PERSON-ENVIRONMENT CONGRUENCE AND THE IDENTITY

DEVELOPMENT OF YOUNG ADULTS: CONVERGING TWO THEORIES OF

CAREER DEVELOPMENT

A Dissertation

by

BRIAN PAUL LANCASTER

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2006

Major Subject: Educational Psychology

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Approved by:

Chair of Committee,	Linda H. Parrish
Committee Members,	Patricia Lynch
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	Alvin Larke, Jr.
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ABSTRACT

Person-Environment Congruence and the Identity Development of Young Adults:

Converging Two Theories of Career Development. (May 2006)

Brian Paul Lancaster, B.A., Abilene Christian University; M.S., Abilene Christian

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According to Erik Erikson (1950), adolescents and young adults are highly engaged in the process of identity development with intentions to avoid a state of diffusion and role confusion. Several researchers (e.g., Bordin, 1990; Krumboltz, 1979; Lofquist & Dawis, 1991; Super, 1957) in the area of career development have attempted to explain how identity relates to the career selection process for young adults, all seeming to describe a similar construct, that of self identity. Perhaps the most popular theory of career development, Holland's (1959) theory, clarified the identity construct by describing Vocational Identity as the possession of a clear and stable picture of one's goals, interests, and talents. This study sought to clarify similarities between Erikson's theory of identity development and Holland's theory of vocational choice. To assess the relationship between identity formation and career development, 206 college students completed scales measuring ego identity formation, using Marcia's (1966) empirical representation of Erikson's theory, Vocational Identity, measures of congruence, measures of well-being, and Career Indecision.

Holland's Vocational Identity is first compared to Marcia's four ego identity statuses (Diffusion, Foreclosure, Moratorium, and Achieved), indicating a positive relationship to ego identity development. Second, person-environment (P-E) congruence was compared to Erikson's/Marcia's four identity statuses and Vocational Identity, revealing no relationship between the variables. However, strong relationships were apparent for P-E Congruence and well-being measures, including satisfaction with academic major, stability in academic major, and academic achievement.

In further investigation of the identity formation process, identity variables were compared to measures of well-being. Using canonical correlation analysis, the first canonical function showed Vocational Identity as a strong indicator of well-being. Canonical correlation analysis was also used to compare measures of career development with Erikson's/Marcia's ego identity development. Results revealed a strong statistical relationship with the first canonical root, indicating Vocational Identity and career decision making both appear to be strongly related to the Achieved identity status. These findings further support the theoretical connection between ego identity and career development process. Considering limitations of the study, implications for theory and practice and recommendations for future research are provided.

DEDICATION

Without a doubt, this dissertation is dedicated to my wife, Jennifer Lancaster. Her lasting perseverance and enduring support made it a true possibility for me to complete this project.

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There are many people to whom I would like to extend my gratitude for making this dissertation possible. First, I'd like to thank my previous committee members for their assistance and guidance along the way. These include Dr. Jerome Kapes and Dr. Dan Brossart.

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Finally, a sincere thank you to my family, Jennifer, Zachary, Benjamin, Rebecca, my dad and mom, my brothers and sister, for their continual patience and support in helping me through the long journey of completing my dissertation. I couldn't have done it without such a supportive family!

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Background

During the college years, young adults struggle with a variety of issues, including

developing autonomy, establishing identity, managing relationships, and planning for

their future (Cornelius, 1995). These issues become especially difficult given that these

individuals must also make important life changing decisions along the way. According

to Erik Erikson (1968), these young adults are in a stage of development known as

identity versus identity diffusion, meaning that they are seeking a better understanding of

themselves in order to create a clear and stable sense of their own identities.

Several researchers in the area of career development have attempted to explain

how identity relates to the career selection process for young adults, including Bordin's

self and identity (1990), Super's self-concept theory (Super, 1957, 1963, 1990),

Holland's Vocational Identity (1985a), Lofquist and Dawis' self-image construct (1991),

and Kromboltz and his colleagues' self-observation generalization (e.g., Krumboltz,

1979; Mitchell, Jones, & Kromboltz, 1979; Mitchell & Kromboltz, 1996). Although

these researchers use different terminology, they seem to all be describing a similar

construct, that of self-identity. The identity development process, regardless of theory or

terminology, seems to hold a central role in each of the foundational theories mentioned

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This dissertation follows the style and format of the journal entitled *Journal of Career Assessment*.

above. Indeed, these unique theories have enhanced our understanding of the important, yet complicated process of Vocational Identity development. Nevertheless, a recent trend in career development in general (Osipow, 1990; Savickas & Lent, 1994) and the identity development process specifically (Blustein, 1994; Blustein & Noumair, 1996) has been to converge theoretical concepts into a more holistic understanding, which, in effect, could assist researchers and laypersons alike in understanding the process by which young adults select a career path.

Statement of Problem

Identity development has been at the forefront of most theories of career development. Nevertheless, little has been done to cross-validate the identity construct across disparate theories. By doing so, researchers and laypersons alike could approach the identity development of young adults with a more holistic and comprehensive understanding of the identity development process during career development. Converging theoretical concepts into a more holistic understanding has been indicated as a need for both the career development in general (Osipow, 1990; Savickas & Lent, 1996) and the identity development process specifically (Blustein, 1994; Blustein & Noumair, 1996). With Erikson's and Holland's theories being two of the primary theories used to understand identity and how it relates to the career development process, it is expected that the constructs for each of the theories will be empirically related. Specifically, individuals who have higher Vocational Identity using Holland's construct are expected to be more Identity Achieved and less Identity Diffused and Identity Foreclosed. Furthermore, Holland's P-E congruence model shows how individuals have

matched their personalities with the environment in which they interact, with higher congruence indicating a more complete understanding of one's identity and how it relates to the world of work. It is expected that individuals who are more P-E congruent will also be more Identity Achieved within the Erikson model and higher on Vocational Identity within Holland's model. Additionally, it is expected that individuals who have lower P-E congruence will be more Identity Foreclosed and obtain a lower Vocational Identity.

It is further expected that satisfaction, stability, and achievement within a college major will be experienced at a higher level for individuals whose college major is congruent with their Holland type. For both Holland and Erikson, higher levels of identity development indicate more positive behavioral well-being outcomes. It is expected that individuals who are higher in identity variables will also be more satisfied and stable, and will achieve at a higher level than those who are low on the identity variables.

Definition of Terms

The following definitions were used for the purpose of this study:

1. *Academic Achievement* – The academic performance of the person, expressed in the grade point average (GPA) reported by the participant.

2. *Career Decision Making* – The process through which individuals choose a career path, acquiring a clear understanding of oneself (ie., one's interests, values, and strengths), a keen understanding of the world of work, and the ability to synthesize the individual with the world of work (Parsons, 1909).

3. *Congruence* – The level of relationship between the individual (ie., interest) and the environment in which the individual interacts (ie., academic major) (Spokane, 1985).

4. *Continuation in Major* – As one indicator of stability in academic major (environment), Continuation in Major determines the likelihood of an individual to continue within her/his academic major until graduation.

5. *Erikson's/Marcia's Theory* – A term used to depict the theory of ego identity development that has been theoretically extrapolated by Erik Erikson and empirically validated by James Marcia.

6. *Holland Types* – According to Holland (1992), individuals can be categorized as one of six types: Realistic, Investigative, Artistic, Social, Enterprising, or Conventional (RIASEC). These six types are also considered the six model environments in which people interact.

7. *Identity Development Process* – A process derived primarily from Erikson's theory that describes the process that individuals encounter during the late adolescent/early adulthood period. Marcia (1966) quantified this process by developing the following categories to describe the identity status phases that an individual goes through: diffusion, foreclosure, moratorium, and achievement (for a definition of identity status phases, see "Erikson's Theory of Ego Development" in Chapter II).

8. *Identity vs. Identity Diffusion* – Derived from Erik Erikson's early work on identity development (Erikson, 1950), individuals experience this stage during the late adolescent/early adulthood period, seeking a better understanding of oneself in order to create a clear and stable sense of one's own identity (Erikson, 1968).

9. *Indecisiveness* – Career indecisive individuals, as opposed to the more developmental career undecided, are more chronic in their inability to make occupational decisions despite the availability of career related data (see Osipow, Carney, & Barak, 1976). This inability to make a career decision is often related to underlying psychological dysfunction (Fuqua & Hartman, 1983).

10. *Interest-Future Career (I-FC) Congruence* – The level of congruence between inventoried career interests using the Self-Directed Search (SDS; Holland, 1985b) and the participant's expressed future career preference.

11. *Interest-Major (I-M) Congruence* – The level of congruence between inventoried career interests (SDS) and the participant's expressed current academic major.

12. *Person-Environment (P-E) Congruence* – The match between the person and the environment in which the person interacts. Using Holland's theory, higher congruence indicates more positive behavioral and well-being outcomes. [Two indices of congruence will be obtained in this study: interest-major congruence and interest-future career congruence. In each case, the interest profile to be used will be the SDS. These scores will be converted into three-point Holland codes with the use of the *Dictionary of Holland Occupational Codes* (Gottfredson & Holland, 1989) and the system developed by Rosen, Holmberg, and Holland (1989) for the environment (academic major or future career preference).]

13. *Satisfaction with Major* – As a behavioral outcome measure of the P-E interaction, satisfaction with major refers to the self-reported level of positive feeling that the participant expresses in regard to the major (environment) in which that person

interacts. A single-item response will be used to measure satisfaction with major, asking the participant the level of satisfaction with his/her academic major.

14. *Self-Efficacy* – An individual's belief in his or her ability to perform a particular task (Bandura, 1977).

