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Assessing career optimism and adaptability: toward the construct validation of the Career Futures Inventory

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Assessing career optimism and adaptability:
Toward the construct validation of the Career Futures Inventory

by

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A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Psychology (Counseling Psychology)

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For the Major Program

TABLE OF CONTENTS

ABSTRACT	v
CHAPTER 1. GENERAL INTRODUCTION	1
Introduction	1
Dissertation Organization	4
CHAPTER 2. LITERATURE REVIEW	7
Overview	7
Theoretical Context	7
Related Theoretical Approaches and Constructs	8
Super's Life-Span Life-Space Theory	12
Self Concepts	13
Career Maturity	16
Career Adaptability	16
Carver and Scheier's Self-Regulatory Model of Goal-Seeking Behavior	18
Dispositional Optimism	21
Summary and Focus of the Present Study	24
CHAPTER 3. METHOD	31
Participants	31
Measures	32
Development and Validation of the Career Futures Inventory (CFI)	38
Hypotheses	40
Data Analyses	41
CHAPTER 4. DEVELOPMENT OF THE CAREER FUTURES INVENTORY: A MEASURE OF CAREER-RELATED ADAPTABILITY AND OPTIMISM	43
Abstract	43
Introduction	44
Career Adaptability	45
Dispositional Optimism	46
Focus of the Present Study	47
Method	48
Participants	48
Measures	49
Scale Development	54
Results	55
Exploratory Factor Analysis	55
Confirmatory Factor Analysis	56
Descriptive Statistics	56
Construct Validity	57
Discussion	61
References	65

Author Note	71
CHAPTER 5. ADDITIONAL RESULTS	81
CHAPTER 6. GENERAL CONCLUSIONS	87
General Discussion	87
Future Directions	88
APPENDIX A. DEMOGRAPHIC INFORMATION AND CAREER BEHAVIORS QUESTIONNAIRE	92
APPENDIX B. CAREER FUTURES INVENTORY-REVISED	95
REFERENCES	99
ACKNOWLEDGEMENTS	111

ABSTRACT

The purpose of this study was to provide initial results on the development and validation of the Career Futures Inventory (CFI), a 25-item measure that assesses positive career planning attitudes. This theory-driven scale development project attempts to assess domain-specific career optimism and perceived adaptability including planfulness, decisional skill, and self-awareness. Savickas' (1997) extension of Super and Knasel's (1981) career adaptability construct and Scheier and Carver's (1985) dispositional optimism construct provided theoretical context for scale development. The CFI emphasizes the empirical measurement of dispositional generalized expectancies within the career domain and adaptability related to an individual's unique career goals and present self-concept. In particular, the CFI relates to the goal of achieving an individualized optimal career status, situated between specific trait-like principles or self-efficacy estimates and the global idealized self. Results from an item analysis of scale homogeneity and exploratory factor analysis in a sample of 690 undergraduates from a large midwestern university revealed three subscales: (1) Career Adaptability; (2) Career Optimism; and (3) Perceived Knowledge. Confirmatory factor analyses indicated that the three-factor model provided an excellent fit to the data. Additional analyses established high internal consistency, temporal stability, and construct validity through examination of correlates with dispositional optimism, Big Five personality characteristics, generalized problem-solving, vocationally-relevant self-efficacy, interests, and numerous career-relevant attitudes and outcomes. Results demonstrated that optimistic and adaptable people appear to strive higher academically, report greater comfort with their educational and career-related plans, show higher levels of career identity, and

engage in career exploration activities more thoroughly. These results support the concurrent validity of the CFI scales. Moreover, a series of hierarchical regression analyses demonstrated the incremental validity of career optimism after controlling for dispositional optimism, self-efficacy, positive and negative affect, and the Big Five as they related to career exploration attitudes. Implications for future research and counseling practice are discussed. The assessment of optimism and adaptability shows promise for strengthening the identification, modification, and achievement of appropriate career related goals.

CHAPTER 1. GENERAL INTRODUCTION

Introduction

Career planning at the turn of the 21st century is more complex than at any period in history. Dramatically changing political, economic and technological forces not only influence employment options, but also the way individuals manage their lives, and thus, the practice of career counseling (Hall, 2002; Herr, 1996, 2001). Workers must strategically adjust career plans and objectives often due to the increased pace of change and uncertainty in the world of work (Gelatt, 1989; Mitchell, Levin, & Krumboltz, 1999; Swanson & Parcover, 1998). Additionally, women and men strive to establish career goals that match their preferred lifestyle by considering their interests, needs, self-concepts, personality traits, values, and abilities (Super, Savickas, & Super, 1996). Indeed, career planning is multifaceted.

These contemporary realities intensify the challenges faced by individuals as they engage in exploratory behaviors to discover suitable career options (Phillips, 1997). Whereas some assertively attain work and life balance, allowing for increased congruence between their real and ideal selves, others struggle to negotiate satisfactory career plans. Enabling clients to envision their future strategically and positively in the context of an accurate self/world-of-work assessment is central to career counseling. Savickas (1991) mirrored this sentiment: “Clients with an extensive vista on the future display greater career awareness, more optimism, and increased motivation for life planning” (p. 248). How people reflect upon and regulate their view of future career plans, both cognitively and emotionally, is pivotal to discovering and implementing satisfactory life trajectories.

Recently, the positive psychology movement (Seligman & Csikszentmihalyi, 2000) has brought prominence to these important aspects of human development. Many studies have shown the beneficial aspects of optimism, including physical health (Carver & Scheier, 1985; Peterson, Seligman, & Vaillant, 1988; Segerstrom, Taylor, Kemeny, & Fahey, 1998), success in political campaigns (Zullo, Oettingen, Peterson, & Seligman, 1988), adjustment to college (Aspinwall & Taylor, 1992), work productivity (Seligman & Schulman, 1986), prevention of depression (Sweeney, Anderson, & Bailey, 1986), and coping with unemployment (Wanberg, 1997) in addition to other desirable characteristics such as happiness, achievement, and perseverance (Peterson, 2000).

The field of counseling psychology has long espoused human strength and “has never forgotten the importance of developmental and preventative approaches to helping people cope with life’s challenges” (Savickas, 2003, p. 229). Moreover, assisting clients and employees of all ages as they seek meaning through a productive career is a central issue in vocational psychology. Our field continues to employ interventions to assist clients in discovering career aspirations, developing appropriate plans of action and following through to achieve their goals. The enterprise of career counseling is inherently future oriented and emphasizes the strengths of clients. Consistent with this tradition, looking forward with confidence to the future is often indicative of a healthy personality in western culture (Day & Rottinghaus, 2003; Savickas, 2003).

Yet, for many individuals faulty thinking, environmental barriers, or unsuccessful life experiences somehow diminish these optimistic career aspirations. A student with excellent skills may nonetheless lack a favorable view of her career future. Others may hold closely to unattainable goals (i.e., aspiring to be a neurosurgeon without the requisite ability or

motivation) without abandoning or scaling back to more realistic career options. Brown and Brooks (1991) addressed the significance of unrealistic or self-limiting aspirations such as these. They summarized several strategies frequently used in career counseling to help clients contemplate realistically the match between their aspirations and abilities. These included expanding alternatives through interest assessment, skill identification exercises, reattribution training (Fösterling, 1980), occupational exploration, developing contingency plans (Gottfredson, 1985), group counseling, and various cognitive restructuring techniques (Beck, 1976; Ellis & Harper, 1975; Meichenbaum, 1977).

Any discrepancy between a client's present credentials and career aspirations may warrant such interventions to allow for a reconsideration of plans. This conflict between one's career goals and current behaviors potentially results in numerous self-regulatory processes including avoidance, a renewed effort, goal abandonment, or scaling back to more attainable goals (Carver & Scheier, 1999). Individual differences in goal-seeking behaviors can help explain how one deals with such incongruity. For instance, the differential coping mechanisms used by optimists and pessimists have been found to affect the way individuals approach stressful events (Scheier, Weintraub, & Carver, 1986). Likewise, previous pilot studies for the present study showed that levels of optimism and adaptability systematically relate to how individuals approach various career-planning tasks (Rottinghaus, Day, & Borgen, 2000).

Given the Zeitgeist in psychological inquiry, it follows that modern approaches to vocational assessment must consider a broad array of underapplied constructs such as optimism, adaptability, future orientation, and other personal characteristics to help better understand career choice behaviors. Our work with clients stands to benefit from a

heightened awareness of how attitudes, expectations, emotions, and tendencies regarding the future might affect their vocational life course. To improve understanding of these topics, an inventory that identifies optimistic and adaptable individuals as well as those who are less positive in their career planning would strengthen counseling theory, practice and research. No instrument currently addresses the topics of optimism and adaptability as they relate to moderately general expectations for future career development, midway between overall optimism and specific self-efficacy beliefs. These constructs are logically related in that both focus on positive strengths to optimize a given circumstance.

The influential words of William James (1892) also serve as a foundation for this dissertation: “Our self-feeling in this world depends entirely on what we *back* ourselves to be and do. It is determined by the ratio of our actualities to our supposed potentialities; a fraction of which our pretensions are the denominator and the numerator our successes” (p. 310). Embracing this wisdom and modifying its constituent relationships through realistic planning can enhance individual career futures. The present investigation examines how these aspects of healthy functioning relate to personality characteristics, identity statuses, attitudes, and various aspects of college student vocational behavior.

Dissertation Organization

The focus of this dissertation is to investigate individual differences related to positive and negative ways college students perceive their future career development. It is argued that the assessment of attitudes, expectations, and emotions about the future can *augment* the meaning of traditional approaches. In particular, a new measure for assessing perceived career adaptability and optimism of clients was developed to strengthen counseling

interventions and improve the scientific understanding of these characteristics as they relate to vocational psychology.

Although likely influenced by an individual's disposition (Scheier & Carver, 1985), one's level of optimism is modifiable (Gillham, Reivich, Jaycox, & Seligman, 1995; Seligman, 1990). Likewise, "planful attitudes can be learned, thereby allowing individuals an important means of increasing their adaptability" (Savickas, 1997, p. 256). Addressing these personality characteristics and affective responses to the career development process is critical to navigating the contemporary world of work. Combining insights from the career adaptability construct within Super's (1957; Super et al., 1996) life-span life-space theory and relevant characteristics such as dispositional optimism likely relates to numerous important career attitudes and behaviors. Establishing a measure to identify optimistic and adaptable individuals, to be used in conjunction with traditional measures, can help counselors plan interventions to optimize a client's plans for developing and achieving attainable career aspirations. Moreover, this endeavor relates to counseling psychology's "significant emphasis on positive aspects of growth and adjustment" (APA, 1981, p. 654) to enable individuals to increase their capacity for career and interpersonal effectiveness.

The present study comprises six chapters. Chapter 1 provides a general introduction and context for the study. Chapter 2 includes an integrative review of the literature encompassing career development theory and self-regulatory processes involved in goal seeking behavior. Chapter 3 explains the research methods to be used in the present investigation. Next, Chapter 4 describes the initial development and validation of the Career Futures Inventory through a manuscript entitled "The Career Futures Inventory: A Measure of Career-Related Adaptability and Optimism." Chapter 5 provides additional results not

reported in the manuscript. Finally, Chapter 6 provides a brief overview of the dissertation results and addresses future directions for the assessment of adaptability and optimism in the field of vocational psychology.

CHAPTER 2. LITERATURE REVIEW

Overview

The literature review portion of this dissertation endeavors to synthesize two complementary schools of thought that have yet to be examined in concert with one another, those of Donald Super's life-span life-space theory (Super, 1957, 1981, 1990; Super et al., 1996) and Charles Carver and Michael Scheier's notion of dispositional optimism as it relates to their self-regulatory model of goal seeking behavior (Carver & Scheier, 1981; Carver & Scheier, 1998). This dissertation introduces potential benefits from the joint assessment of career optimism and adaptability upon the science and practice of vocational psychology.

Theoretical Context

Examining how people think about future career possibilities is central to counseling psychology's mission (Brown & Ryan Krane, 2000). This parallels a more general psychological goal of understanding how human thought processes affect behavior. From William James' (1890) ideas about effort and outcome expectancies, to Leona Tyler's (1969) "psychology of possibilities," to the present positive psychology movement (Seligman & Csikszentmihalyi, 2000), the field of psychology continues to address the connection between self-beliefs and potential selves. Such noteworthy concepts include attribution theory (Heider, 1958; Weiner, 1979), locus of control (Rotter, 1966), social cognitive theory (Bandura, 1977), the human development perspective (Erikson, 1968; Super, 1942), self-actualization (Maslow, 1970; Rogers, 1961), possible selves (Markus & Nurius, 1986), self-regulation (Carver & Scheier, 1985), and cognitive adaptation theory (Aspinwall & Taylor, 1992). These ideas represent diverse schools of thought within psychology and have

strengthened our understanding of human nature. After over a century of inquiry, the words of James (1892) still resonate with modern thinking on the topic of outcome expectancies:

We desire to feel, to have, to do, all sorts of things which at the moment are not felt, had, or done. If with the desire there goes a sense that attainment is not possible, we simply wish; but if we believe that the end is in our power, we will that the desired feeling, having, or doing shall be real; and real it presently becomes, either immediately upon the willing or after certain preliminaries have been fulfilled.
(p. 415)

James believed the key factor instigating action was belief in our ability to achieve a desired end. Recently, Carver and Scheier (2001) also hypothesized that confidence yields persistence. It can be inferred from this reasoning that effort toward a particular career goal is contingent upon an optimistic view of our ability to make it happen.

Within these philosophic and scientific contexts, the Career Futures Inventory (CFI; Rottinghaus et al., 2000) encompasses a number of concepts related to how individuals view their future, particularly within the career domain. Direct theoretical influences for this study stem from Savickas' (1997) extension of Super and Knasel's (1981) career adaptability construct and Carver and Scheier's (1981; Scheier, Carver, & Bridges, 1994) notion of dispositional optimism as it relates to the self-regulation of behavior. In addition, clinical experience regarding the importance of career management and clients' perceptions of future career outcomes motivated the author to pursue this line of research.

Related Theoretical Approaches and Constructs

Before elaborating upon the major theoretical underpinnings of this study, it is important to address several closely related constructs and frameworks, which have developed from different literatures. First, the concepts of self-efficacy and outcome expectations will be discussed from the perspective of Bandura's (1986) social cognitive

theory. Lent, Brown, and Hackett's (1994) adaptation of Bandura's theory, explaining the process of selection and persistence toward career goals, will also be summarized. Finally, the roles of positive affect, negative affect, and neuroticism will be discussed. The following sections will summarize briefly how these perspectives relate to and differ from the current investigation.

Social Cognitive Theories. Bandura's (1986) social cognitive theory has influenced the field of vocational psychology greatly throughout the past two decades. This framework is founded upon a triadic reciprocal causality among personal factors, behavior, and the external environment. Unlike traditional interactionist models, each of the determinants affects one another in a bidirectional manner. In particular, Bandura's conceptions of self-efficacy and outcome expectations have been widely investigated within the career domain. Similar to optimism, these notions consider an individual's expectations for the future. Self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). Outcome expectations are personal beliefs about consequences or outcomes of a specific action.

Bandura (1986) asserted that self-efficacy and outcome expectations both serve as determinants of behavior, but uniquely emphasize perceived capability and likely outcomes from behaviors, respectively. These variables differ from dispositional optimism in that they are more specific. At a very broad level, Scheier and Carver (1985) conceptualized optimism as a general tendency to expect the occurrence of good versus bad outcomes in life. According to Scheier and Carver (1992), dispositional optimism also de-emphasizes the sole influence of personal efficacy. Their conceptualization also includes "perceptions of being in

a benign or hostile environment, available assistance from other people, and belief in the effectiveness of medications or placebos” (Scheier & Carver, 1992, p. 223). Without denying the importance of specificity and the role of personal agency, Scheier and Carver’s approach takes a different view to help explain behavior. In fact, several studies support the idea that joint assessment of both specific and generalized expectancies accounts for substantially more variance in outcome behaviors than either does alone (cf. Scheier, Matthews, Owens, Magovern, Lefebvre, Abbott, & Carver, 1989; Taylor, Kemeny, Aspinwall, Schneider, Rodriguez, & Herbert, 1992).

