



5-2011

Personality Traits and Career Decidedness: An Empirical Study of University Students

Ryan M. Smith

University of Tennessee - Knoxville, rsmith59@utk.edu

Recommended Citation

Smith, Ryan M., "Personality Traits and Career Decidedness: An Empirical Study of University Students." PhD diss., University of Tennessee, 2011.

https://trace.tennessee.edu/utk_graddiss/1027

This Dissertation is brought to you for free and open access by the Graduate School at Trace: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Doctoral Dissertations by an authorized administrator of Trace: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

To the Graduate Council:

I am submitting herewith a dissertation written by Ryan M. Smith entitled "Personality Traits and Career Decidedness: An Empirical Study of University Students." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Eric D. Sundstrom, Major Professor

We have read this dissertation and recommend its acceptance:

John W. Lounsbury, Jacob J. Levy, Tricia McClam, Kate P. Atchley

Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

PERSONALITY TRAITS AND CAREER DECIDEDNESS:
AN EMPIRICAL STUDY OF UNIVERSITY STUDENTS

A Dissertation Presented for the
Doctor of Philosophy Degree
The University of Tennessee, Knoxville

Ryan M. Smith
May 2011

Abstract

Research on vocational behavior has made progress in identifying broad personality traits associated with career indecision; however, important questions remain unanswered about the temporal stability of relationships between broad personality traits and Career Decidedness (CD), and about the role of narrow personality traits as predictors of CD, both of which were addressed in this longitudinal field study. A total of 2,046 undergraduate students completed an online personality inventory and CD questionnaire. A sub-group (N=267) responded to a follow-up questionnaire seven months later. Results indicated, as hypothesized, that CD correlated positively with the broad (Big Five) personality traits, openness, conscientiousness, and agreeableness. However, CD did not correlate as expected with the broad trait, extraversion, and correlated significantly and inversely with the broad trait, neuroticism, only for low-achievement students. Results showed that the narrow traits of optimism and work drive correlated significantly and positively with CD, and that these narrow traits alone accounted for an additional 5.6% variance in CD above and beyond broad traits (5.8%). CD correlated positively with chronological age, as predicted. However, Career Decidedness only increased through the first three of four years of college, and contrary to predictions, showed a non-significant decline in the senior year. In an unexpected finding based only on the sub-group who completed the second set of questionnaires, the relationship of personality and CD strengthened over the 7-month span of this study, yet instability within CD warrants caution. Results suggest questions for future research and implications for practice in vocational psychology.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Overview.....	1
Definitions and Background.....	2
Review of Research on Personality and Career Decidedness (CD).....	7
Neuroticism.....	12
Extraversion.....	14
Openness.....	15
Conscientiousness.....	15
Agreeableness.....	16
Grand Summary of Big Five Traits.....	18
Theoretical Framework of Trait relationships with CD.....	19
Prevailing Issues Remaining in the literature.....	24
Hypotheses.....	27
Personality Traits and CD.....	28
Academic Class, Age and CD.....	30
Stability of the Personality and CD Relationship.....	32
Research Questions.....	33
II. METHOD.....	36
Research Design.....	36
Participants.....	37
Setting.....	38
Procedures.....	38
Measures.....	40
Personality.....	40
Career Decidedness.....	41
Variables.....	42
Personality.....	42
Demographic Indicators.....	43
Criterion.....	44
III. RESULTS.....	45
Data Analysis.....	45
Results by Hypothesis and Research Question.....	48
Hypothesis #1: Personality Traits and CD.....	48
Hypothesis #2: Academic Class, Age and CD.....	49
Hypothesis #3: Stability of the Personality and CD Relationship.....	50
Research Question #1: Does relationship vary with gender or achievement.....	51
Research Question #2: Which traits contribute unique variance in CD.....	53
Research Question #3: Which variables contribute unique variance in CD.....	53
Research Question #4: Together, which contribute unique variance in CD.....	54

IV. DISCUSSION.....	55
Hypotheses and Research Questions	55
Hypothesis #1: Personality Traits and CD.....	55
Hypothesis #2: Career Decidedness and Class Standing.....	64
Hypothesis #3: Stability of the Personality and CD Relationship.....	66
Research Question #1: Variance by gender and achievement.....	69
Research Question #2: Personality traits contributing variance in CD.....	78
Research Question #3: Variables contributing variance in CD.....	80
Research Question #4: All traits and variables contributing variance in CD.....	80
Limitations and Implications for Future Research.....	82
Limitations.....	82
Implications.....	85
Conclusions.....	88
REFERENCES	90
APPENDICES	115
VITA	141

List of Tables

Table A1.	Descriptive Statistics for Assessing Normality of All Study Variables at Time 1 Measurement	117
Table A2.	Means, Standard Deviations, and Intercorrelations between Personality Traits and Career Decidedness.....	118
Table A3.	Descriptive Statistics for Career Decidedness by Academic Class	119
Table A4.	Analysis of Variance for Academic Class Year and Career Decidedness..	121
Table A5.	Nonparametric trend comparison for Academic Class Year and Career Decidedness	122
Table A6.	Descriptive Statistics of Participants who Dropped out of Study prior to Time 2 Measurement	124
Table A7.	Descriptive Statistics for Assessing Normality of All Study Variables at Time 2 Measurement.....	125
Table A8.	Comparison of intercorrelations among study variables across Participants who stayed and dropped for Attrition Analysis	126
Table A9.	Personality Trait Relationships with Career Decidedness across Time.....	127
Table A10.	Personality Trait Relationships with Career Decidedness by Academic Achievement.....	128
Table A11.	Class Analysis of Significant Trait and Career Decidedness Relationships by Low GPA	129
Table A12.	Personality Trait Relationships with Career Decidedness by Gender	130
Table A13.	Class Analysis of Trait and Career Decidedness Relationships that were significant by Gender	131
Table A14.	Summary of Stepwise (Enter) Multiple Regression Analysis for Personality Traits Predicting Career Decidedness.....	132
Table A15.	Summary of Stepwise (Block) Multiple Regression Analysis for Personality Traits Predicting Career Decidedness.....	133
Table A16.	Summary of Stepwise Multiple Regression Analysis for Demographic Variables Predicting Career Decidedness	134
Table A17.	Summary of Stepwise Multiple Regression Analysis for Personality and Demographic Variables for Predicting Career Decidedness.....	135
Table A18.	Summary of Overall Findings by Hypotheses and Research Questions.....	136

List of Figures

Figure A1. Hypothesized Model of Path Relationships with Career Decidedness.....	116
Figure A2. Mean Plots of Career Decidedness by Academic Class	120
Figure A3. Mean Plots of Career Decidedness by Age	123

Introduction

Overview

The purpose of this investigation is to further explore the construct of career decidedness with specific intent to extend the results of Lounsbury, Hutchens, and Loveland (2005), who found a significant relationship between Big Five traits and career decidedness among early and middle adolescents. While their research added to the previous career decidedness literature by helping identify those at risk for indecision at an earlier age and plan development programs according to their personality characteristics, it is important to clarify several unanswered questions from their original study and remaining issues from the research literature. One important unanswered question is the stability of any personality-career decidedness relationship over time. Furthermore, past research has suggested that career indecision may change by gender and across different levels of academic achievement, thus it is necessary to examine if this same pattern exists with those who are decided in order to have a more complete picture of the construct. In addition, age is another demographic variable to consider given implications for developmental theory. Finally, it is essential to confirm the strength of relationship between Big Five personality traits and career decidedness, as well as examining the added contribution of select narrow traits found to have significant weight in explaining other academic and performance variables. Accordingly, this research will expand the nomological network for career decidedness by serving as one of few studies to explore the decided side of the continuum, while also broadening the understanding of the career decidedness construct by investigating the contribution of narrow personality traits in addition to traditional Big Five variables. The study

also advances the research literature by examining the extent of personality relationships with a larger pool of participants since many of the earlier works had small group sizes.

A more in-depth discussion of these issues and questions follows with the outline of definitions and review of research linking personality and career decidedness. Findings from the literature are organized by each of the Big Five traits to align with the focus of this investigation. The summary of research provides a foundation for a theoretical model that is proposed for explaining the expected trait associations with career decidedness and serves as a framework for development of the study's hypotheses and research questions. A detailed description of the participants, measures, and procedures in the method section is followed by an overview of data analysis and report of results by each of the five hypotheses and four research questions. The paper concludes with a discussion of results that links the present discoveries with vocational behavior theories, while acknowledging limitations and proposing implications for future research and practice. Following the references, two appendices are offered to complement the investigation and discussions. Appendix A contains a diagram for the proposed model of theoretical path relationships, as well as the supporting figures and tables for the data analysis. Appendix B provides a sample copy of the career decidedness inventory and supplemental materials.

Definitions and Background

Personality is a construct often conceptualized in multiple ways, though typically referencing a pattern of collective behavioral, emotional, mental, and personal characteristics or traits (Costello, 1997, p. 1020). Schultz & Schultz (2005) provide greater clarity in defining personality as “the unique, relatively enduring internal and external aspects of a person’s

character that influence behavior in different situations” (p. 10). In order to better capture the essence of the construct, personality researchers have searched for clusters of common traits or factors that relate together (Cattell, 1965; Eysenck & Eysenck, 1963). A long-standing debate exists about the appropriate number of factors it takes to adequately describe personality; yet, “more contemporary work has typically yielded five broad personality factors” (p. 292).

The Big Five model of personality (McRae & Costa, 1987) is often referred to through the acronym of OCEAN since the five traits represent Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism. These five traits are classified as ‘broad’ because they have been found to incorporate multiple facets or domains (Costa & McCrae, 1995; Digman, 1990). For instance, Openness typically refers to being receptive to new experiences, but also contains elements of creativity, independence, and daring (Schultz & Schultz, p. 293). Conscientiousness normally means orderly and rule following, but also includes aspects such as competence, discipline, and achievement orientation (Costa & McCrae, p. 32-33). Extraversion is defined primarily by a tendency towards being outwardly expressive - containing “facets related to gregariousness (i.e., Friendliness, Cheerfulness, Sociability), but also has facets related to dominance and energy (i.e., Activity Level, Excitement Seeking, Assertiveness)” (Hastings & O’Neill, 2009, p. 289). Agreeableness represents cooperative and harmonious behavior with others, while also encompassing features such as altruism, trust, and tender-mindedness (Costa & McCrae, p. 32). The fifth trait, Neuroticism is mainly characterized by anxiety, though self-consciousness, impulsiveness, and vulnerability are also meaningful components. Often, Neuroticism is measured through its inverse, Emotional Stability or Resilience, which is the

“overall level of adjustment in the face of stress and pressure” (Lounsbury, Saudargas, & Gibson, 2004, p. 522).

Evaluation of the broad personality ‘domain-level’ factors, especially within the vocational behavior literature has brought further question about whether focus upon more narrowly defined facets or specific traits can add predictive validity. A specific or narrow trait has been referred to as unidimensional, meaning the content covers only one attribute, because it represents a sub-component or lower-order of a broad trait with more direct and ‘clear behavioral connotations’ (Ones and Viswesvaran, 1996; Schneider, Hough, & Dunnette, 1996). “Narrow trait advocates point out that more variance can be explained in a criterion by a set of theoretically relevant and specifically defined traits” (Hastings & O’Neill, 2009, p. 290). In fact, there is growing evidence for the assertion that narrow traits add incremental validity to the Big Five (Ashton, 1998; Lounsbury, Sundstrom, Gibson, & Loveland, 2003; Paunonen, 1998; and Paunonen, Rothstein, & Jackson, 1999). Two narrow traits in particular that have shown promise in employment selection and organizational behavior include optimism and work drive. Optimism is defined by Lounsbury, Saudargas, & Gibson (2004) as a tendency to have a hopeful outlook with respect to the future, even when facing adversity. The authors also describe Work Drive as “being hard-working and industrious with an inclination to put in long hours and much time and effort to reach goals and achieve at a high level” (p. 523). The present study extends the research literature by exploring the contribution of narrow traits in conjunction with the broader Big Five in explaining variance in career decidedness. Examination of the prevailing issues in vocational decision literature also leads to re-assessing the contribution of demographic variables

(e.g., age, gender), academic achievement, and investigating the stability of personality-career decidedness connections over time.

Career Decidedness is an especially important topic to study today due to the changing nature and complexity of the global economy and current vocational marketplace. Global competition is impacting job opportunities, transforming the world economy and creating an “unprecedented war” for talent (Colvin, 2006, ¶ 1). The demands of this competitive landscape require continuous adaptation and innovation, making it even more imperative for the next generation of the workforce to be well prepared to meet the challenges of a world quite different than earlier generations have experienced. As noted by Leong (as cited in Murray, 1998), building a career “rung by rung, is no longer typical” (¶ 2) and a career in the new millennium can take on many different forms. A point reiterated by former U.S. Secretary of Labor, Elaine Chao, at her 2005 address to the Workforce Innovations conference:

Today, we are living in a knowledge-based economy that requires a highly skilled, educated, flexible workforce. It requires workers who continually upgrade their skills over the course of their careers, so they can adapt and evolve with changing industries. The era of staying with one company for a lifetime is over. The average American today has had nine jobs by the time he or she is 34 years old (¶ 9).

Of course, this is not a circumstance limited to the American economy but a worldwide trend. For instance, the International Labour Organization (2001) reports “the disappearance of the life-long employment system following the economic reforms carried out in the late 1980s and early 1990s in nine transition countries (Bulgaria, Czech Republic, Estonia, Hungary,

Lithuania, Poland, Russian Federation, Slovenia and Ukraine)” (p. 234, ¶ 4). In addition, Gregg & Wadsworth (2002) report in the Oxford Bulletin of Economics and Statistics that long-term job tenure has fallen significantly in the last quarter of a century, particularly among older-workers in Britain. O’Reilly (2001) estimated that in Canada, “young people entering the labour force will work in seven to eight different jobs throughout their career, with two job changes resulting from involuntary layoffs” (Skill #5: Career Decision-Making Skills, ¶ 1). Given this demand for vocational fluidity, the author concluded that career decision-making skills are even more essential now than ever before.

The importance of career decision-making and commitment is so widely recognized that prominent associations (e.g., National Career Development Association, National Association of Colleges and Employers) have added this component as part of their principles for conduct and development of competencies. Even the Australian and Canadian Departments of Education have revised their career development guidelines to address decision making issues. Furthermore, the U.S. Department of Education’s Office of Vocational and Adult Education commissioned a revision of its National Career Development Guidelines in 2003 to (among other things) “broaden the scope and application by providing the target audiences with easily accessible career development information, learning activities and strategies that lead to informed career decision-making and lifelong learning” (¶ 4). The ability to continually evaluate and decide upon career options is clearly a demand characteristic for the workforce of tomorrow.

An extensive body of vocational research has been dedicated to the topic of career-decision making behavior, particularly career decidedness. Following the conceptual definitions of Gordon (1998) and Jones & Chenery (1980), Lounsbury, Tatum, Chambers, Owens, & Gibson

(1999) referred to career decidedness as “the degree to which individuals feel decided about their career choice” (p. 648). In other words, the classic definitions view decidedness as a continuous variable on a scale from undecided to decided. Traditional research has examined the construct at one particular point-in-time, rather than investigating the stability of career decidedness over time. Historically, the most prominent line of investigation has centered on constructing a typology of career indecision by exploring relationships with personality to better understand the characteristics that may influence career decision status and develop appropriate interventions.

Review of Research on Personality and Career Decidedness

After almost a century of modern-day theory building about vocational behavior, understanding this construct and explaining individual differences in career decision status has proven to be a challenging and complicated task. At a minimum, what has been learned from linking classic theories of Crites (1969), Parsons (1909), and Super (1955) with prominent research models (i.e., Holland & Holland, 1977; Jones & Chenery, 1980) is that decidedness is a dynamic and multidimensional concept. Still, no agreement exists as to the exact number of dimensions for career decidedness (Santos, 2001). This deficiency has led to more thorough examination of developmental and other influences to better understand the construct.

Enter personality, a widely studied variable considered to play a critical role in the dynamics of career decidedness. Clarifying the role of personality in career decisions is especially important since the development of personality is thought to precede and possibly contribute to the formation of identity and other interests. Even more, both heritability and family influences have been shown to help explain variance in personality traits (Digman, 1990). In addition, there appears to be a reciprocal influence between social environment and expression

of personality (Saudino, 2005), which may have further implications for making career decisions.

Accordingly, studies of personality have sought to provide broader understanding of career decidedness by adding insight about individual differences, as well as further clarifying relations with traditional correlates. The general finding has been that higher anxiety and a lower sense of self correlate positively with career indecision (Campagna & Curtis, 2007; Creed, Patton, & Prideaux, 2006; Fuqua, Blum, & Hartman, 1988; Guay, Ratelle, Senecal, Larose, & Deschenes, 2006; Hawkins, Bradley, & White, 1977; Kimes & Troth, 1974; Leong & Chervinko, 1996; Meldahl & Muchinsky, 1997; Mitchell & Krumboltz, 1987; Santos, 2001; Stead, Watson, & Foxcroft, 1993; Taylor & Betz, 1983); however, there have been some conflicting results. For instance, Hawkins, Bradley, & White (1977) found academic major choice anxiety was the best predictor of decidedness but vocational choice anxiety or general anxiety added very little contribution, highlighting possible measurement issues. Another study (McGowan, 1977) that experimentally manipulated decidedness levels found no significant difference in either anxiety scores or vocational maturity [Vocational maturity is a term coined by Donald Super (1955) to signify the normative vocational behavior for a given age). The author acknowledged the possibility that the short time period of four weeks between pre-test and post-test and the treatment itself (i.e., completing Self-Directed Search inventory) could have influenced the results. "According to Crites and Semler (1967), vocational maturity is developmental in nature; it is a process that takes time," and changes in anxiety may require longer time periods, more thorough interpretation of SDS summary codes, and greater exposure to situational influences and experiences that can impact career decisions (p. 202-203). Even more, several studies (Jones

& Chenery, 1980; Larson, Toulouse, Ngumba, & Fitzpatrick, 1994) failed to find a connection between indecision and trait anxiety. One possible explanation accounted for by their data was that “those who are undecided for reasons of low choice/work salience are not anxious, whereas those who are undecided for other reasons are anxious” (p. 475). In line with Goodstein’s (1965) theory, the authors suggested that anxiety may play differential roles in career indecision.

Consequently, most other studies addressing anxiety and career decidedness have looked at treatment effects, as well as differential groupings and factor patterns to better understand the relationship. Studies examining treatments have shown that cognitive restructuring, problem solving and anxiety management efforts are worthwhile interventions for reducing state anxiety in undecided students (Mendonca & Siess, 1976; Peng, 2001, 2005; Peng & Herr, 1999). While these studies helped to demonstrate further application of personality factors across cultures, smaller group sizes presented a major limitation to generalization of findings. Furthermore, traditional results lacked clarity across some demographic factors, as well as in identifying distinctions between normal developmental indecision and more chronic indecisiveness. The divergent measurement scales and unique ways of defining each trait construct likely contributed to inconsistent results. Even more, several studies (e.g., Lucas & Wanberg, 1995) were unable to detect patterns of common personality traits across multiple sub-types of indecision. The findings strengthen the case for Holland & Holland’s (1977) proposition that focusing exclusive attention upon individual traits, such as anxiety, may be limiting the understanding of decision dynamics when “a host of additional unfavorable personal and situational forces” (p. 413) are also involved with indecision and especially more chronic forms of indecisiveness.

Chartrand, Rose, Elliott, Marmarosh, & Caldwell (1993) proposed that linking broader combinations of “personality dispositions and problem-solving skills may be predictive of different career decision-making difficulties” (p. 68). Kelly & Pulver (2003) added that “the failure to adopt a standard set of personality measures with adequate norms has slowed progress in career indecision typology research” (p. 446-447). Even more, the knowledge accumulated has primarily attempted to explain only the undecided end of the continuum. Both of these issues highlighted a need to better address construct definitions, measurement issues, and intervening variables. For instance, there is evidence that gender and ability may play a part in career decision status (Creed, Patton, & Bartrum, 2004; Kanfer, Wanberg, & Kantrowitz, 2001; Patton & Creed, 2001; Taylor, 1982; Wulff & Steitz, 1999), but conclusions are mixed and complicated by the influence of role socialization, distinct patterns of achievement motivation, and attributional style differences among other variables.

Much debate has existed regarding the stability of traditional personality measures. While the person-situation debate sparked by Mischel (1968) has helped to conceptually resolve the issue by showing how personality can be impacted by a situation, consistent measurement of personality had remained an issue until the last two decades when more comprehensive inventories, such as the Five Factor Model, were introduced into this line of investigation. Still, a literature review produced only eight studies (Chartrand, Rose, Elliott, Marmarosh, & Caldwell, 1993; Gaffner & Hazler, 2002; Kelly & Pulver, 2003; Meyer & Winer, 1993; Newman, Gray, & Fuqua, 1999; Shafer, 2000; Tango & Dziuban, 1984; Walsh & Lewis, 1972) that have explored the relationship with career indecision using composite measures of personality [e.g., CPI(1), MBTI (1), MMCI (1), OPI (1), 16PF(1), and Big Five(3)].

While the developing personality literature started to piece together larger sections of the career decidedness puzzle, there is still a lack of thorough understanding since only a portion of the construct has been captured for examination. In other words, there is a problem of criterion deficiency given that the majority of research has targeted only career indecision or indecisiveness. Furthermore, there has been inconsistency in the traditional literature with the operationalization and measurement of career indecision. For instance, several studies measured indecision by whether an upperclassmen reported an academic major while other studies used the self-report criteria, such as whether a student has ‘tentatively chosen an occupation’ as the measure of decision commitment. As cited in Betz & Serling (1993), “Slaney (1988) noted that progress in conceptual understanding is limited by our lack of a measure which could clearly and consistently differentiate indecisive from undecided students” (p. 21).

Even though more thorough analysis continues to better determine the complexity of career indecision, much less attention has been given to the decidedness end of the continuum. While some recent investigations have conceptualized career decidedness as “being inversely related to career indecision” (Lounsbury, Hutchens, & Loveland, 2005, p. 25), much of the overall knowledge about the construct has come from examining factors that play a role in preventing commitment to a career decision (e.g., low identity, lack of clarity with vocational interests, low self-efficacy and high anxiety). Almost two decades after Newman & Fuqua (1990) recommended more information should be collected about career decided individuals, a literature review produced just six studies (Jin, Watkins, & Yuen, 2009; Lounsbury, Tatum, Chambers, Owens, & Gibson, 1999; Lounsbury, Hutchens, & Loveland, 2005; Lounsbury, Saudargas, & Gibson, 2004; Page, Bruch, & Haase, 2008; Wang, Jome, Haase, & Bruch, 2006)

that examined relationships with composite personality measures [e.g., all Big Five inventories (6)]. Thus altogether, a review of research investigating the connection between composite personality traits and both ends of the continuum of career decidedness uncovered just over a dozen studies. The bulk of findings centered on the Big Five personality traits, and the prevailing knowledge about each trait is summarized in the following sub-sections.

Neuroticism

The Big Five trait most commonly reported to be associated with career decidedness is Neuroticism. For instance, Meyer & Weiner (1993) compared three different career decision scales and found Neuroticism to be the trait most strongly connected to career indecision. A more advanced path analysis by Chartrand, Rose et al. and a mediation model from Shafer (2000) including Big Five traits both confirmed Neuroticism as the strongest and only direct predictor of affective elements of indecision. In addition, results further emphasize the divergent paths to affective versus informational components of career indecision, which is “suggestive of the conceptual distinction between career indecision [i.e., point in time] and career indecisiveness [i.e., more chronic pattern of difficulty in making decisions]” (Chartrand et al., p. 80). Neuroticism was specifically linked with problem-solving deficits as surmised in earlier reviewed anxiety research.

At the other end of the scale, several studies (Jin, Watkins, & Yuen, 2009; Lounsbury, Saudargas, & Gibson, 2004; Lounsbury, Tatum, Chambers, Owens, & Gibson, 1999; Page, Bruch, & Haase, 2008) reported that being decided was inversely related to Neuroticism, as would be expected from the previous findings for a positive association with undecided individuals. Jin, Watkins, & Yuen (2009) provided even greater significance by extending these

findings across cultures to show Neuroticism played a similar role in the career commitment of Chinese graduate students. While Neuroticism was directly connected to career-decidedness through an inverse relationship, self-efficacy (e.g., beliefs about career decision-making ability) was also shown to have an influence in mediating the relationship with career commitment. “It appears that greater negative emotions and feelings of stress are likely to diminish one’s certainty about committing to a particular career alternative...” (Page et al., p. 814). Even more, Wang, Jome, Haase, & Bruch (2006) showed how Neuroticism had an even greater impact for African Americans than for White students. Very recent findings by Kelly & Shin (2009) further signified that negative career thoughts and feelings may influence the connection Neuroticism has with informational components of career indecision. “Whether the anxiety associated with indecision results from, or is a cause of, career indecisiveness is an open question that continues to receive attention in the literature” (Meyer & Weiner, p. 179).

Neuroticism was also found to be critical in differentiating types of career indecision (Kelly & Pulver, 2003). In an attempt to address previous limitations, Kelly & Pulver conducted a predictive validity study exclusively with undecided students and used norms to interpret the resulting types. Of course, high neuroticism was indicative of the neurotic indecisive information seeker, who also showed elevated career choice anxiety, indecisiveness, need for career information and self-knowledge and lower than normal extraversion. Low neuroticism was associated with the well-adjusted information seeker and the uncommitted extravert, who was not in need of self-information but did show agreeable traits and extreme sociability. This inverse connection between neurotic-like traits (e.g., anxiety, tension, high-strung orientation)

and both pro-social orientation as well as career indecision was also suggested by the findings of Walsh & Lewis (1972) with further indication of potential gender differences.