15. *Stability in Major* – As another well-being outcome measure, stability refers to the consistency of a person within an environment over time. Within a college environment, arguably the best determiner of environmental stability is in participant's measurable length of time (antecedent behavior) in the academic major and the student's self-proclaimed likelihood to continue in that academic major (anticipatory behavior). Two separate scores are derived for this measure, Time in Major and Continuation in Major.

16. *Time in Major* – As one indicator of stability in academic major (environment), Time in Major is determined by a single-item self-reported response measuring the length in months that the participant has been in her/his current academic major.

17. *Vocational Identity (Holland's Theory)* – An indictor of the degree of clarity of the picture of one's goals, interests, personality, and talents (Holland, 1992). Vocational Identity leads to relatively untroubled decision-making and the confidence in making the right decisions in the face of environmental obstacles (Holland, Gottfredson, & Power, 1980a).

Research Questions

The following research questions were the focus of this study:

1. Is there a relationship between Vocational Identity within Holland's theory and Marcia's (1966) four statuses of identity formation derived from Erikson's theory? If so, how do these four identity statuses predict Vocational Identity?

2. Is there a relationship between P-E congruence (interest-major and interest-future career), Erikson's/Marcia's four identity statuses, and Vocational Identity? If so, how do identity measures predict P-E congruence?

3. As replicable upon previous research, what is the relationship between P-E congruence and satisfaction with major, stability in major, and academic achievement?

4. What is the relationship between Holland's and Erikson's/Marcia's identity statuses in predicting satisfaction with major, stability in major, and academic achievement?

5. Using a combination of career development measures (career decision making, Vocational Identity, and P-E congruence), what is the relationship between career development and Erikson's/Marcia's identity statuses?

Limitations

The following are limitations to this study:

1. The sample included two separate collections with varying differences between the groups. Although few differences were revealed on the primary variables used in this study, obvious demographic differences were revealed, especially in comparison to the university population.

2. Given that the participants in this study self-reported all responses in an uncontrolled environment (packets were completed during participant's personal

time), it is presumed that these responses are accurate to the extent that participants were honest and sincere in their responses.

3. Although the instruments used in this study have shown positive psychometric properties, unaccounted-for variance may further limit the explanatory capacity of these results.

4. Because this study was voluntary, individuals who chose to participate in the study could have created a sampling bias.

5. This study involved the use of multivariate correlation analysis. The sensitivity of this procedure to error substantiates the need to replicate these results on different samples.

6. Two measures that were used in this study employed a single-item response, Satisfaction with Major and Stability in Major. Although support has been provided for single-item responses (Robinson, Shaver, & Wrightsman, 1991), a more extensive scaling of these measures would have been preferred. However, due to the combined length of instruments in this study, single-item responses were used.

Assumptions

The following assumptions were considered in this study:

1. The sample is representative of the population from which it is drawn.

2. The student of record was the actual person who completed each instrument.

3. Each packet was entirely completed by the same individual.

4. Individual scores were based on the appropriate interval for each instrument.

Significance of the Study

This study sought to clarify similarities of two popular theories of career development, Erikson's/Marcia's identity development theory and how it relates to facets of Holland's theory of career development. This study can be useful to researchers in showing further evidence of the similarity or dissimilarity of the identity construct across these two highly researched theories. It also has the potential to show how the identity constructs interact with primary and secondary facets of Holland's theory. Finally, this study could aid career counselors in better understanding the identity development of their clients in a more holistic and comprehensive manner, especially in regard to the P-E congruence and how it relates to the identity development process of young adults.

Design of the Dissertation

This research is described in five chapters. Chapter I presents an introduction and a statement of the problem, definition of terms, research questions, limitations, assumptions, and the significance of the study. Chapter II provides a review of the literature pertaining to the two theories of career development and previous studies that have focused on the identity construct and how congruence and well-being measures interrelate with this dynamic construct. Chapter III describes the methodology of the study. Chapter IV delineates the results of the analysis. Chapter V summarizes the findings and discusses the implications for both researchers and practitioners, as well as recommendations for further research.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

This chapter reviews several areas of the literature that support the theoretical

and empirical assumptions upon which this research is based. To begin, theoretical

convergence will be reviewed including recent initiatives that have spurred interest in

comparing and analyzing theories within the field of career psychology and more

specifically within the area of identity development. For the two sections that follow, an

overview of the two theories most commonly associated with identity in career

development, Erikson's/Marcia's and Holland's theories, are discussed. Within each of

these discussions, a theoretical overview is presented, followed by a review of the

empirical evidence displayed in the literature.

Theoretical Convergence

Within career development, arguably no other concept is more central to the

major theories than that of the identity development process. Since the beginning days

of Parsons' trait-and-factor theory (Parsons, 1909), a person's identity has been an

important characteristic in most major theories of career development. As a whole, these

theories include a relatively stable aspect of the individual that is thought to play a

significant role in the career exploration and development process (Blustein, 1994;

Osipow, 1983). The identity development process is also pivotal for theorists in fields

other than career development, including social psychology, personality theory, feminist

thought, adolescent psychology, and psychoanalytic theory (Blustein & Noumair, 1996).

For each of these fields, a conceptualization of the self and identity emerges that reflects a centralized self-concept, complex enough to reflect an assortment of terms and definitions yet simple enough to describe the basic differences that make each individual unique. It is this uniqueness, however, that stifles many attempts to explain synthetic variables such as an individual's self and identity. Nevertheless, by approaching such a confounding construct with more than one theoretical approach, it is hoped that a clearer conceptual understanding of the identity concept as a whole may result, having the potential of enhancing the understanding of an individual's progress through life's stages of development.

Many researchers and theorists attest to the belief that unifying fragmented theoretical concepts creates a more holistic and comprehensive understanding of important concepts such as the self and identity. For example, noting the plethora of competing theories of psychotherapy, Goldfried and Padawer (1982) concluded that although theoretical diversity may be a sign of a field's healthy development, "there nonetheless comes a time when one needs to question where fruitful diversity ends and where chaos begins" (p. 3). Staats (1991) also showed concern about the fragmentation of psychology, arguing that the field in general demonstrates "many unrelated methods, findings, problems, theoretical languages, schismatic issues, and philosophical positions" (p. 899).

Recognizing the trend of plurality in career psychology and the recent calls for integration, Savickas and Lent (1994) compiled articles from many well-known theorists in the career development field to discuss the issue of convergence in career

development theories. They point out that career psychology, like psychotherapy, is characterized by an assortment of theories, philosophical positions, and research camps. Although the calls for unification of career theories and research have been relatively few in comparison to other fields such as psychotherapy, they do point out that many recent trends in career development seem to indicate an overall movement toward unification of theoretical concepts. For example, Krumboltz and Nichols (1990) compared three theories of career decision making to Krumboltz's social learning theory. In a combining effort, they successfully integrated these theories into Ford's (1987) overarching conceptual model, the living systems framework. The living systems framework examines how an individual carries out transactions with her/his environment and through that transaction how her/his biological, psychological, behavioral and environmental elements change or remain constant over time (Ford & Lerner, 1992). This extensive framework has provided researchers, professionals, and students a better understanding of how multiple elements interact and shape a person's life.

Osipow (1990) further inspired thought toward the convergence of career development theories by describing a group of four prominent and long-standing theories of career development: trait and factor (Holland, 1985a), social learning (Mitchell et al., 1979), developmental (Super, Starishevsky, Matlin, & Jordaan, 1963), and work adjustment (Dawis & Lofquist, 1984). He asserted that these four theories have come to resemble each other in important ways and by converging these theories a more comprehensive and extensive approach can be attained.

Osipow's article inspired fellow theorist Donald Super, who in turn proposed a conference to explore in greater depth the possibilities that might exist in convergence of career development theories. About the same time, Super (1992) responded to the question of "which theory is better" by explaining that the question is specious because no theory in itself is sufficient. The theories are reliant upon each other to comprehensively address the complexity of career development (Savickas & Lent, 1994). Furthermore, approaching a research topic from different perspectives provides a deeper meaning to the topic being studied.

A conference eventually convened at Michigan State University, headed by Mark Savickas and Bob Lent (Savickas & Lent, 1994), to address the issue of convergence in the career development field and to respond to what had been referred to by some as the "crisis of disunity" facing the field of psychology (Savickas & Lent, 1994). Listed as the five key integrative ideas on convergence were person-environment congruence, identity development, environmental influences, self-efficacy, and decision making. Several foundational theorists and notable researchers attended this conference with the primary intention of determining focal areas of career psychology that were considered conceptual bridges of convergence. These theorists included John D. Krumboltz, Rene V. Dawis, John L. Holland, Edward S. Bordin, and Donald E. Super.

From this conference it was soon realized that convergence was more easily proposed and discussed than it was actually achieved (Spokane, 1994). As a follow-up to this landmark conference, these same theorists also agreed to expand upon their presentations by writing chapters in a follow-up book devoted toward the same

convergence agenda (Savickas & Lent, 1994). This book provides the first introspective debate on the issues of converging career choice and development theories from the perspectives of both researchers and practitioners. In review of these chapters, some authors seemed to be strongly in favor of integrative pursuits while others strongly cautioned toward the contrary. As a result of the conference and the book that ensued, there was no endorsement of one single theory but rather a seeking to "nurture consideration of cross-theoretical linkages in the career literature" (Savickas & Lent, 1994, p. 5).

Within the context of identity development, some effort has been made to consolidate theoretical ideas into a more comprehensive understanding of the concept. David Blustein (1994) describes a central concept of identity development as useful in three important ways. First, research and theory on identity development have gathered a diversity of empirical methodologies and paradigms that have provided a great deal of insight on how adolescents perceive their environment and construct their belief systems and self-perceptions (Adams, Gullotta, & Montemayor, 1992; Waterman, 1985). Second, although ego identity initially grew out of psychoanalytic theory, other perspectives have also explained the identity development process, providing a vast array of theoretical vantage points. This plethora of approaches has in effect encouraged a more theoretically convergent view of the construct. Third, the literature on ego identity has increased the attention on contextual factors in understanding the antecedents of the identity formation process (Markstrom-Adams, 1992; Vondracek, 1992).