Recently, Bandura’s social cognitive framework has been applied to the career development process. Initial applications of Bandura’s theory to the field of vocational psychology (Hackett & Betz, 1981; Krumboltz, Mitchell, & Jones, 1976) eventually burgeoned into entire research programs. Hackett and Betz (1981) were the first to apply the concept of self-efficacy to this area, motivating numerous related to career development. Relatively fewer studies have investigated the role of outcome expectancies as they relate to the career domain. Using Bandura’s social cognitive theory as a framework, Lent et al. (1994) derived Social Cognitive Career Theory (SCCT) to synthesize what was known about career choice, development, and adjustment. This model delineates how self-efficacy, outcome expectations, and contextual factors dynamically influence interests, goal selection and persistence. “Research on the role of social cognitive factors in career development intensified following the introduction of social cognitive career theory” (Swanson & Gore, 2000, p. 244). SCCT continues to have a significant influence on the field of vocational psychology as researchers attempt to explain how individuals select and pursue career goals.

Although closely linked to SCCT, the present study offers an alternative framework for understanding goal attainment behaviors by considering adaptability and moderately generalized expectancies within the career domain. When examining outcome expectancies of actions, it is important to consider multiple levels of specificity (Scheier & Carver, 1987). For example, judgments regarding career-related behaviors could range from the very specific (e.g., “Can I pass this calculus class?”), to the moderately general (e.g., “Will I be able to have a successful career?”), to the very general (e.g., “Do events in my life usually turn out for the best?”). Expectancy-based theories assume that prediction of any outcome is optimal when the level of specificity matches the particular expectancy in question (Scheier & Carver, 1987). The present study focuses on a *moderately* general view of career outcomes, albeit less general than Scheier and Carver’s (1985) perspective. It could be that expectancies within the career domain can be combined with the more specific level addressed by self-efficacy and more generalized outcome expectations to explain career-related attitudes and behaviors more accurately.

Related Constructs. It has been argued that measures of dispositional optimism merely assess positive affect, extraversion, neuroticism, or trait anxiety (Robbins, Spence, & Clark, 1991; Smith, Pope, Rhodewalt, & Poulton, 1989; Vickers & Vogeltanz, 2000). For example, Smith et al. (1989) asserted that neuroticism and negative affect are variables that best explain the effects of optimism. Smith and colleagues reported that scores on the Life Orientation Test (LOT; Scheier & Carver, 1985) showed stronger correspondence with measures of negative affectivity than with the Generalized Expectancy for Success Scale (GESS; Fibel & Hale, 1978), another measure of optimism. Likewise, the relationships between optimism and various outcome measures were reduced after controlling for

neuroticism. Robbins et al. (1991) also concluded that the significant negative relationship between optimism and health complaints disappeared after controlling for negative affectivity.

Scheier et al. (1994) later demonstrated that dispositional optimism, as measured by the LOT, is distinct from lack of neuroticism and trait anxiety, self-mastery, and self-esteem. Optimism showed significant associations with depression and coping behaviors after controlling for these competing constructs. A factor analysis of the eight items of the LOT revealed two factors (positively and negatively worded items) that were distinct from factors composed of items measuring related constructs. Additionally, a recent prospective investigation by Vickers and Vogeltanz (2000) showed that optimism significantly predicts future symptoms of depression, even after controlling for the effects of initial depressive symptoms, positive affect, negative affect, daily hassles, and the interaction between positive affect and daily hassles.

Super's Life-Span Life-Space Theory

Super's (1942) synthesis of occupational choice and adjustment literature introduced the systematic investigation of how individuals approach career planning in different contexts. His original developmental self-concept theory postulated that career choice results from an implementation of the self-concept. This developmental perspective of vocational behavior was intended to *augment* trait-and-factor theory by viewing it longitudinally (Super et al., 1996).

This primary perspective highlighted the unfolding process of vocational choice, and was later referred to as career development. Super's (Super et al., 1996) developmental viewpoint emphasizes how "careers develop as individuals master the challenges proffered

by psychosocial maturation and cultural adaptation” (p. 131). These challenges can be initiated by sequential developmental tasks “or by unpredictable adaptive tasks” (Super et al., 1996, p. 131) unrelated to age. The predictable and invariant stages of the life-span life-space model are: Growth (age 4-13), Exploration (ages 14-24), Establishment (ages 25-44), Maintenance (ages 45-65), and Disengagement (ages over 65). The idea that individuals recycle through these stages is also elucidated by the theory. Recycling can be linked with adaptability via reconsideration of different career possibilities in response to changes in self and the environment.

Super’s (1953) original ten propositions have since been modified and expanded to represent advancements in the understanding of career development (Super et al., 1996). Fourteen propositions now constitute the life-span life-space theory. Table 1 highlights seven of his points especially pertinent to this analysis. These propositions all relate to the self-concept and/or adaptability and serve as assumptions for the present investigation. Three critical aspects of Super’s theory, including self-concepts, career maturity, and career adaptability will now be summarized.

Self-Concepts

An emphasis on vocational self-concepts was infused into career development theory by Super’s (1963) chapter entitled, “Self-Concepts in Vocational Development.” The significance of the self-concept in Super’s thinking is evident in many of his theoretical propositions (see Table 1). Indeed, individuals often define themselves by their occupational designation (e.g., “I am a psychologist, biochemist, accountant, researcher, drummer, etc.”). This segment of Super’s theory includes two conceptions of self: “the objective perspective on vocational identity and . . . the subjective perspective on occupational self-concept”

Table 1. Super's Propositions Relevant to this Study

Proposition #1:	People differ in their abilities and personalities, needs, values, interests, traits, and self-concepts.
Proposition #4:	Vocational preferences and competencies, the situations in which people live and work, and hence their self-concepts change with time and experience, although self-concepts as products of social learning are increasingly stable from late adolescence until late maturity, providing some continuity in choice and adjustment.
Proposition #7:	Success in coping with the demands of the environment and of the organism in that context at any given life-career stage depends on the readiness of the individual to cope with these demands.
Proposition #9:	Development through the life stages can be guided, partly by facilitating the maturing of abilities, interests, and coping resources and partly by aiding in reality testing and in the development of self-concepts.
Proposition #10:	The process of career development is essentially that of developing and implementing occupational self-concepts. It is a synthesizing and compromising process in which the self-concept is a product of the interaction of inherited aptitudes, physical makeup, opportunity to observe and play various roles, and evaluations of the extent to which the results of role-playing meet the approval of supervisors and peers.
Proposition #12:	Work satisfactions and life satisfactions depend on the extent to which an individual finds adequate outlets for abilities, needs, values, interests, personality traits, and self-concepts. Satisfactions depend on the establishment in a type of work, a work situation, and a way of life in which one can play the kind of role that growth and exploratory experiences have led one to consider congenial and appropriate.
Proposition #13:	The degree of satisfaction people attain from work is proportional to the degree to which they have been able to implement self-concepts.

(Super et al., 1996, p. 137).

Examples of Super's (1942, 1949) objective aspect of vocational identity include individual differences in interests, abilities, values, and personality traits. Super's theory supplemented this objective view of the self by concentrating on the subjective aspect, or the "individual's understanding of the 'self-as-subject' in career development" (Super et al., 1996, p. 138). Thus, the subjective perspective highlights a person's individualized construal of what is objectively known. These two perspectives bridge, and yet distinguish, differential and developmental approaches to understanding vocational behavior. Super and associates (1996) further explain this comparison:

Objective measures of interests identify the strength of an interest relative to some comparison group, whereas subjective stories reveal the origins of that interest in a life history, the contemporary expression of the interest, and the possible future use of that interest in pursuing goals and values. (p. 139)

The present study examines how individuals perceive their career development. However, these perceptions are compared to objectively known information from inventoried measures. Individual differences within various groups of college students are also examined to determine possible interpretations of high and low scores on the scales of the Career Futures Inventory.

According to Super's theory (Super et al., 1996), one goal of career counseling is to assist clients in clarifying and accepting their "actual and the ideal self-concepts, develop harmony among the traits of the personality and life-themes, and increase realism in assessing their own traits and the opportunity structure" (p. 159). These embody aspects of the classic model put forth by Frank Parsons (1909) in which an individual gathers

information about self and career alternatives and uses true reasoning to locate an ideal match.

The present career futures project aspires to increase the likelihood of achieving a match between a client's present self-understanding and various possible selves. By combining Super's career adaptability with Carver and Scheier's research on behavioral self-regulation this study seeks to specify the process by which this understanding is achieved.

Career Maturity

Career maturity is an important segment of Super's career development theory. Super (1955) conceptualized this construct as a model for the readiness of adolescents to make vocational and educational choices. Career maturity is composed of four dimensions:

Two attitudinal dimensions deal with dispositional response tendencies for foresight and curiosity: attitudes toward career planning and career exploration. Two cognitive dimensions deal with fund of information and rational decision-making: knowledge about occupations and careers and knowledge about the principles and practice of career decision-making. (Savickas, 1997, p. 250)

Additionally, career maturity relates to a number of strengths and attitudes pertinent to the present investigation including autonomy, a sense of personal control, a realistic congruence between strengths and weaknesses, high self-esteem, good decision-making skills, and a time perspective that links the past and future (Marko & Savickas, 1998; Super, 1983; 1990). The concept of career maturity was later elaborated upon to address the entire life span (Super, 1984). However, the meaning of this term had limited utility for bridging key segments of the theory (individual differences, development, self, and context) across the entire life span.

Career Adaptability

The term "vocational maturity" did not fully epitomize Super's conception of adult career development. Eliminating the unnecessary assumptions suggested by using the term

“maturity,” Super and Knasel (1981) offered career adaptability as the more apt nomenclature. This notion “avoids any reference to maturation or growth, and it has the additional merit of being forward-looking” (Super & Knasel, 1981, p. 198) and more positive. In addition, adaptability focuses on the interaction between the person and the environment. Adaptability was seen as a skill critical to coping with the dynamic nature of planning careers in a postindustrial society. Two decades ago, Super and Knasel (1981) asserted that career adaptability “allows greater emphasis to be given to the novel, non-maturational problems which presently confront many people” (p. 199). This statement appears to be even more relevant today.

Savickas (1997) has since proposed adaptability as a way to integrate the four perspectives of the life-span life-space approach (individual differences, development, self, and context). Adaptability connects with each segment, and thus enhances their potential meaning to career practitioners and theorists. Although consideration of each segment is beneficial in understanding individual clients, the dialectic between individual differences and subjective views of self is especially relevant to the present development of a self-report measure of adaptability. This approach emphasizes the empirical measurement of adaptability as it relates an individual’s unique goals, or present self-concept. Savickas (1997) defined career adaptability as “the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions” (p. 254).

Adaptability encompasses three major components: “planful attitudes, self and environmental exploration, and informed decision making” (Savickas, 1997, p. 254). Planfulness has long served as the foundation of Super’s career maturity construct and

remains a central aspect of adaptability. Savickas (1997) encouraged counselors to help their clients expect choices and to plan ahead for future career transitions. The assessment of a client's adaptability would therefore include level of planfulness, decisional skill, as well as an awareness of self and situation in life. This will enable clients to advance, in a strategic manner, the process of attaining congruence between self and the environment.

Super and Knasel's (1981) emphasis on the relation of attitudes and behaviors clearly underscores the connection with the self-regulatory processes toward goal attainment invoked by Carver and Scheier (elaborated upon in the following section). It makes sense that adaptable individuals seek out information about their current career situation and accordingly adjust their effort and redefine their goals when necessary. The consideration of client adaptability is timely given the dramatically changing landscape of the marketplace. Likewise, adaptability was recently acclaimed in an annual review of the career development literature (Swanson & Parcover, 1998) as "a useful construct for examining what it is that career practitioners do, and what they will need to do in the future, given the changing structure of work" (p. 99).

Carver and Scheier's Self-Regulatory Model of Goal-Seeking Behavior

Numerous contemporary personality theorists emphasize the importance of goals as they relate to understanding human behavior (Austin & Vancouver, 1996; Carver & Scheier, 2001; Elliot & Dweck, 1988; Little, 1999; Pervin, 1989). These approaches each acknowledge the significance of volition and self-concept involved in pursuing particular goals. Again, James (1892) addressed this modern psychological topic over a century ago: "Our thought, incessantly deciding, among many things of a kind, which ones for it shall be

realities, here chooses one of many possible selves or characters, and forewith reckons it no shame to fail in any of those not adopted expressly as its own” (p. 186).

In addition to James’ (1892) conception of the future self, Markus and Nurius’ (1986) more recent notion of “possible selves” animates the self-concept and connects it to more concrete possibilities. Possible selves include three important representations of future potential: our ideal selves, the selves we could become, and the selves we fear becoming. Any discussion of goal attainment processes is inherently linked to the dynamic quality of the self as it relates to the future.

Goals energize and organize actions, while enhancing the meaning of life (Carver & Scheier, 1999; Pervin, 1989). Indeed, reflecting upon our goals increases current and future self-understanding. Carver and Scheier (1999) also noted the dynamic experience of achieving many goals: “The goal of developing a career isn’t just the goal of finally being ‘established.’ It’s the pathway of steps involved in getting there” (p. 554). Who we shall become is linked to present views of self as they relate to potential representations of self.

Scheier and Carver (1985) underscored how the choices involved in attaining these possible selves are influenced by level of optimism. As with James’ (1890) distinction between the actual and the potential self, and Rogers’ (1961) congruence between ideal and real selves, Carver and Scheier’s (1981) discrepancy reducing system emphasizes a match between a present reality and a goal value. Their self-regulatory approach (Carver & Scheier, 1981, 1990; Scheier & Carver, 1988) is embedded in a long tradition of expectancy-value models of motivation whereby pursuing goals is contingent upon “a sense of confidence or doubt about a goal’s attainability” (Carver & Scheier, 2001, p. 32). For example, an individual will remain actively engaged in the effort to pursue the goal of being admitted to

or what Carver and Scheier (1998) refer to as “be” goals. For example, a person’s idealized self might include a principle of being a great friend. More concrete “do” goals such as driving a friend to the airport, or starting the car, emphasize action, and are referred to as *programs* and *sequences*, respectively. Programs involve conscious decisions, whereas sequences are actions executed automatically as an entire act once cued (Carver & Scheier, 1998). Goal structures such as the previous example emphasize the interconnected nature of goals within the hierarchy. Lower levels of abstraction each simultaneously support the higher levels within this dynamic system. Figure 1 graphically displays the hierarchical organization among different types of goals.

Carver and Scheier’s organization system among goals provides an important connection with the emphasis on self-concept evident in Super’s thinking on career development. According to the hierarchical model, principles are trait-like qualities that are similar to individual differences characteristic of Super’s vocational self-concept. Developing harmony among these principles, and other aspects of career identity, would serve to realize the goal of achieving an optimal career. Since the goal of achieving optimal career status is a more general composite of principles, it is conceptualized at a higher level. However, achieving optimal career status is guided by the highest notion of the idealized self. Thus, the goal of achieving an optimal career is inserted into the hierarchical system between the principles and systems (see Figure 1). At this higher level of abstraction, the career futures project addresses aspects of attaining the “be” goal of realizing an ideal career.

Dispositional Optimism

In addition to the variation in expectancies an individual has across time or events, behavioral self-regulation can also be considered within the framework of individual

differences (Scheier et al., 1994; Scheier & Carver, 1985). This approach stresses the variability in people's characteristic views of the future. "Optimists are people who tend to hold positive expectancies for the future; pessimists are people who tend to hold more negative expectations for the future" (Scheier et al., 1994, p. 1063). Scheier and Carver (1985) developed the Life Orientation Test (LOT), a brief self-report measure, to assess this personality dimension referred to as *dispositional optimism*. These enduring positive and negative tendencies appear to show an important connection with behaviors including one's ability to adapt successfully to changing circumstances (Aspinwall, Richter, & Hoffman, 2001).