Extraversion

While two studies (Kelly & Pulver, 2003; Newman, Gray, & Fuqua, 1999) reported an inverse relationship between Extraversion and career indecision or indecisiveness, the overall results are more complex. Similar to neuroticism, extraversion did help to distinguish three of the four proposed indecision types according to Kelly & Pulver (e.g., well-adjusted information seeker, neurotic indecisive information seekers, low ability information seeker, and uncommitted extraverts). High extraversion related most to the uncommitted extravert, as well as the low ability information seeker who appeared to need interaction with others but showed low openness to new experiences. Low extraversion was connected with the neurotic indecisive information seeker, where the tendency to avoid outreach presumably leads to both developmental skill deficits as well as limited access to important career information (p. 451). As suggested by the findings of Tango & Dziuban (1984), perhaps asocial and avoidant personality characteristics lend power to negative thoughts and/or irrational thinking (i.e., impossible agendas as terms by the authors) that give way to a fear that in turn heightens career indecision.

The possibility that extraversion's impact upon career decidedness is indirect was extended with the results of Wang et al. (2006) where career decision-making self-efficacy and ethnicity offered considerable contribution. While self-efficacy fully mediated the relationship for white students, only "a partially mediated model fit the data..." for students of color and extraversion was "related to career choice commitment both directly and indirectly through self-efficacy" (p. 312). The influence of a mediator or moderator variable may be the reason none of

the other investigations (Chartrand et al., 1993; Gaffner & Hazler, 2002; Jin, Watkins, & Yuen, 2009; Lounsbury, Saudargas, & Gibson, 2004; Lounsbury, Tatum, et al., 1999; Lounsbury, Hutchens, & Loveland, 2005; Page, Bruch, & Haase, 2008; Shafer, 2000) supported a significant association between Extraversion and career decidedness. In fact all of these studies corroborated the connection between Extraversion, problem-solving confidence and decision difficulties, despite no support for a direct link to being undecided about a career.

Openness

Chartrand, Rose, et al (1993) also found the Big Five personality trait of Openness (e.g., being open to new experiences) to be positively associated with problem approach and self-reported coping skills, both of which would have perceived benefit for exploring career options. Even though Page et al. (2008) could not find a direct relationship to career decidedness, they added verification for the possibility of an indirect association between Openness and career commitment through career decision-making self-efficacy. Lounsbury, Hutchens, & Loveland (2005) specifically investigated the career decision status for middle and high school students (e.g., 7th, 10th, and 12th grades) and turned out to be the only study supporting a direct link with the trait of Openness. While Openness showed a positive relationship with career decidedness, the connection was only significant for those in the 7th and 12th grade level. Still, there has been little other empirical evidence for a significant association with career indecision. The association could be indicative of developmental characteristics relevant only to adolescence or this specific group of students.

Conscientiousness

On the contrary, Conscientiousness has consistently surfaced as a correlate of career decidedness (Jin, Watkins, & Yuen, 2009; Kelly & Pulver, 2003; Lounsbury, Hutchens, & Loveland, 2005; Lounsbury, Tatum, Chambers, Owens, & Gibson, 1999; Newman, Gray, & Fuqua, 1999; Meyer & Weiner, 1993; Page, Bruch, & Haase, 2008). Except for one study about academic withdraw that did not report a significant correlation (Lounsbury, Saudargas, & Gibson, 2004); the standard discovery has been an inverse relation with career indecision and positive association with being decided about a career. Meyer & Weiner (1993) provided more evidence of this connection when analysis revealed those who scored higher on the Q3 self-control (e.g., conscientious, goal-oriented) dimension of the 16PF significantly differed with lower mean indecision scores. Intriguingly, Lounsbury, Hutchens, & Loveland further reported that students across three grade levels (e.g., 7th, 10th, and 12th grade) “who were more orderly, rule-following, dutiful, reliable, and structured were more likely to have decided upon a career” (p. 33). Theoretically, someone who is conscientious would approach tasks in the career selection process with diligence and discipline that should pave the way for reaching a career decision. The idea certainly connects with Chartrand, Rose et al.’s results relating conscientiousness to coping and problem-solving skills. Shafer (2000) provided additional evidence and further clarified that successful progress on career tasks may mediate the effect conscientiousness has upon decision-making.

Agreeableness

The findings for Agreeableness are less conclusive, since the results have been mixed. Nearly half of the career decidedness studies comparing relationships with personality using composite trait measures could not validate a significant relationship with the trait of

Agreeableness (Chartrand, Rose, et al., 1993; Kelly & Pulver, 2003; Page, Bruch, & Haase, 2008; Shafer, 2000). Still, it stands to reason that students who are agreeable may be shielded from negative aspects of decision-making due to a tendency to maintain positive interactions with others. While not conclusive of the notion, Newman, Gray, and Fuqua (1999) discovered that individuals demonstrating high career indecision scored significantly lower on what they label the 'Consensuality factor' (e.g., reliable, agreeable, cooperative) of the California Psychological Inventory (CPI). In general, the analyses indicate that those who showed greater career indecision had lower pro-social orientation; specifically, a propensity for being non-conformists, which would relate to low agreeableness. Jin, Watkins, & Yuen (2009) very recently added strength to the proposition, at least among Chinese graduate students, by linking high Agreeableness to less premature foreclosure in making career decisions.

Three Lounsbury and Associates studies (Lounsbury, Hutchens, & Loveland, 2005; Lounsbury, Saudargas, & Gibson, 2004; Lounsbury, Tatum, et al., 1999) report additional evidence supporting an association between agreeableness and career decidedness. In all cases, their analyses showed a positive and significant connection with being decided about a career. In the 2005 study, the additional authors extended Lounsbury's earlier work in several important ways. First and foremost, they explored early and middle adolescent students (i.e., approximately age 11 to 17), an underutilized and often critically overlooked population since this can be a time when personality traits begin to stabilize (McCrae, Costa, Terracciano, Parker, Mills, & DeFruyt, et al., 2002). Furthermore, the authors found agreeableness to be relevant to career decidedness even as early as the 7th grade, as well as for 12th graders, though the relationship was quite modest for both ($r = .17, p < .01$; and $r = .13, p < .05$ respectively). If it is the case that

“agreeable students are more willing to engage in career planning, more likely to trust information about career choices, and more inclined to seek out and listen to the advice, and encouragement about career planning and decision-making” (Lounsbury, Tatum, et al., p. 649), these characteristics may afford this group of students a distinct advantage when deciding upon a career.

Grand Summary of Big Five Traits

Across 14 investigations, the Big Five traits regularly surfaced as being significantly associated with career decidedness, especially Neuroticism and Conscientiousness. Comparing the results for all the Big Five personality traits, Neuroticism was the only trait to consistently demonstrate a significant relationship with career decidedness. Overall, 10 out of 10 (100%) composite personality studies including a measure of neuroticism found either a significant positive relationship with career indecision or inverse relationship with being decided about a career. Conscientiousness follows as the next trait to regularly demonstrate a significant connection with career decision status across multiple studies. Altogether, seven out of the 10 (70%) composite personality investigations incorporating a conscientiousness-related measure reported a significant association with career decidedness; however, two additional studies suggested conscientiousness has an indirect influence upon career decision status. Results also suggest the possibility of a career decidedness connection for the trait of Agreeableness, though not definitive since only five out of nine studies (55.6%) uncovered evidence for a significant association. Conclusions for Extraversion and Openness are more tentative as only three out of 11 (27%) composite personality studies suggested a link for Extraversion and only one out of eight (12%) studies supported a link for Openness despite broader suppositions proposing

connections for both of these traits in past research. Conceivably, a third variable mediated the relationships, which was a trend permeating at least half of the findings for all traits. For instance, extraversion, openness, and conscientiousness were all positively related to coping and problem-solving skills that would suggest importance for being able to make a career decision.

Theoretical Framework of Trait relationships with Career Decidedness

Based upon the mixed discoveries within the classical career indecision literature, several researchers (Newman, Fuqua, & Seaworth, 1989; Kelly & Pulver, 2003) postulated that traditional theoretical frameworks of career indecision have been incomplete. For instance, the majority of conceptualizations addressed “career indecision as a unidimensional problem” (Newman, Fuqua, & Seaworth, p. 223), which miscalculates the depth of the issue; it “...is a complex phenomenon and there is evidence that undecided individuals do not constitute a homogenous group” (Santos, 2001, p. 381). “The substantial variance across individual clients presenting career indecision clearly demands alternative case conceptualizations and interventions” (Newman, Fuqua, & Seaworth, p. 224). Yet, the three classic models (Chartrand et al., 1994; Jones & Chenery, 1980; and Savickas, 1989) serving as the prominent theoretical frameworks deal primarily with career indecision. All three approaches are driven by either affective components (e.g., comfort with decision status), cognitive components (e.g., reasons for indecision like need for information), and/or the pervasiveness of indecision; however, they neglected to both consider the multi-dimensional nature of the construct or to incorporate the interplay of personality factors or other variables. “Counselors who work with ... students need to be aware of the combination of personality factors that may impact career... [decidedness]” (Gaffner & Hazler, 2002, p. 325).

As noted by Chartrand, Rose, et al. (1993), the “research on personality and problem-solving or coping processes are two areas that offer explanatory constructs for theory development” (p. 67). Until the last two decades, “few studies have systematically replicated...” evidence pointing to personality correlates of indecision (Sepich, 1987, p. 12). The fact that Big Five personality traits have shown a link to career decidedness paves a path toward greater understanding. The question that needs to be addressed here is why the Big Five personality variables should be related to career decidedness. One strong proposition is that

personality traits help distinguish who people are and these traits are, in part, determinative of identity. In this vein, Sheldon, Ryan, Rawsthorne, and Ilardi (1997) found that people identify with their traits and feel most genuine when they act in accordance with their traits (Lounsbury, Huffstetler, Leong, & Gibson, 2005, p. 508).

Based upon other indications that personality may be foundational to identity (McCrae & Costa, 2003; Lounsbury, Levy, Leong, & Gibson, 2007), one theoretical premise that is worthy to build upon is the Extended Reciprocal Model proposed by Newman, Fuqua & Seaworth (1989).

A concept that evolved to address the differential diagnosis and treatment of career indecision, the Extended Reciprocal Model provides a framework for incorporating the effect of broader personality traits and how they relate to becoming decided upon a career as well. At the core, this model holds that “not only can anxiety and career indecision interact reciprocally, but each can, and probably does, interact with more deep-seated psychological problems [like] ... arrested development in identity formation, which is frequently suggested in the literature” (p. 227). Even though the classic model dealt only with career indecision, the focus on reciprocal relationships is the key for advancing the structure to incorporate dynamic interactions of other

Big Five personality traits that influence the process of career decision-making and ultimately, the continuum of career decidedness. Reciprocal influence may also explain some of the confusion from contradictory findings in past research regarding traits relationships to career decision status by appropriately allocating room for the impact of other variables like self-efficacy that was found to mediate most Big Five trait connections with career decidedness, even Neuroticism.

Belief in one's capabilities to perform tasks of anticipated careers clearly has important implications for decision-making processes, and may also be influenced by social interactions. Even though self-efficacy has received considerable attention in the career decision literature, social support and environmental circumstances that play a role are often overlooked. In 2003, Guay, Senecal, Gauthier, & Fernet proposed a framework for addressing the deficiency by integrating career indecision theory within a broader model of intrinsic and extrinsic motivation called Self-Determination Theory (SDT). The premise of SDT is that conditions sustaining the innate psychological needs of competence, relatedness, and autonomy promote engagement, persistence, and improved performance in volitional activities (Ryan & Deci, 2000). Results from the Guay and colleagues (Guay, Senecal et al., 2003; Guay, Ratelle, et al., 2006) test of this model bolstered the contention that development of competence and autonomy is not only related to support from family and friends, but also enhances self-efficacy and career decidedness. "Specifically, peers and parents who are autonomy supportive (i.e., providing choice, information, and/or involvement) foster the development of students' levels of confidence with regard to career decision-making activities," and for those students' where autonomy was not supported, it inhibited confidence and career decidedness (p. 172). Super's

classic theory of the vocational self-concept would add that becoming decided upon a career also relies upon the intricacies of developmental tasks and life experiences. “As the individual grows older, he integrates the various pictures he has of himself into a consistent self-concept, which he strives to preserve and enhance through all his activities, but particularly through his occupational activities” (Crites, 1969, p. 98).

The Guay et al. findings also connect with broader Social Learning Theory (SLT) research linking student success with social support (Bandura, 1997; Lent, Brown, & Larkin, 1986; Spitzer, 2000), even among minority populations (Thomas, 2000). It’s likely that social support and perception of ability mutually influence one another and identity development. The interaction between a developing vocational self-concept and influential life experiences then becomes fertile soil for the expression of particular personality traits. One likely sequence would incorporate genetic predispositions that interact with environmental circumstances to trigger the expression of a specific personality trait that in turn impacts beliefs about one’s capability to perform and the motivation to pursue, as well as commit to career options. Assimilating classic models of career indecision within more extensive frameworks of SDT, SLT, and the Extended Reciprocal Model facilitates more comprehensive understanding of both the direct and indirect pathways between personality traits and career decidedness.

Figure A1 in Appendix A summarizes the proposed integrated model of relationships based upon the empirical evidence thus far and suggestions of preceding theory in the research literature. While all of the variables presented are not addressed in the present investigation, the model assists in explaining why and how certain personality traits are likely connected to career decidedness and highlights potential interactions that could account for unexplained variance.

For instance, the empirical evidence thus far suggests that Neuroticism is a cornerstone trait for predicting low career decidedness; yet, a predisposition for Neuroticism appears to be reinforced by and may in turn bolster a lack of identity, lower self-efficacy, limited social support, and problem-solving deficits. On the other hand, Conscientiousness has most consistently associated with higher career decidedness, potentially through the influence of a stronger sense of identity, elevated self-efficacy, autonomy and personal control. In fact, an Internal Locus of Control may be a key factor that distinguishes students who have a greater propensity for conscientiousness and likely influences one's sense of autonomy to engage in exploratory vocational behaviors that pave the way for making a career decision. Studies investigating Cognitive Evaluation Theory (CET), a component of SDT, have shown evidence that self-efficacy alone is not sufficient to boost intrinsic motivation "...unless accompanied by a sense of autonomy or, in attributional terms, by an internal perceived locus of causality" (Ryan & Deci, 2000, p. 70).

A sense of autonomy and competence are also probable factors impacting the relationship Agreeableness, Extraversion and Openness have with career decidedness. Theoretically, the tendency for extraversion or inclination to be agreeable would relate to greater career decidedness as the preference to interact with others or seek novel experiences should arm individuals with critical insights about careers; however, evidence is not definitive based upon mixed findings and the existence of only a couple handfuls of studies attempting to link the three traits with career decision status. Given that learning about careers and gaining access to vocational options is dependent upon the quality of social contact, there is a strong possibility for the potential of a more complex interaction.

The presence of enhanced social support, encouragement of autonomy and high self-efficacy should further stimulate vocational identity and decision-making. A lack of social support or low self-efficacy would be expected to undermine the strength of association either Extraversion or Openness has with career decidedness. Intriguingly, there could be an inverse effect (e.g., greater association with career decidedness) when an agreeable student also has low self-efficacy as this may actually hasten the student to a decision. If indeed agreeable students are more trusting, they may be susceptible to uncritically accepting career aspirations family members or others may have for the individual. Cooper, Fuqua, & Hartman (1984) provided some supplemental support for this notion as more indecisive students also reported being high on submissiveness, passivity, lack of dominance, and cooperation. Furthermore, the likelihood for extraverts and those who readily seek new experiences to have greater access to pursue varied career options complicates the decision-making process. For instance, extraverts who demonstrate higher academic achievement would be more competitive for graduate school or sought after by the most competitive companies, thus presenting the possibility to deliberate over several viable options and the potential for a more difficult decision. On the other hand, an extravert with lower academic achievement may have less alternatives available, especially if they also show low openness to new experiences as suggested in Kelly & Pulver's research identifying those with this combination of traits as the 'low ability information seeker.'

Prevailing Issues Remaining in the Literature

Kelly & Pulver's research helps to integrate past findings in several important ways. First, their efforts to distinguish different clusters of career indecision shed additional light upon past inconsistencies for classifying different types of career indecision. Despite advances to

integrate divergent conceptualizations of career indecision, the picture will remain distorted without sustained endeavors to study the full-scope of this construct represented by the career decidedness end of the continuum. Second, their research provided additional emphasis for the need to employ standard measures of personality where norms are available and comparisons can be more readily made across investigations. The empirical knowledge available thus far that incorporated composite personality inventories is sparse, reliant upon data from only 14 studies. In addition, only nine out of those 14 investigations utilized similar personality inventories (e.g., The Big Five). “The Big Five model has emerged as the most widely accepted and extensively researched framework for normal personality available today” (Lounsbury, Hutchens, & Loveland, p. 27). Accordingly, more studies are needed that explore the Big Five personality traits specifically to minimize measurement inconsistencies that may be impacting the reported strength of relationship with career decidedness.

Developing research has also implicated several other personality traits as relevant to psychological well-being, as well as academic and vocational behavior. For instance, “recent research has demonstrated that narrow personality traits – that is, personality traits that are narrower in conceptual scope than the broad Big Five traits – can add significant incremental validity to the Big Five personality traits in academic settings” (Lounsbury, Saudargas, & Gibson, 2004, p. 520). Two traits that were found to significantly relate to both academic success and persistence (Ridgell & Lounsbury, 2004; Lounsbury, Saudargas, & Gibson, 2004), as well as, performance on-the-job (Johnson, 1997; Lounsbury, Gibson, & Hamrick, 2004) are Optimism and Work Drive. Optimism has long been linked to psychological and physical well-being

(Seligman, 1998); however, Lucas & Wanberg (1995) noted that Optimism had been virtually ignored in the career decidedness literature.

While the traditional inquiry has sought to uncover direct linear associations between personality and career indecision or decidedness, it's likely that more complex interactions with other variables could account for unexplained variance in the relationship. For example, Kelly & Pulver discovered that the 'low ability information seeker' appears to be unique from other sub-types previously identified, primarily because 'ability' was not a commonly included variable in other multi-dimensional analyses. Even more, the few studies that have included 'ability' were technically measuring academic achievement, though operationalizing the construct through disparate measures (e.g., SAT scores versus GPA). Therefore, the results highlight a need to further investigate the influence ability or academic achievement variables may have upon the relationship between personality and career decidedness. Several investigations have also uncovered gender differences, but despite some indication of variation in self-efficacy beliefs, neuroticism, and negative thinking, the overall findings are inconclusive. In order to clearly and thoroughly understand the nature of these construct relations it is imperative to extend the exploration of any differential impact by gender.

Age may also be another influencing variable. The consistent findings relating conscientiousness to decidedness provide further support for Super's theory of 'vocational maturity' and potentially link past notions that a stronger sense of control over influencing life events means less indecision. Interestingly, the most significant correlations in the Lounsbury, Hutchens, & Loveland (2005) study were actually found at the 12th-grade level, which "may reflect more personality maturation" (p. 33); a possibility enhanced by the observation that

emotional stability was only significantly related to career decidedness for the 12th graders (especially for females). This finding corresponds with Earl & Bright's (2003) research connecting age and work experience with career decision status and particularly emphasizing the tendency of females to collect more information pertaining to vocations. Even so, a puzzling and unexpected finding for Lounsbury et al. was that career decidedness did not increase across higher grade levels.

The change in career decidedness across time is another prominent aspect of research that is still in need of thorough investigation. Incorporation of more longitudinal studies can enhance understanding of decision process dynamics by distinguishing antecedents from outcomes, and potentially uncovering changes in decision characteristics over time that are important for clarifying dimensions (e.g., developmental versus chronic indecision). Even so, longitudinal designs do not necessarily establish cause and effect. "Examining a relationship between an initial value of one variable and changes in a second variable affords stronger evidence of a causal relationship than examining a relationship between two variables at the same time" (Finkel, 1995, as cited in Creed, Patton, & Prideaux, 2006, p. 51); yet, this does not prove causation and alternate explanations must also be eliminated.

Hypotheses

The hypotheses for this investigation are organized into three primary areas: a) personality traits; b) demographic variables; c) and stability of career decidedness. The first section targets Big Five and Narrow personality traits and consists of hypotheses 1a and 1b. The second section examines class year and age, which make up hypotheses 2a and 2b. Then, the third section highlights a need to study career decidedness across time, which is covered by

hypothesis 3. A discussion of four additional research questions will follow the presentation of hypotheses.

Personality Traits and Career Decidedness

Despite theoretical propositions for the association of Big five traits with career decidedness, empirical evidence is nominal with only 14 studies surfacing through a literature review. While Neuroticism and Conscientiousness appear to consistently and significantly relate with career decision status, evidence for a connection with the remaining three Big Five traits is not conclusive. As a result, there is still much to learn about the association of Big Five personality traits with career decidedness. For instance, there is question as to whether Conscientiousness, Extraversion, Openness, or Agreeableness directly relates to career decidedness or whether their association is present due to the influence of a third variable (e.g., self-efficacy, lack of progress on career tasks, etc.). Research evidence does exist that suggests both direct and indirect relationships for all the Big Five traits with career indecision (Chartrand, Rose, Elliot, Marmarosh, & Caldwell, 1993; Jin, Watkins, & Yuen, 2009; Page et al., 2008; Shafer, 2000; and Wang et al., 2006).

Furthermore, according to the findings of Lounsbury, Hutchens, & Loveland (2005), the Big Five personality traits had only a modest relationship ($r \leq .33$) at best with career decidedness, leaving a substantial portion of unexplained variance. While the authors found a positive connection for all five traits in their examination, only four traits were significant [i.e., Openness, Conscientiousness, Agreeableness, and Emotional Stability (considered to be the opposite of Neuroticism)]. Even though Extraversion was not found to have a significant relation in 8 of the 11 Big Five studies, some research (Hartman & Betz, 2007; Page et al., 2008; Wang

et al., 2006) does suggests that it may have a positive connection with career decision-making ability. Similarly, only 6 out of 11 Big Five investigations found a link for either Agreeableness or Openness, even though being agreeable and open to new experiences would theoretically be important for exploring and making decisions regarding career options. Accordingly, the present study will re-examine the relationship of Big Five traits with career decidedness:

H1a: Career decidedness correlates positively with four of the "Big Five" personality traits a) Openness; b) Conscientiousness; c) Extraversion and d) Agreeableness; and e) correlates inversely with the fifth trait, Neuroticism.

Also, several researchers (Ashton, 1998; Paunonen, Rothstein, & Jackson, 1999; and Schneider, Hough, & Dunnette, 1996) have suggested that narrow traits may add to the discussion. More specifically, Lounsbury, Levy, Leong, & Gibson (2007) found the narrow trait of Optimism to strongly relate with identity ($r = .67, p < .01$), a variable often connected with career commitment. A common postulate in vocational theory is that identity is foundational to making a career choice (Super, 1957; Savickas, 1985; Wallace-Broschious, Serafica, & Osipow, 1994) and research has shown low identity to associate positively with career decision difficulties (Holland & Holland, 1977; Vondracek, Schulenberg, Skorikov, Gillespie, & Wahlheim, 1995). Creed, Patton & Bartrum (2004) also recently reported that pessimistic thinking predicted perceived career barriers, which in turn related to career indecision. Even more, Lucas and Wanberg (1995) found that optimism related to being decided, which adds emphasis to Creed, Patton, & Bartrum's discovery. Additional evidence supports the connection by further linking anxiety, low optimism, fear of commitment and negative affectivity with career indecision (Meldahl & Muchinsky, 1997; Multon, Heppner, & Lapan, 1995). While the

design of these studies prevents statements to implicate direction of influence, it's possible that traits like conscientiousness and optimism interact to shield a person from negative thinking or affect through enhanced self-efficacy and drive a person forward to a decision. In addition, work drive, or the extent to which someone is inclined to be dedicated to work (Lounsbury, Saudargas, & Gibson, 2004; Lounsbury, Saudargas, Gibson, & Leong, 2005; Lounsbury, Steel, Loveland, & Gibson, 2004), has been shown to add to the prediction of withdrawal behavior in high school, as well as college satisfaction. Thus the present investigation will include narrow traits to determine the impact upon the prediction of career decidedness:

***H1b:** Career decidedness correlates positively with the narrow personality traits of a) optimism; and b) work drive.*

Academic Class, Age and Career Decidedness

Lounsbury, Hutchens, & Loveland found no significant increase in career decidedness between the 7th to 10th to 12th grade groups, which is worthy of re-examination given the potential implications. “The rationale for examining validities by grade level is based on many studies showing differences in career variables and construct relations between different grade levels (e.g., Busacca & Taber, 2002; Gassin, Kelly, & Feldhusen, 1993; Hall, Kelly, & Van Buren, 1995; Helwig, 2002; Wallace-Broschious, Serafica, & Osipow, 1994)” (p. 28). Developmental theory would suggest and “most school administrators, teachers, and counselors would like to see students becoming more decided about careers as students move from middle school to the end of high school” (Lounsbury, Hutchens, & Loveland, p. 34). Early theorists, such as Ginzberg, actually stressed the critical “importance of early choices in the career decision process” (Zunker, 2002, p. 34) and viewed occupational choice as a developmental

process of progressive stages moving toward crystallization and specification by middle adolescence. While other classic developmental perspectives led to a broader view of career decision-making across the life span (Crites, 1976; Gottfredson, 1981; Holland, 1992; Super, 1972), there remains a general agreement about the important role early experiences play in reaching what Super called vocational maturity. Still, little empirical knowledge is available about the factors contributing to career maturity (Earl & Bright, 2003). Therefore, this study will re-examine the relationships across academic class within the college student population:

H2a: Level of career decidedness is expected to show a significant increase when comparing across Freshman, Sophomore, Junior, and Senior class status.

