Journal of Vocational Behavior, 36*, 122–131.
- Osipow, S. H. (1980). *Manual for the Career Decision Scale*. Columbus, OH: Marathon Consulting and Press.
- Osipow, S. H. (1973). *Theories of career development* (2nd ed.) Englewood Cliffs, NJ: Wiley.
- Peterson, G., Sampson, J., Lenz, J., & Reardon, R. (2002). A cognitive information processing approach to career problem solving and decision making. In D. Brown and Associates (Eds.), *Career choice and development* (4th ed.) (pp. 312–369). San Francisco, CA: Jossey-Bass.
- Peterson, G., Sampson, J., & Reardon, R. (1991). *Career development and services: A cognitive approach*. Pacific Grove, CA: Brooks/Cole.
- Sampson, J., Jr., Peterson, G., Reardon, R., & Lenz, J. (2000). Using readiness assessment to improve career services: A cognitive information processing approach. *Career Development Quarterly, 49*, 146–174.
- Sampson, J., Jr., Reardon, R., Peterson, G., & Lenz, J. (2004). *Career counseling and services: A cognitive information processing approach*. Pacific Grove, CA: Brooks/Cole.
- Sampson, J., Jr., Peterson, G., Lenz, J., Reardon, R., & Saunders, D. (1996). *Career Thoughts Inventory: Professional manual*. Odessa, FL: PAR, Inc.
- Sampson, J., Jr., Peterson, G., Lenz, J., Reardon, R., & Saunders, D. (1998). The design and use of a measure of dysfunctional career thoughts among adults, college students, and high school students: The Career Thoughts Inventory. *Journal of Career Assessment, 6*, 115–134.
- Saunders, D. E., Peterson, G. W., Sampson, J. P., & Reardon, R. C. (2000). Relation of depression and dysfunctional career thinking to career indecision. *Journal of Vocational Behavior, 56*, 288–298.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the career exploration survey (CES). *Journal of Vocational Behavior, 22*, 191–226.
- Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist, 34*, 719–751.