Indeed, dispositional optimism yields many positive psychological and physical benefits for individuals. Aspinwall and Taylor (1992) found that optimistic individuals adjust better to college, independent of locus of control, self-esteem, and desire for control. In general, optimists employ more problem-focused coping strategies compared to pessimists (Aspinwall and Taylor, 1992). For example, an optimistic student might be more likely to engage in tasks to complete her thesis, whereas a pessimist might procrastinate because the project is viewed as too challenging and not likely to achieve beneficial results.

Recent research supports the idea that *optimists* likely *adapt* better to new situations because of their greater flexibility in processing and acting upon information (Aspinwall & Brunhart, 1996; Aspinwall et al., 2001). "In particular, optimists seem to be more able than pessimists to vary their beliefs and behavior to match important features of the situation at hand" (Aspinwall et al., 2001, p. 218). This further strengthens the theoretical ties between these two aspects of healthy career planning.

Given these tendencies to seek out and process relevant information, optimistic individuals are also more likely to determine accurately the likelihood of successfully achieving a particular goal. Carver and Scheier (1999) discussed the processes and consequences related to premature disengagement of effort and those of pursuing unattainable goals. Disengaging from the goal seeking process too early interferes with the discovery of one's true capabilities and obviously limits the probability of achieving optimal outcomes. Likewise, ongoing commitment to an unattainable goal does not make proper use of limited resources such as time and energy. A prototypical example involves a college student who continues to pursue the goal of attending medical school despite low grades or otherwise inadequate credentials. Both of these ineffective approaches prevent individuals from discovering alternative, viable goals.

The current state of knowledge on dispositional optimism suggests that pessimistic individuals might be more likely to disengage effort while continuing commitment toward the goal (Carver & Scheier, 1999). Thus, such an individual would be more likely to avoid meeting with a professor, counselor, or advisor to seek a solution such as changing career plans or modifying behaviors to improve grades. In contrast, an optimistic student would seek out and consider critical information about the present match between their real situation and their ideal plans resulting in more effective self-regulation of career behaviors.

These beneficial approaches to living could create a reciprocal synergy further strengthening the process of behavioral self-regulation. Individuals with high levels of optimism appear to contemplate multiple pathways to success, thus demonstrating adaptability. Therefore, these adaptable individuals would be less dependent on the outcome of any single effort. Thwarted efforts are accepted with more equanimity, and alternative

routes are attractive, too. This could imbue life with further optimism. Scheier and Carver's (1985) self-regulatory model is directly relevant to the present investigation in that it attempts to explain how outcome expectancies affect goal-setting behavior such as those required to achieve career outcomes.

Summary and Focus of the Present Study

Recently, the positive psychology movement (Seligman & Csikszentmihalyi, 2000) has generated much discussion and research on human strengths such as optimism. A growing literature base suggests critical connections between dispositional optimism and various goal seeking and adaptive behaviors. Furthermore, the theoretical synthesis of Super's (Super et al., 1996) life-span life-space approach provides a meaningful context for examining adaptability as it relates to the process of career choice and development. Combining aspects from these two frameworks has great potential for enhancing the assessment of client's present views of their future career selves.

Numerous scales have been developed to measure optimism as a personality variable including the Life Orientation Test (Scheier & Carver, 1985), the Optimism and Pessimism Scale (Dember, Martin, Hummer, Howe, & Melton, 1989), the Optimism about College Life Scale (Prola, 1984), Generalized Expectancy for Success Scale (GESS; Fibel & Hale, 1978), and the Positive Emotions scale of the NEO PI-R (Costa & McCrae, 1992). The Career Futures Inventory (CFI; Rottinghaus, Day, & Borgen, 2000) is unique in that it assesses domain-specific optimistic beliefs about an individual's approach to career planning and the outcomes that ensue.

Related concepts such as career resiliency (Herr, 2001; Fischer & Stafford, 1999) and adaptability (Goodman, 1994; Savickas, 1997; Super & Knasel, 1979; Super et al., 1996;

Swanson & Parcover, 1998) are frequently discussed in the vocational literature. To date, only a few instruments have been developed to assess adaptability as level of concern with career development tasks (Super, Thompson, & Lindeman, 1988a) or knowledge and attitudes about career choices (Crites, 1978; Super, Thompson, Lindeman, Jordaan, & Myers, 1988b). Super's approach measures how properly an individual adapts to his or her present stage of career development. In contrast, adaptability in the present study is a specific tendency, which affects the way an individual views his or her capacity to handle the career planning tasks and changing circumstances in the future.

The development and construct validation of the CFI will serve as the centerpiece of this dissertation. Once establishing a psychometrically sound measure of career optimism and adaptability, the present study attempts to explain how these constructs relate to individual differences, such as interests, self-efficacy, and personality traits, frequently assessed in vocational psychology. Within the context of traditional approaches to career and life planning, the assessment of optimism and adaptability could provide additional information for counselors and clients alike. Likewise, results from this investigation will add to the present scientific knowledge base by reporting how these variables are similar to and different from interests, self-efficacy, and personality traits.

This theory-driven scale development project attempts to assess a client's career optimism and perceived adaptability including planfulness, decisional skill, as well as an awareness of self and situation. The CFI emphasizes the empirical measurement of dispositional generalized expectancies within the career domain and adaptability as it relates an individual's unique career goals and present self-concept. In particular, the CFI relates to the goal of achieving an individualized optimal career status, situated between Carver and

Scheier's (1998) trait-like principles and the global idealized self. This general view of career outcomes differs from the more specific level addressed by self-efficacy and outcome expectations discussed within SCCT.

Based on the previous review of the literature, several constructs are related to optimism, and thus share common variance. Figure 2 depicts the common and unique variance theoretically predicted among career optimism, self-efficacy for career-related tasks, and positive affect. Scheier et al. (1994) demonstrated that dispositional optimism, as measured by the LOT, is distinct from neuroticism, trait anxiety, self-mastery, and self-esteem. Consequently, this investigation seeks to demonstrate the incremental validity of career related optimism, after controlling for self-efficacy and positive affect, as they relate to career exploration and career choice behaviors. Figure 3 represents this hypothesized incremental validity. Given that adaptability is an important characteristic of optimistic individuals, many predictions of this investigation conceptualize these two constructs similarly.

This study also attempts to determine linkages between optimism and the content scales of the Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994) including the general occupational themes (GOTs), basic interest scales (BISs), and the personal style scales (PSSs). Among the GOTs, Enterprising and Social interests are expected to correspond with career optimism, with Enterprising showing stronger correspondence. These domains are heavily saturated with extraversion (Larson, Rottinghaus, & Borgen, 2001), and were identified by Deiner (1984) as a correlate of positive mood by way of the sociability component. Several BISs grouped under Enterprising and Social interests, such as Sales, Public Speaking, Law/Politics, and Teaching are also expected to

correspond with career related optimism.

The Leadership personal style scale, which “reflects a preference for meeting directing, persuading, and leading other people” (Harmon et al., 1994, p. 159), is expected to correspond with career optimism. Individuals scoring toward the “directs others” pole move readily into interpersonal settings, enjoy motivating others, and take charge in organizational settings (Harmon et al., 1994). This hypothesis is also supported by Campbell’s (1998)

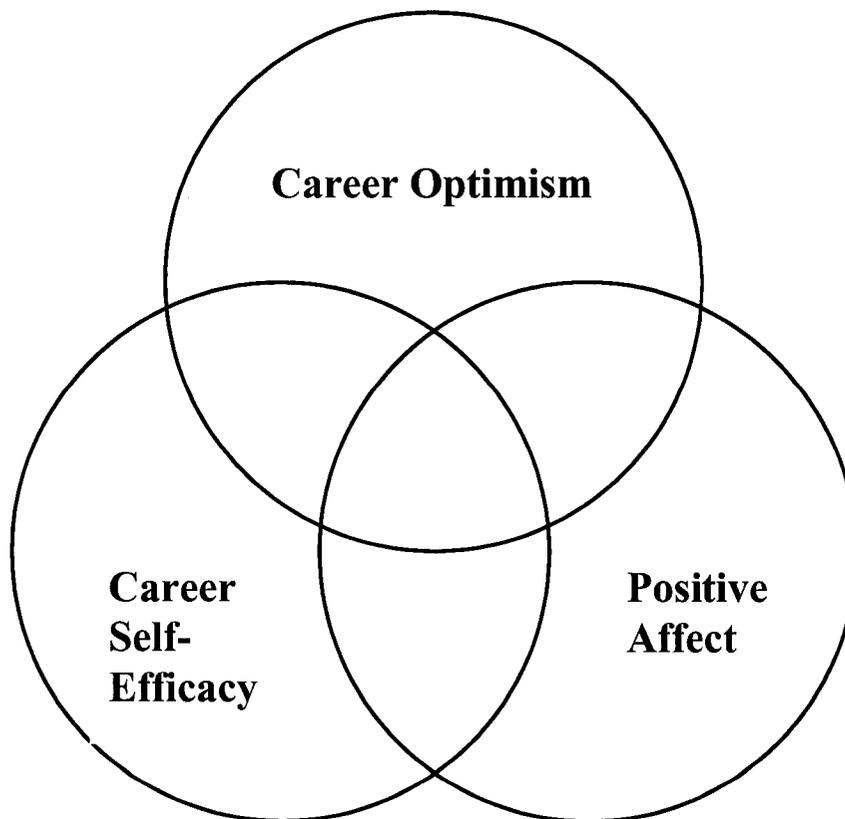


Figure 2. Overlap Predicted among Career Optimism, Self-Efficacy, and Positive Affect

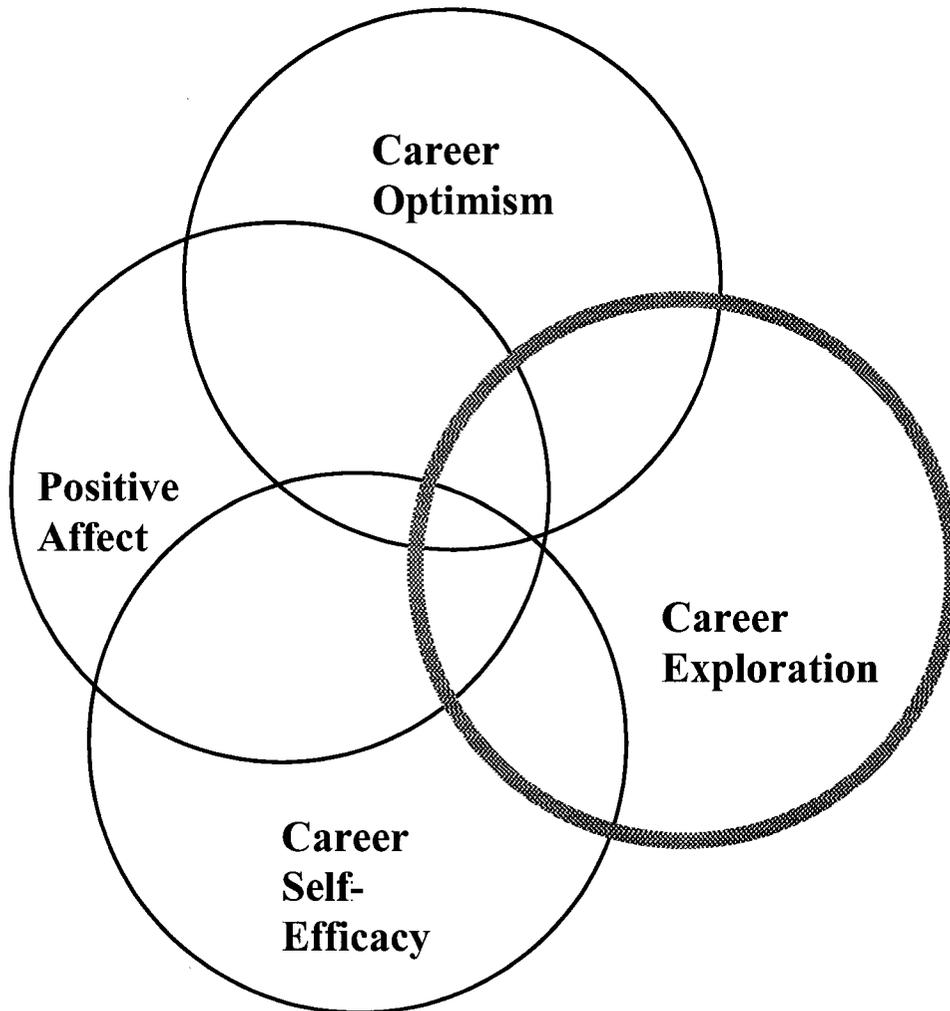


Figure 3. Incremental Validity of Career Optimism on Career Exploration, after Controlling for Self-Efficacy and Positive Affect

assertion, based on a profile analysis of interests and skills confidence, that optimistic individuals are more likely to become leaders of organizations.

The Learning Environment PSS, which assesses preference for formal versus practical educational environments, is expected to be associated positively with career optimism. Such results would be consistent with the idea that college students who enjoy classroom learning also maintain a more positive outlook regarding their career futures. Since the Learning Environment PSS relates most strongly to Artistic and Investigative GOTs, these domains might also relate to career optimism. However, this prediction runs counter to the aforementioned theoretical connection between optimism, extraversion, and Enterprising interests. Perhaps career related optimism and generalized optimism can be distinguished on this dimension.

The construct validation of the CFI also includes the examination of optimism and adaptability as they relate to career development behaviors and situations including exploration of careers, career and major choice status, and vocational identity status. It is expected that those high in optimism will engage in the career development process more thoroughly as reflected by self-reported attention to thoughts and time spent engaged in career-planning activities. Optimism is also expected to differ depending on career-indecision status. This prediction is supported by a recent study by Lucas and Wanberg (1995), which indicated that career-indecision status showed a moderate negative relationship with optimism. Moreover, career optimism is expected to account for incremental variance in career outcome behaviors beyond the contribution of skills confidence and positive affect (see Figure 3).

It is hoped that expanding the present understanding of the assessment of optimism, and adaptability will improve upon our understanding of these constructs, particularly as they relate to vocational behavior. Results from this line of research eventually will lead to better identification, modification, and achievement of appropriate career-related goals.

CHAPTER 3. METHOD

Participants

A total of 663 participants across six samples from a large Midwestern university were used herein. The entire sample for this study contained 417 (62.9%) women and 241 (36.3%) men. Five participants (0.8%) did not indicate their gender. Three-hundred-eighty-two (57.6%) of the participants were enrolled in introductory psychology classes and volunteered to participate for extra credit, 222 (33.5%) were students enrolled in an undergraduate career exploration course in a college of Liberal Arts and Sciences, and 59 (8.9%) were enrolled in a psychological measurement course. Of these participants, 444 (67.0%) had declared a major, and 617 (93.1%) were enrolled in the following academic colleges: Agriculture (33), Business (128), Design (30), Education (83), Engineering (34), Family and Consumer Sciences (34), and Liberal Arts and Sciences (218). A subset of this sample ($n = 36$) completed the CFI twice over a three-week interval to determine test-retest reliability of the scales of the CFI.

There were 287 (43.3%) freshmen, 206 (31.1%) sophomores, 74 (11.2%) juniors, 88 (13.3%) seniors, and 8 (1.3%) unclassified participants in this sample. Forty-one (6.2%) were Asian/Pacific Islander, 31 (4.7%) were African American, 16 (2.4%) were Latino, 3 (0.5%) were American Indian, 545 (82.2%) were Caucasian, and 16 (2.4%) were from other ethnic categories. Regarding educational aspirations, 52 (7.8%) had no degree plans, 282 (42.5%) planned to complete their education with a bachelor's degree, 211 (31.8%) sought a master's degree, 25 (3.8%) aspired to a law degree, 24 (3.6%) sought a medically-related degree (M.D./D.D.S./D.V.M.), and 61 (9.2%) aspired to a doctoral degree. The career choice status

of the participants was diverse, including 193 (29.1%) who were undecided, 266 (40.1%) who were tentatively decided, and 176 (26.5%) who had decided upon a particular career.