As previously discussed, the identity development process includes an assortment of theoretical approaches and definitions. From these attempts at explaining the identity formation process and how it relates to career development, two theories emerge among the favorites, Erikson's ego identity development theory and Holland's theory of vocational choice. In explaining the crucial process of an adolescent's identity development, each of these theories explains how youth progress through the career exploration and selection process, albeit with varying definitions and modalities, but in general showing parsimonious accuracy. The following provides an overview, key components, and empirical evidence for each of the two theories.

Erikson's/Marcia's Theory of Ego Development

Theoretical Overview. Erik Erikson provided the field of psychology with a systematic extension of Freud's view of the role of the ego in personality functioning. Freud explained the resolution of one's inner conflicts by formulating a structure of the mind by using the id, ego, and superego. Freud considered the id as a "seething cauldron" containing the primitive urges and desires, continuously seeking expression in external reality (Ryckman, 1993). The ego served as a mechanism by which impulses and urges were directed and organized by the powerful id. The superego served as a parental conscience and an impetus toward idealization of oneself. In Freud's view, the ego was conceived as a relatively weak agency that acted subservient to the powerful id. Erikson postulated that the ego acts independently of the emotions and motivations of the id (Ryckman, 1993). In further contrast with the id construct, the ego operates devoid of any biological urges or psychological defenses. Rather, this construct

functions to assist an individual with building a strong self-awareness that helps to

resolve inner conflicts and an ability to adapt to environmental challenges. Like Freud,

Erikson believed that human development progressed through a series of stages that

unfold in a predetermined sequence. According to Erikson, each stage is marked by key

psychosocial crises, or turning points (Erikson, 1964). Each turning point creates an

unavoidable period of decisions for the individual that also positively or negatively

impacts the individual's development. The progression of ego identity development

occurs through personal exploration in philosophical, religious, political, vocational, and

interpersonal domains (Erikson, 1968). Overall, Erikson believed that the tendency for

individuals is to progress toward a stable and strong self-identity.

According to Erikson (1968) a coherent ego identity refers to "a self-sameness

and continuity…[in] the style of one's individuality" (p. 50). According to Erikson

(1968), adolescents between the ages of 13 and 19 are increasingly aware of their self-

identities. During late adolescence (approximately 17-19 years of age) an individual

pursues the formation of a coherent ego, which indicates a set of values, belief systems,

goals, and attitudes that provides individuals with a sense of coherence and continuity in

their adult lives (Blustein & Noumair, 1996; Erikson, 1968). The ability to resolve the

identity versus identity diffusion stage results in a stable ego identity. An inability to

resolve this identity conflict results in an inability to perform many of the necessary

developmental tasks that are required by individuals in this stage of development, one of

which is the career development process. In fact, Erikson observed that the attainment

of identity in the area of career development as being one of the most difficult obstacles

and that "in general, it is the inability to settle on an occupational identity which most disturbs young people" (Erikson, 1968, p. 132).

Erikson suggested that the identity formation process includes two related tasks that typically underscore the characteristics of the late adolescent stage: exploration and commitment. Adolescents begin to pursue the exploration of philosophical, religious, political, vocational, and interpersonal domains, all of which relate to the adolescent's interpersonal beliefs and values. It is hoped that this process will equip the individual with the ability to commit to a stable sense of self-definition and an inner sense of stability (Marcia, 1966).

Marcia's Ego Identity Statuses. Several more recent theorists such as Grotevant (1987), Marcia (1988), Waterman (1984), and Blustein (1994) have expanded upon the idea of the identity formation process by providing further insights and expansion of the concept. James Marcia (1966) operationalized Erikson's identity versus identity diffusion psychosocial developmental task by measuring how adolescents form an inner sense of identity. Those who are classified as being more identity diffused tend to have a more poorly organized sense of self, resulting in individuals who are much more present-oriented rather than future-oriented (Marcia, 1993). These individuals also tend to avoid dealing with personal problems, conflicts, and decisions (Berzonsky, 1992, 1993). According to Marcia, the identity versus identity diffusion task is resolved in four distinct ways: diffusion, foreclosure, moratorium, and achievement. These four resolutions also represent different ego identity statuses. Furthermore, these four statuses are classified according to how an individual explores (sorting through a variety

of potential identity choices) and commits (deciding on one or more sets of interpersonal beliefs, goals, and values). In identity diffusion, the individual has neither explored nor made a commitment to a set of interpersonal beliefs and values (low exploration, low commitment). Individuals who are in the foreclosure stage tend to make a commitment based on external influences, with little or no exploration of alternatives (low exploration, high commitment). Moratorium describes individuals who are currently exploring but have yet to make any firm commitment to a set of beliefs and values (high exploration, low commitment). Finally, Identity Achieved indicates those who have been through Moratorium and have formed stable commitments based on their new sense of identity (high exploration, high commitment; see Marcia, 1993, for a more thorough review of the ego identity statuses).

Empirical Evidence for Erikson's/Marcia's Theory. Erikson's/Marcia's formulation of the four ego identity statuses has been shown to be quite parsimonious and to possess adequate construct validity (Waterman, 1988). Studies have shown that the variations in Erikson's/Marcia's ego identity statuses are associated in expected ways with several other constructs, including parental relationship factors (Guerra & Braungart-Rieker, 1999; Lucas, 1997; Marcia, 1980), attachment to caregivers (Blustein, Devenis, & Kidney, 1989; DeMania, 1999; Lucas, 1997), and anxiety and depression for the moratorium identity status (Kidwell, Dunham, Bacho, Pastorino, & Portes, 1995), among other constructs.

Considerable research has suggested that the ego identity formation process and the career development process in late adolescence are strongly related (Blustein et al.,

1989; Flum, 1995; Grotevant & Thorbecke, 1982; Savickas, 1985). A few of these studies have also indicated a connection between identity formation statuses and the attainment of a crystallized Vocational Identity (Grotevant & Thorbecke, 1982; Savickas, 1985). For example, Savickas (1985) demonstrated a relationship between Holland's Vocational Identity and each of the four ego identity statuses by assessing both the Medical Career Development Inventory (Savickas, 1984) and the Vocational Identity Scale (Holland & Holland, 1977) on freshmen and sophomore college students with the same career aspirations. The relationship between Vocational Identity and the ego identity statuses existed on both the degree of career development and the progression toward ego identity achievement. These findings prompted further investigations of this connection and invigorated researchers with the notion of a potentially effective model of identity development and how it can be useful for the career development field.

One study conducted by Blustein et al. (1989) further expanded on the relationship between career development and the identity formation process by assessing the variability in career exploration and occupational commitment in relation to the manner by which individuals explore and commit to their ego identity in late adolescence. Their findings suggested a strong relationship between identity development and career development in an expected and predictable fashion.

Adding support to the conclusions by Blustein et al. (1989), Lucas (1997) examined the gender differences in identity and career development and psychological separation from parents. Using several indicators of career development, including career exploration, career decidedness, comfort with one's decisions, and self-clarity,

Lucas indicated that for both men and women greater levels of identity development (as assessed by ego identity status, Bennion & Adams, 1986) were positively related to greater levels of career development. Lucas also indicated a statistically higher level of identity achieved in females than men. Nevertheless, other researchers (Blustein et al., 1989; Waterman, 1985) have concluded that gender does not have an appreciable or consistent influence on the statuses of identity formation.

Further explaining the relationship between career development and the identity formation process, DeMania (1999) applied Holland's (1959) theory of career choice with that of Erikson's (1968) ego identity development. For this study, ego identity status was used as a measure of exploration in the identity formation process. These statuses were categorized as dichotomous scoring, with "has explored" (scoring of 1) being higher scores on the Identity Achieved and Moratorium statuses and "has not explored" (scoring of 0) as higher scores on the Identity Foreclosed and Identity Diffuse statuses. Using the Extended Object Measures of Ego-Identity Status (EOM-EIS; Bennion & Adams, 1986) as a means of assessing a person's progression in exploratory activities, DeMania (1999) hypothesized that higher exploration would predict greater levels of both Person-Environment (P-E) congruence and subjective satisfaction with academic major choices and career preferences. P-E congruence is match between the person and the environment in which the person interacts. For this study the person was measured by the Vocational Preference Inventory (Holland, 1985c) and the measure of the environment was measured by both the person's current academic major and future career preference. Holland's P-E congruence model was combined with subjective

satisfaction to indicate the level of satisfaction with the person's current academic major and future career preference. No statistically significant relationship surfaced using ego identity as a measure of one's progress in career exploration. Nevertheless, in predicting subjective satisfaction and congruence, there was a predictive relationship using facilitated exploration, indicated by a measure assessing attachment to caregivers combined with the ego identity measure.

The DeMania (199) study reveals little to no connection between Holland's P-E congruence and level of satisfaction with that of dichotomous model of ego identity status, suggesting that the exploratory process of a person's identity is not related to the level of congruence between a person and her/his environment, nor to the reported level of satisfaction with academic major and career preference. The findings of DeMania (1999) seem to cast doubt on the relationship between career development and the identity formation process when using an individual's ego identity status as a measure of exploration, contrasting with previous research that suggests a connection between the two areas (e.g., Blustein et al., 1989; Lucas, 1997). Nevertheless, due to the dichotomous scoring of the ego identity statuses, little is known about the relationship of each identity status with that of P-E congruence and subjective satisfaction. Furthermore, it is also not known how ego identity statuses compare to other measures of well-being, namely academic achievement and stability in major.