In line with developmental theory, there is also some research indicating age relates to career decision status (Callanan & Greenhaus, 1990, 1992; Earl & Bright, 2003). The research is aligned with Glenn (1981) and Sears' (1981) 'aging stability hypothesis' suggesting that due to "the relatively dense timing of important career decisions in early adulthood (having to choose a college, a major, a career, and a job in quick succession) there is greater instability of career direction at this stage in life" (Feldman, 2003, p. 506). In other words, career indecision will decrease as a function of age, as suggested in some findings. Thus this investigation will explore the alternative connection between age and career decidedness. The traditional college age range reported by the National Center for Education Statistics (2008) is 18 to 24, so the following hypothesis was formed using this as an initial range of consideration. Based upon the fact that age categories in the present study reached just beyond the NCES stated range; however, the age range of interest here was extended by one year at each end of the continuum to maintain the integrity of this dataset:

H2b: Career decidedness correlates positively with age, especially in the 18 to 25 range.

Stability of the Personality and Career Decidedness Relationship

Vocational researchers have consistently recommended the need for longitudinal investigations to more thoroughly understand the career decidedness construct. The majority of knowledge accumulated about career decision making ability and status has been from a single point in time perspective (Arnold, 1989; Creed, Patton, & Prideaux, 2006). As denoted by Arnold's research, making a career decision, while related to some elements of life satisfaction, associated less with overall well-being than sustaining a career decision over time. Furthermore, "relationships between decidedness group on the one hand and adjustment, life-satisfaction and self-assurance on the other differed between cohorts and changed over time" (p. 173). The author thus emphasized the limitation of cross-sectional studies for 'drawing conclusions' regarding career decidedness.

As pointed out by Guay, Ratelle, et al. (2006), investigations across time are especially important for distinguishing characteristic differences between career decidedness and what has been termed 'developmental career indecision' (e.g., developmentally appropriate) versus 'chronic indecision' (e.g., a more pervasive pattern of indecisiveness). In terms of those who report greater clarity of career choice, longitudinal studies allow for exploration into the stability of the career decision. Furthermore, this line of investigation can add strength to the patterns of common personality trait relationships with career decidedness. While there have been at least three studies investigating career decision status over time (e.g., Arnold, 1989; Creed, Patton, & Prideaux, 2006; Guay, Ratelle, et al., 2006), no study could be located that explored the stability of connection between Big Five personality traits and career decidedness.

Accordingly, this study will add further emphasis to the literature by evaluating changes in the personality-decidedness connection over time. Both personality and career decisions are formed as part of a developmental process and yet most of what research tells us about these variables is from a single point-in-time perspective. While personality researchers have continually shown adult dispositional traits to be durable after the age of 30, adolescence and young adulthood is a time of considerable growth, learning, and transformation. The degree of change, along with the amount of social pressure to make vocational choices within a short span of a few years can limit the resiliency of a career decision. Based upon theoretical and empirical indications that “personality traits change with development,” (McCrae & Costa, 2005, p. 3) especially through high school and into college (Lodi-Smith, Roberts, & Robbins, 2009; Robbins, Fraley, Roberts, & Trzesniewski, 2001), as well as evidence for low levels of career decidedness and lack of significant increase in decidedness throughout adolescence (Lounsbury, Hutchens, & Loveland, 2005), the following prediction is advanced:

H3: The magnitude of relation between career decidedness and personality traits will be stronger at time 1 compared with time 2 measurement seven months later.

Research Questions

There has been mixed results in the literature regarding ability and gender differences in career decidedness. For instance, some authors have detected greater indecision for lower ability students, as well as greater early career activity among the gifted (Kelly & Pulver, 2003; Lubinski, Webb, Morelock & Benbow, 2001; Lunneborg, 1975, 1976; Talib and Aun, 2009), while others found either no difference by ability or that the impact ability has on vocational decisions is moderated by other variables like locus of control (Elton and Rose, 1971; Taylor,

1982). Discrepant definitions of ability and/or measurement methodologies offer one plausible explanation for the variation in results. As an example, Lubinski et al. and Taylor operationalized ability through diverse aptitude measures or standardized college tests (e.g., ACT, SAT), whereas Lunneborg measured ability through academic grades. In reality, these measures are all more distinct indicators of academic achievement, and may not sufficiently reflect cognitive ability. Even so, there are important considerations for choosing measures of academic achievement as variables in studying career decidedness. Grade Point Average (GPA) in particular is more commonly used by employers to reflect a person's capability to adequately learn and perform on-the-job, thus making it a qualification factor for gaining access to broader career choice options (Afarian & Kleiner, 2003; Reilly & Warech, 1993). In fact, there is empirical and meta-analytic evidence that GPA predicts job performance (Roth, BeVier, Switzer, & Schippman, 1996).

Other research has suggested that rather than providing a direct influence, academic achievement and demographic variables serve to either mediate or moderate the relationship of personality with career decidedness (Graef, Wells, Hyland & Muchinsky, 1985; Holland & Nichols, 1964; Lent, Brown & Hackett, 1994; Meyer & Weiner, 1993; and Patton & Creed, 2001). Lounsbury et al. (2005) discovered further evidence when the link between emotional stability and career decidedness was stronger for older females. Even more, Shafer (2000) reported that life task and attitude variables may change the relation of Big Five traits with career decision making. Shafer's proposition is supported by the findings of Betz and colleagues regarding the importance of self-efficacy in making career decisions (Betz & Hackett, 1981; Betz & Schifano, 2000). Furthermore, Wang et al. (2006) recently found that career decision-making

self-efficacy and gender mediated the relationship between personality and commitment to career choice exploration. Still other research (Hartman, Jenkins, Fuqua, & Sutherland, 1987; Kelly & Shin, 2009) could not verify any differentiation by gender.

Therefore, this study will further explore what influence academic achievement, gender, and demographic variables may have in the relationship between personality traits and career decidedness:

***Research Question 1:** How, if at all, does the relationship of the Big Five personality traits and career decidedness vary as a function of a) academic achievement and b) gender?*

***Research Question 2:** Which, if any of a) Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) and/or b) narrow personality traits (optimism and work drive) predict unique variance in career decidedness?*

***Research Question 3:** Which, if any of the academic achievement and demographic variables (e.g., grades, academic class, age, gender, and race) contribute unique variance to the prediction of career decidedness?*

***Research Question 4:** If personality traits, academic, and demographic variables are regressed together as a group, which personality traits uniquely predict career decidedness?*

As a summary, the five main hypotheses addressed in conjunction with the four research questions include:

Hypotheses

***H1a:** Career decidedness correlates positively and significantly with four of the "Big Five" personality traits a) Openness; b) Conscientiousness; c) Extraversion and d) Agreeableness, and e) correlates inversely with the fifth trait, Neuroticism.*

***H1b:** Career decidedness correlates positively and significantly with the narrow personality traits of a) optimism; and b) work drive.*

***H2a:** Level of career decidedness is expected to show a significant increase when comparing across Freshman, Sophomore, Junior, and Senior class status.*

***H2b:** Career decidedness is expected to be positively associated with age.*

***H3:** The magnitude of relation between career decidedness and personality traits will be stronger at time 1 compared with time 2 measurement seven months later.*

Method

Research Design

This field study of a population of college students used an on-line survey incorporating measures of 7 personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism, optimism and work drive), four demographic variables (age, gender, race, and academic class), grade point average, and a measure of career decidedness were collected from participants. All data except grades were gathered from an online inventory completed by students who consented to participate; grades were obtained from academic records through the registrar. Students completed the online inventory on two separate occasions: 1) an initial administration while students were taking either the introductory psychology course or the First Year studies program and 2) a second voluntary administration seven months later to those

students who provided email addresses. Variables measured at both occasions included career decidedness, all Big Five and the two narrow personality traits of optimism and work drive.

Participants

A total of 2,571 undergraduate students from a large, southeastern public state university who participated in either a first year studies program or an introductory psychology course represented the initial population for potential investigation. Participants were offered an individual feedback report and the opportunity to receive a copy of the study results. Overall, 2,046 (80% of available population) students gave their consent to participate and completed the appropriate Time 1 assessments. A subset of 267 participants from the initial administration (13% of initial volunteers and 10% of the population) followed through in completing a second administration of the Transition to College Inventory seven months later. Other than descriptive statistics collected upon initial registration (see Table A6 for a summary) there was limited additional information available about students who dropped out of the study. Attrition statistics are presented in the results section to highlight any potential influence on the data from the drop-out of participants.

The demographic breakdown of the total study group is as follows: 1514 participants (74%) responding at time 1 measurement came from first year studies, while the remaining 532 participants (26%) were Psychology 110 students. The time 1 group consisted of 1394 female (68.1%) and 643 male (31.4%) students with 9 participants (.5%) missing gender identification. Just over four-fifths of participants providing demographic information (1677) identified themselves as Caucasian (82.1%), while the remaining group consisted of 244 African-Americans (11.9%), 35 Hispanic (1.7%), 28 Asian (1.4%), and 58 other (2.8%). There were 4

participants (.1%) who did not provide any information about their race. The time 2 sub-group consisted of 197 female (73.8%) and 69 male (25.8%) students with 1 participant (.4%) missing gender identification. Over four-fifths of the participants (217) indicated their ethnic background as Caucasian (81.3%), while the remaining breakdown included 34 African-Americans (12.7%), and 16 other (6.0%).

Other than an overrepresentation of females (at least 68% in this group versus 53% in the university population), the demographic characteristics are representative of the total population at this university. The Time 1 representation by class year included 1612 freshmen (78.8%), 302 sophomores (14.8%), 71 juniors (3.5%), and 61 seniors (3.0%). A similar proportion of students remained at the second administration with 251 freshmen (94%), 11 sophomores (4.1%), two juniors (.7%), and three seniors (1.1%). The majority of participants (81% for Time 1 and 91% for Time 2) indicated an age falling within the Under 20 year-old category. There were 56 participants (2.7%) missing age identification.

Setting

Data came from a southeastern university with 19,639 undergraduate students in 2004. The initial population of 2046 student participants makes up 10.4% of the total undergraduate population. The largest group, freshmen, represented just over one-fourth (26%) of the total freshmen class enrollment. Sophomore participants represented just under one-tenth (7.9%) of the total Sophomore class, while Juniors and Seniors corresponded to 1.9% and 1.0% of their total class enrollment respectively. Each participant completed assessments online at a time convenient for their own schedule.

Procedures

After submitting a research proposal and obtaining approval from the Institutional Review Board (IRB), students from the First Year Studies program and an introductory psychology course were solicited to participate on a voluntary basis with the option to quit at any time with no penalty. Participating students took an online inventory, which provided a brief overview of the research including how data would be used and stored, as well as instructions for completing a participation agreement if they chose to be included in the study. Students were asked online to indicate their consent to participate either a) by providing name, social security number, and email address; or b) one-time only participation where identifying information was not required.

Those students from the First Year Studies program, where the personality style inventory (referred to as the Transition to College Inventory) assessment was built into the curriculum, were offered only consent option a). Under consent option a), all consent forms were printed along with identifying information and date. According to IRB approval, all the forms and responses for students who participated in the study were kept confidential and locked in a Psychology Department File Cabinet, with only the study directors ever having access to individual response information. An arbitrary number was generated and associated with each participant. All other information was indexed by this arbitrary number, but without individual identifiers and stored in the computer used by the project director.

At the end of the academic year, the current enrollment status and grade point average of participants agreeing to consent condition a) was retrieved from Academic Records. This data was integrated with the computer-stored inventory responses using the arbitrary subject number. Therefore, it was not necessary to enter identifying information into the computer file. This sub-

group of participants was contacted again by email seven months later with an invitation to complete the same online personality and career decidedness instrument.

Measures

Personality

The Transition to College Inventory (TTC) is based upon the Adolescent Personal Style Inventory (APSI) (Lounsbury, Gibson, Sundstrom, Wilburn, & Loveland, 2003; Lounsbury, Sundstrom, Gibson, & Loveland, 2003; Lounsbury, Tatum, Gibson, Park, Sundstrom, Hamrick, & Wilburn, 2003) and adapted for college students and was chosen to measure personality in accordance with the original Lounsbury, Hutchens & Loveland (2005) investigation. A major benefit of the TTC and APSI is that they were designed specifically for use with students from middle school to college. “Item contextualization was based on research showing that the validity of general personality scales can be enhanced by minor wording changes to reflect the context of interest (Schmit, Ryan, Stierwalt, & Powell, 1995)” (Lounsbury, Saudargas, & Gibson, 2004, p. 521). The resulting instrument includes scales for assessing both Big Five (e.g., Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) and Narrow (e.g., Optimism and Work Drive) personality traits. Most TTC sub-scales are composed of approximately 10 to 12 item statements requesting an indication of agreement based upon a Likert-type response scale.

Reliability and Validity evidence for the TTC has been accumulated through at least a half-dozen studies examining convergence with other measures of personality, as well as links with important psychological constructs like self-esteem, and criterion such as absences, academic achievement and life satisfaction. Alpha estimates of internal consistency across items

have ranged from .80 to .85. Furthermore, strong relations have been found with similar traits measured by the 16 PF, NEO-PI-R and MBTI (Lounsbury, Loveland, & Gibson, 2003).

Career Decidedness

The measure of career decidedness chosen for this study was developed and validated by Lounsbury, Tatum, Chambers, Owens, & Gibson (1999). As a sub-component of the TTC, the Career Decidedness scale is composed of six statements where respondents indicate their level of agreement based upon a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). Example items include: “I have made a definite decision about a career for myself”, “I am not sure what type of work I want to do when I get out of college”, and “I am having a difficult time choosing among different careers.” Estimates of internal consistency for this scale have been very promising with a coefficient alpha ranging from .90 to .95.

Initial validity evidence comes from the initial study of college students, reporting a significant negative correlation ($r = -.78$, $p < .01$) with the Career Decision Scale (Osipow, Carney, & Barak, 1976), a prominent measure of career indecision. The Career Decidedness Scale has received additional construct validation in at least two other studies (Lounsbury & Gibson, 2002; Lounsbury, Hutchens, & Loveland, 2005) examining decision commitment among early, middle and late adolescents, as well as work-based personality traits among adults. Lounsbury, Tatum et al. supported construct validity by verifying connections with NEO-FFI personality measures (e.g., especially a negative association with Neuroticism) and expanded the nomological network by confirming a positive relationship with life satisfaction. Lounsbury, Hutchens, & Loveland provided further support by confirming an expected correlation between

positive personality traits (e.g., Conscientiousness, Emotional Stability, Openness and Agreeableness) and career decidedness.

Variables

Personality

The main predictor variables of this study include the traditional Big Five plus two additional narrow personality traits. These seven personality traits will be assessed based upon individual sub-scales of the Transition to College (TTC), which consists of 108 total items using a 5-point Likert scale ranging from 1 to 5 (strongly disagree, disagree, in-between, agree, and strongly agree). The following represent sample items for each trait:

- *Agreeableness* – A sample inventory item for measuring this trait includes: “I try to get along with other people, even if I don’t agree with them.” The internal consistency reliability of items for this scale (measured by Cronbach’s alpha coefficient) has ranged from .75 to .84 in past studies.
- *Conscientiousness* – “I always finish everything I start” represents one example item for this trait. The alpha reliability coefficient for this scale has ranged from .78 to .80 in preceding works.
- *Extraversion* – This trait is measured by items such as “I have a lot of energy when I am around other people.” This scale has shown an alpha coefficient between .79 to .86.
- *Neuroticism* – This trait is often conceptualized as the inverse of emotional stability, and the concept is measured by items like “I get mad easily.” The alpha reliability coefficient for this scale has been in the .79 to .81 range.

- *Openness* – “I like to take classes where I learn something I never knew before” is one example item from the inventory. The scale has shown reliability in the range of .73 to .84.
- *Optimism* – One sample item includes: “When bad things happen, I still look on the bright side.” The Cronbach alpha reliability coefficient for this scale has ranged from .78 to .87 in past studies.
- *Work Drive* – The trait is measured by items like “I always try to do more than I have to in my classes.” The internal consistency of these items has been shown to range from .80 to .85 in preceding investigations.

Demographic indicators

Four additional variables are also included with this analysis: Gender, Age, Academic Class, and Academic Achievement. The gender information captured by the initial questionnaire was coded through use of a dichotomous scale of 0 (male) and 1 (female). Age information was entered as reported into 8 categories to reflect both the traditional college age groups (National Center for Education Statistics, 2008) as well as the non-traditional age students within the data set. The response options for age groups were defined as follows: 1 (Under 18), 2 (18-19), 3 (20-21), 4 (22-25), 5 (26-30), 6 (31-39), 7 (40-49), and 8 (50 and over). There were no participants in the Under 18 category for this study. Based upon the research focus toward students within the traditional college age and extremely low concentration of students in groups 5 through 8, the response groups were collapsed into three broader categories (e.g., Under 20, 20-25, and Over 25) in order to allow for more meaningful data analysis. Standard academic class years were also coded into numerical categories where 1 = Freshman, 2 = Sophomore, 3 = Junior, 4 = Senior, 5 = graduate student, and 6 = Non-degree seeking student.

The final variable that will be included in this analysis is academic achievement, given the mixed evidence for the role that it may play in distinguishing individuals who have decided upon a career from those who have not yet made a decision about their career. Academic achievement has been conceptualized in the literature in many diverse ways, though often is operationalized through measures such as grade point average (GPA). Grades were reported on a standard scale (0=F to 4=A), then categorized into segments that resulted in a seven-point scale: 1 (Less than 1.5), 2 (1.5 to 1.9), 3 (2.0-2.49), 4 (2.5-2.99), 5 (3.0-3.49), 6 (3.50-3.99), and 7 (4.0). While the easiest place to split the data into high and the low 'achievement' groups would likely be at the median or segment 5 (e.g., 3.00-3.49), this strategy would likely not capitalize on the extreme differences between the highest and lowest achievement participants. According to the National Center for Education Statistics, the college entrance standard for many of the most selective colleges, considers the preferred group of high school candidates to have Grade Point Averages above 3.5. In order to examine the maximum possible difference between the 'high' and 'low' achievement levels, the highest GPA category or segment 7 (e.g., 4.0) was actually chosen to represent the 'high' achievement group. Given a very small number of participants registering GPA's in each of the first three lowest categories, an aggregate of those participants with GPA's less than 2.49 (e.g., under a C+ average) was used to form the 'low' achievement group.

Criterion

The primary criterion variable for this study is career decidedness, which is measured by a 6-item sub-scale of the (TTC) inventory that was developed and validated by Lounsbury et al.

(1999). Career decidedness is considered to be the inverse of career indecision with the following operational definition for this study:

Career Decidedness – the degree which a student knows what occupational field s/he wants to go into after leaving school. The dimension is assessed with items such as “I have made a definite decision about a career for myself,” where respondents indicate level of agreement based upon a 5-point Likert-type rating scale (e.g., strongly disagree, disagree, in-between, agree, and strongly agree). The alpha reliability coefficient for this scale has been in the .90 to .95 range.

Results

Data Analysis

This study is primarily designed to determine if a relationship exists between Big Five and Narrow personality traits and career decidedness. Before conducting analyses, the Time 1 data characteristics and frequencies were reviewed and evaluated. The primary variables of interest (career decidedness and personality) had no missing data and demonstrated characteristics that suggested each variable was normally distributed (see Table A1). The values for both skewness and kurtosis for these variables were within an acceptable range for assuming a normal distribution and inspection of histograms suggested that the distributions looked approximately normal. As noted from the description of participants, a couple demographic and academic classification variables had cases with missing data for the Time 1 measurement; namely Gender, Age, GPA, and Race. Missing data represented an insignificant percentage of all cases [e.g., Race (.24%), Gender (.48%), and Age (2.7%)] with the exception of GPA (27%). As recommended by APA Publication Manual and data analysis guidelines (e.g., Hair et al., 1995), a

comparison of frequency percentages between valid and missing cases across study variables revealed similar patterns suggesting these data are randomly missing. Missing values were coded with a '9' in the data file and cases missing a value for a given variable were excluded from analysis on that variable.

In order to examine the first set of hypotheses that career decidedness will relate with personality, the data were subjected to Pearson correlation analyses to uncover the magnitude and direction of relationship. Tables A1 and A2 show the descriptive statistics (e.g., means and standard deviations) for the seven personality variables and their corresponding inter-correlations that relate to Hypothesis 1a and 1b. Before exploring Hypothesis 2a and 2b, an examination of descriptive statistics for the class and age variable clearly show a skewed distribution trending positive. The Skewness statistic values of 3.207 and 2.488, respectively, exceeded the 2.0 threshold generally recommended in the literature (Maxwell & Delaney, 2004). Therefore, before conducting tests for differences in the mean level of career decidedness across class years, the data was explored for further assumptions of normality. The class variable analysis showed a departure from the normal distribution with the added complication of having unequal and decreasingly small sub-group sizes by class. Therefore, the Brown-Forsythe statistic (Maxwell & Delaney, p. 131-136) was utilized to confirm the traditional analysis of variance results testing differences in mean level of career decidedness across class years. A non-parametric Mann-Whitney U comparison of the class sub-groups was performed to substantiate the resulting trends. Another Non-parametric procedure (Spearman Rho) was also appropriate for the age variable. While hypothesis 2b explores relationship associations and not mean differences, the common Pearson correlation assumes that both variables are normally distributed. Given that the

age variable was coded in ordinal categories for this study, a Spearman Rho correlation was chosen as the appropriate statistic for correlating measures that do not meet the assumption of normality. Statistics and results pertaining to this second set of hypotheses can be found in Tables A3, A4, A5, Figure A2, and Figure A3.

Prior to conducting further analyses for Hypothesis 3, Time 2 data characteristics and frequencies were also reviewed and evaluated. While the personality trait variables and career decidedness all demonstrated characteristics that suggested each variable was normally distributed (see Table A7), further investigation was necessary given the significant attrition between the Time 1 and Time 2 measurement periods (see Table A6). According to multivariate data analysis procedures (Barry, 2005; Goodman & Blum, 1996; Miller & Hollist, 2007), Time 1 correlations were compared between those who dropped out and those who stayed for the second measurement administration using the Fisher's r -to- z transformation procedure. As can be seen from Table A8, none of the comparisons were significant, indicating no threat to internal validity due to attrition bias. After accounting for attrition the main variables of career decidedness and personality traits had no other missing data. Comparing correlations from an initial measurement to correlations from a second administration seven months later helped to determine differences in the relationship among variables across time that relates to Hypothesis 3 (see Table A9). A pair-wise comparison ($N=267$) of participants responding at both Time 1 and Time 2 was performed in order to maintain integrity in the data for the longitudinal analysis.

Further tests were performed to explore research questions regarding associations with age, gender and grades at Time 1; then Fisher's r -to- z transformation was employed to determine significant differences in the findings for the personality and career decidedness relationship

across gender and low and high achievement students (Summarized in Tables A10 through A13). Next stepwise, multiple regression analyses were performed to analyze how the different broad and narrow personality traits uniquely contributed to the prediction of career decidedness. A summary of the regression analyses are provided in Tables A14 through A17. Table A18 provides an overview of the main findings, located after the references in Appendix A. All data were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 17.0.

Results by Hypothesis and Research Question

Hypothesis #1: Personality Traits and Career Decidedness

This two-part hypothesis predicted positive relationships between personality traits and CD, including with the Big Five (H1a) and the narrow traits optimism and work drive (H1b).

The Big Five. Inter-correlations for *Hypothesis 1a* are outlined in Table A2. The results revealed the expected positive association between career decidedness and all Big Five personality traits except neuroticism. Even more, four of the Big Five traits demonstrated a significant relationship with career decidedness, all at the .01 level. Among the Big Five, Neuroticism correlated most strongly through an inverse relationship with career decidedness ($r = -.159$) as expected, followed by conscientiousness ($r = .154$). Contrary to expectation, extraversion was not found to significantly relate with career decidedness ($r = .020$, n.s). Therefore, *Hypothesis 1a* was only partially supported.

Narrow Personality Traits. As evident in Table A2, both narrow traits of optimism and work drive significantly related to career decidedness as proposed in *Hypothesis 1b*. In fact, the analysis not only uncovered a significant and positive relationship, but also an even stronger

connection with career decidedness for optimism ($r = .272$, $p = .000$) and work drive ($r = .254$, $p = .000$) than any of the broad Big Five traits. Thus, *Hypothesis 1b* was fully supported.

Hypothesis #2: Academic Class, Age and Career Decidedness

This two-part hypothesis predicted that career decidedness would have a positive association with academic class (H2a), as well as age (H2b).

Academic Class Year. An interesting pattern of results are evident in comparing the mean career decidedness scores between academic classes. As presented in Table A3, the mean levels of decidedness showed some distinction with the Freshman mean = 3.28, the Sophomore mean = 3.65, the Junior mean = 3.86, and the Senior mean = 3.52. Still, an examination of the descriptive statistics for the class variable clearly calls into question the distribution of this variable. An exploration assessing the normality of this data using the Kolmogorov-Smirnov test revealed career decidedness by class was not normally distributed (see Table A3). Results of the ANOVA (analysis of variance) indicated a significant difference in CD as a function of the four levels of class standing: $F(3, 2042) = 15.148$, $p = .000$ (see Table A4). However, a test of equality of variance failed, as the Levene Statistic [$F(3, 2042) = 10.840$, $p = .000$] indicated significant differences in variance among the four levels, violating the assumption of equality of variance. Therefore, the Brown-Forsythe F statistic was calculated. It also showed that CD differed significantly by class level [$F(3, 323.221) = 19.607$, $p = .000$]. A non-parametric Mann-Whitney U comparison (see Table A5) between each sub-group indicated that the average for the freshman class was significantly lower than the averages for the sophomore and junior classes, as can be seen in Figure A2. The mean CD level for the senior class was not significantly different from any of the other classes. Therefore, *Hypothesis 2a* was only part supported: Career

Decidedness had increased for the sub-group who completed the second questionnaire only when compared across Freshman, Sophomore, and Junior class status, but not Senior year, as was expected.