Measures

Demographic and Career Planning Questionnaire. All participants completed a brief demographic and career-related attitudes and behaviors questionnaire (see Appendix A). Participants reported their age, GPA, gender, ethnicity, year in school, educational aspirations (Some College, B.A./B.S., M.A./M.S., J.D, M.D./D.D.S./D.V.M., Ph.D/Ed.D.), and declared major status. They also responded to numerous questions regarding their career identity, major satisfaction, and exploration beliefs and behaviors, in addition to reporting their certainty of college major and career choice status (“Undecided,” “Tentatively Decided,” and “Decided”), and current career plans.

The career identity status variable is especially noteworthy and requires some explanation. This item was constructed based on Marcia’s (1966) research investigating styles of coping with the identity resolution process of Erikson’s (1964) psychosocial model. Based on examination of interviews with over 800 college students, Marcia (1966) defined characteristics of students based on whether they had experienced a crisis or made life commitments (e.g., relationships, career). He postulated the existence of four identity statuses: identity diffuse (no crisis, no commitments), moratorium (crisis experienced, no commitments), foreclosed (no crisis, commitments), and achieved (crisis experienced, commitments made). This 2 X 2 typology has since been adapted to identify students who are concerned about their career plans (i.e., experiencing a crisis) or not by whether or not they have made career commitments. Participants responded to the following item focused directly on career-related identity statuses:

Choose the one description below that you feel best represents your career plans at this time:

- (1) I have not made a career choice at this time and I do not feel particularly concerned or worried about it.
- (2) I have not made a career decision at this time and I am concerned about it. I would like to make a decision.
- (3) I have chosen a career and although I have not investigated it or other career alternatives thoroughly, I think I would like it.
- (4) I have investigated a number of careers and have selected one. I know quite a lot about this career, including the kinds of training or education required and the outlook for jobs in the future.

Revised Life Orientation Test (LOT-R). The revised Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994) is a 10-item self-report measure of generalized expectancies for positive versus negative outcomes, or dispositional optimism. The LOT-R comprises three positively keyed items, three negatively keyed items, and four filler items. Scheier et al. (1994) reported a Cronbach's alpha internal consistency estimate of .78, with test-retest reliabilities ranging from .56 to .79. The LOT-R correlated moderately with measures of self-mastery (.48), trait anxiety (-.53), self-esteem (.50), and neuroticism (-.36). Scheier et al. (1994) demonstrated that dispositional optimism, as measured by the LOT-R, is distinct from lack of neuroticism and trait anxiety, self-mastery, and self-esteem. Optimism showed significant associations with depression and coping behaviors after controlling for these competing constructs.

Strong Interest Inventory (SII). The Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994) is an empirically based measure used to assess vocational interests, Holland's six types (General Occupational Themes), 25 specific clusters of interest areas (Basic Interest Scales), and preferences for four broad styles of living and working (Personal Style Scales). The present study briefly addresses the General Occupational

Themes and Basic Interest Scales, but focuses on the Personal Style Scales: Work Style, Learning Environment, Leadership Style, and Risk Taking/Adventure.

High scores on the Work Style scale indicate a preference for working with people. Low scores indicate a preference for working with ideas, data, and things (Harmon et al., 1994). The internal consistency of the Work Style scale is high, with a Cronbach's alpha of .91 (Harmon et al., 1994).

The Learning Environment scale replaced the Academic Comfort scale of the *Strong-Campbell Interest Inventory* (Campbell & Hansen, 1981). Low scores indicate a preference for applied, practical learning environments and high scores indicate a preference for academic learning environments (Harmon et al., 1994).

On the Leadership Style scale, high scores indicate a preference for meeting, directing, persuading, and leading other people, whereas low scores reflect a preference for leading by example (Harmon et al., 1994). People scoring highly on this scale tend to exhibit preferences for Holland's Enterprising theme. The internal consistency of the 23 items composing the Leadership Style scale is high, with a Cronbach's alpha of .86 (Harmon et al., 1994).

High scores on the Risk Taking/Adventure scale indicate a tendency to act on the spur of the moment, seek novel situations, and take social, physical, and financial risks. The nine items composing the Risk Taking/Adventure scale display a moderately high internal consistency, with a Cronbach's alpha of .78 (Harmon et al., 1994).

Skills Confidence Inventory (SCI). The 60-item Skills Confidence Inventory (SCI; Betz, Borgen, & Harmon, 1996) measures General Confidence Themes (GCTs) corresponding to Holland's six types and measures participants' perceived level of

confidence in each of these six areas. Scores on the GCTs range from 1.0 to 5.0 and are computed by summing the responses for the 10 items composing each scale and dividing by the number of completed items. An overall average skills confidence was computed by summing the scores of the six GCTs and dividing by six. Internal consistency estimates ranged from an alpha of .84 for the enterprising scale to an alpha of .88 for the realistic scale (Betz et al., 1996). The 3-week test-retest reliabilities for the six scales were high, ranging from .83 for realistic to .87 for social. The GCTs have demonstrated concurrent validity in their ability to distinguish occupational groups as predicted by Holland's hexagon.

Expanded Skills Confidence Inventory (E-SCI). The *Expanded Skills Confidence Inventory* (E-SCI; Betz et al., in press) measures self-efficacy or confidence with respect to 17 basic dimensions of vocational activity parallel to Basic Interest dimensions of the SII. Although the 1994 SII contains 25 BISs, economy of use and interpretation, as well as substantive import, led to the decision to develop confidence scales for many but not all of these basic dimensions. Decisions regarding which Basic Confidence Scales (BCSs) to develop were based on the degree to which dimension is important to many, rather than only a few, occupational groups (e.g., Public Speaking, Writing, Leadership) and also reflects current trends in the labor market. The new scales included Using Technology, Creative Production, Cultural Sensitivity, Project Management, and Teamwork, all of which represent either emphases of the increasingly high-tech labor market or emphases within organizations toward greater focus on interpersonal cooperation and diversity.

As with the *Skills Confidence Inventory*, the prototype for the E-SCI, items were either activities (e.g., "Ride a horse") or school subjects (e.g., "Calculus"). Responses were obtained on a 5-point scale ranging from "No Confidence at All" (1) to "Complete

Confidence” (5). For school subjects items, respondents were asked to indicate their degree of confidence in completing the course successfully.

The inventory was developed in samples of 972 employed adults and 934 college students. Values of coefficient alpha for the final scales ranged from .80 to .94 (adults) and .84 to .94 (college students). Alphas were lowest for Office Services and highest for Using Technology, Mechanical, Science, and Project Management. Initial evidence for scale validity was provided by predicted correlations with General Confidence (Holland) scores from the SCI and by discriminant analyses of scores across the eight largest occupational groups.

The Positive and Negative Affect Schedule (PANAS). The PANAS (Watson, Clark, & Tellegen, 1988) comprises two 10-item scales assessing positive and negative affect. The PANAS was originally validated with a sample of non-clinical adults and continues to be used to gauge emotion among normal individuals. Measures of internal consistency ranged from .86 to .90 for Positive Affect and from .84 to .87 for Negative Affect (Watson et al., 1988).

NEO Five-Factor Inventory (Form S) (NEO-FFI [Form S]). The NEO-FFI (Form S) (Costa & McCrae, 1992) is a 60-item self-report instrument developed through factor-analytic methods as a short form of the NEO-PI. The NEO-FFI (Form S) intends to measure the five major dimensions of normal personality: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Participants are asked to respond to items using a 5-point scale ranging from strongly disagree (0) to strongly agree (4). Several items are reverse-scored to reduce acquiescent responding. Costa and McCrae (1992) reported Cronbach’s alpha internal consistency reliability coefficients of .86,

.77, .73, .68, and .81 for NEO-FFI (Form S) N, E, O, A, and C scales, respectively. Evidence of construct validity for this instrument is indicated by correlations with self-report adjective factors of the five-factor model. Costa and McCrae (1992) reported convergent validity correlations ranging from .56 to .62; absolute discriminant validity coefficients ranged from .00 to .20. In addition, Costa and McCrae reported high correlations of .92, .90, .91, .77, and .87 between N, E, O, A, and C scales of the NEO-FFI (Form S), respectively, and the corresponding domains of the NEO-PI-R (Costa & McCrae, 1992).

Self-Directed Search (SDS). The Self-Directed Search (SDS; Holland, 1985) is a 228-item instrument designed to estimate an individual's resemblance to each of the six Holland personality types. Scores for Realistic, Investigative, Artistic, Social, Enterprising, and Conventional interests are obtained by summing self-ratings of Preferences for Activities, Competencies, Occupational Preferences, and Ability Self-Estimates.

Holland (1985) reported KR-20 internal consistency estimates for SDS summary scales ranging from .86 to .91 for a sample of young adults. Although estimates of test-retest reliability were not reported for the most recent version of the SDS, Holland (1985) reported 1 to 4-week retest reliability estimates of the summary scales for the 1977 edition of the SDS ranging from .70 to .89 for a sample of 30 adults.

The Problem Solving Inventory (PSI). The Problem Solving Inventory (PSI; Heppner, 1988) is a 35-item measure that was designed to assess perceived awareness of individuals' generalized problem-solving abilities, rather than objective skill. The PSI consists of the following three scales: Problem-Solving Confidence (PSC), Approach-Avoidance Style (AAS), and Personal Control (PC). The PSC scale includes 11-item measuring one's self-assurance and trust across a wide range of problem-solving activities. The AAS scale

includes 16 items measuring a general tendency to approach or avoid different problem-solving activities. The PC scale includes 5 items and assesses one's perceived control of emotions and behaviors during the course of solving problems. Heppner (1988) reported internal consistency estimates ranging from .72 to .90 and two-week test-retest coefficients ranging from .83 to .89.

Development and Validation of the Career Futures Inventory (CFI)

Rottinghaus et al. (2000) reported results from several pilot studies for the initial development of the CFI. This initial version of the CFI contained 64 items and was designed using the rational method to assess clients' judgments concerning their views of their future career development and their own effective use of personal characteristics and resources for developing and implementing career plans. Two vocational psychologists assisted in discussing the choice and phrasing of items. In addition, insights from clinical experience guided item construction. Savickas' (1997) extension of Super and Knasel's (1981) career adaptability construct and Carver and Scheier's (1985) dispositional optimism construct provided some theoretical context for scale development.

The initial item pool was administered to a sample of 1195 college students enrolled in introductory psychology courses. Participants indicated the degree to which they agree or disagree with each statement, using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Twelve items were eliminated due to very high or low means (e.g., "I have the ability to pursue my career goals" with a mean of 4.29 on a scale of 5). Results from an item analysis of scale homogeneity and exploratory principal axis factor analysis, using a promax rotation, revealed the following three components accounting for 36% of the variance of the final 41-item version of the CFI:

- (1) Career Adaptability: The way an individual perceives his or her capacity to cope with and capitalize on change in the future, level of comfort with new work responsibilities, and ability to recover when unforeseen events alter career plans (e.g., “I enjoy trying new tasks”).
- (2) Career Pessimism: A negative emotional and cognitive set affecting one’s view of future career development (e.g., “Thinking about my career frustrates me”).
- (3) Career Optimism: A disposition to expect the best possible outcome or to emphasize the most positive aspects of one’s future career development (e.g., “Thinking about my career inspires me”).

Each CFI scale was constructed to measure positive aspects of career outlook and development. Items measuring negative outlook were reverse-scored in calculating CFI scores. For example, “Change in my career plans can sometimes be overwhelming” was reverse-scored for Adaptability.

Although results from these pilot studies generally supported the presence of three factors (Career Optimism, Career Adaptability, and Career Pessimism), several items did not directly address career-related concerns. Thus, the initial version of the CFI was modified slightly to more directly assess the career domain, and minimize content overlap with general optimism. Additional items were added to enhance the theoretical connection with career adaptability (Savickas, 1997; Super & Knasel, 1981). This resulted in a 69-item research scale, included in Appendix B. Data from the CFI will be analyzed to determine dimensions for the final scale development reported in Chapter 4.

Hypotheses

To gather evidence for construct validity of the CFI, relations with other measures of personal characteristics were examined. In particular, this study demonstrated convergent and discriminant validity with measures of generalized outcome expectancies, problem solving style, positive and negative affect, self-efficacy, interests, and personality. In addition, relationships between CFI scores and several career-related outcomes important to college students were examined including career identity status, level of educational aspiration, certainty of major and career choice status, effort toward career exploration, level of interest as measured by averaging the six GOTs of the SII and six scales of the SDS, and level of skills confidence as measured by averaging the six GCTs of the SCI. A detailed explication of the hypotheses for this investigation was contingent upon the results of the factor analysis and subsequent scale development. The following nine specific hypotheses were proposed for this study:

- 1) The scales composing the CFI will relate to existing measures of optimism, personality, positive and negative affect, and self-efficacy in systematic ways to demonstrate convergent and discriminant validity.
- 2) Career optimism and adaptability, as measured by the CFI, will account for incremental variance in career outcome behaviors beyond the contribution of generalized dispositional optimism, positive affect, personality characteristics, and skills confidence (e.g., Figure 3).
- 3) Mean scores for career optimism scales will increase as level of educational aspiration increases.

- 4) Mean scores for the optimism and adaptability scales will increase as certainty of major and certainty of career choice (“Undecided,” “Tentatively Decided,” and “Decided”) increases.
- 5) Career Optimism and Adaptability will show a positive relationship with number of hours spent engaged in career exploration activities.
- 6) Career Optimism and Adaptability will show a positive relationship with grade-point-average.
- 7) Career Optimism and Adaptability will show a positive relationship with the Leadership Style and Learning Environment Scales of the Strong Interest Inventory.
- 8) Mean scores for Career Optimism and Adaptability will increase as levels of career planning commitment and crisis increase using a career-related modification of Marcia’s (1966) 2 X 2 identity status typology.
- 9) Career Optimism will show a positive relationship with average level of interest and skills confidence.

Data Analyses

All analyses will be conducted with combined male and female samples if no sex differences among any of the CFI scales appear to be present. Statistical analyses will begin with an exploratory factor analysis to identify the factor structure of the 69 items composing the CFI. Subsequently, a confirmatory factor analysis will be conducted to test the tentative scales based on the factor structure identified and item-analysis of scale homogeneity from the previous scale development.

Next, the reliability of the CFI scales will be computed. Reliability of the CFI will be demonstrated by computing Pearson product-moment coefficients to determine the three-week test-retest stability. Cronbach's alpha coefficients will be computed to estimate the internal consistency of the CFI scales.

Following scale development, the construct validation of the CFI will be investigated using several statistical methods. Both Pearson product-moment zero order and partial correlation coefficients will be computed to demonstrate convergent and discriminant validity between the resulting scales of the CFI and the aforementioned constructs. Several hierarchical multiple regression analyses will be conducted to test aspects of the hypothesis that the scales of the CFI will account for incremental variance in career outcome behaviors beyond the contribution of generalized dispositional optimism, positive affect, personality characteristics, and skills confidence. Several univariate and multivariate analyses of variance will be computed to determine if differences exist among status questions including career choice, major choice, and vocational identity. Finally, a multivariate analysis of variance will be computed to determine if participants endorsing four different vocational identity statuses differ according to a set of predictors including the CFI scales, as well as personality, self-efficacy, and interests.

**CHAPTER 4: THE CAREER FUTURES INVENTORY:
A MEASURE OF CAREER-RELATED ADAPTABILITY AND OPTIMISM**

A paper accepted for publication in the *Journal of Career Assessment*

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Abstract

The purpose of this study was to provide initial results on the development and validation of the Career Futures Inventory (CFI), a new 25-item measure of positive career planning attitudes. Items were originated using the rational method. Results from an item analysis of scale homogeneity and exploratory factor analysis in a sample of 690 undergraduates from a large midwestern university revealed three subscales: (1) Career Adaptability; (2) Career Optimism; and (3) Perceived Knowledge. Confirmatory factor analyses indicated that the three-factor model provided an excellent fit to the data. Additional analyses established high internal consistency, temporal stability, and construct validity through examination of correlates with dispositional optimism, Big Five personality characteristics, generalized problem-solving, vocationally-relevant self-efficacy, interests, and numerous career-relevant attitudes and outcomes. Implications for future research and counseling practice are discussed.