Holland's Theory of Vocational Choice

Theoretical Overview. Holland's (1959) theory of career choice was one of the first theories in career development that provided a useful framework for individuals to

understand themselves in a standardized way and to choose an environment based on the level of fit or interaction between the individual's personality types and the world of work that is chosen. In a precursor to the article on the Vocational Preference Inventory (1959), Holland describes the essence of his theory, describing the relationship between a person and the environment:

> The choice of an occupation is an expressive act which reflects the person's motivation, knowledge, personality, and ability. Occupations represent a way of life, an environment rather than a set of isolated work functions or skills. To work as a carpenter means not only to have a certain status, community role, and a special pattern of living. In this sense, the choice of an occupational title represents several kinds of information: the S's motivation, his knowledge of the occupation in question, his insight and understanding of himself, and his abilities. In short, item responses may be thought of as limited but useful expressive or projective protocols. (Holland, 1958, p. 336)

According to Holland (1992), there are two domains that interact within an individual, the "personality" and the "environment." Within the personality, individuals can be categorized as one of six types: Realistic, Investigative, Artistic, Social, Enterprising, or Conventional (RIASEC). These six types are also considered the six model environments in which people interact. People search for environments that will be congruent with their personality type, thus allowing them to exercise their skills and abilities, express their attitudes and values, and manage the problems and roles that are demanded within their environment. Finally, behavior is determined by an interaction

between personality and environment (Holland, 1992). The RIASEC constructs are the focal point of Holland's theory. In order to better understand how individuals interact within their environment, Holland proposed secondary constructs, including congruence, consistency, differentiation, coherence, and Vocational Identity. Used cohesively or individually, these measures are "expected to contribute to the stability of [vocational] plans" (Holland, 1985a, p. 137), with lower scores indicating a higher need for career assistance.

Congruence. Holland's congruence concept, the primary theoretical-empirical descriptor of the P-E congruence model, has been used extensively in the career development field (Chartrand & Walsh, 1999; Holland, 1985a; Lofquist & Dawis, 1991; Spokane, 1985). Essentially, congruence is a match between a person and an environment in which that person interacts (Spokane, 1985). In a college environment, the student's major has been shown to be an effective empirical measure of the environment in which he or she interacts (Miller, Newell, Springer, & Wells, 1992). Congruent individuals in a college environment are students who seek and secure majors that are consistent with (or a close approximation to) their personality type.

According to Holland, the interaction between the person and the environment predicts and explains the initial career/occupational choice and the well-being outcome of the individual (Spokane, 1996). Theoretically, the higher congruence index scores indicate more positive behavioral and well-being outcomes. Spokane's (1985) comprehensive review of P-E congruence research includes substantial evidence that

congruence is positively correlated with a number of well-being outcomes, such as academic performance (or achievement), satisfaction, and stability of choice.

Vocational Identity. As mentioned previously, other foundational theorists have applied the identity development process to that of career development. Using the P-E congruence model, John Holland operationalized the concept of identity in relation to career development and sought to understand how and why people choose certain occupations over others (Holland, 1985a; Holland et al., 1980b). This concept grew out of an effort to study what being undecided about an occupation or career meant to a person (Holland et al., 1980b). According to Holland, "personal identity is defined as the possession of a clear and stable picture of one's goals, interests, and talents" (1985a, p. 5). Vocational Identity refers to both the clarity and stability of a person's goals and self-perceptions, while vicariously including clarity and explicitness of the environment in which the person works and interacts. The quantitative expression of this construct is expressed in an individual's score on the Vocational Identity scale of *My Vocational Situation* (MVS; Holland, Daiger, & Power, 1980a). Higher scores on Vocational Identity indicate the stability of decision making and confidence in one's ability to make good decisions in the face of confusing environmental ambiguities (Reardon & Lenz, 1999). Furthermore, Tinsley, Bowman, and York (1989) factor analyzed several measures of career development including the MVS Vocational Identity. Findings indicated that although Vocational Identity seemed vaguely attributable to several latent factors, clarity and crystallization of goals seemed to be the consistent indicators for this measure.

In Holland's construction of Vocational Identity, some aspects of Erikson's (1968) identity constructions were adopted. Both theories idealize a clear and stable sense of a person's identity, which includes a keen self-awareness in regard to the person's options as well as a crystallized understanding in regard to the person's career possibilities. Furthermore, Holland (1985a) emphasized that individuals with a high degree of Vocational Identity are those who have narrowed their choices to a limited number of goals within a small number of categories. This emphasis is strikingly similar to that of Erikson's notion that those individuals who have gone through the process of narrowing choices through a high level of personal exploration have successfully reached a point of confidence in their commitment to a career choice.

Erikson and Holland further agreed that career development represents one of the central challenges of the identity formation process, and that neglecting this process could result in a foreclosed or incongruent state, respectively. Furthermore, both of these theorists explain identity in regard to the environment within which the individual interacts, with Erikson focusing on a strong identity formation as a means to strengthen self-awareness that results in adaptability to environmental challenges, and Holland focusing on a strong Vocational Identity as a means by which an individual successfully makes decisions that provide confidence in his or her ability to choose a more congruent environment.

Empirical Evidence for Holland's Theory. Holland's theory of career choice is one of the most researched and analyzed constructs of the career development process. Much of the research has focused on the P-E congruence model and how it

predicts higher performance and well-being. For example, Spokane (1985) summarized

63 correlational studies of Holland's P-E congruence model and the prediction of several

outcome measures and reported that congruence related positively to several outcome

variables, such as academic performance, satisfaction, and stability of college major.

Although Spokane's (1985) findings suggest a generally positive relationship between

congruence and these well-being outcome measures, the results were mixed, with several

studies (i.e., Healy & Mourton, 1984; Holland, 1968; Rand, 1968) finding weak or non-

significant relationships. Furthermore, many of the studies (i.e., Morrow, 1971;

Nafziger, Holland, & Gottfredson, 1975; Reutefors, Schneider, & Overton, 1979; Walsh

& Barrow, 1971) reviewed in Spokane's article used college students and the selection

of academic major as the environmental measure, with overall mixed results in the

connection between P-E congruence and well-being measures. Recent meta-analyses of

research on the use of congruence to predict satisfaction have also been inconclusive

(e.g., Assouline & Meir, 1987; Tranberg, Slane, & Eckeberg, 1993). Assouline and Meir

(1987) meta-analyzed 41 studies and reported that the mean correlations between

congruence and satisfaction, stability, and achievement were .21, .15, and .06,

respectively, with a "magic .30 correlational plateau" for satisfaction. In another meta-

analysis, Tranberg, Slane, and Ekeberg (1993) reported mean correlation of .20 for the

relationship between congruence and satisfaction. Both of these groups of authors noted,

however, that this relationship may highly depend on the method of assessment for both

the congruence measure as well as the outcome measures.

The measure of Vocational Identity has also received a great amount of empirical investigation, with over 50 published studies using this scale (Holland, Johnston, & Asama, 1993). "In short, the evidence about the Identity scale implies that it is a general measure of psychological health, although it was developed to assess only vocational decision-making difficulties and related problems" (Holland et al., 1993, p. 8). Given the simplicity of the scale and the initially modest intentions when it was proposed, this vocational tool appears to be a sensitive measure of many aspects of psychological well-being. In fact, Holland (1997) now says that "the evidence for the validity of the [Vocational Identity] scale is substantial and relatively unambiguous" (p. 150).

Finally, many studies have argued that career indecisiveness plays a significant impact on the identity development process of young adults (Blustein et al., 1989; Holland et al., 1980b; Lucas, 1997). Indecisive individuals show an inability to make a career decision, and commonly demonstrate underlying psychological dysfunction (Hartman, Fuqua, & Hartman, 1983). These individuals are different from those who are developmentally undecided in that the latter is developmentally appropriate (Salamone (1982). Fuqua and Hartman (1983) have suggested that the differential diagnosis and treatment of high school and college students who experience chronic career indecision is important, especially early in the developmental process. Identity development has been linked to career indecisiveness in that those with poorer identity development have been found to display greater career indecision (Guerra & Braungart-Rieker, 1999; Holland et al., 1980b). For example, Guerra and Braungart-Rieker (1999) observed that

career indecision was predicted by a greater degree of identity moratorium and diffusion in college students.

One of the more prominent measures of career indecision is that of the Career Decision Scale (CDS; Osipow et al., 1976). Previous research has often combined the CDS with other measures to obtain a more comprehensive understanding of the career development process (e.g., Guerra & Braungart-Rieker, 1999; Sweeney & Schill, 1998). In comparing four different career indecision instruments using factor analysis, Tinsley et al. (1989) found that the CDS indecisiveness scale constituted one clearly defined indecision factor. Furthermore, Holland et al. (1993) indicated that the CDS appears to be similar to the Vocational Identity scale of Holland's MVS (Holland et al., 1980a). Further investigation of the relationship between identity development and career indecision is needed.

Summary

This study seeks to explore the relationship between two theoretical camps in regard to the identity development process. By doing so, it is hoped that researchers and laypersons will have a more holistic and comprehensive understanding of the identity development process and how it relates to the career development, two seemingly correlated processes in the development of young adults. First, analysis will be performed to determine the relationship between Vocational Identity within Holland's theory and the four statuses found in Marcia's (1966) empirical measure of Erikson's theory. Using Holland's P-E congruence model, this study also seeks to determine how identity development, using both theoretical camps, interacts with congruence between a

person and the environment in which the person engages. The P-E congruence and

identity measures are also analyzed in predicting the level of satisfaction with major,

stability in major, and academic achievement, three outcome measures of well-being.

Finally, the identity measures combined are compared to career development measures

to further investigate how identity development interacts with the career development

process for young adults.