Age. Age showed a significant and positive association with career decidedness ($\rho = .187, p = .000$) across the total group of 2046 students with available age data (See Figure A3 for summary of means by age group). When the data was filtered to examine only the traditional college age range (e.g., 18 through 25 or the 'Under 20' and '20-25' categories) since that was the specific group of interest (N = 1933), there remained a significant correlation ($\rho = .108, p = .000$) despite the more restricted age range. According to both of these calculations, *Hypothesis 2b* was fully supported.

Hypothesis # 3: Stability of the Personality and Career Decidedness Relationship

As can be seen from Table A9, all of the Big Five and two narrow personality traits demonstrated a significant relationship with career decidedness even after a seven month measurement lapse. In fact, contrary to expectations, the relationship with career decidedness actually strengthened across time for all the Big Five traits. Most intriguing was the discovery that extraversion became significantly more associated with career decidedness over time. Even more, extraversion demonstrated the strongest relationship with career decidedness ($r = .372, p = .000$) compared with all other traits at time 2. The relationship between career decidedness and the two narrow traits also remained significant, and actually increased in strength for both optimism and work drive when measured at time 2. The fact that the relationship upheld significance but increased in magnitude for all Big Five and two narrow traits means that *Hypothesis 3* was not supported. Still, the question of stability between the personality traits and

CD is also dependent upon the stability of CD itself. An examination of the association between CD at time 1 and CD at time 2 revealed a low and insignificant correlation ($r = .077$, $p = .212$).

Research Question # 1: Do Relationships of Personality & CD vary with gender or achievement?

According to indications in the literature that the connection between personality traits and career decidedness may vary as a function of academic achievement and/or gender, further analyses were conducted to explore if any changes occurred across these variables. Beginning with achievement, differences were detected when comparing the relationship of personality traits and career decidedness across low and high achievement students as measured by grade point average. One of the most revealing discoveries was that four of the Big Five and both the narrow traits turned out to be significantly related to career decidedness for the low achievement group (see Table A10). The fact that neuroticism was only significantly related to career decidedness ($r = -.320$, $p < .05$) through the low achievement group is also worthy of note. As shown in Table A11, an investigation of the significant 'low achievement' personality and career decidedness correlations by class indicates that the agreeableness connection appears to be mostly driven by students from the sophomore class; however, very small sub-group sizes dictate extreme caution with this interpretation. While sophomores and seniors appeared to exert the strongest contribution to the relationship between neuroticism and career decidedness, extremely small sub-group sizes also warrant concern regarding interpretation of this result.

Consistent with earlier reported findings, extraversion was not found to have a significant relationship with career decidedness for either the low or high achievement groups. Conscientiousness, Openness, Optimism and Work drive were the only four traits to significantly correlate with career decidedness across achievement levels. Further comparison of these

correlations using the Fisher r-to-z transformation procedure, showed that achievement level did not offer any further practical distinction in this relationship for either Conscientiousness ($z = .37$, $p = .7114$ for two-tailed), Openness ($z = -.12$, $p = .9045$ for two-tailed), Optimism ($z = 1.58$, $p = .1141$ for two-tailed), or Work Drive ($z = .79$, $p = .4295$ for two-tailed).

Comparing across gender, the analysis showed limited differentiation, though there were a few significant differences in the relationship between personality (e.g., Big Five and two narrow traits) and career decidedness depending upon whether male or female cases were selected. The most distinctive variations were noted with the traits of agreeableness and extraversion. As can be seen in Table A12, the correlation for agreeableness and career decidedness is only significant for females ($r = .122$, $p = .000$), whereas the reverse is true for extraversion with the correlation being significant only for males ($r = .117$, $p < .01$). All other Big Five and narrow traits showed a significant personality-career decidedness correlation for both males and females; therefore further analysis was necessary to test the degree of difference. After performing a Fisher r-to-z transformation procedure, gender did not offer any further distinction for either Conscientiousness ($z = -.28$, $p = .7795$ for two-tailed), Neuroticism ($z = -1.15$, $p = .2501$ for two-tailed), Openness ($z = .88$, $p = .3789$ for two-tailed), Optimism ($z = 1.92$, $p = .0549$ for two-tailed) or Work Drive ($z = .27$, $p = .7872$ for two-tailed).

In order to determine whether the significant gender differences were influenced by a particular class, the data was broken down by academic year (see Table A13). Separating the female data by academic class revealed that the agreeableness and career decidedness relationship was significant for all except the senior year. When the male data was broken down by academic class, the analysis showed that the relationship between extraversion and career

decidedness was primarily driven by freshmen as the relationship was not significant for any other class year.

Research Question # 2: Which personality traits contribute unique variance in CD?

Tables A14 and A15 show the results of multiple regressions where all personality traits were entered either using a stepwise procedure and or input as a ‘block’ through SPSS forced enter method to determine which traits were the best predictors of career decidedness. Table A14 summarizes the ‘Enter’ method model where the Big Five and narrow traits were entered in a stepwise fashion and revealed optimism, work drive, extraversion, and conscientiousness to provide the strongest prediction, contributing a total of 11.7% variance in career decidedness. In order to control for shared variance and assess whether narrow traits add prediction after accounting for the Big Five, a second hierarchical multiple regression analysis was conducted where the Big Five were entered as a set on the first step then the two narrow traits were entered together in the successive step. As shown in Table A15, Optimism ($R^2\Delta = .033$, $p = .000$) and Work Drive ($R^2\Delta = .023$, $p = .000$) accounted for unique variance in career decidedness beyond the Big Five. These two traits alone offered almost half (48%) of the predictive power, or 5.6% of variance.

Research Question # 3: Which demographic variables contribute unique variance in CD?

When age, race, and academic class were entered into a stepwise regression equation, the results showed that only age and academic class contributed but together accounted for just 3.8% of the variance in career decidedness (Table A16). Age entered the model first, accounting for 3.5% of the variance ($R^2\Delta = .035$, $p = .000$), followed by academic class which added just .3% variance ($R^2\Delta = .003$, $p = .023$). Cases were then selected to assess how the results may change

across achievement and gender. When comparing across academic achievement, only age contributed significant variance ($R^2\Delta = .047$, $p = .016$) for low achievement (e.g., GPA less than 2.50) and no variables were significant in accounting for variance for high achievement (e.g., GPA = 4.0). Similarly, Age was also the only variable to account for significant variance in career decidedness across gender. When selecting male cases, age accounted for 2.7% variance ($R^2\Delta = .027$, $p = .000$), while age explained 3.7% variance ($R^2\Delta = .037$, $p = .000$) for female cases.

Research Question # 4: When regressed together, which variables contribute unique variance?

The results of a final regression including age, class, race, as well as both broad and narrow personality traits can be seen in Table A17. The total model accounted for 13.7% variance in career decidedness, primarily driven by Optimism ($R^2\Delta = .033$, $p = .000$), Neuroticism ($R^2\Delta = .025$, $p = .000$), Work Drive ($R^2\Delta = .023$, $p = .000$), and Age ($R^2\Delta = .023$, $p = .000$). Conscientiousness ($R^2\Delta = .018$, $p = .000$) and Conscientiousness ($R^2\Delta = .015$, $p = .000$) were the only other Big Five traits included in the model, supplying an additional 3.3% variance together. Again, further analysis was performed to assess how the results may change across achievement and gender. When selecting low achievement cases, optimism ($R^2\Delta = .151$, $p = .000$) and work drive ($R^2\Delta = .047$, $p = .009$) alone contributed 19.8% variance in career decidedness. After selecting only high achievement cases, only optimism ($R^2\Delta = .049$, $p = .003$) and openness ($R^2\Delta = .030$, $p = .017$) contributed to the model that explained 7.9% variance. The results across gender revealed that for males, a model including optimism ($R^2\Delta = .110$, $p = .000$), work drive ($R^2\Delta = .041$, $p = .000$), age ($R^2\Delta = .011$, $p = .003$), and agreeableness ($R^2\Delta = .008$, $p = .012$) accounted for 17% variance, while the model for females including work drive ($R^2\Delta = .061$,

$p = .000$), optimism ($R^2\Delta = .035$, $p = .000$), age ($R^2\Delta = .027$, $p = .000$), conscientiousness ($R^2\Delta = .006$, $p = .002$), and extraversion ($R^2\Delta = .003$, $p = .039$) accounted for 13.2% variance.

Discussion

Hypotheses and Research Questions

Hypothesis #1: Personality and Career Decidedness

The first set of hypotheses (1a and 1b) provide further evidence and clarification about the association between personality and career decision behavior with all but one trait (e.g., Extraversion) demonstrating a significant relationship. The association of career decidedness with the traits of conscientiousness and neuroticism not only corresponds with theoretical suppositions but also extends the empirical trail of evidence set forth in previous investigations. According to the consistent findings, these two traits denote the book ends or boundaries of the continuum as those higher in conscientiousness typically associate with greater career decidedness, while those higher in neuroticism associate with less decidedness. When connecting the findings to theory, it makes sense that individuals reporting conscientious characteristics such as achievement orientation, discipline, and orderliness would be more decided upon a career. Students who have a preference for achievement-directed behaviors would be more likely to avoid distractions and consistently engage in career search activities (e.g., self-assessment, information gathering, networking, etc.) that should lead to greater clarity. Allowing for previous research that links conscientiousness to problem-solving skills (Chartrand, Rose, et al, 1993; Shafer, 2000), perhaps the interaction also enhances decision-making ability. Linking this proposition together with Self-Determination (SDT) and Social Learning Theory (SLT), a predisposition for disciplined and diligent behavior provide a foundation for developing

confidence in oneself that in turn could influence competence in decision skills that would be enhanced by social conditions encouraging this development. Positive experiences with decision outcomes would also have the potential to stimulate a sense of control to further impact feelings of self-efficacy and reinforce the perceived value of conscientiousness in one's decision-making process.

Neuroticism may have an exact opposite effect upon decision-making faculties, considering the trend for students reporting higher anxiety to also show impaired problem-solving skills (Chartrand, Rose, et al.; Mendonca & Siess, 1976; Weinstein, Healy, & Ender, 2002). Given results from classic indecision studies revealing a positive association with Neuroticism, the inverse relationship found in this study with career decidedness is not surprising and corresponds with the first hypothesis. Intriguingly, Weinstein, Healy, & Ender's results associated anxiety with diminished perceptions of control over career choice, which links to the proposed theoretical model here emphasizing how autonomy and personal control could be compelling forces in decision-making. While their study focused only upon females, there are cross-gender and cross-cultural indications for the power of personal control in motivation studies (Abramson, Seligman, & Teasdale, 1978; Bandura, 1995; Locke & Latham, 2002).

Remembering Ryan & Deci (2000) proposed that situations or environments' that "controlled behavior and hindered perceived effectance undermined..." the expression of human growth (p. 76), it's possible that for someone who is already predisposed toward neurotic personality traits, career entry conditions such as specific experience requirements, minimum GPA qualifications, attendance at the 'right school' where companies recruit, economic conditions impacting hiring levels etc., all interact to serve as factors that lessen perceptions of

control, which in turn compromises career decidedness. As predicted by the SDT, if the perceived lack of control in decision-making reduces one's sense of autonomy and/or efficacy, this may increase fear of the decision thus prompting avoidance to bring cognitive or emotional relief and ultimately reinforcing more fear and giving way to a cycle of increased anxiety. The proposed sequence would certainly explain and support findings that link career indecision to a fear of commitment (Betz & Serling, 1993; Blustein, Ellis, & Devenis, 1989; Leong & Chervinko, 1996). As suggested by Betz & Serling, the fear of commitment may also be prompted by "a belief that there is only one correct career choice," (p. 32) which could provide impetus for more irrational thinking that influences neurotic personality characteristics. Even though the present findings cannot speak to whether Neuroticism presents a condition for lessening perceptions of autonomy or control or whether a lack of autonomy or control provokes anxiousness, the current results further validate the central role for anxiety in the association with more pervasive career decision difficulties.

While Neuroticism continues to accumulate consistent evidence as a cornerstone characteristic for career decision challenges, the outcomes for Agreeableness and Openness are especially imperative given assorted and inconclusive findings from preceding investigations. Discoveries here accentuate the prospects for both to be relevant in the enhancement of career decidedness given the significant positive association. In fact there is evidence that cooperative students are preferred by teachers (Wentzel, 1993), and perhaps enhanced teacher support creates a reciprocal influence that reinforces the student's thoughts about a career as suggested by Lounsbury, Hutchens, & Loveland (2005). Certainly, both receptive and cooperative behavior would be relevant for success in making personal connections, especially during this age of

social media where interdependence is paramount. In fact, Schmit, Amel, & Ryan (1993) reported that agreeableness associated with assertive job hunting scores and greater assertiveness scores predicted shorter periods of unemployment for minimally educated workers. “Assertive job-seeking behavior is among the recommended strategies in the popular job-search literature for successful acquisition of employment” (p. 106). Two studies (Boudreau et al., 2001; Caldwell & Burger, 1998) found agreeableness, extraversion and openness positively associated with employment offers among college and professional job seekers. The research suggests that these personality characteristics may have implications for acquiring critical job search skills and behaviors. “These behaviors include making realistic career decisions, seeking information about job openings, making contacts with organizations, and presenting relevant knowledge, skills, and abilities, and other personal characteristics in a competent manner to a potential employer” (Schmit et al., p. 106).

Although abilities and skills are often the most talked about career entry qualifications, relationship fit within an organizational work environment can be even more critical, even if typically a more informal criterion. While Parson’s classic Trait-Factor theory, still serving as a foundational component of career counseling today, defined fit for a specific career option as alignment of personal traits with classic ability factors of job success, more contemporary theories such as Person-Environment-Correspondence (Lofquist & Dawis, 1991), Life-Span and Life-Space (Super, 1990), Circumscription and Compromise (Gottfredson, 1981), and even Holland’s Typology (1966) further accounted for social and environmental fit as part of the career choice process. Individuals who are more approachable are likely to be able to both foster and maintain broader relationship connections that should have a positive influence in acquiring

necessary insights for making a career choice. Furthermore, some professional entry barriers could be more easily penetrated by those who can gain advocates within industries of consideration given that recruitment and career selection is ultimately contingent upon establishing a solid relationship. Reduction or removal of barriers to access a possible career choice should theoretically improve decision possibilities. Integrating the concepts within the SLT and Extended Reciprocal model affords an opportunity to highlight a potential phenomenon influencing a path of mutual reinforcement operating to boost the significance of personality traits, especially Agreeableness and Openness, may have upon career options.

The conduit where Agreeableness or Openness can be socially reinforced involves an idea postulating that people are more attracted to others who share similar attitudes, beliefs, feelings and even culture or race. Accordingly, the phenomenon has been termed perceptual similarity or ‘similar-to-me effect’ stemming from Byrne’s (1971) theory on the law of attraction. The concept has been substantiated empirically, particularly in relation to rater biases and employment selection (Cahn, 1976; Latham, Wexley, & Pursell, 1975; Lin, Dobbins, & Fahr, 1992; Pulakos & Wexley, 1983; Peters & Terborg, 1975; Rand & Wexley, 1975; Sears & Rowe, 2003). As it relates here, conceivably the more agreeable or open someone is in their interactions with others to explore career information, the more likely it may generate a social bond, that could serve to enhance locus of control, feelings of autonomy, and self-efficacy thus reinforcing one’s identity and providing a gateway of viability to the potential career choice through gaining an advocate.

While overall, hypothesis 1a was only partially supported since Extraversion was not found to be significantly associated with career decidedness; the relationship was in the expected

positive direction. Why Extraversion did not demonstrate significance with career decidedness could be rooted to several possibilities. One distinction that will be discussed later was the differential findings by gender. Another prospect is driven by the preferences considered common for extraverts. Even though someone who is extraverted would be more inclined to pursue conversations and seek information and input about careers, their very nature to establish social connections could also open-the-door to multiple intriguing options that may make finalizing a decision more difficult. Empirical evidence does exist that indicates extraverts may have greater success with interviews and receive more career opportunities (Caldwell & Burger, 1998). While there are a couple studies suggesting that extraverts actually report having less career decision-making difficulties (Fabio & Palazzeschi, 2009; Kanfer, Wanberg, & Kantrowitz, 2001), perhaps the challenge is not the process of coming to a decision but the desire for variety that may prevent commitment to a specific decision when there are multiple feasible options to consider. Variety is a characteristic often associated with extraversion, and several researchers (Lubinski et al., 2001; Rysiew, Shore, & Leeb, 1999) proposed “that when individuals have many vocational interests, they have much more difficulty identifying any one career path to pursue with fervor and determination” (p. 507). The preference for diverse activities and not to be limited to a single option may be another reason there has been mixed results for extraversion and career indecision and decidedness within the previous literature. As discussed in more detail later in relation to the first research question, the access to diverse career options could be enhanced or limited through achievement and other environmental factors.

Moving to Hypothesis 1b, the declaration that both optimism and work drive would significantly relate with career decidedness was fully supported. The findings uphold the

propositions of Ashton (1998), Lounsbury et al. (2003), and Paunonen, Rothstein, & Jackson (1999) regarding the relevance of narrow personality traits in associating with academic and vocational behavior-related variables. Furthermore, the current results extend the literature by advancing the nomological network of connection for career decidedness. A discovery of particular intrigue was the stronger association for Optimism and Work Drive with career decidedness than any of the Big Five traits.

Though Optimism has generated significant interest in the last few decades from classic laboratory and field research in positive psychology (Langer & Rodin, 1976; Peterson, Seligman, & Vaillant, 1988; Sklar & Anisman, 1979; Visintainer, Volpicelli, & Seligman, 1982), only more recent investigations have begun to advance the notion that “optimism influences more than health” (Kluemper, Little, & DeGroot, 2009, p. 227). For instance, optimism has shown a positive association with academic and work satisfaction and success (Lounsbury, Saudargas, & Gibson, 2004; Lounsbury, Saudargas, Gibson, & Leong, 2005; Seligman & Schulman, 1986; Kluemper, Little, & DeGroot, 2009), connections that are desirable for further validating the relationship with career decidedness by demonstrating convergence with other expected vocational behavior constructs. The theoretical model presented earlier offers insights for uncovering possible driving forces that tie a positive outlook to reaching a career decision in particular. An optimistic predisposition may serve a dual purpose by offering a means for coping with stimuli to focus attention as well as providing an impetus for sustaining investigative and outreach behavior associated with gaining clarity about career options.

One of the leading researchers on the topic (Peterson, 2000) explains that optimism serves both an explanatory (e.g., cognitive and affective assessment) as well as a self-regulatory

(e.g., motivational) function. “An optimistic expectation leads to the belief that goals can be achieved [though] ...it is additionally influenced by people’s beliefs about how goals are brought about” (p. 48). Kluemper et al. further emphasized that:

Both work together to explain why optimism should relate to positive outcomes, namely because individuals use their positive explanatory style to avoid allowing setbacks to discourage them and use success as an indicator that they are able to handle most situations that occur in their life. This positive explanatory style allows individuals to work harder and strive to reach their goals because they believe they have the skills to overcome the discrepancies between their current situation and their goals (p. 211).

Creed, Patton, & Bartrum (2004) found that optimistic students showed greater self-esteem, which positively influenced level of career decision-making self-efficacy. If this is the appropriate pathway, the positive attributions made by students reporting higher optimism to explain away negative feedback or barriers to career entry during the investigative process likely influences the strengthening of identity, an internal locus of control, sense of autonomy, all of which are important for generating self-esteem and obtaining a stronger sense of self-efficacy for making a career decision. The proposition certainly fits with earlier reviewed discoveries that pessimistic thinking related to apprehension, fear and career indecision.

Instead of explaining away challenges to accessing a desired career, students who are pessimistic would have a greater likelihood of perceiving career barriers as insurmountable (Luzzo, 1996; Swanson & Tokar, 1991), which could elevate anxiety, produce greater fear, and lead to avoidance in order to alleviate stress. This unfolding pattern would be prone to hampering continued career investigation efforts, thereby limiting the ability to compromise or adjust career

ambitions to market compatibility (Gottfredson, 1996) and ultimately stunting one's sense of efficacy for making a career decision. It makes sense that if pessimism tends to associate with limitations in initiative and sustained activity, optimism should associate with generating cognitive and behavior momentum. As suggested by Peterson, as well as Self-Determination and Social Learning theory, the cognitive explanations an optimistic student makes likely influence the expectation of positive outcomes that in turn encourage sustained effort and engagement, especially if autonomy and support have been enhanced by family, peers, teachers, etc.

In fact, positive outcome expectancies may be a shared characteristic between those with dispositions higher in optimism and work drive. Considering that coming to a definitive decision about a vocation often involves both an expectation of positive outcome and dedication to research and persistence in pursuing information, the confirmation of a connection between Work Drive and career decidedness makes logical sense. According to the Porter-Lawler extension of Vroom's expectancy theory of motivation, sustained effort is determined in large part by the belief that effort leads to valued rewards. Perhaps students higher in Work Drive place a greater value on the outcome of reaching a career decision, likely influenced by expectations of others or previous experiences within their social environment. Similar to Optimism, Work Drive would be expected to associate with an internal locus of control, a sense of identity, autonomy, and self-efficacy. Connecting the concepts back to the theoretical model of path relationships with career decidedness (Figure A1), the inclination to expend significant energy towards career goals likely has a reinforcing cycle where effort has an effect on and is in turn stimulated by positive effort-reward contingency and environmental or cultural circumstances. If effort leads to positive reward outcomes, it likely plays a role to sway an

internal locus of control, thus further propelling a sense of autonomy and belief in one's capabilities that at the same time enhances identity and drive toward the career goal. The results here add to the literature by extending the network of empirical findings for Work Drive beyond academic and job performance, satisfaction and withdrawal (Lounsbury & Gibson, 2002; Lounsbury, Saudargas, Gibson, & Leong, 2005; Lounsbury, Sundstrom, Loveland, & Gibson, 2003; Ridgell & Lounsbury, 2004). The results also corroborate Lounsbury, Gibson, & Hamrick's (2004) supposition that Work Drive "may be useful in research and practice in the areas of careers, occupations, and vocational behavior" (p. 448).

Hypothesis # 2: Career Decidedness and Class Standing

Continuing to the second set of hypotheses (2a and 2b), the results demonstrated support for previous propositions that students should become more decided about a career as they progress in age and advance toward the completion of their degree. Beginning with the proposed relationship between academic class and career decidedness, as declared in hypothesis 2a, the results provided evidence that average career decidedness scores differed between class levels. Further analysis only partially supported the hypothesis that mean career decidedness levels would significantly differ across classes. While the trend showed significant difference in mean career decidedness level between freshman to sophomore and freshman to junior classes, the mean decidedness level for students in the senior class was not significantly higher compared to the freshman class. In fact, the mean level of career decidedness for the senior class was even lower than students in the Sophomore class, though not significantly different. Caution is warranted with interpreting these results either way given small and decreasing sub-group sizes across class comparisons.

Still, in comparison with the Lounsbury, Hutchens, & Loveland (2005) findings that career decidedness did not increase across grade levels 7 through 12, the present results modeled a more expected pattern as the mean level of career decidedness was significantly higher when compared across the next advanced grade level between Freshman to Sophomore, and Sophomore to Junior classes. One probable explanation for the distinction in results could be the difference in age and developmental experiences of college students versus those in middle and high school. The notion is particularly intriguing in light of the Lounsbury et al. (2005) discovery that more Big Five traits were significantly related to career decidedness at the 12th grade level than at the 7th or 10th grade levels. As proposed in the integrated theoretical model outlined earlier, the exposure to additional developmental vocational tasks and experiences should provide a growth platform for the self-concept.

As proposed in hypothesis 2b, a significant and positive relationship was confirmed between age and career decidedness. The findings reinforce the ‘aging stability hypothesis’ postulating that career direction should stabilize as a function of age, especially as individuals move from adolescence into and through adulthood. As postulated previously, the proposition aligns with developmental theory, specifically Super’s view that the vocational self-concept solidifies through a series of age-related tasks and life experiences. He considered the completion of appropriate developmental tasks to be a significant factor in reaching ‘vocational maturity.’ Even though Super proposed typical ages (e.g., 14-21) for moving through crystallization of general vocational goals to specification of a career preference, his model also accommodated for variability in progression and the possibility of later recycling through previous life stages. In other words, reaching a career decision may not result from one set standard age sequence but

rather unfolds through a more complex process of interactions. The existence of complex interactions are likely influences to the fact that age only accounted for about 1% of variance in career decidedness for students within the traditional college age range. Accordingly, the association of age with career decidedness is likely highly dependent upon the interplay of predispositions, environmental circumstances and available experiences that enhance the potential for engaging in critical vocational tasks.