The Career Futures Inventory: A Measure of Career-Related Adaptability and Optimism

Assisting clients of all ages as they seek meaning through a productive career is a central purpose of vocational psychology. Our field continues to employ interventions to assist clients in discovering career aspirations, developing appropriate plans of action and following through to achieve their goals. The enterprise of career counseling is inherently future oriented and emphasizes the strengths of clients. Consistent with this tradition, looking forward with confidence to the future is often indicative of a healthy personality (Day & Rottinghaus, 2003; Marko & Savickas, 1998; Savickas, 2003). This point of view relates to counseling psychology's "significant emphasis on positive aspects of growth and adjustment" (APA, 1981, p. 654) to enable individuals to increase their capacity for career and interpersonal effectiveness.

Recently, the positive psychology movement (Seligman & Csikszentmihalyi, 2000) has brought prominence to these important aspects of human development. In particular, optimism has generated much discussion and research in psychology. Many studies have shown the beneficial aspects of optimism, including physical health (Peterson, Seligman, & Vaillant, 1988), adjustment to college (Aspinwall & Taylor, 1992), work productivity (Seligman & Schulman, 1986), prevention of depression (Sweeney, Anderson, & Bailey, 1986), and coping with unemployment (Wanberg, 1997), in addition to other desirable characteristics such as happiness, achievement, and perseverance (Peterson, 2000).

These varied outcomes of positive views are well recognized and central to the work of vocational psychologists and career counselors. Applied psychologists have generated prominent theories that highlight the importance of positive outlook, confidence, informed decision-making, congruence, and adjustment to the world of work. In particular, life-span,

life-space theory (Super, 1942; Super, Savickas, & Super, 1996) highlights the connection between planful exploration and the positive implementation of the self-concept (Super, 1963). Indeed, individuals often define themselves by their occupational designation (e.g., “I am a psychologist, chef, biochemist, researcher, teacher, etc.”).

A key aspect of Super’s (1955) theory was career maturity, conceptualized as the readiness of adolescents to make vocational and educational choices. Career maturity relates to a number of strengths and attitudes pertinent to the present investigation, including autonomy, a sense of personal control, a realistic comparison of strengths and weaknesses, high self-esteem, good decision-making skills, and a time perspective that links the past and future (Super, 1983; 1990). However, career maturity demonstrated many shortcomings by emphasizing tasks central to the exploration stage of adolescence. Its emphasis on fund of information about careers and rational decision-making has limited utility in explaining the career development process across the entire life span in a postindustrial economy.

Career Adaptability

Eliminating the unnecessary assumptions suggested by using the term “maturity,” Super and Knasel (1981) offered career adaptability as the more apt nomenclature. This notion “avoids any reference to maturation or growth, and it has the additional merit of being forward-looking” (Super & Knasel, 1981, p. 198) and more positive. Since then, Savickas (1997) has proposed adaptability as a way to integrate the four perspectives of the life-span life-space approach (individual differences, development, self, and context). Adaptability connects with each segment, and thus integrates their potential meaning for career practitioners and theorists. Savickas (1997) defined career adaptability as “the readiness to cope with the predictable tasks of preparing for and participating in the work role and with

the unpredictable adjustments prompted by changes in work and working conditions” (p. 254). Adaptability encompasses three major components: “planful attitudes, self and environmental exploration, and informed decision making” (Savickas, 1997, p. 254).

The consideration of adaptability is timely given the dramatically changing landscape of the marketplace (Goodman, 1994; Morrison & Hall, 2002; Phillips, 1997). Swanson & Parcover (1998) called it “a useful construct for examining what it is that career practitioners do, and what they will need to do in the future, given the changing structure of work” (p. 99). Related concepts such as career resiliency (Fischer & Stafford, 1999) are frequently discussed in the vocational literature. To date, only a few instruments have been developed to assess adaptability as level of concern with career development tasks (Super, Thompson, Lindeman, Jordaan, & Myers, 1988a) or knowledge and attitudes about career choices (Crites, 1978; Super, Thompson, Lindeman, Jordaan, & Myers, 1988b). Super’s approach measures how properly an individual adapts to his or her present stage of career development regarding knowledge of career development tasks. In contrast, career adaptability in the present study is a tendency affecting the way an individual views his or her capacity to plan and adjust to changing career plans and work responsibilities, especially in the face of unforeseen events.

Dispositional Optimism

Scheier and Carver’s (1985) concept of dispositional optimism refers to a generalized expectation that good things will happen in the future. Dispositional optimism relates to their self-regulatory model of goal seeking behavior, which examines how outcome expectancies affect goal-setting behaviors such as those required to achieve career outcomes. In fact, several researchers have noted potential benefits of optimism in establishing career plans

(Creed, Patton, & Bartrum, 2002; Lucas & Wanberg, 1995; Marko & Savickas, 1998; Savickas, Silling, & Schwartz, 1984) and later success in leadership roles (Campbell, 1998).

Dispositional optimism is most frequently assessed by the Life Orientation Test (Scheier & Carver, 1985; Scheier, Carver, & Bridges, 1994), which demonstrates relationships to important life outcomes. Recent research supports the idea that optimists likely adapt better to new situations because of their greater flexibility in processing and acting upon information (Aspinwall, Richter, & Hoffman, 2001). Carver & Scheier (2001) also theorized that pessimistic individuals might be more likely to disengage effort while continuing commitment toward a goal.

No instrument currently addresses expectations for future career development, which represent a middle level of generality between overall optimism and specific self-efficacy beliefs. This paper introduces the Career Futures Inventory (CFI), which uniquely assesses domain-specific optimistic beliefs about an individual's approach to career planning.

Focus of the Current Study

The purposes of this investigation were to integrate generalized career planning strengths into vocational psychology through assessing career-relevant adaptability and optimism. These individual differences affect how college students perceive their career planning process. Addressing these personality characteristics and attitudes toward career development is pivotal in navigating the world of work in the 21st century. The CFI encompasses concepts related to how individuals view their future, particularly within the career domain. Direct theoretical influences for this study stem from Savickas' (1997) extension of Super and Knasel's (1981) career adaptability construct and Carver and Scheier's (1981; Scheier et al., 1994) notion of dispositional optimism as it relates to the self-

regulation of behavior. These constructs are logically related in that both focus on positive strengths to optimize a given state of affairs. In addition, clinical experience regarding the importance of career management and clients' perceptions of future career outcomes motivated the authors to pursue this line of research.

We first explain the development of the CFI, a new measure assessing attitudes, expectations, and emotions about one's career. Next, we examine the reliability and construct validation of the CFI. Evidence for construct validity was obtained by examining the relations between the CFI scales and other measures of optimism, problem solving, skills confidence, positive and negative affect, the Big Five personality characteristics, and vocational interests. We also investigate relationships between CFI scores and several career-related outcomes important to college students, including career identity, level of educational aspiration, certainty of major and career choice, and career exploration. Finally, we summarize the current status and future directions for the assessment of career-related adaptability and optimism. The CFI enables researchers to examine career adaptability (Savickas, 1997), theorized to bridge the segments of Super's (Super et al., 1996) life-span, life-space theory. Moreover, this assessment shows potential for enriching the meaning of traditional career interventions.

Method

Participants

A total of 663 participants across six subsamples from a large Midwestern university were used herein. The entire sample for this study contained 417 (62.9%) women and 241 (36.3%) men. Five participants (0.8%) did not indicate their gender. Three-hundred-eighty-two (57.6%) of the participants were enrolled in introductory psychology classes and

volunteered to participate for extra credit, 222 (33.5%) were students enrolled in an undergraduate career exploration course in a college of Liberal Arts and Sciences, and 59 (8.9%) were enrolled in a psychological measurement course. Of these participants, 444 (67.0%) had declared a major, and 617 (93.1%) were enrolled in the following academic colleges: Agriculture (33), Business (128), Design (30), Education (83), Engineering (34), Family and Consumer Sciences (34), and Liberal Arts and Sciences (218). A subset of this sample ($n = 36$) completed the CFI twice over a three-week interval to determine test-retest reliability of the scales of the CFI.

There were 287 (43.3%) freshmen, 206 (31.1%) sophomores, 74 (11.2%) juniors, 88 (13.3%) seniors, and 8 (1.3%) unclassified participants in this sample. Forty-one (6.2%) were Asian/Pacific Islander, 31 (4.7%) were African American, 16 (2.4%) were Latino, 3 (0.5%) were American Indian, 545 (82.2%) were Caucasian, and 16 (2.4%) were from other ethnic categories. Regarding educational aspirations, 52 (7.8%) had no degree plans, 282 (42.5%) planned to complete their education with a bachelor's degree, 211 (31.8%) sought a master's degree, 25 (3.8%) aspired to a law degree, 24 (3.6%) sought a medical-related degree, and 61 (9.2%) aspired to a doctoral degree. The career choice status of the participants was diverse, including 193 (29.1%) who were undecided, 266 (40.1%) who were tentatively decided, and 176 (26.5%) who had decided upon a particular career.

Measures

Demographic and Career Planning Questionnaire. All participants completed a brief demographic and career-related attitudes and behaviors questionnaire. Participants reported their GPA, gender, ethnicity, year in school, educational aspirations (Some College, B.A./B.S., M.A./M.S., J.D., M.D./D.D.S./D.V.M., Ph.D/Ed.D.), and declared major status.

They also responded to numerous questions regarding their career identity, and exploration beliefs and behaviors, in addition to reporting their certainty of college major and career choice status (“Undecided,” “Tentatively Decided,” and “Decided”).

The career identity status variable is especially noteworthy and requires some explanation. This item was constructed based on Marcia’s (1966) research investigating styles of coping with the identity resolution process of Erikson’s (1964) psychosocial model. In examining interviews with over 800 college students, Marcia (1966) defined characteristics of students regarding their experiences of psychosocial crises or commitments (e.g., relationships, career). He postulated the existence of four identity statuses: identity diffuse (no crisis, no commitments), moratorium (crisis experienced, no commitments), foreclosed (no crisis, commitments), and achieved (crisis experienced, commitments made). This 2 X 2 typology has since been adapted to identify students who are concerned about their career plans (i.e., experiencing a crisis) or not, sorted by whether or not they have made career commitments. Participants responded to the following item focused directly on career-related identity statuses:

Choose the one description below that you feel best represents your career plans at this time:

- (1) I have not made a career choice at this time and I do not feel particularly concerned or worried about it.
- (2) I have not made a career decision at this time and I am concerned about it. I would like to make a decision.
- (3) I have chosen a career and although I have not investigated it or other career alternatives thoroughly, I think I would like it.
- (4) I have investigated a number of careers and have selected one. I know quite a lot about this career, including the kinds of training or education required and the outlook for jobs in the future.

Revised Life Orientation Test (LOT-R). The revised Life Orientation Test (LOT-R; Scheier et al., 1994) is a 10-item self-report measure of generalized expectancies for positive versus negative outcomes, or dispositional optimism. The LOT-R comprises three positively keyed items, three negatively keyed items, and four filler items. Scheier et al. (1994) reported a Cronbach's alpha internal consistency estimate of .78, with test-retest reliabilities ranging from .56 to .79. The LOT-R correlated moderately with measures of self-mastery (.48), trait anxiety (-.53), self-esteem (.50), and neuroticism (-.36). Scheier et al. (1994) demonstrated that dispositional optimism, as measured by the LOT-R, is distinct from lack of neuroticism and trait anxiety, self-mastery, and self-esteem. Optimism showed significant associations with depression and coping behaviors after controlling for these competing constructs.

The Problem Solving Inventory (PSI). The Problem Solving Inventory (PSI; Heppner, 1988) is a 35-item measure that was designed to assess perceived awareness of individuals' generalized problem-solving abilities, rather than objective skill. The PSI consists of the following three scales: Problem-Solving Confidence (PSC), Approach-Avoidance Style (AAS), and Personal Control (PC). The PSC scale includes 11-items measuring one's self-assurance and trust across a wide range of problem-solving activities. The AAS scale includes 16 items measuring a general tendency to approach or avoid different problem-solving activities. The PC scale includes 5 items and assesses one's perceived control of emotions and behaviors during the course of solving problems. Heppner (1988) reported internal consistency estimates ranging from .72 to .90 and two-week test-retest coefficients ranging from .83 to .89.

The Positive and Negative Affect Schedule (PANAS). The PANAS (Watson, Clark, & Tellegen, 1988) comprises two 10-item scales assessing positive and negative affect

throughout the past few weeks. The PANAS was originally validated with a sample of non-clinical adults and continues to be used to gauge emotion among normal individuals.

Measures of internal consistency ranged from .86 to .90 for Positive Affect (PA) and from .84 to .87 for Negative Affect (NA) (Watson et al., 1988).

NEO Five-Factor Inventory (Form S) (NEO-FFI [Form S]). The NEO-FFI (Form S) (Costa & McCrae, 1992) is a 60-item self-report instrument developed through factor-analytic methods as a short form of the NEO-PI. The NEO-FFI (Form S) measures the five major dimensions of normal personality: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Participants are asked to respond to items using a 5-point scale ranging from strongly disagree (0) to strongly agree (4). Costa and McCrae (1992) reported Cronbach's alpha internal consistency reliability coefficients of .86, .77, .73, .68, and .81 for NEO-FFI (Form S) N, E, O, A, and C scales, respectively. Evidence of construct validity for this instrument is indicated by correlations with self-report adjective factors of the five-factor model.

Skills Confidence Inventory (SCI). The 60-item Skills Confidence Inventory (SCI; Betz, Borgen, & Harmon, 1996) measures General Confidence Themes (GCTs) corresponding to Holland's six types and measures participants' perceived level of confidence in each of these six areas. Using a 5-point scale, responses range from "No Confidence at All" (1) to "Complete Confidence" (5). An overall average skills confidence was computed by summing the scores of the six GCTs and dividing by six. Internal consistency estimates ranged from .84 to .88 (Betz et al., 1996). The 3-week test-retest reliabilities for the six scales ranged from .83 to .87. The GCTs demonstrated the ability to distinguish occupational groups as predicted by Holland's hexagon.

Expanded Skills Confidence Inventory (E-SCI). The Expanded Skills Confidence Inventory (E-SCI; Betz et al., 2003) measures self-efficacy or confidence with respect to 17 basic dimensions of vocational activity parallel to basic interest dimensions of the SII. Values of coefficient alpha for the final scales ranged from .84 to .94 for college students. Initial evidence for scale validity was provided by predicted correlations with GCTs from the SCI and by discriminant analyses of scores across eight occupational groups.

Strong Interest Inventory (SII). The Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994) is an empirically based measure used to assess vocational interests, Holland's six types (General Occupational Themes), 25 specific clusters of interest areas (Basic Interest Scales), and preferences for four broad styles of living and working (Personal Style Scales). The present study briefly addresses the General Occupational Themes and Basic Interest Scales, but focuses on the Personal Style Scales: Work Style, Learning Environment, Leadership Style, and Risk Taking/Adventure.

High scores on the Work Style scale indicate a preference for working with people. Low scores indicate a preference for working with ideas, data, and things. High scores on the Learning Environment scale indicate a preference for academic learning environments, whereas low scores indicate a preference for applied, practical learning environments. On the Leadership Style scale, high scores indicate a preference for meeting, directing, persuading, and leading other people, whereas low scores reflect a preference for leading by example. High scores on the Risk Taking/Adventure scale indicate a tendency to act on the spur of the moment, seek novel situations, and take social, physical, and financial risks.

Self-Directed Search (SDS). The Self-Directed Search (SDS; Holland, 1985) is a 228-item instrument designed to estimate an individual's resemblance to each of the six Holland personality types. Scores for Realistic, Investigative, Artistic, Social, Enterprising, and Conventional interests are obtained by summing self-ratings of Preferences for Activities, Competencies, Occupational Preferences, and Ability Self-Estimates. Holland (1985) reported KR-20 internal consistency estimates, ranging from .86 to .91 for a sample of young adults.