CHAPTER III

METHODOLOGY

Narrative

The participants for this study were drawn from courses on the campus of a major Research I university in the southwest part of the United States. Using a university sample is consistent with previous research in the area of career development, and is further consistent with the age into which the identity versus identity diffusion occurs for late adolescence (Erikson, 1968). Furthermore, each of the measures used in this study were normed on a traditional-aged university sample. To obtain a large sample size for this research, it was decided a priori that a minimum of 200 participants was needed. This number was determined based on a power analysis that was performed to determine the number of participants necessary to maintain the power of the statistical test and to maximize the ability to determine a possible effect (Cohen, 1988). In general, power is the probability that a statistical test will detect an effect, given the sample size and whether an effect actually exists.

Because this study employs multiple variables in the same analysis, with each of these variables displaying differing effect size results in previous research, Cohen's (1988) conventional medium effect size of .25 was used. The use of this effect size has received support in the behavioral science literature (Haase, 1974; Raudenbush & Liu, 2000; Rossi, 1990; Sedlmeier & Gigerenzer, 1989; Valentine & Cooper, 2003). Cohen's (1988) established convention for power (.80) was also used in this study. Cohen's (1988) sample size tables provide a means of determining the best sample size given the

alpha, expected effect size, and power. With alpha set at .05, degrees of freedom for the numerator set at 5, effect size at .25, and power set at .80, it was determined that 200 participants would be sufficient to conduct the statistical analysis.

First Collection of Data. Due to the need to acquire a sample of over 200 participants, four courses were initially selected prior to the fall 2004 academic semester at the identified university. Two of these courses were general political science courses (State and Local Government), one course was a general lower level chemistry course (Introduction to Chemistry), and one course was a general lower level education course (Understanding Special Populations). Each of the four selected courses included over 120 registered students. These courses are a part of the university's Core Curriculum, a body of varying courses designated as mandatory for all undergraduate degree-seeking students. Although the number of credit hours to complete the core curriculum varies for many academic majors, the overall scope of the core curriculum is to provide a breadth of understanding that acts to enrich and broaden the student's academic preparation. Due to the generality of this curriculum, courses tend to be quite heterogeneous in age, gender, ethnicity, academic major, and classification level, representing all facets of the university. These courses also tend to be larger sized courses, thus providing a larger pool from which to draw.

A total of 240 packets were initially assembled, which included the informed consent form, questionnaire (see Appendix A), and all instruments. From this group, 164 participants returned their packets, resulting in a 68.3% return rate (see Table 1). Six packets were considered incomplete, resulting in 158 completed packets.

Table 1

**Number of Packets Made, Returned, Incomplete, and Complete for the Two
Collection Groups and Total Sample**

Collection	Packets Made	Packets Returned	Percent Returned	Incomplete Packets	Completed Packets
First Collection	240	164	68.3%	6	158
Second Collection	50	49	98.0%	1	48
Total Sample	290	213	73.4%	7	206

Table 2 contains percentage distributions for categorical data, showing the first and second collections, the overall group, and the university population from which the two collection groups were drawn. In comparison to the university population for gender (males = 52.1%, females = 47.9%), the first collection indicated a greater proportion of females (82.9%) to males (17.1%). The mean age of the participants was 20 years, ranging in age from 17 to 29 years. Distribution by College (see Table 2) indicated a higher proportion of participants in College of Liberal Arts (31%) when compared to the university population (15.8%), with no representation for College of Architecture, Bush School of Government, and College of Geoscience. According to ethnicity, the participants in this group primarily identified themselves as White (81.7%,

Table 2

Distribution Comparison by Gender, College, Classification, and Ethnicity Comparing Fall 2004 University Statistics With First Collection, Second Collection, and Total Sample

Gender	1st Collection %	2nd Collection %	Total Collection %	University %
Gender				
Males	17.1	52.1	25.2	52.1
Females	82.9	47.9	74.8	47.9
College				
Agriculture	8.9	2.1	7.3	14.4
Architecture	-	-	-	4.0
Business	7.0	-	5.3	10.9
Education	31.0	-	23.8	11.6
Engineering	4.4	-	3.4	19.8
Bush School of Govt.	-	-	-	.4
Geosciences	-	-	-	1.7
Liberal Arts	18.4	97.9	36.9	15.8
Science	11.4	-	8.7	6.2
Vet. Medicine	7.0	-	5.3	6.0
General Studies	12.0	-	9.2	9.0
Classification Level				
Freshman	20.9	8.3	18.0	23.7
Sophomore	37.3	37.5	37.4	20.8
Junior	27.9	25.0	27.2	25.1
Senior	13.9	29.2	17.5	30.4
Ethnicity				
White	81.7	95.8	85.0	75.6
Black	3.2	-	2.4	2.5
Hispanic	12.7	2.1	10.2	9.3
Asian	1.9	2.1	1.9	3.1
American Indian	0.6	-	0.5	0.5
International	-	-	-	8.2
Unknown/Other	-	-	-	0.7

Note. 1st Collection n=158; 2nd Collection n=48; Total Collection n=206; University Population N=44,435.

$\underline{n}$ = 129). Other ethnic groups represented in this group include Hispanic or Latino

(12.7%, $\underline{n}$ = 20), Black or African American (3.2%, $\underline{n}$ = 5), Asian (1.9%, $\underline{n}$ = 3), and

American Indian or Alaska Native (.6%, $\underline{n}$ = 1). Small differences were observed in

comparison to university population percentages on White (75.6%), Hispanic (9.3%),

and Asian (3.1%). The level of classification for participants (see Table 2) indicated

differences on Sophomores (37.3%) and Seniors (13.9%) when compared to the

university population means (Sophomore = 20.8%, Senior = 30.4%).

Second Collection of Data. To rectify the need for more completed packets, an

additional 50 packets were created and two additional classes were selected. These two

classes were Introduction to Political Research Methods and American Foreign Policy.

Because these upper-level classes are generally designed to fit into degrees for only a

certain few academic majors, the makeup of the students in these two classes were

mostly political science majors (87.5%). Nevertheless, due to the limited availability of

classes at the end of the semester and the concern over possible time lapses if delayed

until the next semester, participants for these courses were considered beneficial to the

total sample. Furthermore, unlike the first collection, these two classes were provided

the opportunity for extra credit if a packet was completed. The extra credit amounted to

two extra points out of 100 overall toward the participant's semester grade.

An additional 50 packets were assembled and distributed, with 49 packets

returned, resulting in a 98% return rate for the second collection. Of these, only one

packet was considered incomplete, resulting in 48 completed packets. Of this group, 23

were females (47.9%) and 25 were males (52.1%), mirroring the university percentages

for gender (see Table 2). The mean age of the participants was 20.4 years, ranging in age from 18 to 24 years. The participants in this group primarily identified themselves as White (95.8%, $\underline{n}$ = 46). Other ethnic groups represented in this group include Hispanic or Latino (2.1%, $\underline{n}$ = 1) and Asian (2.1%, $\underline{n}$ = 1). These representations differed to both the first collection as well as the university percentages (see Table 2). The classification level percentages for the second collection was also slightly different to that of the first collection and university percentages, with only 8.3% being freshmen, 37.5% being sophomore, 25% being junior, and 29% being senior. In comparison to the first collection, fewer freshmen and more seniors were apparent. In comparison to the university population, approximately the same percentages were apparent for juniors and seniors, but freshmen percentages were lower and sophomore percentages were higher for the second collection.

Total Sample. Overall, 290 packets were created, with 213 of them returned, resulting in a 73.4% return rate. A total of 77 packets were unreturned and 7 packets were returned but considered incomplete, resulting in 206 completed packets that were used in the analysis of results. In comparing the gender percentages in Table 2, the total sample indicated a skewed representation of 74.8% females and only 25.2% males, compared to females (47.9%) and males (52.1%) in the university population. The mean age of all participants was 20.1 years, ranging in age from 17 to 29 years.

Using the Table 2 percentage distribution, noticeable differences were also apparent for college, with the College of Education and Human Development and the College of Liberal Arts combining to account for 60.7% of the sample, markedly higher

than the 27.4% found in the university population. The College of Architecture, College of Geosciences, and School of Government were not represented in the sample. Further, the College of Agriculture, College of Engineering, and the College of Business received lower representation for the sample when compared to the university population. Nevertheless, eight of the eleven colleges at the given university were represented in this sample. Comparing classification level, a higher concentration of sophomores were apparent for the first collection (37.3%), second collection (37.5%), and total sample (37.4%), when compared to the university population (20.8%). For the ethnicity categories, similar percentages were observed for the total sample and the university population. The White ethnic category showed a higher representation (85%) when compared to the university population (75.6%). Other ethnic groups represented in this group include Hispanic or Latino (10.2%, $\underline{n}$ = 21), Black or African American (2.4%, $\underline{n}$ = 5), Asian (1.9%, $\underline{n}$ = 4), and American Indian or Alaska Native (.5%, $\underline{n}$ = 1).

Instrumentation

The instrumentation used in this research was comprised of both standardized instruments and a questionnaire given to each participant. The following describes the instruments included in each packet:

Questionnaire. A questionnaire was collected from each participant. This form was developed by the researcher, collecting the participant's gender, age, current academic major, month and year that academic major was declared, number of hours completed in academic major, current overall grade point ratio (GPR), race and ethnicity (categories derived from the U. S. Bureau for the Census, 2000), careers under

consideration following participant's graduation, and two items reflecting the participant's satisfaction with current academic major and the likelihood of changing to another major prior to graduation. The questionnaire can be found in Appendix A.