Hypothesis # 3: Stability of the Personality and Career Decidedness Relationship

Continuing to Hypothesis 3, confirmation for the predicted relationship that personality and career decidedness would have a stronger connection at time 1 measurement compared to time 2 measurement 7 months later could not be substantiated. Notably, the personality-career decidedness connection actually strengthened over time. The trend is an especially intriguing extension to the research considering the empirical evidence gathered to date has relied almost exclusively on static one-time measurements of the relationships and developmental theory leaves room for continued personality adjustment and the potential for instability with career choice during this transitory period into young adulthood. Despite the inability to corroborate the hypothesis, this finding offers compelling connotations for the literature.

First and foremost, the result could suggest both fidelity and endurance with the connection between personality and career decidedness. If that finding can be corroborated, it would be especially meaningful because it bolsters previous cross-sectional research evidence for the significance of Big Five and narrow personality traits to improve understanding of career decision status dynamics. Furthermore, the discovery that the correlation intensified between all seven traits explored and career decidedness would extend the current literature by

demonstrating the stability across time with a population transitioning from late adolescence to young adulthood. As stated by Lounsbury, Saudargas, & Gibson (2004), despite indications for continued change in personality during college, the discovery that traits start to stabilize during this time as well “...invites consideration of strategies... [for] enhancing *person-environment fit* (cf. Hesketh & Gardner 1993; Magnusson & Endler, 1977” (p. 528). The detection of durability between personality traits and career decidedness is even more noteworthy given theoretical indications that career decidedness is not just a state but a process of coming to a definitive decision that involves multiple phases and can “fluctuate depending on a variety of situational factors (Osipow, 1999)” (Creed et al, 2006, p. 48).

The evidence of trait stability here does correspond with accumulated knowledge in personality psychology that adult traits are most valuable for explaining typical behavior over longer periods (Fleeson, 2005, p. 20). This power of traits to capture similarities in behavior over time is one likely explanation for the increase in trait relationships with career decidedness after 7 months even within a group where theory would suggest the likelihood of continued transformation. The phenomenon may further explain one potential discrepancy that extraversion did not relate to career decidedness at time 1 but had the highest correlation with career decidedness at time 2. In addition, the concept could highlight possibilities for modest effect sizes for all the trait relationships at initial measurement.

Perhaps the expression of traits and their connection with career decidedness is reinforced by the vocational behaviors that students engaged in during the 7 month time differential. For instance, extraverted students may have joined career clubs or pursued vocational discussions with professors or others in their social surrounding that could have strengthened their

knowledge and understanding of a specific career path. Still, this may seem to contradict an earlier postulation that an extravert's preference for variety could prevent commitment to a career decision; however, it is possible that active participation in the vocational activities provided just such experiential variety to solidify their resolve over time. The idea is strengthened by the knowledge that the majority of participants engaging in both measurements were students in the first two years of college where gaining access to career information and participation in meaningful career-related activities would only be available over some passing of time and would be essential for improving knowledge and commitment to careers as those students advance toward the next academic level. According to Guay et al. (2006) if the individuals also perceived less control and more autonomy support for their career pursuits, it is more likely to have strengthened their career decision commitment over this time period. As suggested by Kelly & Pulver, future "researchers and counselors may find it useful to distinguish between making a career decision and committing to that decision with behavioral acts" (Kelly & Pulver, p. 452). More longitudinal research will be essential to further explore the interaction of trait relationships and situational influences upon career decision process dynamics.

The major challenge to solidifying the relationship explanations here was the lack of stability for CD over time. While the magnitude of relationship with personality strengthened, the instability of CD calls the validity of results into question and prevents conclusive findings regarding the relationship with personality traits. One likely factor was a restriction of range associated with the smaller group responding at time 2 measurement as this can limit the variability of scores. An examination of the response range and frequencies show a 4-point spread of possible response at time 1, which falls to 3.75 at time 2. A closer review also indicates

a more evenly spread distribution across the 5-point item response scale at time 1, while over 75% of the responses at time 2 fall within a one-point margin (e.g., between 2.75 to 3.75) on the 5-point scale. In fact, the data reveal a striking drop in CD variance at time 2 ($\sigma^2 = .164$) compared with CD variance at time 1 ($\sigma^2 = 1.256$) thus restricting the potential size of correlation. Further exploration of the career decidedness variable across time is warranted to evaluate its stability and the connection with personality and other environmental influences.

Research Question # 1: Variance by gender and academic achievement

Proceeding to exploration of the first research question, findings revealed that the personality and career decidedness connections did indeed vary as a function of academic achievement and less so with gender. Most notable was the significant correlation with career decidedness for six out of seven traits in the low achievement group. As might be expected, the traits showing the strongest association with career decidedness for low GPA respondents were Optimism, Neuroticism (inverse relation), and Work Drive. The finding makes sense theoretically and aligns with indications that positive thinking and initiative may contribute to improving perceptions of career options (e.g., Creed, Patton, & Bartrum, 2004; Luzzo, 1996; Swanson & Tokar, 1991). Moreover, students experiencing greater academic difficulty would have a competitive disadvantage and considering evidence that achievement is associated with career self-efficacy (Kelly, 1993; Lent, Brown, & Hackett, 1994; Lent, Brown, & Larkin, 1986), an optimistic and/or hard-working disposition could offer them a tool for coping, maintaining confidence and explaining away barriers that may prevent reaching a career decision. The traits of Agreeableness, Conscientiousness, and Openness would also serve potential needs for this low achievement group in particular by either encouraging students to be receptive to advice and

alternative career suggestions, or influencing them to remain dutiful in pursuing the career planning and outreach when they would likely have to persist through more barriers to confirm the viability of a career decision and stand out against the competition.

Why the personality connection with career decidedness was not as strong for the high achievement group is less certain; though there is rationale that supports the significant relationship with the four traits of Conscientiousness, Openness, Optimism and Work Drive in particular. For instance, evidence exists that shows students who are more open to learning and report higher work drive also have greater likelihood of academic success (Paunonen & Ashton, 2001; Ridgell & Lounsbury, 2004). In turn, students who perform better in the classroom (e.g., High GPA students) should have greater access to career options. “Many employers screen job applicants based on a minimum grade point average threshold, or consider grades as a heavily weighted criterion when analyzing resumes (Reilly & Warech, 1993)” (as cited in Ridgell & Lounsbury, p. 607). Above average academic performance, especially in classes aligned with the career field of interest, would also assist in developing competence to improve career decision-making self-efficacy, which has been suggested to mediate the relationship between Openness and career commitment (Page et al., 2008).

The fact that neither Low Neuroticism (e.g., Emotional Stability) nor Agreeableness showed a significant correlation with career decidedness for this high achievement group is perplexing, considering previous verification for a connection between these two traits and high grades (Busato, Prins, Elshout, & Hamaker, 2000; Fritzsche, McIntire, & Yost, 2002; Lounsbury, et al., 2003; Musgrave-Marquart, Bromley, & Dalley, 1997; Paunonen & Ashton, 2001; Rothstein, et al., 1994), as well as career decidedness separately within the literature. Ridgell &

Lounsbury called attention to one possibility in finding that despite a significant association with course grade, Emotional Stability did not add much variance in the prediction of course grade. As indicated in their study, achievement measures and milestones such as grades and career decision status for this group “may be influenced more by other factors than personality traits, such as maturation, study habits, involvement in other activities on campus, and settling into the role of student during the first year or two at college” (p. 616). The notion would certainly be plausible here given that 94% of participants were in their first two years of collegiate experience (roughly four out of five or 79% were freshmen). Still, results from Talib & Aub (2009) showing high achievers among Malaysian students were actually more undecided emphasize an important caveat about the influence of cultural context. As proposed in the model referenced in Figure A1, perhaps environmental circumstances overshadow any role of Emotional Stability here by more directly impacting the support pathway to career decidedness.

Talib & Aub’s discovery draws attention to the possibility that the difference in trait relationships with career decidedness between low and high achievement groups is due to the influence of an external variable. One of few studies directly investigating the connection between academic achievement and career decidedness (Spitzer, 2000) found that the most significant variable in accounting for variance in GPA or career decidedness was self-efficacy. A potential challenge was that while academic and career self-efficacy moderately related, other analysis showed neither GPA nor career indecision accounted for significant variance in the other. Spitzer proposed that while “academic performance and career decidedness are two processes that evolve concurrently,” and share significant associations with the same variables (e.g., self-efficacy, intrinsic motivation), they “are largely separate processes” (p. 94).

Though this would be a concern for making statements about a direct relationship between academic achievement and career decidedness, it does not preclude considerations for an indirect association. In fact, the finding actually supports previously reviewed investigations for a more complex interaction (Creed, Patton, & Prideaux, 2006; Shafer, 2000; Wang et al., 2006). For instance, it would be expected that students who perform well academically, would also have higher levels of academic self-efficacy. If those students also experience success outside the classroom in exploring career options within their field of study, it would likely enhance career self-efficacy as well. In this case, the existence of higher academic and career self-efficacy may mediate expression of Agreeableness such that it does not serve a significant social role for reaching a career decision.

The lack of association between extraversion and career decidedness for either low or high achievement groups is less surprising considering the inconclusive pattern of results in previous investigations. Still, characteristics considered to be part of the trait like friendliness, assertiveness, and sociability would all be expected theoretically to be important for making connections that are relevant in gaining necessary information to make a vocational decision. Bearing in mind Kelly & Pulver's distinction of career indecision types that associated extraversion with several differential patterns across achievement levels, it is possible that an interaction among trait characteristics contributes to the ambiguity surrounding extraversion and career decisions. As an example, one type of undecided extravert in the Kelly & Pulver investigation also scored low on achievement (e.g., SAT) and expressed a need for self-knowledge and interaction with others yet reported being less receptive to novel experiences. Accordingly, this 'low ability information seeker' (as termed by the authors) would have

narrower options to pursue (especially if their academic performance trended in a similar direction) since they would not be eligible for as wide a range of programs (p. 452). Given that the extraverts in the low achievement group of this study were categorized as such by lower grades, it is likely they would have experienced some limitations in their options as well, which would conflict with the desire for variety common among extraverts. The lower academic performance could also have influenced confidence in pursuing careers of interest, complicated even further by the "... tendency to prefer social to academic situations and to prefer practical learning settings [that] provides a real challenge... to identify appropriate person-environment matches" (p. 452).

Finding the right career match appears to be a complication for the second type of extravert reported in Kelly & Pulver's research as well, though for distinct reasons. In their study, the 'uncommitted extravert' shared the need for greater self-knowledge found to be common among the 'low ability information seeker' and the pattern for being resistant to new insights, yet the authors reported that this group had made a tentative decision. An important differentiation was noted between making a decision and committing to a decision: A "decision is a cognitive event and commitment is a behavioral act. The uncommitted extravert seems to have reached a cognitive conclusion but has not yet committed to act on the conclusion" (p. 452). Perhaps the inclination toward variety coupled with the characteristic of being closed to new sources of information about the self created an impasse for solidifying their decision. Extending the concept to the high achieving extraverts in the present study, it is plausible this group had a broader array of option choices yet remained conflicted about limiting their options to just one

selection. Other social contextual factors illuminate important distinctions and caveats for extraversion as well as the remaining traits especially as it relates to the findings by gender.

Overall, there were more gender similarities than differences in the relationship between personality and career decidedness, which is consistent with Lounsbury, Hutchens, & Loveland's (2005) outcomes. In fact, only two of the seven personality traits (e.g., Agreeableness and Extraversion) explored showed significance for just one gender. An intriguing distinction here is the discovery that agreeableness only related to career decidedness for females, when the Lounsbury et al. study found a difference only with 7th grade males. The developmental and environmental adjustments that occur during the period between 7th grade and college are one likely explanation for this differential result. Furthermore, the result in this case is being driven mostly by freshman early in the college experience thus it may be that agreeableness for females during this initial transitory year served as a greater social influence upon their career decision making process. According to meta-analysis of gender differences (Hyde, 2005) agreeableness is a trait more commonly associated with women and the more cooperative style may have reinforced extra support from teachers or student service professionals (as suggested by Lounsbury et al., p. 33) earlier on in the college career exploration process for females in this study.

An even more powerful influence of the gender differences here could be role socialization. The additional finding that extraversion had a significant connection with career decidedness merely for males underscores the issue while also corresponding with previous empirical evidence that extraversion plays a differential roles in vocational behavior. For instance, Melamed (1995) found extraversion to explain more variance in salary and career

progression level for men than women. Furthermore, Leong and Boyle (1997) detected that aspects of extraversion associated with greater career stability for women but less stability for men. Revealing is the notation that ‘less stability’ included any job change for promotion or progression in career level, especially if postulates about restriction in advancement opportunities for women and minorities held true during the time of those investigations.

A further study by Jenkins (1994) that qualified the relationship between extraversion and women’s career advancement discovered that the need for power (aspects of higher extraversion and lower agreeableness) related to career progression for women but only in power-relevant careers. The finding is important because it signifies the need to consider environmental and role-specific complexities. For instance, comparison of gender differences has consistently shown that females have lower self-efficacy in considering careers that are not traditional for women (Betz, 1997; Betz & Hackett, 1981; Betz & Schifano, 2000; Lapan, Shaughnessy, & Boggs, 1996; Mathieu, Sowa, & Niles, 1993; Wheeler, 1983), thus suggesting that role socialization may have a moderating effect upon self-efficacy. Lower self-efficacy has also been found to mediate expression of extraversion and the relationship with career decidedness (Solberg et al., 1994; Thoms, Moore, & Scott, 1996; Wang et al., 2006), which may have influenced the current results especially if female participants were considering less traditional roles and thus felt less confident about their skills and abilities for those roles relating to the career decision they reported at the time of response. This is not surprising when considered in light of the fact that females have often had to face greater resistance to break down long-established career barriers, especially in other cultures around the world. In recent study of Malaysian undergraduates, Talib & Aub (2009) reported that “often, females are more influenced

by subjective norms and perceived-behavioral control (Venkatesh et al., 2000). For them, interdependence was also associated significantly with vocational commitment (Hardin, Varghese, Tran, & Carlson, 2006)” (p. 222). Ultimately, the more traditional sex role stereotypes are encouraged in society, the greater impact it is likely to have upon confidence in abilities to make career decisions, particularly for females pursuing roles or levels that were previously gender restricted.

The notion relates to ‘glass ceiling’ theories that have been prominent throughout the last quarter of a century. The glass ceiling refers to barriers (often undetectable) that preclude women and minorities from reaching higher levels of organizations. The phenomenon continues to be reported despite evidence from the Department of Labor Women's Bureau, that women were selected for 43 of 70 million “new jobs created in the United States between 1964 and 1999” (Wise to Social Issues Digest, 2007). According to the Glass Ceiling Commission, established in conjunction with the Civil Rights Act of 1991, promotion opportunities within traditional power-relevant careers, especially during the latter portion of the 20th century were more available to men. Even after the turn of the century, a study by the General Accounting Office (GAO) in 2002 indicated that

despite a sense of continued progress toward gender equality in the workplace, in ten industries employing 71 percent of U.S. women workers and 73 percent of U.S. women managers, the data show that women managers continue to lag behind their male counterparts in both advancement and pay... The GAO data also show that women continue to be underrepresented in management... While women make up 46.5 percent of the workforce, they represent only 12 percent of all corporate officers (p. 1-4).

This information is significant because it points to a potential restriction of range in data for females in past research, thus warranting caution in making broader interpretations of the results here.

More recent works warn that these earlier studies may now be invalid as social patterns change over time (Hill & Augustinos, 1997), which is coupled with the complexity of an increasingly integrated workforce where ethnicity may play a differential role (Wang et al., 2006) in mediating career commitment. Other specific career-related self-efficacy and self-esteem investigations (Frieze, Fisher, Hanusa, McHugh, & Valle, 1978; Lent, Brown, & Larkin, 1986; Levine, Gillman, & Reis, 1982; Matsui & Onglatco, 1991) pose that gender per se is less predictive of achievement outcomes (even across cultures) and it is sex-role desirability (instrumentality versus expressiveness) that really matters, based upon socialization pressures. In addition, a path model investigation by Wulff & Steitz (1999) revealed that Androgyny (e.g., involving both instrumental or masculine and expressive or feminine traits) appears to have at least an indirect impact on career indecision, as it was mediated by self-efficacy and self-esteem. Again referring to the integrated theoretical model, sex-role preferences could be informed by personality traits and genetics, as well as reciprocally fortified by support mechanisms from family or other environmental resources that help to sculpt identity. As noted previously, family environment has been one social factor thought to relate to career decisions; personality research has added insight by showing that rather than a direct connection, family support likely has an indirect relationship to career decidedness through the role of self-efficacy (Guay, Ratelle, Senecal, Larose, & Deschenes, 2006; Guay, Senecal, Gauthier, & Fernet, 2003; Nota, Ferrari, Solberg, & Soresi, 2007).

The significance of the findings is bolstered by Guay et al.'s longitudinal design and the possibility that self-efficacy could distinguish between several types of indecision: developmental indecision (e.g., based upon a lack of self-information) and chronic indecision (e.g., considered to be more pervasive and emotionally based). It is important to clarify that no causality could be determined from these two studies. An even more sophisticated research design by Creed, Patton, & Prideaux, 2006, analyzed longitudinal data and also could not confirm self-efficacy as an antecedent of indecision, nor vice versa (p. 60). The results suggest the possibility and need to address more complicated mediation models. The framework proposed here would add that support may enhance or diminish self-efficacy through an interaction with the locus of control-autonomy-self-efficacy pathway. If familial support provides an environment that encourages development of autonomy and competence, efficacy has a greater chance to flourish while also reinforcing and being reinforced through achievement experiences that altogether play a further role to inform identity and role desirability. As the workforce dynamics continue to change, it will be essential to follow-up previous results and test the current postulates in relation to gender and personality trait associations with career development.

Research Question # 2: Personality traits contributing variance in CD

In order to address the remaining three research questions, personality traits, demographic variables, achievement, and a combination of the two models were all evaluated to ascertain their comparative capacity to account for variance in career decidedness. Consistent with previous empirical explorations that found personality traits contribute to the explanation of career decision status (Chartrand, Rose, Elliott, Marmarosh, & Caldwell, 1993; Jin, Watkins, &

Yuen, 2009; Page, Bruch, & Haase, 2008; Shafer, 2000; Wang, Jome, Haase, & Bruch, 2006), the present results pointed to five personality traits that added unique and significant variance in the detailing of career decidedness. The fact that Optimism and Work Drive contributed input is not surprising given they both showed the strongest association with Career Decidedness amongst all traits analyzed here. Most noteworthy was that fact that these two narrow traits, accounted for almost half of the variance even after accounting for the Big Five. The finding offers both support and new revelations for growing evidence regarding the potency of narrow personality traits. Specifically, results here extend previous literature depicting the assets of Optimism and Work Drive for regulating coping, job satisfaction and performance (Andersson, 1996; Long, 1993; Lounsbury, Saudargas, Gibson, & Leong, 2005; Wanberg, 1995), while adding emphasis to the handful of studies that paved a path to highlight Optimism as beneficial in career decision-making and decidedness (Creed, Patton, & Bartrum, 2004; Lucas & Wanberg, 1995; Meldahl & Muchinsky, 1997; Multon, Heppner, & Lapan, 1995).

Neuroticism, Conscientiousness, and Openness were the other three personality traits noted to be significant in accounting for variance in career decidedness. Although, there is some previous Big Five literature showing Conscientiousness, Neuroticism and Extraversion to be among the traits that "...emerged most frequently in associations with vocational behavior" (Tokar, Fischer, & Subich, 1998, p. 115) and career exploration activities in particular (Kanfer, Wanberg, & Krantowitz, 2001; Reed, Bruch, & Haase, 2004). Still, Crant (1995) discovered that a related construct, 'proactive personality' (e.g., taking action to influence one's environment) predicted variance in objective job performance criteria beyond what could be accounted for by conscientiousness or extraversion, which coincides with evidence that high extraversion and

lower neuroticism have been linked to optimism (Wanberg, 1995). The results here would seem to coincide with the 'proactive' phenomenon since Optimism and Work Drive accounted for extra variance above and beyond the other two Big Five traits. Even though the Big Five and narrow traits displayed a significant link with career decidedness, the correlations were still quite modest and leaves room for alternate interactions and continued question about the interplay of other variables. Further study including self-efficacy, decision process or other social support variables would be necessary to evaluate potential effects that may be masking the full role for these traits.

Research Question #3: Variables contributing variance in CD

Academic and demographic factors overall were not as informative in explaining career decidedness, though age did emerge as noteworthy. While class was included in the overall model, it contributed minuscule input, likely shaped by a restriction of range created through the increasingly small sub-group size for each grade level. The trend was even more evident when the data was filtered across gender and achievement, where age remained as the only significant indicator for explaining career decidedness for both males and females and for the low achievement group. Still, the results are consistent with the findings from Hypotheses 2a indicating a significant though modest relationship for age and career decidedness.

Research Question # 4: All traits and variables contributing variance in CD

When all personality traits and variables were regressed together, the outcome showed that a blend of personality traits and age provided the best combination for explaining variance in career decidedness. The overall results displayed the most robust model yet, where Optimism, Neuroticism, Conscientiousness, Work Drive, Openness and Age all emerged as significant

contributors for explaining variance in career decidedness. While the outcome reinforces previous evidence for the role of personality traits in clarifying vocational behavior, the primary revelation was the significant contribution of narrow traits over the Big Five in taking up a substantial portion of explanatory power. The result accentuates theoretical convictions and emergent research evidence that narrow traits enhance understanding of construct relationships by capturing more specific and situationally-relevant variance.

The full model data were also examined across achievement levels and gender. Across achievement, only optimism and work drive remained significant for the low achievement group and provided an even more successful regression model by accounting for one-fifth of the variance in career decidedness. The result is especially intriguing as a positive and persistent disposition would particularly serve those students who demonstrate lower academic performance. Among high achievers, the regression model could not account for as much variance though optimism remained in the model where openness to new experiences also appeared relevant for this group. While openness significantly correlated with career decidedness across achievement levels, conceivably, the need to explore and discover had unique bearing on the career decision process among those with higher grades. The idea corresponds with research signifying its relevance in academic performance (Lounsbury, Sundstrom, & Loveland, 2003; Paunonen & Ashton, 2001) and problem-solving skills (Chartrand, Rose, et al, 1993) that may both reciprocally interact to build confidence with career decision-making as stated in earlier results. Regression results by gender were consistent with earlier correlations indicating more similarities than differences with both being driven primarily by optimism or work drive though the regression model for males offered slightly better explanatory power.

Taken as a whole, the results uphold previous indications from a handful of studies that the Big Five are relevant for understanding career decision status. In particular, the study adds to the literature by illuminating whether and how personality traits associate beyond career indecision to career decidedness. The detection of significant trait relationships with career decidedness addresses a deficiency in the literature and adds to the understanding of this construct. The findings here also extend growing evidence for the value of incorporating narrow traits to explain even more significant variance in vocational behavior. The discovery that optimism and work drive together led all factors in the variance that was accounted for in career decidedness provides a foundation for enhancing models to describe the associated nomological network.

Limitations and Implications for Future Research

Limitations

Although the current findings generated valuable confirmations and new discoveries about the association of personality traits, grades, demographic variables and career decidedness, it is important to highlight study limitations that may impact generalization and application of reported outcomes. First and foremost, the current investigation represented a relatively homogenous sub-group from one southeastern university, thus may not be representative anywhere else. Participants came from just two undergraduate courses where the majority of the student population and corresponding volunteers were primarily Caucasian thus limiting the balance of ethnic diversity. Even more, the bulk of students taking these two courses were either just starting their collegiate experience or within the first two years of study. Consequently, the applicability of these findings may be restricted to this specific location or group of participants

and replication with broader groups of participants should be sought in future studies to confirm generalization of the described relationships. Results from a recent study by Gunkel and Schlaegel (2010) adds emphasis to the suggestion by showing how different personality traits related to career decisiveness in different countries. Further tests of the trait relationships with career decidedness are especially important given past empirical evidence for differential associations by culture.

A second limitation was that the investigation represented only an exploration of correlations among variables and thus statements about cause or order of influence are not justified. While the discovery of associations is relevant and important, the lack of control over extraneous variables reduces certainty of the conclusions by limiting the ability to rule out alternative explanations for the identified correlations. For instance, there is indication within the literature that other factors, such as social support, have an influence upon solidifying a career decision. Furthermore, as technological advancements for social support networks continue to intersect with the complexity of the global economy, career flexibility and adaptability (introduced by Savickas, 1997, as a modern adaptation of Super's 'career maturity' and referring to the capability to adjust to career challenges) will play a more essential role within the process of career decision-making for the 21st century. Recent studies have also linked social support and personal control with career adaptability (Blustein, Kenna, Gill, & DeVoy, 2008; Creed, Fallon, & Hood, 2009; Duffy, 2010; Hirschi, 2009). Accordingly, a few remaining questions for future research include the role support and adaptability play in relation to career decidedness and whether parental or social support factors account for trait relationships with career decidedness or merely supplement its explanation?

A related drawback was that while the majority of hypotheses were statistically significant, the correlations between career decidedness and personality traits demonstrated only moderate connections at best. The results actually correspond with the few other studies in the literature examining Big Five or narrow trait associations with career indecision or decidedness where the magnitude of association rarely approached .35. In this case, only two of the correlations among the Big Five traits and career decidedness at time 1 exceeded .25 and only two others at time 2 surpassed .30. Considering that optimism and work drive together still accounted for only 5.6% of variance in career decidedness, there is considerable room for other narrow traits or variables like aggression, tough mindedness, sense of identity, goals or outcome expectancies, labor market trends, or social support to more thoroughly address variation within the construct.