Scale Development

Rottinghaus et al. (2000) reported results from several pilot studies for the initial development of the CFI. This initial version of the CFI contained 64 items and was designed to assess clients' judgments concerning their views of their future career development and approach to planning and adjusting to tasks of constructing their vocational lives. Savickas' (1997) extension of Super and Knasel's (1981) career adaptability construct and Carver and Scheier's (1985) dispositional optimism construct provided some theoretical context for scale development. In addition, insights from clinical experience guided item construction.

The initial item pool was administered to a sample of 1195 college students enrolled in introductory psychology courses. Participants indicated the extent to which they agree or disagree with each statement using a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Twelve items were eliminated due to very high or low means (e.g., "I have the ability to pursue my career goals" with a mean of 4.29).

Results from pilot studies generally supported the presence of two to four factors, and addressed various facets of career optimism, pessimism, and adaptability. Because several items did not directly address career-related concerns, the initial version of the CFI was

modified slightly to more directly assess the career domain, and minimize content overlap with general optimism. Additional items were added to enhance the theoretical connection with career adaptability. For example, “I will adjust easily to shifting demands at work” reflects a confidence in future flexibility in matters of work. This resulted in a 69-item research version. In the present study, a random split of 611 participants who completed all CFI items was conducted for cross-validation purposes. After an initial exploratory factor analysis of 305 participants, yielding three clean factors, we refined the scales by eliminating items with low item-total correlations. Finally, we investigated the tentative factor structure with a confirmatory factor analysis of the other 306 participants.

Results

Exploratory Factor Analysis

Results from an exploratory principal axis factor analysis using a promax rotation revealed three components, accounting for 40% of the variance of the final 25-item version of the CFI. Examination of the scree plot and structure matrices indicated that a three-factor solution was most interpretable. Table 1 reports the eigenvalues and structure matrix for the three-factor solution in the sample of 305. Factor loadings for items of the CFI ranged from .38 to .72 with their respective factors labeled as follows:

- (1) Career Adaptability (CA; 11 items): The way an individual views his or her capacity to cope with and capitalize on change in the future, level of comfort with new work responsibilities, and ability to recover when unforeseen events alter career plans.

- (2) Career Optimism (CO; 11 items): A disposition to expect the best possible outcome or to emphasize the most positive aspects of one's future career development, and comfort in performing career planning tasks.
- (3) Perceived Knowledge of Job Market (PK; 3 items): Assesses perceptions of how well an individual understands job market and employment trends.

Confirmatory Factor Analysis

The factor structure of the CFI was evaluated through a confirmatory factor analysis of three correlated factors using the maximum likelihood procedure in LISREL 8.52 (Jöreskog & Sörbom, 1996) in the cross-validation sample of 306. Although the Minimum Fit Function Chi-Square was significant $X^2(272, N = 306) = 709.76, p < .01$, the influence of sample size on the chi-square goodness-of-fit test warrants better measures for evaluating the fit of the model. Following Hu and Bentler's (1999) "two criteria" strategy, we used the Standardized Root Mean Square Residual (SRMSR) and Bentler's (1990) Comparative Fit Index (CFI) to evaluate the model. The CFI value of .95 and a SRMSR value of .069 showed that the model fit approximately 95% better than the null model estimated with the sample data. These results exceeded Kline's (1998) recommendation that goodness of fit indices should be greater than .90 and Hu and Bentler's (1998) more stringent criteria of .95 or greater for CFI and .08 or less for SRMSR to indicate a good fit to the data. Figure 1 reports the correlations among the three latent variables and indicator variables for each factor. All items loaded significantly on the theorized factors, ranging from .43 to .81.

Descriptive Statistics

Table 2 provides reliability estimates, means, standard deviations, and correlations among the CFI scales. All analyses were conducted with combined male and female samples

since there were no gender differences among any of the CFI scales. Only CA showed significant differences across year in school (due to higher scores for seniors). Other than significantly higher mean CA scores for Caucasians compared to Asian/Pacific Islanders ($p < .01$), no other ethnic differences among the CFI scales were present. A three-week test-retest reliability investigation in a sample of 36 undergraduates showed estimates of .85 (CO), .63 (CA), and .69 (PK). These results provide satisfactory stability for all scales.

Construct Validity

Convergent and discriminant validity. The CFI scales are expected to relate to existing measures of personality, problem-solving styles, positive and negative affect, optimism, and self-efficacy in systematic ways to demonstrate convergent and discriminant validity. It was hypothesized that the CA and CO scales would show moderately positive associations with existing measures of optimism, perceived problem-solving appraisal, self-efficacy, positive affect, and personality traits such as extraversion, openness to experience, and conscientiousness. These scales were also expected to show negative correlations with negative affect and neuroticism.

Table 3 provides the correlations between the CFI scales and the other measures under investigation. The LOT-R showed moderate relationships with the CFI scales. The PANAS scales (PA and NA), each demonstrated low to moderate correlations with the CFI scales. Among the PSI scales, PSC and AAS related moderately to both CA and CO.

Numerous connections between the Big Five personality dimensions and CFI scales were also revealed. Conscientiousness showed the strongest relationships with each CFI scale. Neuroticism was negatively correlated with CA, and CO. Conversely, Extraversion was positively related with CA. Openness to experience, hypothesized to measure openness

to ideas, curiosity, intellect (Costa & McCrae, 1992), as well as motivation and ability to learn (Barrick & Mount, 1991), was related to CA. Finally, Agreeableness significantly correlated only with CA.

At least one CFI subscale showed a significant relationship with each SCI scale, except the Artistic GCT. Enterprising skills confidence showed the strongest relations to each CFI scale. Likewise, the more specific E-SCI scales each related to at least one CFI scale. The strongest relationships for CA were with Teamwork ($r = .56$), Office Services ($r = .50$), Teaching ($r = .49$), Project Management ($r = .48$), Leadership ($r = .43$), Organizational Management ($r = .40$), and Public Speaking ($r = .40$). For CO, the strongest relationships were with Teamwork ($r = .40$), Project Management ($r = .41$), Leadership ($r = .38$), and Teaching ($r = .38$). For PK, the strongest relationships were with Organizational Management ($r = .39$) and Leadership ($r = .30$).

Career identity status. Univariate ANOVAs showed that each of the CFI scales related systematically to career identity status ($p < .001$), assessed by the career variable reflecting Marcia's (1966) system distinguishing four status types by whether or not they had experienced an identity crisis and their level of commitment to a career plan. However, Eta-squared effect size values indicated that CO accounted for a substantial 31.5% of the variation in career identity, compared to 7.2% for PK and 5.9% for CA. Panel A of Figure 2 depicts the patterns of mean Z scores for each CFI scale across the four career identity statuses. Tukey HSD post hoc analyses revealed that the CO scale separated each status group significantly from all others at the .001 level. In contrast, the CA scale was significantly higher ($p < .001$) only for identity achieved participants compared to all others.

For the PK scale, the achieved group was significantly higher than all others ($p < .001$); the foreclosed group was significantly higher than the moratorium group ($p < .05$).

Educational aspirations. The mean CFI scores increased as level of aspiration increased for all scales. There were significant differences among the levels for CA, $F(5, 649) = 2.63, p < .05$, and CO, $F(5, 649) = 5.77, p < .001$. Panel B of Figure 2 graphically demonstrates the upward trend among the standardized mean CFI scores for participants aspiring to various educational levels. Next, the responses were dichotomized to reflect whether or not participants intended to receive a graduate degree in the future. Both CO $t(653) = 3.89, p < .001$ and CA $t(653) = 2.76, p < .01$, showed significant differences in the expected direction.

Certainty of major/career choice. Next, we examined the differences among the mean CFI scores for certainty of major and certainty of career choice. For major choice, there were significant differences among the three groups for CO, $F(2, 650) = 88.89, p < .001$, CA $F(2, 650) = 8.80, p < .001$, and PK $F(2, 650) = 8.63, p < .001$. For career choice, there were significant differences among the three groups for CO, $F(2, 632) = 127.63, p < .001$, PK $F(2, 632) = 15.88, p < .001$, and CA $F(2, 632) = 7.40, p < .01$. Panel C of Figure 2 also provides mean Z scores for the levels of the career choice variable.

Career exploration attitudes and behaviors. Two separate questions related to career exploration were examined. For current effort toward learning about career options (low, medium, high), there were significant differences among the three groups for CO, $F(2, 646) = 57.26, p < .001$, PK $F(2, 646) = 25.47, p < .001$, and CA $F(2, 646) = 17.28, p < .001$. For hours spent exploring career options during the past six months (0-15, 16-30, 31-45, 46-60,

and over 60), there were significant differences for PK, $F(4, 623) = 3.77, p < .01$, and CA $F(4, 623) = 3.44, p < .01$.

A series of hierarchical regression analyses were performed to investigate the incremental validity of the CFI to career exploration attitudes. First, we examined the additional variance explained by the CFI scales after controlling for the LOT-R, the Big Five personality variables (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness), and the PSI scales in a subsample of 172 participants who completed all of these measures. The first block accounted for a significant amount of variance (20.3%) in career exploration, $F(9, 162) = 4.58, p < .001$. The addition of the CFI block significantly increased the proportion of variance explained by 4.4%, accounting for a total of 24.7% of the variation in career exploration, $F(12, 159) = 4.34, p < .001$. Further examination of the standardized regression coefficients (β) provides insight into the unique contribution of each predictor. Within the first block, Conscientiousness, $t(172) = 4.46, p < .001$, and Agreeableness, $t(172) = -2.19, p < .05$ were the only predictors with significant effects on career exploration after controlling for the other predictors in the set. The addition of the CFI scales resulted in two significant predictors; Conscientiousness remained the strongest predictor $t(172) = 3.28, p < .01$, followed by CO, $t(172) = 2.44, p < .05$.

Next, we examined the additional variance explained by the CFI scales, after controlling for the LOT-R, positive and negative affect, and the six GCTs of the SCI in a separate subsample of 251 who completed all of these measures. The first block accounted for a significant amount of variance (10.0%) in career exploration attitudes, $F(9, 241) = 2.98, p < .01$. The addition of the CFI block significantly increased the proportion of variance explained by 9.1%, accounting for a total of 19.1% of the variation in career exploration,

$F(12, 238) = 4.68, p < .001$. Within the first block, only positive affect showed significant effects on career exploration after controlling for the other predictors in the set, $t(251) = 3.92, p < .001$. The next block, which added the three CFI scales, included three significant predictors; CO was the strongest predictor, $t(251) = 4.21, p < .001$, followed by positive affect, $t(251) = 3.92, p < .01$, and the Social GCT, $t(251) = 2.04, p < .05$.

Relationship to Scales of the SII and SDS. Finally, we analyzed the correlates of the CFI scales with the content scales of the SII and the SDS. Table 3 shows that CA, CO, and PK each relate to the “directs others” pole on the Leadership Style PSS. The Learning Environment PSS, which assesses preference for formal versus practical educational environments, also showed a positive association with CA. Among the GOTs, only Realistic, Investigative and Social scales showed significant relationships with the CFI scales at the .05 level. The BISs provide a closer view of the utility of the CFI scales in conjunction with interest measurement. Although thirteen of the 25 BISs correlated significantly at the .05 level with at least one CFI subscale, it is noteworthy that none of the relationships exceeded .22. Only CA showed a significant relationship ($p < .01$) with the average level as measured by the SII. Among the SDS scales, the Enterprising, Social, and Artistic scales each were slightly related to at least one CFI scale. One result, that for the PK and Enterprising, exceeded the .001 level of significance. Although all three CFI scales were related to the average level of interest as measured by the SDS at the .01 level, none exceeded .25.

Discussion

Results from this study established the strong internal consistency, temporal stability, and validity of the Career Futures Inventory (CFI), which shows promise as a counseling tool

and scientific measure of positive career planning attitudes. The factor structure of the CFI demonstrated good fit to the data across randomly split cross-validation samples.

Table 3 reveals that participants' views of their career futures related systematically to personal characteristics frequently assessed in career counseling, and to others that are underexamined. Univariate ANOVAs revealed mean differences in CO across Marcia's (1966) career identity status levels, accounting for 32% shared variance. Identity diffuse participants, who have not experienced a crisis nor made commitments, showed a moderately low level of CO, whereas the moratorium group showed much lower CO scores, likely reflecting the reality that they are currently experiencing a crisis about their lack of commitment. The foreclosed group was significantly higher than both diffuse and moratorium group, which is consistent with the fact that they have made commitments, albeit without sufficient investigation of this option. Finally, the achieved group showed significantly higher CO scores compared to all other groups. This result strongly supports the construct validity of this scale designed to assess positive and well-informed views about one's career future.

Optimistic and adaptable people appear to strive higher academically, report greater comfort with their educational and career-related plans, and engage in activities that advance their level of career insight. These results support the concurrent validity of the CFI scales. Moreover, a series of hierarchical regression analyses demonstrated the incremental validity of CO after controlling for dispositional optimism, self-efficacy, positive and negative affect, and the Big Five as they related to career exploration attitudes.

Several moderate relationships were found between the CFI scales and those of the SII, SCI, and E-SCI. Among the SII scales, only the Leadership Style PSS exceeded 10%

shared variance with any CFI scale (CA). Minimal correlations between the CFI scales and the other content scales of the SII demonstrated discriminant validity. Skills confidence scales within the Enterprising and Social domains showed the strongest relationships.

The CFI potentially strengthens the understanding of career concerns by supplementing traditional variables such as interests. For instance, the large differences in level of CO and CA between those decided and undecided about their career plans may shed light on individual differences in adjustment to and enjoyment of college studies. Perhaps clients low on CO are indecisive. CFI results could cue the practitioner to identify possible personal concerns interfering with career decision making.

At this time there are far more questions than answers, yet the potential benefits are abundant. Why might a talented college student lack conviction about his or her career? How might negative attitudes and emotions about future career effectiveness interfere with the academic experience? Could a client with low grades and/or limited work experience be inappropriately optimistic? What if the discrepancy involves a pessimistic individual with high abilities and low goals? Does adaptability moderate the effects of setbacks in a person's career? Can people learn to approach their careers in a more optimistic and adaptive manner? If so, what possible interventions can help inoculate clientele from career pessimism and confusion? Discussing a client's expectancies about future career development likely augments the assessment of interests, values, abilities, and skills confidence. This knowledge will enable effective attainment of informed career convictions.

Likewise, results from this investigation increases understanding of how these variables relate to self-efficacy, personality traits, interests, as well as the establishment of career goals and persistence in the face of setbacks. Investigations of career adaptability and

optimism also connect with Super's life-span life space model. However, much work needs to be accomplished to strengthen the measurement of career adaptability as it relates to Super's life-span life-space theory. Facets such as self-awareness and informed decision-making need to be enhanced in the CFI.

Results from the present study may not generalize to more ethnically diverse samples. In addition, the present data were gathered at a single point in time, limiting a true discussion of causal relationships or development over time. Since the CFI was developed primarily for college students, an alternate version for working adults would enhance our present understanding of these constructs throughout the life span. Applied investigations examining potential interventions that could increase career-distressed individuals' level of career optimism or adaptability are other possibilities.

The perplexing nature of adult career trajectories in an ever-changing world of work impels practitioners to integrate the assessment of adaptability and optimism into their work with clients. Clearly, establishing additional methods of assessing career adaptability is important to the field of vocational psychology. As the world becomes more complex and career patterns more uncertain, an understanding of these constructs becomes imperative in our work with clients. Results from the initial development and validation of the CFI can be applied to future research and interventions to help clients strengthen their readiness to capitalize on changes in themselves and in the world of work.