Self-Directed Search. The Self-Directed Search (SDS; Holland, 1985b) was used to measure the individual's interest based on Holland's six typologies which contributed to the congruence measures that were to be obtained. The SDS is a 228-item self-administered paper and pencil interest inventory that has sections focusing on activities, competencies, attitudes toward specific occupations, and self-estimates of ability. Scores are derived from each of the six Holland personality types. The test-retest reliabilities for the scales range from .60 to .84, the internal consistency rating of the SDS summary scores range from .84 to .92, and the predictive validity of the scales are comparable with, and sometimes exceed, the predictive validities of other interest inventories (Holland, 1985b). Support has been found for both the convergent and discriminant validity of the SDS (Dumenci, 1995).

Career Decision Scale. The Career Decision Scale (CDS; Osipow et al., 1976) was designed to identify barriers which prevent individuals from making career decisions. The scale consists of 19 items, 18 of which are arranged on a 4-point Likert-like scale, with a low score of "1" corresponding to "Not at all like me" and a score of "4" corresponding to "Exactly like me." Items 1 and 2 indicate certainty of career choice. Items 3 through 18 represent the 16 items that measure career indecision. The *Career Decision Scale Manual* (Osipow, 1980) reports test-retest reliabilities ranging from .82 to .90 in two studies over a two-week period; the majority of individual item

test-retest correlations reported are in the .60's with r in the .80's (Fuqua & Hartman, 1983).

My Vocational Situation. Vocational Identity was assessed using the Vocational Identity scale from the My Vocational Situation (Holland et al., 1980a). This scale instructs respondents to answer 18 true/false items that reflect thoughts about their present or future jobs or careers. False answers are summed such that people with higher scores possess a clearer and more stable picture of their Vocational Identity (Holland et al., 1980a). Internal consistency of Vocational Identity scores was reported as .85 for a diverse sample including college students (Holland et al., 1980a), and test-retest reliability for a 3- to 5-month period was reported as .64 for university freshmen who had not declared a major (Lucas, Gyysbers, Buescher, & Heppner, 1989). The construct validity of the scale has been supported by lower Vocational Identity scores for undeclared university freshmen and adults seeking career counseling than other groups that would presumably have stronger Vocational Identity (Lucas et al., 1989). Holland et al. (1993) provided a comprehensive overview of the reliability and validity evidence for the My Vocational Situation, based on studies that had been conducted between the inception of the instrument and 1992, or about twelve years. They concluded that the identity scale has substantial construct validity and retest reliability. They further concluded that the scale is best represented by a single factor.

Extended Object Measures of Ego-Identity Status. The revised version of the Extended Object Measures of Ego-Identity Status (EOM-EIS; Bennion & Adams, 1986) was used to measure the prevalence of each ego identity status (i.e., diffusion,

moratorium, foreclosure, and identity achieved). The EOM-EIS has 64 items with a 6-

point Likert-like response format, using 16 items for each of the four identity statuses,

each status divided by items reflecting either ideological or interpersonal domains.   The

EOM-EIS provides a means of measuring adolescents' approach to and progress in

resolving the identity versus role confusion developmental task (Erikson, 1968). The

scores for each of the scales provide a continuously measured index that represents the

identity statuses described by Marcia (1966): Achieved, Diffusion, Moratorium, and

Foreclosure. In addition, the measure assesses progress of exploration and commitment

in the ideological realm (e.g. occupational, religious, political, and philosophical) and

interpersonal realm (e.g., friendship, sex role, marital, and recreational). The 64 items

are divided equally between the ideological and the interpersonal domains. Because an

overall measure of ego identity status was of interest, the ideological and interpersonal

domains were combined for each identity status, thus providing four general statuses of

ego identity.

Reliability estimates have shown the EOM-EIS to be a fairly consistent measure

for participants between the ages of 15 to 30 years (Bennion & Adams, 1986). Adams,

Bennion, and Huh (1989) reported coefficient alphas as .60, .58, .80, and .64 for the

Achievement, Moratorium, Foreclosed, and Diffused statuses, respectively. Blustein et

al. (1989) reported similar results, with Achievement as .66, Moratorium as .73,

Foreclosed as .90, and Diffused as .68. Over a 2-week period the EOM-EIS has

demonstrated good stability, with correlation coefficients ranging from .82 to .90

(Blustein et al., 1989). As mentioned, the subscales were combined to include both the ideological and interpersonal domains.

Evidence of the content and construct validity of the EOM-EIS was reported by Bennion and Adams (1986), showing relationships between item content and identity formation theory, a factor structure that is consistent with theory, and expected levels of convergent validity with similar measures of identity and personality.

Additional Variables

The following describes the variables that were collected and derived from the instruments above.

Measurement of Satisfaction. As one measure of well-being, participants were asked on the questionnaire to rate their level of satisfaction with their current academic major. An item on the questionnaire asked the participant "How satisfied are you with your current academic major?". This item was measured using a 5-item Likert-type scale format, with a rating of 1 indicating dissatisfied, 3 indicating neutral, and 5 indicating satisfied. Although a multiple-item measure would have been preferable for measuring satisfaction, a single item measure was selected due to the number and length of instruments already being used and evidence that single-item measures of satisfaction have been found to be reliable (Robinson et al., 1991).

Measurement of Stability in Major. As another indicator of well-being, two measures were considered in determining the stability in the participant's academic major. First, the time that a participant has spent in the current academic major was also used. Participants were asked to list the month and year when they began their current

academic major. This data was converted to a number of months by counting the months based upon when the instruments were completed. Therefore, each person received numerically interval scoring for the length of time in her/his academic major, reflecting a historical indication of stability in the participant's academic major.

To assess the participant's future likelihood of remaining in the same academic major prior to graduation, an item on the questionnaire asked the participant, "How likely are you to change to another major before you graduate?" This item was measured using a 5-item Likert-type scale format, with 1 indicating not likely, 3 indicating neutral, and 5 indicating likely. For the purpose of reflecting the future stability in the participant's academic major, the reverse scoring for this item was used. This allowed for the conceptually reversed scoring to indicate the likelihood of remaining stable in the same major until graduating. For example, a score of 1 (not likely to change to another major before graduation) was reverse scored to a 5, reflecting the anticipated behavioral stability for that participant.

Measurement of Congruence. A congruence index measures the match between the person and the environment in which the person interacts. The participant's interest is determined by using Holland's SDS (Holland, 1985b). Two measures of the environment were obtained in this study, the participant's current academic major (interest-major congruence) and the participant's expressed career preference following graduation (interest-future career congruence). Using the question derived from the questionnaire form asking the participant to list the current academic major, a match was made corresponding to the 3-letter code found in the College Majors Finder (CMF;

Rosen, Holmberg, & Holland, 1989). This system was developed for use with Holland

codes. Using the CMF, each participant's academic major was converted into a 3-letter

code. Participants in General Studies (total sample n=19, 9.22%) and Agricultural

Development (total sample n=4, 1.94%) were omitted from the congruence index. The

designation of General Studies at this particular university indicates a student who has

yet to decide on an academic major. The academic major of Agricultural Development

encompasses many varying and multi-disciplinary aspects of general leadership,

communication skills, and broad preparation in agriculture. Other than these two

designations, every major represented in the sample was identified in the CMF. For the

participant's future career preference, an item on the questionnaire asked each

participant to list the career she/he would like to do after graduation. Using the

Dictionary of Holland Occupational Codes (DHOC; Gottfredson & Holland, 1989), a

match was made for the participant's career preference corresponding to the 3-letter

code found in the DHOC. In order to validate choices of careers that were of

questionable connection to the listed career preference, two raters were used with the

matching of each 3-letter coding. The choices that were of confounding classification

between the two raters remained un-scored. Nevertheless, 92% of the choices were of

agreement between the two raters.

　　　Many methods have been proposed to quantify congruence based on Holland's

typology (Holland, 1985a), with varying levels of effectiveness (Camp & Chartrand,

1992; Miller et al., 1992). One proposed by Iachan (1984) employs a more general

measure of agreement than other measures of congruence and has been empirically

supported in the literature (Camp & Chartrand, 1992). Holland (1987) himself endorsed this index, which overall is significantly more discriminating than the Zener and Schnuelle (1976) index systems and less complicated to compute than the Kwak and Pulvino (1982) mathematical index (Camp & Chartrand, 1992). Iachan's M index has also been criticized as being too rigid since it does not take into account the magnitude of each score in the 3-letter code (Eagan & Walsh, 1995).

The Iachan congruence scores were computed by taking the participant's highest 3-letter SDS codes and matching them to the 3-letter environmental codes derived from the CMF for academic major or the DHOC for future career preference. Then, using Iachan's (1984) M index method (Appendix B), a score was derived by summing the weights corresponding to each match. The congruence scores were based on a continuum from 0 to 28, with lower scores indicating less congruence.

Academic Achievement. Using the student's reported grade point average (GPA), academic achievement of the participant was based on the student's performance, using grade points (the number of hours taken by the participant multiplied by the grade in each class, with A=4, B=3, C=2, D=1, and F=0) divided by the overall number of hours taken, resulting in an overall GPA scale from 0.0 to 4.0.

Procedure

The procedure was pilot tested to determine the feasibility of administration of the combined instruments and to ensure the standardization of assessment. A small pilot sample was used, which included 5 college-age individuals with similar demographic characteristics as the sample, using the same procedure as was performed on the primary

study to indicate any problems in administration of the procedure. Using feedback from the pilot participants, it was determined that the packet would take approximately 30-50 minutes to complete. It was further determined based on the pilot testing that the procedure would produce the highest return rate if participants were asked to return the packets in a short timeframe (ie., 2-4 days), with follow-up visits to account for any remaining packets.