Although the longitudinal component of this study and exploration of contribution across a few academic and demographic variables added insight about possible relationship dynamics and assisted in gaining more in-depth knowledge regarding associations across time, inclusion of other potential moderator variables and more sophisticated designs will be necessary to more adequately test conditions when the associations will or will not hold true. For instance, considerable inference exists within the literature that self-efficacy plays a role. The preponderance of findings suggest that efficacy moderates the relationship between traits and career decidedness and theoretical discussions here have highlighted how belief in one's career decision-making capabilities could influence the connection between personality and decidedness. Still, evidence is not definitive and there is some indication that efficacy may even directly account for the relationship of some traits and career decidedness or play a more indirect

and differential function. As an example, personality has been proposed as an antecedent of identity and self-efficacy, which in turn are thought to be critical in developing the career maturity and competence necessary for making a good vocational decision. Research designs that employ repeated waves of measurement to examine how the correspondence of identity development and Big Five and narrow personality changes over time may relate to and impact vocational decisions will be necessary to further illuminate the appropriate pathway and influences of these relationships.

There are also a couple limitations connected with the interpretation of supplemental analyses with age and academic class. Beginning with age, while an association was discovered with career decidedness, participants were not followed through the remaining years of their collegiate experience to examine whether changes in the relationship exist over time or connections with subsequent career progression. As noted by Earl and Bright, “cross-sectional research is limited in its capacity to determine whether the relationship between age and career indecision [or decidedness] is linear or as Osipow (1999) suggests comes and goes, with periods of alternating decision and indecision widening over time” (p. 87). Repeated measurement following the same groups of students as they advance throughout their collegiate experience would add significant understanding of the depth and nature of the relationship between age and career decidedness. Proceeding to academic class, small sub-group sizes across the junior and senior class participants in both the time 1 and time 2 supplemental analyses restrict the power to detect differences in the tested relationships and thus diminish confidence in the tenability of results. More specifically, it’s possible that the mean level of career decidedness for the senior

student participants was attenuated due to the smaller sub-group and the outcome may not represent a true picture of the trend across class years.

Implications

Although a number of implications have already surfaced, the present findings offer a platform for other research directions worthy of note. One consistent criticism of career indecision and career decidedness studies has been the lack of insight regarding whether decisions are sustained post-measurement. As demonstrated in several previous studies (Arnold, 1989; Earl & Bright, 2003), relationships with career decision status are likely to change over time. Arnold astutely called attention to the fact that making a decision is not the same as sustaining the decision and recommended continued examination of factors that inhibit or enhance career decision durability (p. 173). While these results highlight the potential for durability in the personality trait connections with career decidedness over a 7 month time gap, it will be important to examine whether the same relationships hold past graduation. In similar fashion, more research is needed to further examine changes in self-efficacy over time, as well as verification of the proposed path connections here suggesting how locus of control, autonomy, achievement and family support can augment self-efficacy and the relationship personality has with career decidedness. Furthermore, a situational factor that would seem extremely relevant though not explored here would be whether changes in labor market conditions over time alter how trait relationships are expressed.

Another factor found to be of interest in a recent study (Di Fabio & Palazzeschi, 2009) of career decision difficulties was emotional intelligence, which signified a role along with personality traits in accounting for variance in explaining level of decision-difficulty.

Specifically, higher emotional intelligence and the traits of conscientiousness, agreeableness and openness related to less expressed challenges in working through career decisions. Perhaps the development of advanced social skills in conjunction with particular traits provides a toolbox for working through decision processes. Even more, the exploration of emotional intelligence in conjunction with Big Five and narrow traits would be productive ground for further examination of the 'similar-to-me effect' by gaining insights regarding differences in how a person comes across in their career exploration activities and how those actions may associate with perceptions from others. In line with Super's developmental theory asserting the relevancy of career maturity as a necessary pre-condition for making an effective vocational decision, an important extension of this research would be to examine how different combinations of Big Five or narrow personality traits and other factors influence readiness for making a career decision. Investigations of job search behavior (e.g., Van Hooft, Edwin, et al., 2004) have also shown that goals and intentions to engage in job search activity predicted subsequent job search behavior. A meta-analytic review of job search activity further extended the notion by showing that those who regularly participated in job search behavior were more likely to obtain subsequent employment (Kanfer, Wanberg, & Krantowitz, 2001).

There is need for more research linking the two literatures between career decision intentions and actual follow-through activity and outcomes. As purported through Ajzen's (1985) Theory of Planned Behavior, perhaps the combination of traits that influence readiness for and salience of making a career decision may change as a function of career attitudes and intentions that could also be influenced by family and social norms as proposed within this study. An intriguing angle of exploration would be to investigate whether decisions and changes with

academic major associate with career decidedness. This line of inquiry could cast further light on possible interactions leading to contradictory findings for several personality traits (e.g., extraversion) by uncovering how specific traits connect with cognitive and emotional commitment at different stages of the career decision process and whether those changes also associate with particular job search activities. For instance, does participation in diverse career exploration activities satisfy a need for variety common among extraverts (as proposed in this study) and does that participation associate with changes in reported cognitive or affective states, decision status and actual job search activity.

A final avenue of mention worth future investigation would be inclusion of narrow trait combinations within career development outcome studies. As reported in several career counseling process and outcome studies by Heppner and Hendricks (1995) and Kelly and Pulver (2003), there is a need for "...different combinations of the components of providing information, acquiring decision-making strategies, learning to manage negative affect, and finding appropriate person-environment matches for [both] students with limited options" (p. 453) and those with multiple options. The substantial value of narrow traits in explaining career decidedness could also assist with improving utility of programs and services aimed at addressing career decision difficulties and advancement of career decision-making abilities.

Conclusions

The present study examined five hypotheses and four research questions primarily directed at evaluating the relationship between personality traits and career decidedness. While data were collected from a single location as a population of convenience, there is sufficient variability among individual measures to allow for meaningful statistical inferences. The study

was descriptive and correlational in nature as there were no experimental controls. Overall, the findings showed at least partial support for four of the five hypotheses with full support for hypothesis 1b and 2b (see Table A17 for a complete summary), thus upholding previous research that suggested personality traits play a critical role in understanding career decision-making. What is especially noteworthy about this study is that the findings extend the literature beyond career indecision, which dominates the empirical landscape. The present results corroborate the discoveries of Lounsbury and Associates, who conducted two of only a handful of studies examining how personality traits associate with being decided rather than undecided about a career. Four of the Big Five Traits (Openness, Conscientiousness, Agreeableness, and Neuroticism) as well as two narrow traits (Optimism and Work Drive) significantly associated with career decidedness. The contribution of narrow traits was substantial, as a combination of just Optimism and Work Drive alone generated explanation of almost half the variance accounted for in career decidedness. The present investigation also adds to the empirical knowledge by discovering evidence for the stability of the relationship between personality and career decidedness across time. The strength of relationship with all Big Five and narrow personality traits investigated increased over a seven-month measurement period.

REFERENCES

- Abramson, L.Y., Seligman, M.E.P. & Teasdale, J.D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology* 87, 49-74.
- Afarian, R., & Kleiner, B.H. (2003). The relationship between grades and career success. *Management Research News*, 26 (2-4), 42-51.
- Andersson, G. (1996). The benefits of Optimism: A meta-analytic review of the Life Orientation Test. *Personality and Individual Differences*, 21(5), 719-725.
- Arnold, J. (1989). Career decidedness and psychological well-being: A two-cohort longitudinal study of undergraduate students and recent graduates. *Journal of Occupational Psychology*, 62, 163-176.
- Ashton, M. C. (1998). Personality and job performance: The importance of narrow traits. *Journal of Organizational Behavior*, 19, 289-303.
- Bandura, A. (Ed.) (1995). *Self-Efficacy in Changing Societies*. New York: Cambridge University Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman.
- Barry, A.E. (2005). How attrition impacts the internal and external validity of longitudinal research. *Journal of School Health*, 75(7), 267-270.
- Betz, N. E. (1997). What stops women and minorities from choosing and completing majors in science and engineering. In D. Johnson (Ed.) *Minorities and girls in school: Effects on achievement and performance*. Thousand Oaks CA; Sage. Series on Leaders in Psychology.
- Betz, N.E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of*

- Counseling Psychology*, 28, 399-410.
- Betz, N. & Schifano, R. (2000). Evaluation of an intervention to increase Realistic self-efficacy and interests in college students. *Journal of Vocational Behavior*, 56, 35-52.
- Betz, N.E., & Serling, D.A. (1993). Construct validity of Fear of Commitment as an indicator of Career Indecisiveness. *Journal of Career Assessment*, 1(1), 21-34.
- Blustein, D.L., Ellis, M.V., & Devenis, L.E. (1989). The development and validation of a two-dimensional model of the commitment to career choice processes. *Journal of Vocational Behavior*, 35, 342-378.
- Blustein, D.L., Kenna, A.C., Gill, N., & DeVoy, J.E. (2008). The psychology of working: A new perspective for career development, counseling, and public policy. *Career Development Quarterly*, 56, 294-308.
- Boudreau, J.W., Boswell, W.R., Judge, T.A., & Bretz, R.D. (2001). Personality and cognitive ability as predictors of job search among employed managers. *Personnel Psychology*, 54(1), 25-50.
- Busato, V.V., Prins, F.J., Elshout, J.J., & Hamaker, C. (2000). Intellectual ability, learning style, Personality, achievement motivation an academic success of psychology students in higher education. *Personality and Individual Differences*, 29(6), 1057-1068.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Cahn, D. (1976). The employment interview: A self-validation model. *Journal of Employment Counseling*, 13(4), 150-155.
- Caldwell, D.F., & Burger, J.M. (1998). Personality characteristics of job applicants and success in screening interviews. *Personnel Psychology*, 51(1), 119-136.

- Callanan, G.A., & Greenhaus, J.H. (1990). The career indecision of managers and professionals: Development of a scale and test of a model. *Journal of Vocational Behavior, 37*(1), 79-103.
- Callanan, G.A., & Greenhaus, J.H. (1992). The career indecision of managers and professionals: An examination of multiple subtypes. *Journal of Vocational Behavior, 41*, 212-231.
- Campagna, C.G., & Curtis, G.J. (2007). So worried I don't know what to be: Anxiety is associated with increased career indecision and reduced career certainty. *Australian Journal of Guidance and Counseling, 17*(1), 91-96.
- Cattell, R.B. (1965). *The Scientific analysis of personality*. Baltimore: Penguin Books.
- Chao, E. (2005, July 11). Opening Plenary Speech presented at the 2005 Workforce Innovations Conference. Retrieved February 28, 2007, from http://www.dol.gov/sec/media/speeches/20050711_Workforce.htm
- Chartrand, J., Martin, W., Robbins, S., McAuliffe, G., Picketing, J., & Calliotte, J. (1994). Testing a level versus an interactional view of career indecision. *Journal of Career Assessment, 2*, 55-69.
- Chartrand, J.M., Robbins, S.B., Morrill, W.H., & Boggs, K. (1990). Development and validation of the Career Factors Inventory. *Journal of Counseling Psychology, 37*(4), 491-501.
- Chartrand, J.M., Rose, M.L., Elliott, T.R., Marmarosh, C., & Caldwell, S. (1993). Peeling back the onion: Personality, problem solving, and career decision-making style correlates of career indecision. *Journal of Career Assessment, 1*(1), 66-82.
- Cohen, C.R., Chartrand, J.M., & Jowdy, D.P. (1995). Relationships between career indecision subtypes and ego identity development. *Journal of Counseling Psychology, 42*, 440-447.

- Colvin, G. (2006, January 30). Catch a rising star. *Fortune*. Retrieved February 20, 2007, from http://money.cnn.com/magazines/fortune/fortune_archive/2006/02/06/8367928/index.htm
- Cooper, S.E., Fuqua, D.R., & Hartman, B.W. (1984). The relationship of trait indecisiveness to vocational uncertainty, career indecision, and interpersonal characteristics. *Journal of College Student Personnel, 25*, 353-356.
- Costa, P.T., & McCrae, R.R. (1995). Domains and facets: Hierarchical personality assessment using the revised NEO Personality Inventory. *Journal of Personality Assessment, 64*(1), 21-50.
- Costello, R.B. et al. (Eds.). (1997). *American Heritage College Dictionary* (3rd Edition). Boston, MA: Houghton Mifflin.
- Crant, J.M. (1995). The Proactive Personality Scale and objective job performance among real estate agents. *Journal of Applied Psychology, 80*, 532-537.
- Creed, P.A., Fallon, T., & Hood, M. (2009). The relationship between career adaptability, person and situation variables, and career concerns in young adults. *Journal of Vocational Behavior, 74*, 219-229.
- Creed, P.A., Patton, W., & Bartrum, D. (2004). Internal and external barriers, cognitive style, and the career development variables of focus and indecision. *Journal of Career Development, 30*(4), 277-294.
- Creed, P.A., Patton, W., & Prideaux, L. (2006). Causal relationship between career indecision and career decision-making self-efficacy: A longitudinal cross-lagged analysis. *Journal of Career Development, 33*(1), 47-65.

- Crites, J.O. (1969). *Vocational Psychology: The Study of Vocational Behavior and Development*. New York: McGraw-Hill.
- Crites, J.O. (1976). A comprehensive model of career development in early adulthood. *Journal of Vocational Behavior*, 9(1), 105-118.
- Dickinson, J., & Tokar, D.M. (2004). Structural and discriminant validity of the career factors inventory. *Journal of Vocational Behavior*, 65, 239-254.
- Di Fabio, A., & Palazzeschi, L. (2009). Emotional intelligence, personality traits and career decision difficulties. *International Journal for Educational and Vocational Guidance*, 9(2), 135-146.
- Digman, J.M. (1990). Personality structure: Emergence of the five-factor model. In M.R. Rosenweig & L.W. Porter (Eds.), *Annual Review of Psychology*. Palo Alto, CA: Annual Reviews, Inc.
- Duffy, R.D., & Dik, B.J. (2009). Beyond the self: External influences in the career development process. *The Career Development Quarterly*, 58, 29-43.
- Earl, J.K., & Bright, J.E.H. (2003). Undergraduate level, age, volume and pattern of work as predictors of career decision status. *Australian Journal of Psychology*, 55(2), 83-88.
- Erikson, E.H. (1959). Identity and the life cycle: Selected papers. *Psychological Issues*, 1 (Monograph 1).
- Eysenck, H.J., & Eysenck, S. (1963). *Eysenck Personality Inventory*. San Diego, CA: Educational and Industrial Testing Service.
- Fabio, A.D., & Palazzeschi, L. (2009). Emotional Intelligence, personality traits, and career decision difficulties. *International Journal of Educational and Vocational Guidance*, 9,

135-146.

- Feldman, D.C. (2003). The antecedents and consequences of early career indecision among young adults. *Human Resource Management Review, 13*, 499-531.
- Finkel, S. E. (1995). *Causal analysis with panel data*. Thousand Oaks, CA: Sage.
- Fleeson, W. (2005). Moving personality beyond the person-situation debate: The challenge and the opportunity of within-person variability. In C.C. Morf & O. Ayduk (Eds.), *Current directions in personality psychology*. Upper Saddle River, NJ: Pearson Education, Inc.
- Frieze, I., Fisher, J., Harusa, B., McHugh, M., & Valle, V. (1978). Attributions of success and failure as internal and external barriers to achievement in women. In J. Sherman & F. Denmark (Eds.), *Psychology of women: Future of research*. New York: Psychological Dimensions.
- Fritzche, B.A., McIntire, S.A., & Yost, A.P. (2002). Holland type as a moderator of performance-personality predictions. *Journal of Vocational Behavior, 60*(3), 422-436.
- Fuqua, D., Blum, C., & Hartman, B. (1988). Empirical support for the differential diagnosis of career indecision. *Career Development Quarterly, 36*, 364-373.
- Fuqua, D.R., Newman, J.L., & Seaworth, T.B. (1988). Relation of state and trait anxiety to different components of career indecision. *Journal of Counseling Psychology, 35*(2), 154-158.
- Gaffner, D.C., & Hazler, R.J. (2002). Factors related to indecisiveness and career indecision in undecided college students. *Journal of College Student Development, 43*(3), 317-326.
- Gati, I., & Saka, N. (2001). High school students' career-related decision-making difficulties. *Journal of Counseling and Development, 79*, 331-340.

- Glenn, N. D. (1981). Age, birth cohorts, and drinking: An illustration of the hazards of inferring effects from cohort data. *Journal of Gerontology*, 36, 362–369.
- Goodman, J. S., & Blum, T. C. (1996). Assessing the nonrandom sampling effects of subject attrition in longitudinal research. *Journal of Management*, 22, 627–652.
- Gordon, V.N. (1998). Career Decidedness Types: A literature review. *Career Development Quarterly*, 46(4), 386-403.
- Gottfredson, L.S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28(6), 545-579.
- Gottfredson, L.S. (1996). Gottfredson's theory of circumscription and compromise. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development* (3rd ed.) (pp. 179-228). San Francisco: Jossey-Bass.
- Graef, M.I., Wells, D.L., Hyland, A.M., & Muchinsky, P.M. (1985). Life history antecedents of vocational indecision. *Journal of Vocational Behavior*, 27(3), 276-297.
- Gregg, P., & Wadsworth, J. (2002). Job tenure in Britain, 1975-2000. Is a job for life or just for Christmas? *Oxford Bulletin of Economics and Statistics*, 64(2), 111-134.
- Guay, F., Ratelle, C.F., Senecal, C., Larose, S., & Deschenes, A. (2006). Distinguishing developmental from chronic career indecision: Self-efficacy, autonomy, and social support. *Journal of Career Assessment*, 14(2), 235-251.
- Guay, F., Senecal, C., Gauthier, L., & Fernet, C. (2003). Predicting career indecision: A Self-Determination Theory perspective. *Journal of Counseling Psychology*, 50(2), 165-177.
- Gunkel, M., & Schlaegel, C. (2010). Influence of personality on students' career decisiveness: A comparison between Chinese and German Economic and Management students.

- Management Revue*, 21(3), 229-243.
- Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1995). *Multivariate data analysis* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Hartman, R.O., & Betz, N.E. (2007). The five-factor model and career self-efficacy: General and domain-specific relationships. *Journal of Career Assessment*, 15(2), 145-161.
- Hartman, B.W., Utz, P.W., & Farnum, S.O. (1979). Examining the reliability and validity of an adapted scale of educational/vocational undecidedness in a sample of graduate students. *Journal of Vocational Behavior*, 15, 224-230.
- Hastings, S.E., & O'Neill, T.A. (2009). Predicting workplace deviance using broad versus narrow personality variables. *Personality and Individual Differences*, 47(4), 289-293.
- Hawkins, J.G., Bradley, R.W., & White, G.W. (1977). Anxiety and the process of deciding about a major and vocation. *Journal of Counseling Psychology*, 24, 398-403.
- Heinonen, K., Raikkonen, K., & Keltikangas-Jarvinen, L. (2005). Dispositional Optimism: Development over 21 years from the perspectives of perceived temperament and mothering. *Personality and Individual Differences*, 38(2), 425-435.
- Hirschi, A. (2009). Career adaptability development in adolescence: Multiple predictors and effect on sense of power and life satisfaction. *Journal of Vocational Behavior*, 74, 145-155.
- Holland, J.L. (1966). *The psychology of vocational choice: A theory of personality types and model environments*. Waltham, MA: Blaisdell.
- Holland, J.L. (1992). *Making vocational choices* (2nd ed.). Odessa, FL: Psychological Assessment Resources.

Holland, J.L., & Holland, J.E. (1977). Vocational indecision: More evidence and speculation.

Journal of Counseling Psychology, 24, 404-414.

Holland, J.L., & Nichols, R.C. (1964). The development and validation of an indecision scale:

The natural history of a problem in basic research. *Journal of Counseling Psychology, 11*(1), 27-34.

Hyde, J.S. (2005). The gender similarities hypothesis. *American Psychologist, 60*, 581-592.

International Labour Organization (2001). Introduction. *International Labour Review, 140*(3), p. 233-236. Retrieved March 3, 2007 from [www.ilo.org/public/english/support/](http://www.ilo.org/public/english/support/publ/revue/download/pdf/intro013.pdf)

[publ/revue/download/pdf/intro013.pdf](http://www.ilo.org/public/english/support/publ/revue/download/pdf/intro013.pdf)

Jenkins, S.R. (1994). Need for power and women's career success over 14 years: Structural

power, job satisfaction, and motive change. *Journal of Personality and Social Psychology, 66*, 155-165.

Jin, L., Watkins, D., & Yuen, M. (2009). Personality, career decision self-efficacy and

commitment to the career choices among Chinese graduate students. *Journal of Vocational Behavior, 74*(1), 47-52.

Johnson, J.A. (1997). Seven social performance scales for the California Psychological

Inventory. *Human Performance, 10*, 1-30.

Jones, L.K., & Chenery, M.F. (1980). Multiple subtypes among vocationally undecided

college students: A model and assessment instrument. *Journal of Counseling Psychology, 27*, 469-477.

Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A

personality-motivational analysis and meta-analytic review. *Journal of Applied*

- Psychology*, 86(5), 837-855.
- Kelly, K.R. (1993). The relation of gender and academic achievement to career self-efficacy and interests. *Gifted Child Quarterly*, 37(2), 59-64.
- Kelly, K.R., & Lee, W-C. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behavior*, 61(2), 302-326.
- Kelly, K.R., & Pulver, C.A. (2003). Refining Measurement of Career Indecision Types: A Validity Study. *Journal of Counseling and Development*, 81(4), 445-454.
- Kelly, K.R., & Shin, Y-J. (2009). Relation of neuroticism and negative career thoughts and feelings to lack of information. *Journal of Career Assessment*, 17(2), 201-213.
- Kimes, H.G., & Troth, W.A. (1974). Relationship of trait anxiety to career decisiveness. *Journal of Counseling Psychology*, 21(4), 277-280.
- Kluemper, D.H., Little, L.M., & DeGroot, T. (2009). State or trait: Effects of state optimism on job-related outcomes. *Journal of Organizational Behavior*, 30, 209-231.
- Kokko, K., & Pulkkinen, L. (2000). Aggression in childhood and long-term unemployment in adulthood: A cycle of maladaptation and some protective factors. *Developmental Psychology*, 36(4), 463-472.
- Langer, E.J., & Rodin, J. (1976). Effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology*, 34, 191-199.
- Lapan, R. T., Shaughnessy, P., & Boggs, K. (1996). Efficacy expectations and vocational interests as mediators between sex and choice of math/science college majors: A longitudinal study. *Journal of Vocational Behavior*, 49, 277-291.

- Larson, L.M., Heppner, P.P., Ham, T., & Dugan, K. (1988). Investigating multiple subtypes of career indecision through cluster analysis. *Journal of Counseling Psychology, 35*, 439-446.
- Larson, L.M., Toulouse, A.L., Ngumba, W.E., & Fitzpatrick, L.A. (1994). The development and validation of coping with career indecision. *Journal of Career Assessment, 2*(2), 91-110.
- Latham, G.P., Wexley, K.N, & Pursell, E.D. (1975). Training managers to minimize rating errors in the observation of behavior. *Journal of Applied Psychology, 60*, 550-555.
- Lent, R.W., Brown, S.D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 75-122.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33*, 265–269.
- Leong, F.T.L., & Boyle, K.A. (1997). An individual differences approach to midlife career adjustment: An exploratory study. In M.E. Lachman & J.B. James (Eds.), *Multiple paths of midlife development* (pp. 411-451). Chicago: The University of Chicago Press.
- Leong, F.T.L., & Chervinko, S. (1996). Construct validity of career indecision: Negative personality traits as predictors of career indecision. *Journal of Career Assessment, 4*, 315-329.
- Levine, R., Gillman, M.J., & Reis, H. (1982). Individual differences for sex differences in achievement attributions? *Sex Roles, 8*(4), 455-466.
- Lin, T., Dobbins, G., & Farh, J. (1992). A field study of race and age similarity effect on

- interview ratings in conventional and situational interview. *Journal of Applied Psychology*, 77(3), 363-371.
- Locke, E.A., & Latham, G.P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-Year odyssey. *American Psychologist*, 57(9), 705-717.
- Lodi-Smith, J., Geise, A. C., Roberts, B. W., & Robins, R. W. (2009). Narrating Personality. *Journal of Personality and Social Psychology*, 96(3), 679-689.
- Lofquist, L.H., & Dawis, R.V. (1991). *Essentials of person-environment-correspondence counseling*. Minneapolis: University of Minnesota Press.
- Long, B.C. (1993). Coping strategies of male managers: A prospective analysis of predictors of psychosomatic symptoms and job satisfaction. *Journal of Vocational Behavior*, 42, 184-199.
- Lounsbury, J.W., & Gibson, L.W. (2002). *Personal Style Inventory: A work-based personality measurement system*. Knoxville, TN: Resource Associates.
- Lounsbury, J.W., Gibson, L.W., & Hamrick, F.L. (2004). The development and validation of a personological measure of work drive. *Journal of Business and Psychology*, 18(4), 427-451.
- Lounsbury, J.W., Gibson, L.W., Sundstrom, E., Wilburn, D., & Loveland, J. (2003). An empirical investigation of the proposition that “school is work”: A comparison of personality-performance correlations in school and work settings. *Journal of Education and Work*, 17, 119-131.
- Lounsbury, J.W., Huffstetler, B.C., Leong, F.T., & Gibson, L.W. (2005). Sense of identity and collegiate academic achievement. *Journal of College Student Development*, 46(5), 501-

514.