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Table 1

Career Futures Inventory (CFI) Factors with Eigenvalues, Factor Loadings, and Communalities

Factor/Item	Factor			h^2
	1	2	3	
Factor 1: Career Adaptability				
I am good at adapting to new work settings (CA1)	.72	.25	.20	.53
I can adapt to change in my career plans (CA2)	.72	.20	.16	.53
I can overcome potential barriers that may exist in my career (CA3)	.68	.32	.07	.47
I enjoy trying new work-related tasks (CA4)	.67	.22	.18	.45
I can adapt to change in the world of work (CA5)	.67	.11	.20	.48
I will adjust easily to shifting demands at work (CA6)	.61	.21	.29	.42
Others would say that I am adaptable to change in my career plans (CA7)	.55	.23	.04	.31
My career success will be determined by my efforts (CA8)	.52	.21	-.04	.29
I tend to bounce back when my career plans don't work out quite right (CA9)	.45	.33	.20	.24
I am rarely in control of my career (CA10)*	-.43	-.42	-.11	.27
I am not in control of my career success (CA11)*	-.38	-.29	-.05	.18
Factor 2: Career Optimism				
I get excited when I think about my career (CO1)	.39	.72	.08	.56

Table 1 (continued)

Thinking about my career inspires me (CO2)	.44	.72	-.03	.62
Thinking about my career frustrates me (CO3)*	-.09	-.65	-.28	.46
It is difficult for me to set career goals (CO4)*	-.16	-.63	-.33	.43
It is difficult to relate my abilities to a specific career plan (CO5)*	.00	-.62	-.31	.47
I understand my work-related interests (CO6)	.41	.58	.19	.38
I am eager to pursue my career dreams (CO7)	.39	.56	.09	.36
I am unsure of my future career success (CO8)*	-.18	-.54	-.17	.29
It is hard to discover the right career (CO9)*	.04	-.51	-.33	.37
Planning my career is a natural activity (CO10)	.34	.51	.18	.29
I will definitely make the right decisions in my career (CO11)	.28	.47	.21	.24
Factor 3: Perceived Knowledge				
I am good at understanding job market trends (PK1)	.20	.27	.70	.51
I do not understand job market trends (PK2)*	-.26	-.27	-.64	.44
It is easy to see future employment trends (PK3)	.23	.38	.54	.36
Eigenvalues	6.22	2.52	1.16	
Percent common variance	24.89	10.09	4.62	

Note. $N = 305$. h^2 = Communality estimates. *Reverse-scored items

Table 2

Reliability Estimates, Means, Standard Deviations, and Correlations Between the Scales of the Career Futures Inventory

Scale	Career Futures Inventory Scales				
	CA	CO	PK	<i>M</i>	<i>SD</i>
Career Adaptability	.85 ^a			41.63	5.41
Career Optimism	.48	.87 ^a		37.62	7.35
Perceived Knowledge	.31	.48	.73 ^a	9.20	2.13

Note. *N* = 663. CA = Career Adaptability; CO = Career Optimism; PK = Perceived Knowledge.

^aCronbach's alpha coefficients for each scale.

Table 3

Correlations Between Career Futures Inventory Scales with Other Measures

Scale	Career Futures Inventory Scales		
	CA	CO	PK
Life Orientation Test-Revised ^a	.60***	.46***	.27***
PANAS Scales ^b			
Positive Affect	.40***	.32***	.14*
Negative Affect	-.28***	-.24***	-.16**
Problem Solving Inventory Scales ^c			
Problem Solving Confidence	.54***	.36***	.22**
Personal Control	.16*	.24**	.21**
Approach-Avoidance Style	.33***	.29***	.21**
NEO-FFI Scales ^d			
Neuroticism	-.30***	-.29***	-.24**
Extraversion	.37***	.19*	.09
Openness to Experience	.26***	.23**	.13
Agreeableness	.27***	.07	.01
Conscientiousness	.41***	.51***	.28***
Skills Confidence Inventory Scales ^e			
Average Confidence	.31***	.25***	.28***
Realistic	.24***	.12*	.20***

Table 3 (continued)

Investigative	.18***	.17***	.16**
Artistic	.09	.09	.08
Social	.28***	.25***	.17***
Enterprising	.30***	.27***	.32***
Conventional	.20***	.14**	.25***
Strong Interest Inventory Scales ^c			
Average Interest	.16**	.09	.08
Realistic	.18***	.07	.18***
Investigative	.13**	.10*	.06
Artistic	.07	-.01	-.03
Social	.13**	.12*	.01
Enterprising	.08	.06	.07
Conventional	.01	-.01	.00
Work Style	.11*	.08	-.01
Learning Environment	.20***	.14**	.13**
Leadership Style	.32***	.23***	.21***
Risk-Taking/Adventure	.15**	.03	.11*
Self-Directed Search Scales ^f			
Average Interest	.21**	.24**	.22**
Realistic	.02	.03	.08
Investigative	.12	.12	-.04

Table 3 (continued)

Artistic	.12	.14	.15*
Social	.18*	.18*	.01
Enterprising	.13	.18*	.31***
Conventional	.07	.06	.14
Grade Point Average ^g	.16**	.11*	.10*

Note. CA = Career Adaptability; CO = Career Optimism; PK = Perceived Knowledge.

Except for the LOT-R, different measures were administered to subsets of the entire sample, resulting in different *N*s.

^aLife Orientation Test – Revised sample (*N* = 648)

^bPANAS Scales sample (*N* = 273)

^cProblem Solving Inventory sample (*N* = 184)

^dNEO-FFI sample (*N* = 185)

^eSkills Confidence Inventory and Strong Interest Inventory sample (*N* = 449)

^fSelf-Directed Search sample (*N* = 187)

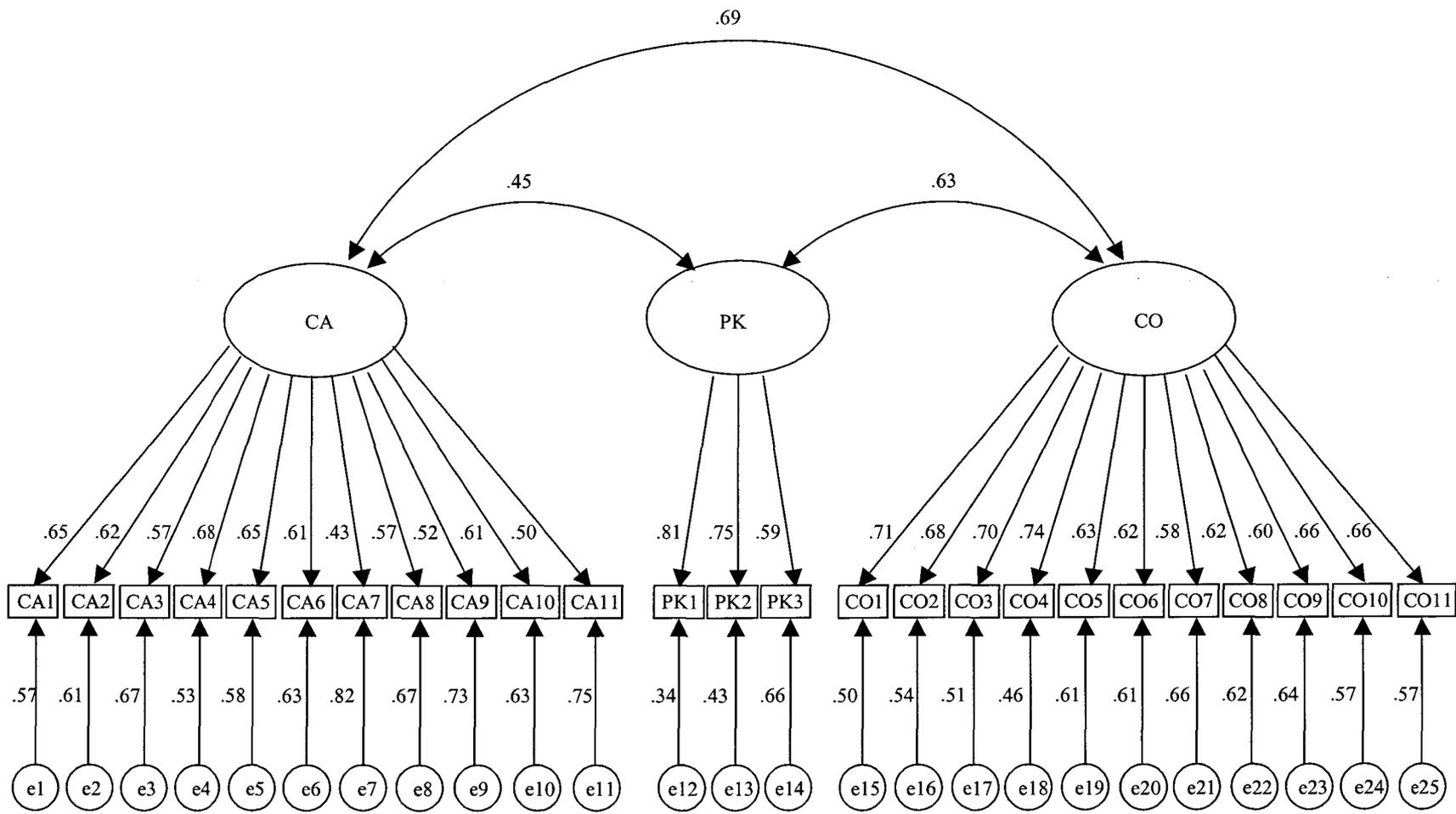
^gGrade Point Average (*N* = 383)

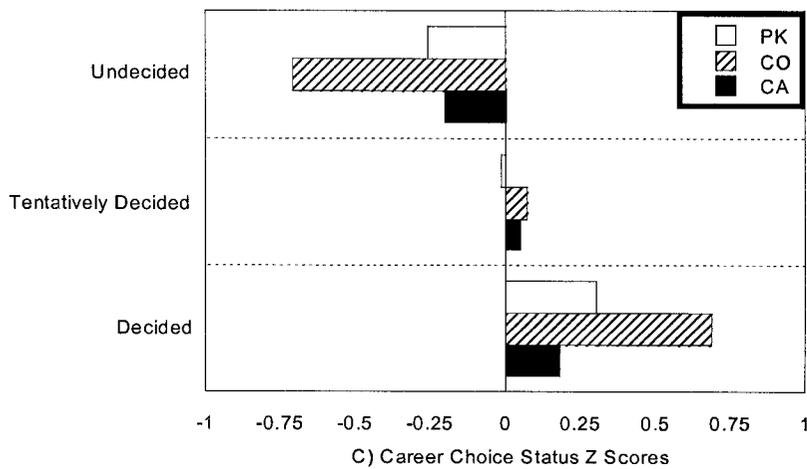
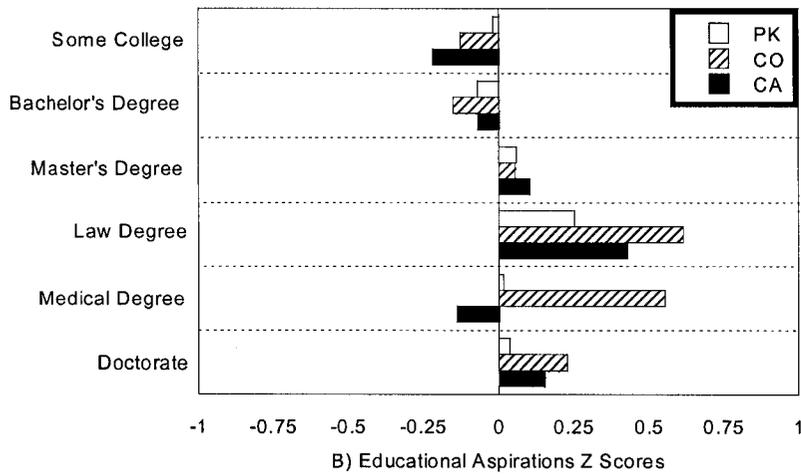
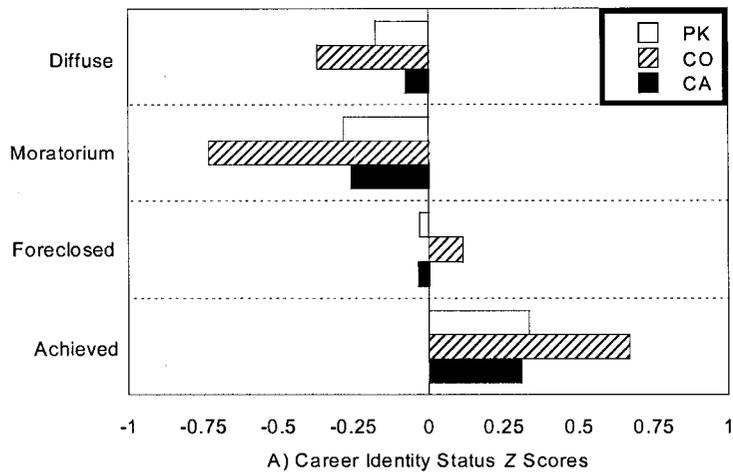
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure Captions

Figure 1. Correlated Factor Model of the CFI.

Figure 2. Mean *Z* Scores for CFI Scales across levels of Career Identity, Educational Aspiration, and Career Choice Statuses.





CHAPTER 5. ADDITIONAL RESULTS

This brief chapter presents additional results not included in the publication. First, the scree plot from the factor analysis of the final scale is provided. Next, tables of the hierarchical regression analyses are included to supplement the general findings reported in the publication.

Figure 4 depicts the scree plot of the initial eigenvalues from the factor analysis of the final 25-item version of the CFI using the entire sample of 690 participants. Examination of

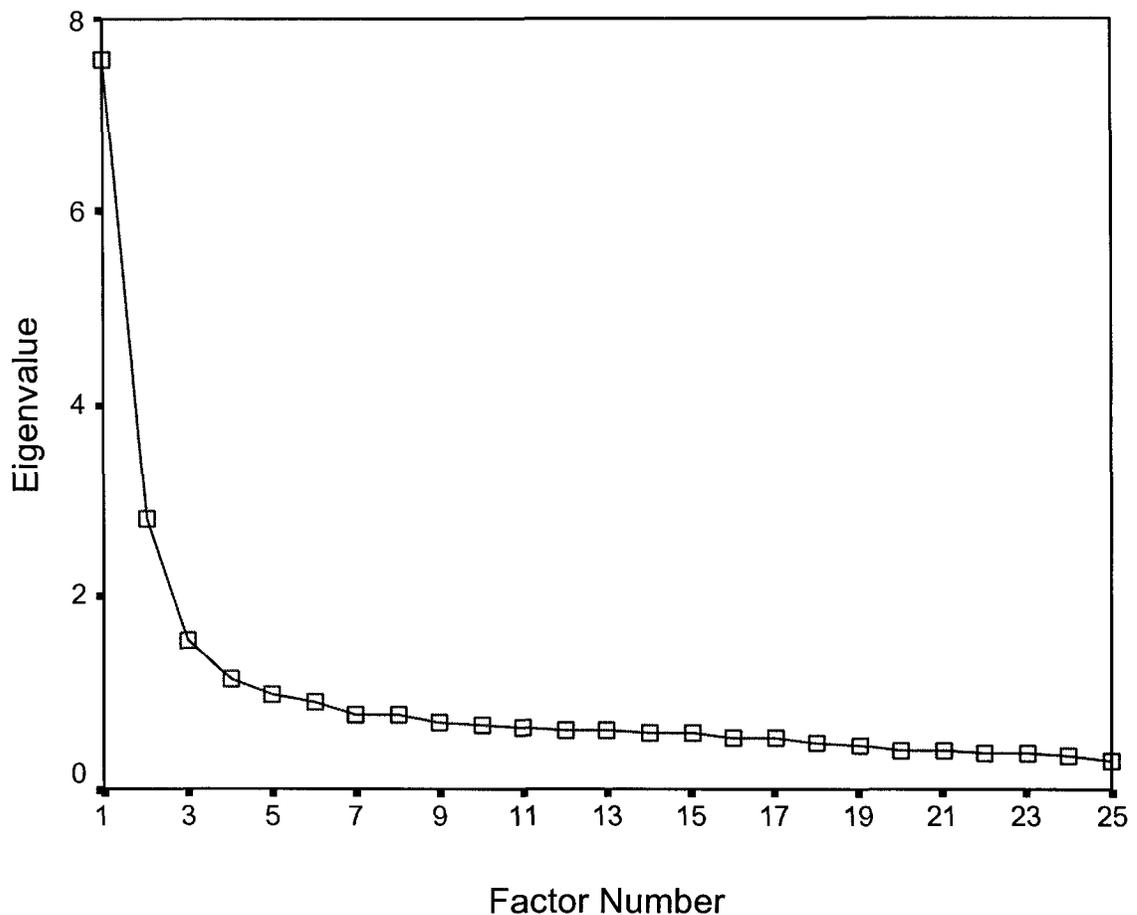


Figure 4. Scree Plot of the Initial Eigenvalues from the Factor Analysis of the CFI

the scree plot and structure matrices indicated that a three-factor solution was most interpretable. After using a promax rotation, the largest factor accounted for 27.98% common variance, the second factor added 8.90%, and the third factor explained an additional 4.05% common variance. Overall, the rotated three-factor solution accounted for 40.93% of the variance.