For the distribution of packets in all classes, the researcher gained prior approval from the professors to conduct the assessment and selected a date to perform the research that would minimize interference with the classroom activities yet provide enough time for participants to return their packets. During the initial presentation to the students, the researcher took approximately 5 minutes at the end of the class to introduce the study to all the students in the class and provide basic instructions for the return of the packets for those who chose to participate. Potential participants were also instructed to take the packets home with them and bring the packets back the following class meeting, complete or incomplete. A two page hand-out was provided to each student in the class, listing the informed consent form and the gifts and awards listing (see Appendix C). It was explained to the students that if they chose to participate in the study, that they should sign and date the bottom of the consent form and turn this form in to the researcher following the conclusion of the class. Upon reception of this signed form, the participant was provided with a packet to complete and return.

During the initial presentation, the informed consent form was read to the students explaining the risks and benefits associated with the study. It was explained

that possible risk associated with participating in the study would be a slight risk that some participants could feel uncomfortable about their career awareness or their career choice. There were several benefits that were explained for completing the packet for this study. First, the participant would receive feedback about her/his career interest profile. Second, the participant would receive information about potential careers that are compatible with her/his interest profile. Third, the participant would receive information on sources to contact in order to learn more about her/his career development. Finally, the participant would receive several gift certificates listed on the gifts and awards hand-out (see Appendix C) when the participant turned in her/his packet, as well as being entered into a drawing to receive either a $25, $50, or $75 gift certificate redeemable at a local mall. Students were also informed that the study was anonymous in that their name would not be linked to the packets that they completed. They were notified that their records for this study were kept confidential and the two reasons that a name was collected on the turn-in consent form was 1) to ensure that packets were turned in and 2) to ensure that their name was entered into the drawing at the end of the semester.

Prior to the collection of packets, the researcher created a feedback page providing general information to the student about her/his career interest profile (see Appendix D). Information on this page included a place to put the student's Holland three-letter code, basic information about Holland's theory and how that information is useful in finding a college major/career choice, information about each Holland code and a web resource to look up for more information about each code, and finally on-campus

student support offices where the student could find out more information about career planning and where they can find personal assistance on campus if needed. The incentive award certificates were stapled to the feedback pages for ease of transfer, creating the feedback packets that would be provided to each participant. A total of 240 feedback packets were created.

Upon returning to the class for collection of packets, the researcher took enough feedback packets in the event that all packets were returned. Participants were instructed to turn in their packet, complete or incomplete, in which they would be provided with the feedback packet. All participants were also notified that only completed packets would be inserted into the one-time drawing at the end of the semester, which would grant one prize each of $25, $50, and $75. This was used to ensure a greater chance that participants would complete the entire packet in order to be eligible for the end-of-semester drawing.

The drawing occurred at the conclusion of the fall 2004 semester. Using a Javascript randomizer (Moore, n.d.; – see Appendix E for script), three numbers were randomly generated based on the ranges between 1 and 206. The first number generated received the $25 gift certificate, the second number received the $50 gift certificate, and the third number received the $75 gift certificate (see Appendix F). Winners were notified about their award through email and were instructed to pick up their award whenever convenient in the researcher's office.

Data Analysis

Data was coded and analyzed utilizing the SPSS statistical software program, microcomputer version 11.0. First, descriptive statistics including frequencies, percentages, means, and standard deviations were calculated to determine differences on gender and collection group. For the first research question, Pearson Product-Moment correlation coefficients (Pearson $\underline{r}$) were used to determine the relationship of Vocational Identity with measures of ego identity status. Multiple regression (Multiple $\underline{R}^2$) was then used to determine the statistical effect of Erikson's/Marcia's combined ego identity statuses as predicting Vocational Identity, using Holland's construct as the criterion variable.

For the second research question, Holland's congruence indices of I-M congruence and I-FC congruence were compared to identity measures using Pearson $\underline{r}$'s. Multiple regression was then performed to determine the statistical effect for each of the combined identity predictor variables onto the two congruence index score criterion variables. For the third proposed research question, the relationship between P-E congruence measures and well-being measures (Satisfaction with Major, Stability in Major, and Academic Achievement) was analyzed using Pearson $\underline{r}$'s. For the fourth research question, the combined interactive relationships between the identity variables (Erikson's/Marcia's ego identity statuses and Vocational Identity) and the well-being measures were analyzed using canonical correlation analysis. Canonical correlation analysis was performed to compare these groupings of variables, deriving weight and structure coefficients to better understand the grouping interaction. The fifth proposed

question addresses the relationship of identity status variables to the combined career development variables, including the congruence indices, Vocational Identity, and the CDS, a measure of career indecisiveness. A canonical correlation analysis was performed to assist in explaining the multivariate relationship between these two theoretical categories.

CHAPTER IV

RESULTS

Two preliminary demographic analyses were conducted showing the differences between gender and collection groups. These two variables were chosen for further analysis due to the greater differences between the sample groups and the targeted university population. Following this, a report on the statistical analysis was conducted addressing each of the proposed research questions. For the purpose of interpreting results of this study, a probability ($\underline{p}$) level of .05 or less was considered statistically significant. Furthermore, based on the recommendation by Thompson (1994), effect sizes were reported in all analyses.

Demographic Analysis

To better understand the differences between the two collection groups, a series of one-way analyses of variance (ANOVA) were conducted on each of the variables used in this study (see Table 3). Means, standard deviations, F ratio, F probability, and degrees of freedom were conducted on the two different collection groups. In general, the means revealed the first group as being slightly younger (Age), lower on Satisfaction with Major, Continuation in Major, Time in Major, Academic Achievement, and Credit Hours. Statistically significant differences in means were observed between the collection groups, with the second group showing higher Stability in Major (Continuation in Major $\underline{F}$ (1, 204) = 8.71, $\underline{p}$ < .00; Time in Major $\underline{F}$ (1, 203) = 4.24, $\underline{p}$ < .04), and Credit Hours, $\underline{F}$ (1, 205) = 7.59, $\underline{p}$ < .01.

Table 3

Means, Standard Deviations, F Ratios, F Probabilities, and Degrees of Freedom Across The Two Collection Groups, Using Vocational Identity, Ego Identity Statuses, Congruence Measures, Well-Being Measures, Career Decision Making, and Demographic Variables

Variables	1st Collection (n=158)		2nd Collection (n=48)		Total Sample (n=206)		F Ratio	F Prob.	df	η^2
	M	SD	M	SD	U	SD				
Holland's MVS Identity										
Vocational Identity	11.25	4.34	10.71	5.17	11.12	4.54	.52	.47	1, 205	.00
Marcia's Ego Identity Statuses										
Diffusion	39.35	8.83	39.96	11.27	39.50	9.43	.15	.70	1, 205	.01
Moratorium	46.82	10.72	46.48	11.32	46.74	10.83	.04	.85	1, 205	.00
Foreclosure	39.09	10.65	38.42	11.49	38.93	10.83	.14	.71	1, 205	.00
Achieved	67.03	9.09	64.40	9.16	66.41	9.15	3.07	.08	1, 205	.01
Congruence Measures										
I-M Congruence	18.33	8.25	17.33	7.67	18.08	8.10	.54	.46	1, 185	.00
I-FC Congruence	20.54	7.22	17.82	8.00	20.01	7.43	3.70	.06	1, 174	.02
Well-Being Measures										
Satisfaction with Major	3.97	1.10	4.27	.71	4.04	1.03	3.10	.08	1, 204	.02
Continuation in Major	3.96	1.50	4.63	.82	1.89	1.40	8.71	.00	1, 204	.04
Time in Major	15.61	13.71	20.15	12.12	16.68	13.46	4.24	.04	1, 203	.02
Academic Achievement	2.98	.61	3.15	.59	3.03	.61	2.67	.10	1, 166	.02
Career Decision Making										
CDS – Indecisiveness	27.68	8.54	27.67	8.44	27.68	8.49	.00	.99	1, 202	.00
Demographic Variables										
Age	19.97	1.57	20.44	1.30	20.08	1.52	3.45	.07	1, 205	.02
Credit Hours	54.82	30.95	68.96	31.78	58.11	31.64	7.59	.01	1, 205	.04

In review of the comparisons between the university population and both collection groups, the total sample invariantly represented the university population better than either of the two collection groups. Nevertheless, in consideration of the statistically significant differences between the two collection groups on the demographic variables mentioned above, caution will be exercised when analyzing and interpreting results.

Using gender as the factor in the ANOVA model (see Table 4), statistically significant differences between the means were indicated on Diffusion, $\underline{F}$ (1, 205) = 4.55, $\underline{p}$ < .05, with males indicating statistically higher levels, and I-FC Congruence, $\underline{F}$ (1, 173) = 11.81, $\underline{p}$ < .01, with females showing statistically higher means for the level of congruence between interest and future career preference.