- Lounsbury, J.W., Hutchens, T., & Loveland, J.M. (2005). An investigation of Big Five personality traits and career decidedness among early and middle adolescents. *Journal of Career Assessment, 13*(1), 25-39.
- Lounsbury, J.W., Levy, J.J., Leong, F.T.L., & Gibson, L.W. (2007). Identity and personality: The Big Five and narrow traits in relation to sense of identity. *Identity: An International Journal of Theory and Research, 7*, 51-70.
- Lounsbury, J.W., Levy, J.J., Park, S-H., Gibson, L.W., & Smith, R. (2009). An investigation of the construct validity of the personality trait of self-directed learning. *Learning and Individual Differences, 19*, 411-418.
- Lounsbury, J.W., Loveland, J.M., & Gibson, L.W. (2003). An investigation of Big Five personality traits in relation to psychological sense of community. *Journal of Community Psychology, 31*, 531-541.
- Lounsbury, J.W., Saudargas, R.A., & Gibson, L.W. (2004). An Investigation of Personality Traits in Relation to Intention to Withdraw From College. *Journal of College Student Development, 45*, 517-534.
- Lounsbury, J.W., Saudargas, R.A., Gibson, L.W., & Leong, F.T.L. (2005). An investigation of broad and narrow personality traits in relation to general and domain-specific life satisfaction of college students. *Research in Higher Education, 46*, 707-729.
- Lounsbury, J.W., Steel, R.P., Loveland, J.M., & Gibson, L.W. (2004). An investigation of personality traits in relation to adolescent school absenteeism. *Journal of Youth and Adolescence, 33*, 457-466.

- Lounsbury, J. W., Sundstrom, E., Gibson, L. W., & Loveland, J. L. (2003). Broad versus Narrow personality traits in predicting academic performance of adolescents. *Learning and Individual Differences, 14*, 65-75.
- Lounsbury, J.W., Sundstrom, E., Loveland, J.L., & Gibson, L.W. (2003). Intelligence, Big Five personality traits, and work drive as predictors of course grade. *Personality and Individual Differences, 35*(6), 1231-1239.
- Lounsbury, J. W., Tatum, H.E., Chambers, W., Owens, K., & Gibson, L. W. (1999). An investigation of career decidedness in relation to “Big Five” personality constructs and life satisfaction. *College Student Journal, 33*(4), 646-652.
- Lounsbury, J. W., Tatum, H., Gibson, L. W., Park, S. H., Sundstrom, E. D., Hamrick, F. L., et al. (2003). The development of a Big Five adolescent personality scale. *Psychoeducational Assessment, 21*, 111-133.
- Lubinski, D., Webb, R.M., Morelock, M.J., & Benbow, C.P. (2001). Top 1 in 10,000: A 10-year follow-up of the profoundly gifted. *Journal of Applied Psychology, 86*(4), 718-729.
- Lucas, M.S., & Epperson, D.L. (1990). Types of vocational undecidedness: A replication and refinement. *Journal of Counseling Psychology, 37*(4), 382-388.
- Lucas, J.L., & Wanberg, C.R. (1995). Personality correlates of Jones' three-dimensional model of career indecision. *Journal of Career Assessment, 3*(3), 315-329.
- Lunneborg, P.W. (1975). Interest differentiation in high school and vocational indecision in college. *Journal of Vocational Behavior, 7*, 297-303.
- Lunneborg, P.W. (1976). Vocational indecision in college graduates. *Journal of Counseling Psychology, 23*(4), 402-404.

- Luzzo, D. A. (1996). Exploring the relationship between the perception of occupational barriers and career development. *Journal of Career Development, 22*, 239–248.
- Matsui, T., & Onglatco, M.L. (1991). Instrumentality, expressiveness, and self-efficacy in career activities among Japanese working women. *Journal of Vocational Behavior, 39*, 241-250.
- Mathieu, P.S., & Sowa, C.J., & Niles, S.G. (1993). Differences in career self-efficacy among women. *Journal of Career Development, 19*, 187-196.
- Maxwell, S.E., & Delaney, H.D. (2004). *Designing experiments and analyzing data: A model comparison perspective* (2nd edition). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- McCrae, R.R., & Costa, P.T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90.
- McCrae, R.R., & Costa, P.T., Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd edition). New York: Guilford Press.
- McCrae, R.R., Costa, P.T., Jr., Terracciano, A., Parker, W.D., Mills, C.J., DeFruyt, F., et al. (2002). Personality trait development from age 12 to age 18: Longitudinal, cross-sectional, and cross-cultural analyses. *Journal of Personality and Social Psychology, 83*, 1456-1468.
- Melamed, T. (1995). Career success: The moderating effect of gender. *Journal of Vocational Behavior, 47*, 35-60.
- Meldahl, J.M., & Muchinsky, P.M. (1997). The neurotic dimension of vocational indecision: Gender comparability? *Journal of Career Assessment, 5*(3), 317-331.
- Mendonca, J.D., & Siess, T.F. (1976). Counseling for indecisiveness: Problem-solving and anxiety-management training. *Journal of Counseling Psychology, 23*(4), 339-347.

- Meyer, B.W., & Winer, J.L. (1993). The Career Decision Scale and Neuroticism. *Journal of Career Assessment, 1*(2), 171-180.
- Miller, R.B., & Hollist, C.S. (2007). Attrition Bias. In N. Salkind (Ed.), *Encyclopedia of Measurement and Statistics*, Volume 1 (pp. 57-60). Thousand Oaks: Sage.
- Mischel, W. (1968). *Personality and assessment*. New York: Wiley.
- Mitchell, L.K., & Krumboltz, J.D. (1987). The effects of cognitive restructuring and decision-making on career indecision. *Journal of Counseling and Development, 66*, 171-174.
- Multon, K.D., Heppner, M.J., & Lapan, R.T. (1995). An empirical derivation of career decision subtypes in a high school sample. *Journal of Vocational Behavior, 47*, 76-92.
- Murray, B. (1998). Notion of a lifelong career is now a thing of the past. *APA Monitor, 29*(5). Retrieved February 25, 2007, from <http://www.apa.org/monitor/may98/career.html>
- Musgrave-Marquart, D., Bromley, S.P., & Dalley, M.B. (1997). Personality, academic attrition, and substance abuse as predictors of academic achievement in college students. *Journal of Social Behavior & Personality, 12*(2), 501-511.
- National Center for Education Statistics (2008). *Projections of Education Statistics to 2016*. Retrieved February 25, 2008, from <http://nces.ed.gov/programs/projections/projections2016/sec2a.asp>
- National Center for Education Statistics (1995, April). Making the Cut: Who meets highly selective college entrance criteria? Retrieved February 15, 2009, from <http://nces.ed.gov/pubs/web/95732.asp>
- Newman, J.L., & Fuqua, D.R. (1990). Further evidence for the use of career subtypes in defining career status. *Career Development Quarterly, 39*(2), 176-188.

- Newman, J.L., Fuqua, D.R., & Seaworth, T.B. (1989). The role of anxiety in career indecision: Implications for diagnosis and treatment. *The Career Development Quarterly*, 37, 221-231.
- Newman, J.L., Gray, E.A., & Fuqua, D.R. (1999). The relation of career indecision to personality dimensions of the California Psychological Inventory. *Journal of Vocational Behavior*, 54, 174-187.
- Nota, L., Ferrari, L., Solberg, V.S.H., Soresi, S. (2007). Career search self-efficacy, family support, and career indecision with Italian youth. *Journal of Career Assessment*, 15(2), 181-193.
- Ones, D.S., & Viswesvaran, C. (1996). Bandwidth-fidelity dilemma in personality measurement for personnel selection. *Journal of Organizational Behavior*, 17(6), 609-626.
- O'Reilly, E. (2001). *Labour Market Sills for a New Economy (chap. 4)*. Retrieved February 26, 2007, from <http://makingcareersense.org/CHAPTER4/CHAP4-6.HTM>
- Osipow, S.H., Carney, C.G., & Barak, A. (1976). A scale of educational-vocational undecidedness: A typological approach. *Journal of Vocational Behavior*, 9, 233-243.
- Page, J., Bruch, M.A., & Haase, R.F. (2008). Role of perfectionism and Five-Factor model traits in career indecision. *Personality and Individual Differences*, 45(8), 811-815.
- Parsons, F. (1909). *Choosing a vocation*. Boston: Houghton-Mifflin.
- Patton, W., & Creed, P.A. (2001). Developmental issues in career maturity and career decision status. *Career Development Quarterly*, 49, 336-351.
- Paunonen, S.V. (1998). Hierarchical organization of personality and prediction of behavior. *Journal of Personality and Social Psychology*, 74(2), 538-556.

- Paunonen, S.V., & Ashton, M.C. (2001). Big five predictors of academic achievement. *Journal of Research in Personality, 35*, 78-90.
- Paunonen, S.V., Rothstein, M.G., & Jackson, D.N., (1999). Narrow meaning about the use of broad personality measures for personnel selection. *Journal of Organizational Behavior, 20*(3), 389-405.
- Peng, H. (2001). Career group counseling in undecided college female seniors' state anxiety and career indecision. *Psychological Reports, 88*, 996-1004.
- Peng, H. (2005). Reduction in state anxiety scores of freshmen through a course in career decision. *International Journal of Educational and Vocational Guidance, 5*(3), 293-302.
- Peng, H., & Herr, E.L. (1999). The impact of career education courses on career beliefs and career decision making among business college students in Taiwan. *Journal of Career Development, 25*(4), 275-290.
- Peters, L., & Terborg, J. (1975). The effects of temporal placement of unfavorable information and of attitude similarity on personnel selections decisions. *Organizational Behavior and Human Performance, 13*, 279-293.
- Peterson, C. (2000). The future of optimism. *American Psychologist, 55*(1), 44-55.
- Peterson, C., Seligman, M., & Vaillant, G. (1988). Pessimistic explanatory style as a risk factor for physical illness: A thirty-five year longitudinal study. *Journal of Personality and Social Psychology, 55*, 23-27.
- Pulakos, E.D., & Wexley, K.N. (1983). The Relationship among perceptual similarity, sex, and performance ratings of manager-subordinate dyads. *Academy of Management Journal, 26*(1), 129-139.

- Raikkonen, K., Matthews, K. A., Flory, J. D., Owens, J. F., & Gump, B. B. (1999). Effects of optimism, pessimism, and trait anxiety on ambulatory blood pressure and mood during everyday life. *Journal of Personality and Social Psychology, 76*(1), 104–113.
- Rand, T., & Wexley, K. (1975). Demonstration of the effects, "similar to me", in simulated employment interviews. *Psychological Reports, 36*, 535-544.
- Reed, M.B., Bruch, M.A., & Haase, R.F. (2004). Five factor model of personality and career exploration. *Journal of Career Assessment, 12*(3), 223-238.
- Reilly, R.R., & Warech, M.A. (1993). The validity and fairness of alternatives to cognitive tests. In L.C. Wing and B.R. Gifford (Eds.), *Policy issues in employment testing* (pp. 131-224). Boston: Kluwer.
- Ridgell, S.D., & Lounsbury, J.W. (2004). Predicting academic success: General intelligence, Big Five personality traits, and work drive. *College Student Journal, 38*(4), 607-618.
- Robins, R. W., Fraley, R. C., Roberts, B. W., & Trzesniewski, K. H. (2001). A longitudinal study of personality change in young adulthood. *Journal of Personality, 69*, 340-352.
- Rogers, W.B., & Westbrook, B.W. (1983). Measuring career indecision among college students: Toward a valid approach for counseling practitioners and researchers. *Measurement and Evaluation in Guidance, 16*(2), 78-85.
- Roth, P.L., BeVier, C.A., Switzer, F.S., & Schippmann, J.S. (1996). Meta-analyzing the relationship between grades and job performance. *Journal of Applied Psychology, 81*(5), 548-556.
- Rothstein, M.G., Paunonen, S.V., Rush, J.C., & King, G.A. (1994). Personality and cognitive ability predictors of performance in graduate business school. *Journal of Educational*

- Psychology*, 86(4), 516-530.
- Ryan, R.M., & Deci, E.L. Self-Determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Rysiew, K.J., Shore, B.M., & Leeb, R.T. (1999). Multipotentiality, giftedness, and career choice: A review. *Journal of Counseling and Development*, 77(4), 423-430.
- Santos, P.J. (2001). Predictors of generalized indecision among Portugese secondary school students. *Journal of Career Assessment*, 9(4), 381-396.
- Saudino, K.J. (2005). Moving beyond the heritability question: New directions in behavioral genetic studies of personality. In C.C. Morf and O. Ayduk (Eds.), *Current directions in Personality Psychology*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Schmit, M.J., Amel, E.L., & Ryan, A.M. (1993). Self-reported assertive job-seeking behaviors of minimally educated job hunters. *Personnel Psychology*, 46 (1), 105-124.
- Schmit, M.J., Ryan, A.M., Stierwalt, S.L., & Powell, S.L. (1995). Frame-of-reference effects on personality scores and criterion-related validity. *Journal of Applied Psychology*, 80, 607-620.
- Schneider, R. J., Hough, L. M. & Dunnette, M. D. (1996). Broadsided by broad traits: how to sink science in five dimensions or less. *Journal of Organizational Behavior*, 17, 639-655.
- Schultz, D.P., & Schultz, S.E. (2005). *Theories of Personality* (8th Edition). Belmont, CA: Thomson Wadsworth.
- Sears, D. O. (1981). Life stage effects on attitude change, especially among the elderly. In S. B. Kiesler, J. N. Morgan, & V. K. Oppenheimer (Eds.), *Aging: Social change* (pp. 183-204).

New York: Academic Press.

Sears, G.J. & Rowe, P.M. (2003). A personality based similar to me effect in the employment interview. *Canadian Journal of Behavioural Science*, 35(1), 13-24.

Seligman, M.E.P. (1998), *Learned Optimism*. New York: Simon and Schuster.

Seligman, M., & Schulman, P. (1986). Explanatory style as a predictor of performance as a life insurance agent. *Journal of Personality and Social Psychology*, 50, 832-838.

Sepich, R.T. (1987). A review of the correlates and measurements of career indecision. *Journal of Career Development*, 14(1), 8-23.

Shafer, A.B. (2000). Mediation of the Big Five's effect on career decision making by life task dimensions and on money attitudes by materialism. *Personality and Individual Differences*, 28, 93-109.

Shimizu, K., Vondracek, F.W., Schulenberg, J.E., & Hostetler, M. (1988). The factor structure of the Career Decision Scale: Similarities across selected studies. *Journal of Vocational Behavior*, 32, 213-225.

Sklar, L.S., & Anisman, H. (1979). Stress and coping factors influence tumor growth. *Science*, 205, 513-515.

Solberg, V.S., Good, G.E., Nord, D., Holm, C., Hohner, R., Zima, N., Hefferman, M., & Malen, A. (1994). Assessing career search expectations: Development and validation of the Career Search Efficacy Scale. *Journal of Career Assessment*, 2, 111-123.

Spitzer, T.M. (2000). Predictors of College Success: A Comparison of Traditional and Nontraditional Age Students. *National Association of Student Personnel Administrators Journal*, 38(1), 82-98.

- Stead, G.B., Watson, M.B., & Foxcroft, C. (1993). The relationship between career indecision and irrational beliefs among university students. *Journal of Vocational Behavior, 42*(2), 155-169.
- Super, D.E. (1955). The dimensions and measurement of vocational maturity. *Teachers College Record, 57*, 151-163.
- Super, D.E. (1957). *The psychology of careers*. New York: Harper & Row.
- Super, D.E. (1972). Vocational development theory: Persons, positions, and processes. In J.M. Whiteley & A. Resnikoff (Eds.), *Perspectives on vocational development*. Washington, DC: American Personnel and Guidance Association.
- Super, D.E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, & Associates (Eds.), *Career choice and development: Applying contemporary theories to practice* (2nd ed.) (pp. 197-261). San Francisco: Jossey-Bass.
- Swanson, J. L., & Tokar, D. M. (1991). College students' perceptions of barriers to career development. *Journal of Vocational Behavior, 38*, 92-106.
- Talib, M.A., & Aub, T.K. (2009). Predictors of career indecision among Malaysian Undergraduate students. *European Journal of Social Sciences, 8*(2), 215-224.
- Tango, R.A., & Dziuban, C.D. (1984). The use of personality components in the interpretation of career indecision. *Journal of College Student Personnel, 25*, 509-512.
- Taylor, K.M. (1982). An investigation of vocational indecision in college students: Correlates and moderators. *Journal of Vocational Behavior, 21*, 318-329.
- Taylor, K. M., & Betz, N. E. (1983). Applications of Self-Efficacy Theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior, 22*, 63-81.

- Thomas, S. L. (2000). Ties that bind. *The Journal of Higher Education*, 71, 591-615.
- Thoms, P., Moore, K.S., & Scott, K.S. (1996). The relationship between self-efficacy for participating in self-managed work groups and the big five personality dimensions. *Journal of Organizational Behavior*, 17, 349-362.
- U.S. Department of Education's Office of Vocational and Adult Education (2003). *National Career Development Guidelines*. Retrieved February 25, 2007, from http://www.acrnetwork.org/ncdg/ncdg_what.htm
- Van Hooft, E.A.J., Born, M.P.H., Taris, T.W., Van Der Flier, H., Blonk, R.W.B. (2004). Predictors of job search behavior among employed and unemployed people. *Personnel Psychology*, 57(1), 25-59.
- Visintainer, M., Volpicelli, J., & Seligman, M. (1982). Tumor rejection in rats after inescapable or escapable shock. *Science*, 216, 437-439.
- Vondracek, F. W., Schulenberg, J. E., Skorikov, B., Gillespie, L. K., & Wahlheim, C. (1995). The relationship of identity status to career indecision during adolescence. *Journal of Adolescence*, 18, 17-29.
- Wallace-Brosious, A., Serafica, F.C., & Osipow, S.H. (1994). Adolescent career development: Relationships to self-concept and identity status. *Journal of Research on Adolescence*, 4(1), 127-149.
- Walsh, W.B., & Lewis, R.O. (1972). Consistent, inconsistent, and undecided career preferences and personality. *Journal of Vocational Behavior*, 2(3), 309-316.
- Wanberg, C.R. (1995). A longitudinal study of the effects of unemployment and quality of reemployment. *Journal of Vocational Behavior*, 46, 40-54.

- Wanberg, C.R., & Muchinsky, P.M. (1992). A typology of career decision status: Validity extension of the vocational decision status model. *Journal of Counseling Psychology, 39*(1), 71-80.
- Wang, N., Jome, L.M., Haase, R.F., & Bruch, M.A. (2006). The role of personality and career decision-making self-efficacy in the career choice commitment of college students. *Journal of Career Assessment, 14*(3), 312-332.
- Weinstein, F.M., Healy, C.C., & Ender, P.B. (2002). Career choice anxiety, coping, and perceived control. *The Career Development Quarterly, 50*, 339-349.
- Wentzel, K.R. (1993). Motivation and achievement in early adolescence: The role of multiple classroom goals. *Journal of Early Adolescence, 13* (1), 4-20.
- Wheeler, K.G. (1983). Comparisons of self-efficacy and expectancy models of occupational preferences for college males and females. *Journal of Occupational Psychology, 56*, 73-78.
- Williamson, J.W., Pemberton, A.E., & Lounsbury, J.W. (2005). An investigation of career and job satisfaction in relation to personality traits of information professionals. *Library Quarterly, 75*, 122-141.
- Wise to Social Issues (2007). Working Women. Retrieved November 6, 2010, from <http://socialissues.wiseto.com/Topics/WorkingWomen/>
- Wulff, M., & Steitz, J. (1999). A path model of the relationship between career indecision, androgyny, self-efficacy and self-esteem. *Perceptual and Motor Skills, 88*, 935-940.
- Zunker, V.G. (2002). *Career Counseling: Applied Concepts of Life Planning* (6th Edition). Pacific Grove, CA: Brooks/Cole.

APPENDICES

Appendix A

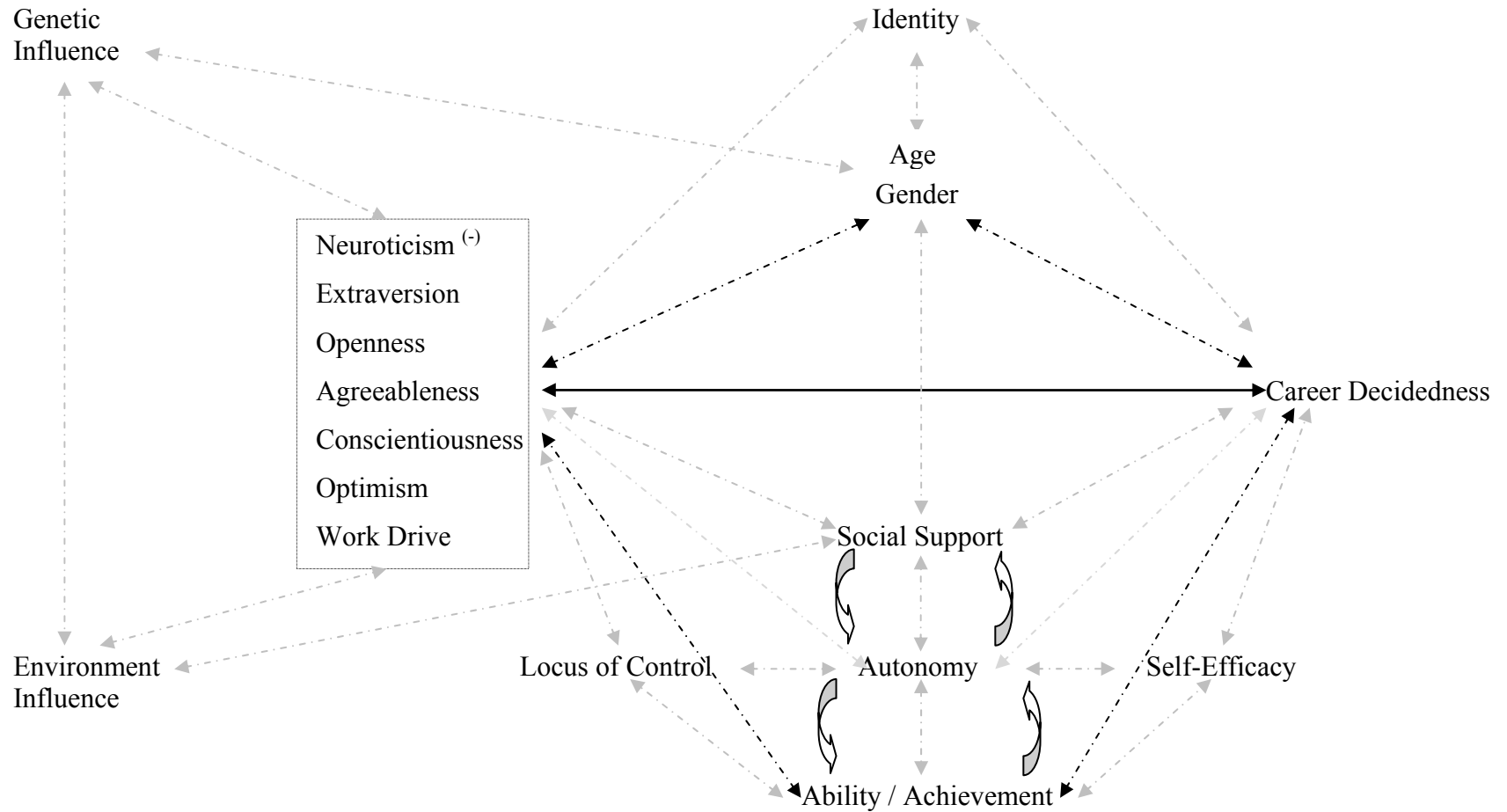


Figure A1

Hypothesized Model of Path Relationships with Career Decidedness

Table A1

Descriptive Statistics for Assessing Normality of All Study Variables at Time 1 Measurement

	N	Mean	Median	SD	Skewness	S.E.S	Kurtosis	S.E.K
Gender	2037	--	--	--	--	--	--	--
Age	2046	2.36	2.00	.976	3.207	.054	10.381	.108
Race	2042	--	--	--	4.660	.054	23.200	.108
Class	2046	1.31	1.00	--	2.488	.054	5.945	.108
GPA	1504	5.18	5.00	1.205	-.721	.063	.752	.126
Agreeableness	2046	3.74	3.78	.621	-.415	.054	.057	.108
Conscientiousness	2046	3.38	3.38	.503	-.169	.054	-.288	.108
Extraversion	2046	3.54	3.56	.656	-.453	.054	.002	.108
Neuroticism	2046	3.17	3.22	.694	-.192	.054	-.220	.108
Openness	2046	3.52	3.56	.592	-.245	.054	.008	.108
Optimism	2046	4.02	4.00	.571	-.596	.054	.541	.108
Work Drive	2046	3.18	3.22	.620	.013	.054	-.061	.108
Career Decidedness	2046	3.36	3.50	1.120	-.262	.054	-1.044	.108

Age Categories [1-(Under 18), 2-(18-19), 3-(20-21), 4-(22-25), 5-(26-30), 6-(31-39), 7-(40-49), and 8-(50 and over)];

GPA Categories [1-(<1.5), 2-(1.5-1.99), 3-(2-2.49), 4-(2.5-2.99), 5-(3-3.49), 6-(3.5-3.99), and 7-(4.00)];

Personality Scale [1-(Strongly Disagree), 2-(Disagree), 3-(In-Between), 4-(Agree), and 5-(Strongly Agree)]

Table A2

Means, Standard Deviations, and Intercorrelations between Personality Traits and Career Decidedness (N = 2046 for T1; N= 267 for T2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agreeableness (1)	(-.085)	.160**	-.021	-.275**	.187**	.325**	.263**	.112**	.073**
Conscientiousness (2)	.236**	(.205**)	.056*	-.139**	.052*	.224**	.323**	.154**	.090**
Extraversion (3)	.383**	.318**	(.216**)	-.241**	.002	.343**	-.015	.020	-.009
Neuroticism (4)	-.325**	-.107	-.131*	(.300**)	-.066**	-.586**	-.086**	-.159**	-.110**
Openness (5)	.074	.329**	.334**	-.118	(.179**)	.181**	.406**	.138**	.089**
Optimism (6)	.162**	.456**	.456**	-.278**	.516**	(.251**)	.243**	.272**	.067**
Work Drive (7)	-.047	.578**	.208**	-.068**	.534**	.431**	(.287**)	.254**	.260**
Career Decidedness (8)	.295**	.317**	.372**	-.268**	.294**	.278**	.243**	(.077)	.026
GPA (9)	-.025	.084	.022	-.054	-.008	.005	.082	-.006	--
T1 Mean	3.74	3.38	3.54	3.17	3.52	4.02	3.18	3.36	5.18
Standard Deviation	.62	.50	.66	.69	.59	.57	.62	1.12	1.21
T2 Mean	3.17	3.43	3.31	3.14	3.88	4.00	3.30	3.18	6.63
Standard Deviation	.41	.50	.41	.56	.61	.60	.74	.41	1.83

* p < .05. ** p < .01. Two-tailed.