Table 2 presents results from the regression analysis examining the additional variance in career exploration explained by the CFI scales after controlling for the LOT-R, the Big Five personality variables (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness), and the PSI scales (Problem-Solving Confidence, Approach-Avoidance Style, and Personal Control) in a subsample of 172 participants who completed all of these measures. The career exploration variable for this analysis is shown as item #17 in Appendix A. However, the response options were reversed for enhanced interpretability so that higher values relate to greater effort toward career exploration.

The first block accounted for a significant amount of variance (20.3%) in career exploration, $F(9, 162) = 4.58, p < .001$. The addition of the CFI block significantly increased the proportion of variance explained by 4.4%, accounting for a total of 24.7% of the variation in career exploration, $F(12, 159) = 4.34, p < .001$. Further examination of the standardized regression coefficients (β) provides insight into the unique contribution of each predictor. Within the first block, Conscientiousness, $t(172) = 4.46, p < .001$, and Agreeableness, $t(172) = -2.19, p < .05$ were the only predictors with significant effects on career exploration after controlling for the other predictors in the set. The addition of the CFI scales resulted in two significant predictors; Conscientiousness remained the strongest predictor $t(172) = 3.28, p < .01$, followed by CO, $t(172) = 2.44, p < .05$.

Table 2. Summary of Hierarchical Regression Analysis for the Prediction of Career Exploration from the LOT-R, the Big Five Personality Variables, PSI Scales, and the CFI Scales

Variable	R^2	ΔR^2	B	$SE B$	β
Step 1	.203***	.203***			
LOT-R			.034	.018	.165
Neuroticism			.004	.009	.039
Extraversion			.006	.009	.051
Openness			.007	.009	.062
Agreeableness			-.022	.010	-.177*
Conscientiousness			.040	.009	.394***
Problem-Solving Confidence			.003	.010	.027
Approach-Avoidance Style			-.002	.006	-.033
Personal Control			-.001	.015	-.007
Step 2	.247***	.044*			
LOT-R			.014	.020	.067
Neuroticism			.003	.009	.032
Extraversion			.004	.009	.037
Openness			.002	.009	.018
Agreeableness			-.018	.010	-.145
Conscientiousness			.030	.009	.302**

Table 2. (continued)

Variable	R^2	ΔR^2	B	$SE B$	β
Problem-Solving Confidence			.001	.010	.014
Approach-Avoidance Style			-.002	.006	-.028
Personal Control			-.005	.014	-.029
Career Optimism			.026	.011	.234*
Career Adaptability			.004	.015	.026
Perceived Knowledge			.015	.025	.048

Note. $N = 172$.

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

Next, Table 3 presents the additional variance explained by the CFI scales, after controlling for the LOT-R, positive and negative affect, and the six GCTs of the SCI in a separate subsample of 251 who completed all of these measures. The first block accounted for a significant amount of variance (10.0%) in career exploration attitudes, $F(9, 241) = 2.98$, $p < .01$. The addition of the CFI block significantly increased the proportion of variance explained by 9.1%, accounting for a total of 19.1% of the variation in career exploration, $F(12, 238) = 4.68$, $p < .001$. Within the first block, only positive affect showed significant effects on career exploration after controlling for the other predictors in the set, $t(251) = 3.92$, $p < .001$. The next block, which added the three CFI scales, included three significant

predictors; CO was the strongest predictor, $t(251) = 4.21, p < .001$, followed by positive affect, $t(251) = 3.92, p < .01$, and the Social GCT, $t(251) = 2.04, p < .05$.

Table 3. Summary of Hierarchical Regression Analysis for the Prediction of Career Exploration from the LOT-R, Positive and Negative Affect, the Six GCTs, and the CFI Scales

Variable	R^2	ΔR^2	B	$SE B$	β
Step 1	.100**	.100**			
LOT-R			-.003	.013	-.016
Positive Affect			.024	.006	.272***
Negative Affect			-.010	.006	-.107
Realistic Confidence			.017	.011	.338
Investigative Confidence			-.006	.011	-.120
Artistic Confidence			-.008	.013	-.155
Social Confidence			.015	.010	.369
Enterprising Confidence			-.017	.014	-.378
Conventional Confidence			-.004	.011	-.090
Step 2	.191***	.091***			
LOT-R			-.020	.014	-.111
Positive Affect			.018	.006	.200**
Negative Affect			-.006	.006	-.067

Table 3. (continued)

Variable	R^2	ΔR^2	B	$SE B$	β
Realistic Confidence			.016	.011	.323
Investigative Confidence			-.004	.010	-.078
Artistic Confidence			-.007	.012	-.139
Social Confidence			.020	.010	.469*
Enterprising Confidence			-.023	.013	-.499
Conventional Confidence			.000	.011	.007
Career Optimism			.031	.007	.328***
Career Adaptability			-.008	.009	-.066
Perceived Knowledge			.030	.022	.091

Note. $N = 251$.

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

CHAPTER 6. GENERAL CONCLUSIONS

General Discussion

In today's volatile and global marketplace, individuals must be prepared to adjust their career plans and shift focus toward new challenges and organizational demands. In addition, working families must be flexible to balance their career and family lives effectively. These realities require individuals to understand not only their interests, values and skills, but to think about career goals, lifestyle, and potential as they relate to societal needs. Our work with clients stands to benefit from an open discussion about how their attitudes, expectations, emotions, and tendencies might affect their vocational life course. To improve understanding of these topics, an inventory that identifies optimistic and adaptable individuals as well as those who are less positive in their career planning was developed to strengthen counseling research and practice.

The field of counseling psychology has long espoused human strength and "has never forgotten the importance of developmental and preventative approaches to helping people cope with life's challenges" (Savickas, 2003, p. 229). On the topic of persistence in the face of a decision in her "psychology of possibilities," Leona Tyler (1969) stated:

This requires that he know himself well enough so that he can assess the utility or value to him of each alternative, and that he understand his relationships to other people and to the world of ideas and action well enough to estimate the probability that a course of action he chooses will turn out well. (p. 159)

The present investigation of people's career development is a more specific continuation of this wisdom. This dissertation has addressed how several schools of thought appear to converge on certain important ideas related to achieving desired outcomes: planful optimism,

effortful and informed striving, resilience in the face of setbacks, and willing possibilities into reality. This project contributes to a growing emphasis on human strength and potential within the broader field of psychology. True to the mission of counseling psychology, we can help others achieve abundant possibilities through helping them realize their internal control, flexibility, and formative tendency. One important way individuals can enhance their life satisfaction is through constructing careers (Savickas, 2002) that optimize one's own personally informed vision. The scales of the Career Futures Inventory connect with these ideals by assessing individual differences on a client's career planning attitudes and emotions.

Information provided by the CFI can assist clinicians in understanding a client's level of insight, comfort with learning about themselves and the world of work, as well as their beliefs about where their career is heading in the near future. Each of these benefits is subject to alteration. Future research and practice on the influence of optimism and adaptability will increase our understanding, therefore informing interventions, regarding the processes involved in achieving positive career development.

Future Directions

As a theoretical integrator, Donald Super (1942) combined what was known from empirical studies about vocational guidance and testing. Although serving as a useful summarization of research on career development, some have criticized the theory for being fragmented. Two decades ago, Super and Knasel (1981) asserted that career adaptability "allows greater emphasis to be given to the novel, non-maturational problems which presently confront many people" (p. 199). This statement appears to be even more relevant today. Super and Knasel's (1981) emphasis on the relation of attitudes and behaviors clearly

underscores the connection with the self-regulatory processes toward goal attainment invoked by Carver and Scheier (2001).

It makes sense that adaptable individuals seek out information about their current career situation and accordingly adjust their effort and redefine their goals when necessary. The consideration of client adaptability is timely given the dramatically changing landscape of the marketplace. Likewise, adaptability was recently acclaimed in an annual review of the career development literature (Swanson & Parcover, 1998) as “a useful construct for examining what it is that career practitioners do, and what they will need to do in the future, given the changing structure of work” (p. 99). The Career Futures project provides a new empirical measure for investigating the role of career adaptability in integrating disparate aspects of Super’s theory and assisting career counselors in their work with college students.

Numerous relevant insights could be gained through the assessment of career optimism and adaptability. At this time there are far more questions than answers, yet the potential benefits are abundant. How might negative attitudes and emotions about future career effectiveness interfere with the academic experience? Could a client with low grades and/or limited work experience be inappropriately optimistic? What if the discrepancy involves a pessimistic individual with high abilities and low goals? Does adaptability moderate the effects of setbacks in a person’s career? Can people learn to approach their careers in a more optimistic and adaptive manner? If so, what possible interventions can help inoculate clientele from career pessimism and confusion?

Results from this study indicate that discussing a client’s expectancies about future career development augments the assessment of interests, values, abilities, and skills confidence. This knowledge will enable clients to advance, in a strategic manner, the process

of attaining congruence between self and the environment. Likewise, results from this investigation will add to the present scientific knowledge base by reporting how these variables relate to self-efficacy, personality traits, interests, as well as the establishment of career goals and persistence in the face of setbacks.

Investigations of career adaptability and optimism also connect with Super's life-span life space model of career development. However, much work needs to be accomplished to strengthen the measurement of career adaptability as it relates to Super's life-span life-space theory. Results from the present study may not generalize to more ethnically diverse samples. In addition, the present data were gathered at a single point in time, limiting a true discussion of causal relationships or development over time.

Recent research supports the idea that optimists likely adapt better to new situations because of their greater flexibility in processing and acting upon information (Aspinwall, Richter, & Hoffman, 2001). Future studies should examine prospective relationships between career optimism and adaptability. Since the CFI was developed primarily for college students, an alternate version for working adults would enhance our present understanding of these constructs throughout the life span. Applied investigations examining potential interventions that could increase career-distressed individuals' level of career optimism or adaptability are other possibilities.

The perplexing nature of adult career trajectories in an ever-changing world of work impels practitioners to integrate the assessment of adaptability and optimism into their work with clients. "Many of the tasks of career development, and issues that clients bring to career counseling, may be viewed as moderated by their level of adaptability" (Swanson & Parcover, 1998, p. 124). Clearly, establishing additional methods of assessing career

adaptability is important to the field of vocational psychology. As the world becomes more complex and career patterns more uncertain, an understanding of these constructs becomes imperative in our work with clients. Results from the initial development and validation of the CFI can be applied to future research and interventions to help clients strengthen their readiness to capitalize on changes in themselves and in the world of work.

9. Career Choice Status (choose only one):

- (1) I am undecided about a career
- (2) I am tentatively decided about my career
- (3) I have decided on a career

10. If You Have A Career Choice (or a tentative one) Please Complete:

Your first career choice: _____

Your second career choice: _____

11. Approximately how old were you when you chose your current field of interest? _____**12. Choose the one description below that you feel best represents your career plans at this time:**

- (1) I have not made a career choice at this time and I do not feel particularly concerned or worried about it.
- (2) I have not made a career decision at this time and I am concerned about it. I would like to make a decision.
- (3) I have chosen a career and although I have not investigated it or other career alternatives thoroughly, I think I would like it.
- (4) I have investigated a number of careers and have selected one. I know quite a lot about this career, including the kinds of training or education required and the outlook for jobs in the future.

13. How often do you think about your career goals?

- (1) Very often
- (2) Often
- (3) Occasionally
- (4) Rarely

14. Current level of effort this semester toward your schoolwork:

- (1) Very high
- (2) High
- (3) Moderate
- (4) Low
- (5) Very low

15. During a typical week, about how many hours do you spend on activities related to your schoolwork (including time spent studying and in class)?

- (1) 0-15 hours
- (2) 16-30 hours
- (3) 31-45 hours
- (4) 46-60 hours
- (4) Over 60 hours

16. How satisfied are you in your current major?

- (1) Very satisfied
- (2) Satisfied
- (3) Dissatisfied
- (4) Very dissatisfied

17. What is your current level of effort toward learning about your career options?

- (1) Very high
- (2) High
- (3) Low
- (4) Very low

18. How many hours have you spent exploring career options during the past 6 months?

- (1) 0-15 hours
- (2) 16-30 hours
- (3) 31-45 hours
- (4) 46-60 hours
- (5) Over 60 hours

19. Your age:_____

20. Current Grade Point Average:_____

APPENDIX B. CAREER FUTURES INVENTORY

Please answer the following items as honestly as you can. Do not spend much time thinking about each one. There are no right or wrong answers. Please read each statement carefully, then use the following scale to indicate how strongly you agree or disagree with each statement:

5 = Strongly Agree

4 = Agree

3 = Neutral

2 = Disagree

1 = Strongly Disagree

1. It is hard to know how to get where I want to be in my career
2. I get excited when I think about my career
3. I do not enjoy attempting challenging projects
4. I am eager to pursue my career dreams
5. I can make changes in my career plans if things are not going well for me
6. I am not very flexible in new work situations
7. My occupational future looks very promising
8. I am unsure of my future career success
9. I am aware of how my college major fits into my long-term career plans
10. I find it difficult to overcome past mistakes in my career plans
11. My transition to college was a smooth process
12. I am not hopeful about my career
13. I am good at setting realistic and appropriate career goals
14. My career is at the mercy of the job market
15. My career is heading in the right direction
16. Thinking about my career frustrates me

17. When things don't go my way in my career planning, I work harder
18. It is difficult to relate my abilities to a specific career plan
19. I am most comfortable when things are not changing
20. My career has no limits
21. It is hard for me to find the proper balance in my life
22. I frequently take time to think about my career development
23. I find it difficult to recover when setbacks occur in my academic life
24. I rarely spend time exploring career opportunities
25. I have a very detailed professional development plan
26. I could only be successful in a limited number of careers
27. When things don't go right in my career planning, it's easy for me to give up
28. I typically seek out change in my life
29. I understand my work-related interests
30. Changing job trends make career planning difficult
31. I will make a significant difference in the world
32. I do not understand job market trends
33. When it comes to career planning, I dislike ambiguity
34. I can overcome potential barriers that may exist in my career
35. I am stressed by the need to learn new work-related skills
36. I expect a smooth career transition after college
37. It is difficult for me to set career goals
38. I am not in control of my career success
39. Few things I do turn out right in my career

40. I tend to bounce back when my career plans don't work out quite right
41. Career transitions tend to be difficult for me
42. I communicate my career passions to others
43. I am rarely in control of my career
44. Thinking about my career inspires me
45. I feel like giving up when faced with difficulties in my career planning
46. My career success will be determined by my efforts
47. I will definitely make the right decisions in my career
48. Change in my career plans can sometimes be overwhelming
49. I have important contributions to make to my field
50. I enjoy trying new work-related tasks
51. My career goals are not very ambitious
52. I am sure about my college major
53. I am good at adapting to new work settings
54. It is hard to create career opportunities for myself
55. My current efforts will have a major impact on my career success
56. I can adapt to change in my career plans
57. It is hard to discover the right career
58. I have the courage to pursue my occupational dreams
59. Others would say that I am adaptable to change in my career plans
60. I do not enjoy trying to learn difficult job tasks
61. I will adjust easily to shifting demands at work
62. I thrive on rapidly changing work responsibilities

- 63. I can adapt to change in the world of work
- 64. Planning my career is a natural activity
- 65. I am good at understanding job market trends
- 66. Choosing the right classes for my career future is difficult
- 67. It is easy to see future employment trends
- 68. I have the courage to take risks in my career planning
- 69. I prefer a stable work environment

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