GPA [1-(<1.5); 2-(1.5-1.99); 3-(2-2.49); 4-(2.5-2.99); 5-(3-3.49); 6-(3.5-3.99); 7-(4.00)]

Table A3

Descriptive Statistics for Career Decidedness by Academic Class Year

	N	Mean	Median	SD	SE	95% Confidence Interval for Mean		Min.	Max.	Kolmogorov-Smirnov		
						Lower Bound	Upper Bound			Statistic ^a	df	Sig.
freshman	1612	3.28	3.50	1.13	.02820	3.2223	3.3329	1.00	5.00	.126	1612	.000
sophomore	302	3.65	4.00	1.06	.06117	3.5295	3.7702	1.00	5.00	.159	302	.000
junior	71	3.86	4.00	.80	.09513	3.6730	4.0524	1.75	5.00	.160	71	.000
senior	61	3.52	3.75	1.01	.12972	3.2651	3.7841	1.25	5.00	.156	61	.001
Total	2046	3.36	3.50	1.12	.02477	3.3116	3.4088	1.00	5.00	---	---	---

a. Lilliefors Significance Correction

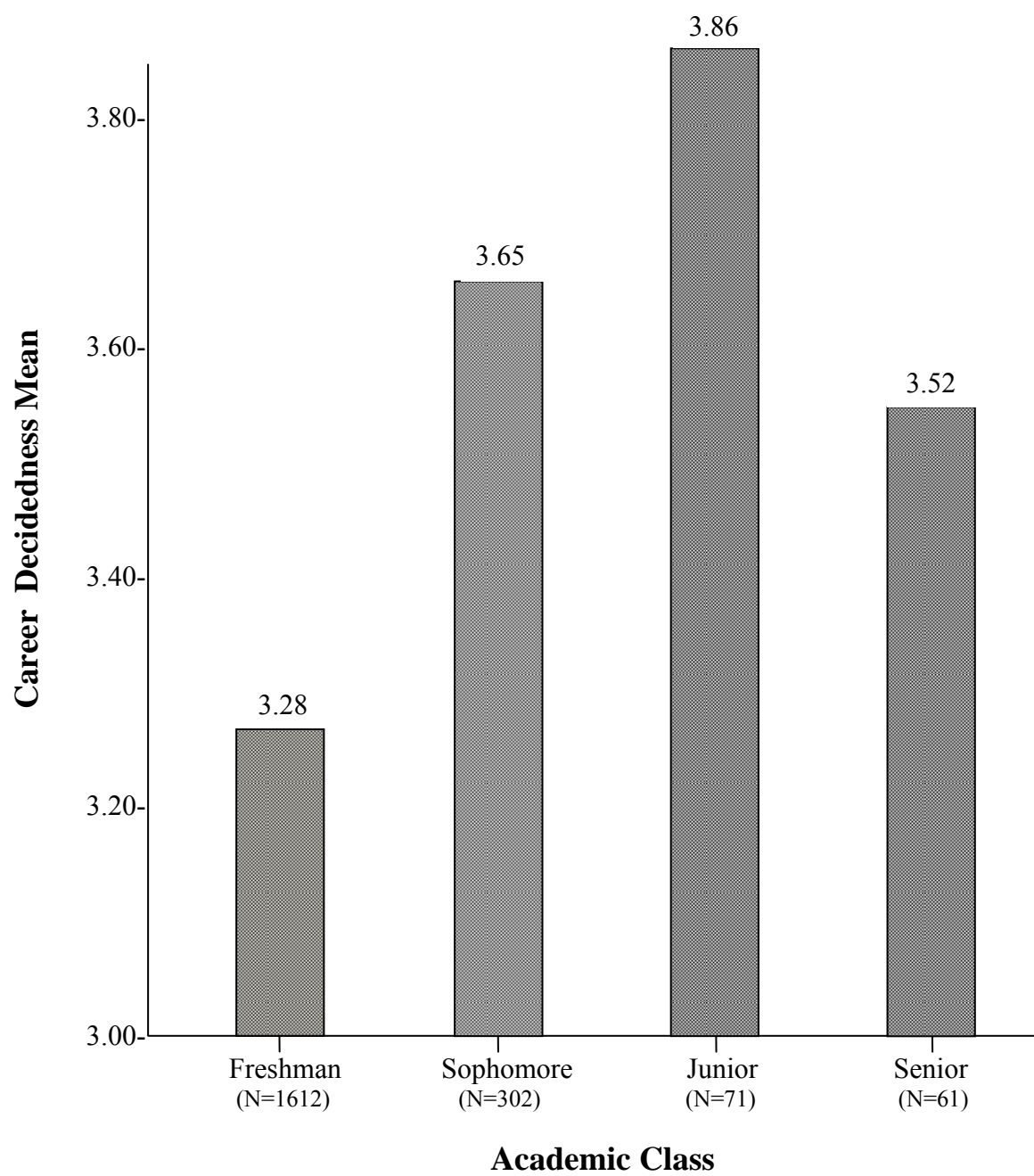


Figure A2

Mean Plots of Career Decidedness by Academic Class

Table A4

Analysis of Variance for Academic Class Year and Career Decidedness

Measure	Source	SS	df	MS	F
Career Decidedness	Between Groups	55.906	3	18.635	15.148***
	Within Groups	2512.116	2042	1.230	
	Total	2568.022	2045		

*** $p = .000$

Table A5

Nonparametric trend comparison for Academic Class Year and Career Decidedness

Measure	Class	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig.*
Career Decidedness	Freshman	1612	928.27	1496367.50				
	Sophomore	302	1113.53	336287.50	196289.50	1496367.50	-5.361	.000
	Freshman	1612	831.50	1340382.50				
	Junior	71	1080.33	76703.50	40304.50	1340382.50	-4.234	.000
	Freshman	1612	833.30	1343276.50				
	Senior	61	934.83	57024.50	43198.50	1343276.50	-1.616	.106
	Sophomore	302	184.27	55651				
	Junior	71	198.59	14100	9898	55651	-1.011	.312
	Sophomore	302	184.77	55801				
	Senior	61	168.28	10265	8374	10265	-1.124	.261
	Junior	71	72.48	5146				
	Senior	61	59.54	3632	1741	3632	-1.948	.051

* Two-Tailed

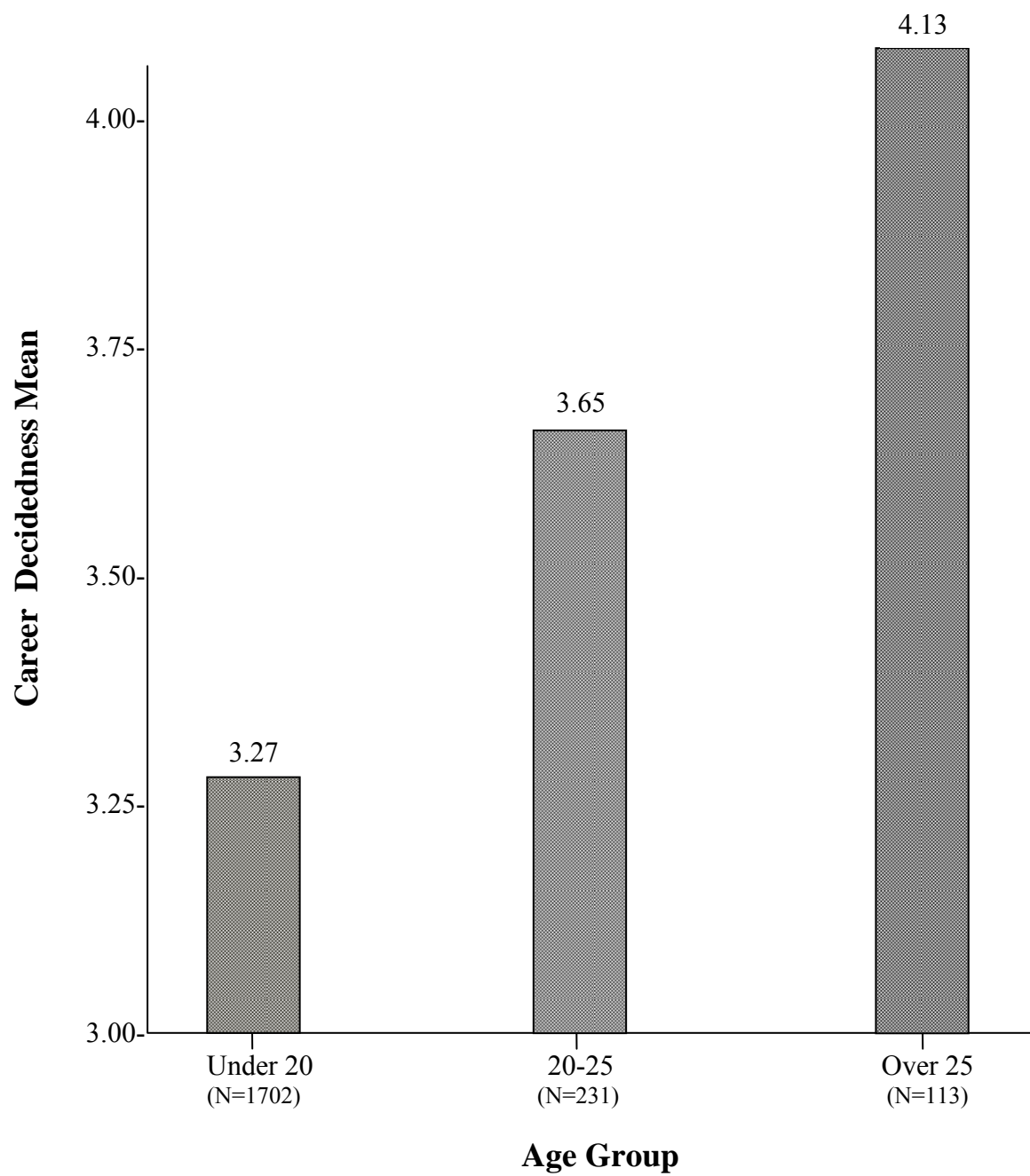


Figure A3

Mean Plots of Career Decidedness by Age

Table A6

Descriptive Statistics of Participants who Dropped out of Study prior to Time 2 Measurement

	N	Mean	Median	SD	Skewness	S.E.S	Kurtosis	S.E.K
Gender	1826	--	--	--	--	--	--	--
Age	1789	2.56	2.00	1.45	3.093	.057	9.394	.114
Race	1830	--	--	--	4.688	.057	23.728	.114
Class	1835	1.33	1.00	--	2.355	.057	5.221	.114
GPA	1353	6.16	6.00	1.99	.128	.057	-.838	.114
Agreeableness	1835	3.74	3.78	.62	-.435	.057	.105	.114
Conscientiousness	1835	3.37	3.38	.50	-.156	.057	-.318	.114
Extraversion	1835	3.54	3.56	.65	-.465	.057	-.016	.114
Neuroticism	1835	3.17	3.22	.69	-.151	.057	-.214	.114
Openness	1835	3.51	3.56	.59	-.258	.057	.031	.114
Optimism	1835	4.00	4.00	.57	-.600	.057	.584	.114
Work Drive	1835	3.18	3.11	.62	.016	.057	.005	.114
Career Decidedness	1835	3.38	3.50	1.11	-.273	.057	-1.028	.114

Age Categories [1-(Under 18), 2-(18-19), 3-(20-21), 4-(22-25), 5-(26-30), 6-(31-39), 7-(40-49), and 8-(50 and over)];

GPA Categories [1-(<1.5), 2-(1.5-1.99), 3-(2-2.49), 4-(2.5-2.99), 5-(3-3.49), 6-(3.5-3.99), and 7-(4.00)];

Personality Scale [1-(Strongly Disagree), 2-(Disagree), 3-(In-Between), 4-(Agree), and 5-(Strongly Agree)]

Table A7

Descriptive Statistics for Assessing Normality of All Study Variables at Time 2 Measurement

	N	Mean	Median	SD	Skewness	S.E.S	Kurtosis	S.E.K
Gender	266	--	--	--	--	--	--	--
Age	257	2.35	2.00	1.38	4.333	.149	17.838	.297
Race	267	--	--	--	4.468	.149	21.200	.297
Class	267	1.09	1.00	--	5.433	.149	32.259	.297
GPA	182	6.63	6.00	1.83	.052	.149	-.855	.297
Agreeableness	267	3.17	3.11	.44	-.523	.149	4.086	.297
Conscientiousness	267	3.43	3.44	.50	-.946	.149	3.222	.297
Extraversion	267	3.31	3.33	.41	-1.478	.149	7.182	.297
Neuroticism	267	3.14	3.22	.56	-.396	.149	.478	.297
Openness	267	3.88	4.00	.61	-.817	.149	2.401	.297
Optimism	267	4.00	4.00	.60	-1.048	.149	3.344	.297
Work Drive	267	3.30	3.33	.74	-.190	.149	.009	.297
Career Decidedness	267	3.18	3.00	.41	-.557	.149	6.195	.297

Age Categories [1-(Under 18), 2-(18-19), 3-(20-21), 4-(22-25), 5-(26-30), 6-(31-39), 7-(40-49), and 8-(50 and over)];

GPA Categories [1-(<1.5), 2-(1.5-1.99), 3-(2-2.49), 4-(2.5-2.99), 5-(3-3.49), 6-(3.5-3.99), and 7-(4.00)];

Personality Scale [1-(Strongly Disagree), 2-(Disagree), 3-(In-Between), 4-(Agree), and 5-(Strongly Agree)]

Table A8

Comparison of intercorrelations among study variables across participants who stayed and dropped for Attrition Analysis

Trait or Variable	Career Decidedness		Z	Sig.
	Drop (N=1835)	Stay (N=267)		
Agreeableness	.122**	.027	1.45	.1471
Conscientiousness	.161**	.131*	.47	.6384
Extraversion	.012	.035	-.35	.7263
Neuroticism	-.159**	-.129*	-.47	.6384
Openness	.144**	.126*	.28	.7795
Optimism	.270**	.241**	.47	.6384
Work Drive	.253**	.235**	.27	.7872
Age ⁺	.192**	.104	1.34	.1802
Race ⁺⁺	.068**	.153*	-1.31	.1902
Class [^]	.144**	.048	1.47	.1416
GPA ⁺⁺⁺	.026	.070	-.55	.5823

* $p < .05$. ** $p < .01$. Two-tailed. [^]Spearman Rho Correlation

+ N = 1789, 257. ++ N = 1830, 267. +++ N = 1353, 182.

Table A9

Personality Trait Relationships with Career Decidedness across Time

Big Five and Narrow Traits	Career Decidedness	
	Time 1 (N=267)	Time 2 (N=267)
Agreeableness	.027	.295**
Conscientiousness	.131*	.317**
Extraversion	.035	.372**
Neuroticism	-.129*	-.268**
Openness	.126*	.294**
Optimism	.241**	.278**
Work Drive	.235**	.243**

* $p < .05$. ** $p < .01$. Two-tailed.

Table A10

Personality Trait Relationships with Career Decidedness by Academic Achievement

Big Five and Narrow Traits	Career Decidedness	
	Low GPA [^] (N=124)	High GPA ^{^^} (N=180)
Agreeableness	.255**	.118
Conscientiousness	.193*	.151*
Extraversion	.108	.007
Neuroticism	-.320**	-.080
Openness	.200*	.214**
Optimism	.389**	.221**
Work Drive	.278**	.190*

* $p < .05$. ** $p < .01$. Two-tailed.

[^] Low achievement is defined by those with GPA less than 2.49

^{^^} High achievement is defined by those with GPA equal to 4.0

Table A11

Class Analysis of Significant Trait and Career Decidedness Relationships by GPA

Academic		<u>Big Five Personality Traits</u>						
Year	N	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism	Optimism	Work Drive
<i>Low GPA</i>								
Freshman	61	.283*	.169	.159	.108	-.237	.358**	.364**
Sophomore	48	.077	.197	.029	.358*	-.308*	.392**	.178
Junior	7	.222	.756*	-.117	.490	-.584	.235	.847*
Senior	8	.226	-.442	.191	.273	-.791*	.524	.252
<i>High GPA</i>								
Freshman	161	.190*	.189*	.044	.075	-.055	.204**	.197*
Sophomore	16	.271	.116	-.072	.608*	-.220	.133	-.117
Junior	2	--	--	--	--	--	--	--
Senior	1	--	--	--	--	--	--	--

* p < .05. ** p < .01. Two-tailed.

Table A12

Personality Trait Relationships with Career Decidedness by Gender

Big Five and Narrow Traits	Career Decidedness	
	Female (N=1394)	Male (N=643)
Agreeableness	.122**	.052
Conscientiousness	.154**	.141**
Extraversion	-.026	.117**
Neuroticism	-.150**	-.203**
Openness	.123**	.164**
Optimism	.246**	.330**
Work Drive	.248**	.260**

** p < .01. Two-tailed.

Table A13

Class Analysis of Trait and Career Decidedness Relationships that were significant by Gender

Academic Year	<u>Female Participants</u>		<u>Male Participants</u>	
	Agreeableness	N	Extraversion	N
Freshman	.078*	951	.095*	456
Sophomore	.329**	191	.122	100
Junior	.312*	53	.110	17
Senior	.194	42	-.188	16

* $p < .05$. ** $p < .01$. Two-tailed.

Table A14

Summary of Stepwise (Enter) Multiple Regression Analysis for Personality Traits Predicting Career Decidedness (N = 2046)

	Multiple R	R ²	R ² Change
Optimism	.272**	.074	.074
Work Drive	.334**	.112	.038
Extraversion	.339*	.115	.003
Conscientiousness	.342*	.117	.002

* p < .05. ** p < .01. Two-tailed.

Table A15

Summary of Stepwise (Block) Multiple Regression Analysis for Personality Traits Predicting Career Decidedness (N = 2046)

	Multiple R	R ²	R ² Change
Neuroticism	.159***	.025	.025
Conscientiousness	.207***	.043	.018
Openness	.240***	.058	.015
Optimism	.302***	.089	.033
Work Drive	.338***	.114	.023

*** p < .001. Two-tailed.

Table A16

Summary of Stepwise Multiple Regression Analysis for Demographic Variables Predicting Career Decidedness (N = 2042)

	Multiple R	R ²	R ² Change
Age	.188***	.035	.035
Class	.195*	.038	.003

* p < .05. *** p < .001. Two-tailed.

Table A17

*Summary of Stepwise Multiple Regression Analysis for Personality and Demographic Variables
Predicting Career Decidedness (N = 2042)*

	Multiple R	R ²	R ² Change
Neuroticism	.159***	.025	.025
Conscientiousness	.207***	.043	.018
Openness	.241***	.058	.015
Optimism	.302***	.091	.033
Work Drive	.338***	.114	.023
Age	.370***	.137	.023

*** p < .001. Two-tailed.

Table A18

Summary of Overall Findings by Hypotheses and Research Questions

Hypothesis	Outcome	Comment
1a Positive correlation between Career Decidedness and four of Big 5; Inverse association with Neuroticism	Partially Supported	Extraversion, n.s.
1b Positive correlation between Career Decidedness and two narrow traits of Optimism and Work Drive	Fully Supported	---
2a Increase in Career Decidedness from Freshman through Senior Year	Partially Supported	Lower Senior Year
2b Positive correlation between Age and Career Decidedness	Fully Supported	---
3 Magnitude of Personality and Career Decidedness connection Stronger at Time 1	Not Supported	Stronger Time 2 Relation

Research Question	Outcome
1 Extent personality and decidedness relationship varies:	
By Achievement	
Low	All traits significant except Extraversion
High	Conscientiousness, Openness, Optimism, and Work Drive significantly relate
By Gender	
Females	All traits significant except Extraversion
Males	All traits significant except Agreeableness
2 Variance of Traits	5 out of 7 traits contribute 11.4% (N, C, O, Opt, WD)
3 Variance of Demographic Variables	2 out of 3 Variables contribute 3.8% (Class and Age)
4 Variance of All Traits, Variables	6 out of 10 Traits and Variables contribute 13.7% Optimism and Work Drive alone account for 5.6%

APPENDIX B

Appendix B

INFORMED CONSENT

Project Description: This project is part of ground-breaking research of national significance being done at this university on the relationship of personality variables to key student outcomes. The primary objective is to investigate the relationship between personality traits and career decidedness.

Your participation is vital for this research and we would like to invite you to choose which way you are willing to participate: It takes most students about 15-20 minutes to complete the inventory.

How You Can Participate: If you would please indicate your name, social security number, and email address, we will track whether you stay in school and your subsequent academic performance. In return, we will provide you with follow-up summaries of our findings and ask you would be willing you to complete another questionnaire to see how things are going for you in college. Your individual responses will be stored without your identifying information in a computer file with an arbitrary number assigned to your identifying information. All of your identifying information would be stored along with the same arbitrary number in a locked filing cabinet for the duration of this study (five years) except for being briefly pulled out for possible future contact at the end of the fourth year, or if you leave the university, to assess satisfaction with different aspects of your university experiences, and then destroyed at the end of the study. There will be strict confidentiality of your responses during the study, with only the study directors ever having access to individual responses, and at the end of the study your responses will be anonymous as we will destroy all identifying information. We urge you to choose this form of participation as this is very important research that will generate findings useful for the university and for the academic fields of college student development, planning, and retention, with findings to be summarized in academic journals. When you read the final articles which we will send to all of you whom we have a current Email address for, you can say that you were a part of it! If you have any questions about this, please contact the study director: Dr. John W. Lounsbury, Professor of Psychology, University of Tennessee, Knoxville 37996-0900; Phone: 865-974-3423; Email: jlounsbury@utk.edu.

Your participation is voluntary; you may quit taking this at any time with no penalty (though you will not get a feedback report unless you finish); and your participation in this study will have no effect on your course grade or any other aspect of your student record.

Please indicate at this time which way you would like to participate by clicking the appropriate box:

- I consent to participate and agree to provide my name, social security number, and email.
- I consent that the researchers may contact the Academic Records office to determine whether I am currently enrolled and to obtain my current grade-point-average.

SAMPLE CAREER DECIDEDNESS SCALE

Directions:

Read each sentence. **Circle** the answer that describes you best. Use the following scale:

1=**Strongly Disagree** – you strongly disagree with the sentence; it really does not describe you.

2=**Disagree** – you disagree with the sentence; it does not describe you.

3=**In-between** – you are not sure whether you agree or disagree with this sentence; you are undecided.

4=**Agree** – you agree with this sentence; it describes you.

5=**Strongly Agree** - you strongly agree with the sentence; it really describes you.

Remember, answer all of the questions honestly. **All of your answers will be kept confidential.**

	Strongly Disagree	Disagree	In-Between	Agree	Strongly Agree
1. I have made a definite decision about a career for myself.	1	2	3	4	5
2. I am having a difficult time choosing among different careers.	1	2	3	4	5
3. I am sure about what I eventually want to do for a living.	1	2	3	4	5
4. I am not sure what type of work I want to do when I get out of college.	1	2	3	4	5
5. I know what kind of job I would like to have someday.	1	2	3	4	5
6. I go back and forth on what careers I want to go into.	1	2	3	4	5

VITA

Ryan Michael Smith was born on November 14, 1967 in Akron, OH, where he was raised until the family relocated to Pennsylvania due to downsizings at Firestone. He attended Butler Senior High School before continuing to Grove City College and graduated with a Bachelor of Arts degree in Psychology and minor in Business Administration. After beginning a corporate career as a Marketing Manager, Ryan completed requirements for a Master of Arts degree in Professional Psychology from Geneva College in Beaver Falls, PA while working full-time as a College Relations Specialist and achieving a certificate in Human Resources Management.

After transitioning back to the university environment to serve in several career counseling roles, Ryan chose to continue a dream of pursuing the Ph.D. degree where he is completing studies in Experimental, Industrial and Applied Psychology at the University of Tennessee. During this time, he was selected as a graduate assistant within the MBA Career Services Office, trained as an assessor for the Tennessee Executive Assessment Center, gained experience in organizational development and consulting, and most recently became the Director of Alumni and Executive MBA Career Services at Duke University's Fuqua School of Business. Ryan has presented at both national and international conferences, including the International Conference on Education and the National Career Development Association. He is a current student member of the Society for Industrial and Organizational Psychology (SIOP), and The National Career Development Association (NCDA). Upon completion of the degree, Ryan hopes to extend his passion for executive career management that sparked a pursuit of life-long learning to collaborate with other educators and practitioners to conduct research and share insights that will advance the practice and profession of vocational psychology.