Test of Research Questions

The intention of this study was to 1) explore the structure of identity development by comparing two theories that emphasize identity as a key characteristic in each theory and 2) to compare these conceptualizations of identity to other theoretically important constructs such as congruence, career decision making, and well-being outcome measures. Using the Pearson $\underline{r}$ correlation coefficients in Table 5, the relationships were observed between Holland's Vocational Identity and Erikson's/Marcia's ego identity statuses. Vocational Identity had a statistically significant positive relationship with Achieved ($\underline{r}$ = .36, $\underline{p}$ < .01) and a statistically significant negative relationship with Diffusion ($\underline{r}$ = -.37, $\underline{p}$ < .01) and Moratorium ($\underline{r}$ =

Table 4

**Means, Standard Deviations, F Ratios, and Degrees of Freedom Across Gender
Using Vocational Identity, Ego Identity Statuses, Congruence Measures, Well-Being
Measures, Career Decision Making, and Demographic Variables**

Variables	Males (n=52)		Females (n=154)		F ratio	df	η^2
	M	SD	M	SD			
Holland's MVS Identity							
Vocational Identity	11.33	4.45	11.05	4.58	.14	1, 204	.00
Marcia's Ego Identity Statuses							
Diffusion	41.88	10.73	38.69	8.84	4.55*	1. 204	.02
Moratorium	46.00	12.18	47.00	10.40	.32	1, 204	.00
Foreclosure	39.02	11.87	38.90	10.49	.00	1, 204	.00
Achieved	64.33	7.79	67.12	9.49	3.66	1, 204	.02
Congruence Measures							
IM Congruence	17.07	8.22	18.44	8.05	1.03	1, 184	.01
IFC Congruence	16.62	7.18	21.04	7.22	11.81**	1, 173	.06
Well-Being Measures							
Satisfaction with Major	3.85	1.07	4.11	1.00	2.61	1, 203	.01
Continuation in Major	3.96	1.48	4.16	1.37	.81	1, 203	.00
Time in Major	17.39	14.23	16.44	13.24	.19	1, 202	.00
Academic Achievement	2.98	.54	3.04	.63	.30	1, 165	.00
Career Decision Making							
CDS Indecisiveness	29.08	9.60	27.22	8.08	1.81	1, 201	.01
Demographic Variables							
Age	20.27	1.52	20.02	1.52	1.05	1, 204	.01
Credit Hours	62.21	36.07	56.73	30.00	1.17	1, 204	.01

Note. *p < .05, **p < .01.

Table 5

Pearson Product-Moment Correlation Coefficients for Vocational Identity, Ego Identity Statuses, Congruence Measures, Well-Being Measures, and Career Decision Making

Variables	1	2	3	4	5	6	7	8	9	10	11	12
Holland's MVS Identity												
1. Vocational Identity	1.00											
Marcia's Ego Identity Statuses												
2. Diffusion	-.37**	1.00										
3. Moratorium	-.49**	.52**	1.00									
4. Foreclosure	-.02	.02	-.01	1.00								
5. Achieved	.36**	-.44**	-.31**	.02	1.00							
Congruence Measures												
6. IM Congruence	.14	-.02	-.01	-.05	-.05	1.00						
7. IFC Congruence	.13	-.10	.02	-.03	-.02	.63**	1.00					
Well-Being Measures												
8. Satisfaction with Major	.36**	-.14*	-.17*	-.01	.19**	.22**	.07	1.00				
9. Continuation in Major	.31**	-.14*	-.12	-.10	.11	.18*	.08	.70**	1.00			
10. Time in Major	.16*	.01	-.12	-.05	-.03	.04	.08	.11	.34**	1.00		
11. Academic Achievement	.02	-.18*	.02	-.04	.06	.01	.05	.15*	.24**	.08	1.00	
Career Decision Making												
12. CDS Indecisiveness	-.81**	.37**	.42**	.07	-.32**	-.15*	-.17*	-.33**	-.38***	-.23**	-.10	1.00

Note. *p < .05, **p < .01. Higher scores on all variables indicate higher levels of the construct. Ego Identity Status was measured using the EOM-EIS. Congruence was measured using the Iachan $\underline{M}$ Index on the SDS results combined with both current academic major and future career plans. $\underline{N}$ ranges from 186 to 206.

-.49, $\underline{p} < .01$). The only variable not reaching statistical significance in relation to Vocational Identity was Foreclosure ($\underline{r} = -.02$, $\underline{p} < .80$).

To better understand the effect of the identity status measures on Vocational Identity, a multiple regression (Multiple $\underline{R}^2$) was performed. This statistic provides the ability to take into account the influence of other variables while in the prediction of a certain criterion. It was suggested by Thompson and Borrello (1985) that when using multiple regression or any other statistical application derived from the general linear model (eg., canonical correlation analysis), the researcher should evaluate both the standardized weights (eg., beta) and the structure coefficients for each given predictor in the analysis. The reason for this is that when only standardized weights are analyzed, which is common in behavioral research (Courville & Thompson, 2001; Henson, 2002; Thompson & Borrello, 1985), erroneous conclusions can be made about variable importance. These authors strongly recommend the use of structure coefficients that take into account the "structure" of the effect on the dependent variable. Because they are bivariate in nature, they do not take into account the collinearity of the predictor variables, thus shedding light on the importance of predictors in direct relation to the synthetic variable (Henson, 2002). Interpreting structure coefficients also indicates possible suppressor effects given the interactive properties of predictor variables and how they influence the criterion variable (Lancaster, 1999).

Table 6 presents the results, using Vocational Identity as the criterion variable and the identity statuses as the predictor variables. Overall, the four identity status variables accounted for a statistically significant amount of the variance of Vocational

Identity ($\underline{R} = .54$, $\underline{R}^2 = .29$, p < .01). As with Pearson $\underline{r}$, beta weights showed Achieved ($\beta = .20$, p < .01) receiving a strong positive relationship and Moratorium ($\beta = -.39$, $\underline{p}$ < .01) received a strong negative relationship in predicting Vocational Identity. However, Diffusion ($\underline{\beta} = -.07$, $\underline{p} < .34$) received a low beta weight. In review of the structure coefficients, which are derived from the bivariate correlation with the criterion variable divided by Multiple $\underline{R}$, it appears that Diffusion ($\underline{r}_s = -.69$, $\underline{r}_s^2 = .48$), Moratorium ($\underline{r}_s = -.91$, $\underline{r}_s^2 = .83$), and Achieved ($\underline{r}_s = .67$, $\underline{r}_s^2 = .45$) received higher structure coefficients in comparison to their beta weights, with the beta weights not statistically significant for Diffusion. In review of the strong bivariate relationships

Table 6

Multiple Regression (Multiple R^2) for the Prediction of Vocational Identity Using Erikson's/Marcia's Ego Identity Statuses as Predictor Variables, Showing Beta Weights and Structure Coefficients

			Coefficients		
Variables	$\underline{R}$	$\underline{R}^2$	β	$\underline{r}_s$	$\underline{r}_s^2$
Vocational Identity as Criterion	.54	.29**			
Diffusion			-.07	-.69**	.48**
Moratorium			-.39**	-.91**	.83**
Foreclosure			-.03	-.04	.00
Achieved			.20**	.67**	.45**

Note. *p < .05, **p < .01. In regression, structure coefficients ($\underline{r}_s$) can be computed by dividing the correlation of the predictor with the criterion by the $\underline{R}$ (Thompson & Borrello, 1985). Statistical significance for beta weights is derived from calculated $\underline{t}$ scores from the regression analysis. Statistical significance for structure coefficients is derived from the zero-order bivariate correlation coefficients.

between these three variables (see Table 5), much of the explanatory capacity in

predicting Vocational Identity is overlapping among the predictor variables, with each

receiving much lower weights than structure coefficient in predicting Vocational Identity.

Table 7

Multiple Regression (Multiple R^2) for the Prediction of Interest-Major Congruence and Interest-Future Career Congruence Using Vocational Identity and Ego Identity Statuses as Predictor Variables, Showing Beta Weights and Structure Coefficients

Variables	$\underline{R}$	$\underline{R}^2$	Coefficients		
			β	$\underline{r}_s$	$\underline{r}_s^2$
IM Congruence as Criterion	.19	.04			
Vocational Identity			.21*	.74	.55
Diffusion			-.04	-.11	.01
Moratorium			.08	-.05	.00
Foreclosure			-.04	-.26	.07
Achieved			-.13	-.05	.00
IFC Congruence as Criterion	.21	.05			
Vocational Identity			.19*	.62	.38
Diffusion			-.16	-.48	.23
Moratorium			.17	.10	.01
Foreclosure			-.02	-.14	.02
Achieved			-.11	-.10	.01

Note. *$\underline{p} < .05$. In regression, structure coefficients ($\underline{r}_s$) can be computed by dividing the correlation of the predictor with the criterion by the $\underline{R}$ (Thompson & Borrello, 1985). Statistical significance for beta weights is derived from calculated $\underline{t}$ scores from the regression analysis. Statistical significance for structure coefficients is derived from the zero-order bivariate correlation coefficients.

In review of the second research question, the bivariate relationship between the congruence indices and the identity measures was examined. Using congruence between the participant's interest and academic major (I-M Congruence – see Table 7), no statistically significant bivariate relationship existed for Vocational Identity ($r = .14$, $p < .06$) nor for the identity formation statuses (Diffusion $r = -.02$, $p < .80$; Moratorium $r = -.01$, $p < .88$; Foreclosure $r = -.05$, $p < .54$; Achieved $r = -.05$, $p < .50$). For the congruence index measuring a participant's current interest with future career preference (I-FC Congruence), there were no statistically significant relationships for Vocational Identity ($r = .13$, $p < .09$) or the identity formation statuses (Diffusion $r = -.10$, $p < .20$; Moratorium $r = .02$, $p < .76$; Foreclosure $r = -.03$, $p < .72$; Achieved $r = -.02$, $p < .82$).

Multiple R^2 was performed using both I-M and I-FC Congruence (see Table 8) as the criterion variables. Each of the four identity statuses and Vocational Identity were used as the predictor variables. Vocational Identity revealed a statistically significant predictive relationship with I-M Congruence, for both the regression weight and structure coefficient ($\beta = .21$, $r_s = .74$, $r_s^2 = .55$), indicating that those with higher Vocational Identity have a statistically higher likelihood of being congruent between their interest and academic major. A low predictive and structural relationship existed for each of the ego identity statuses in predicting I-M Congruence. For I-FC Congruence as the criterion variable, a similar pattern emerged, with Vocational Identity revealing a statistically

Table 8

Canonical Weights and Structure Coefficients Using Identity Measures and Well-Being Measures

Variable/ Statistic	Function I			Function II		
	cc	r_s	r_s^2	cc	r_s	r_s^2
Vocational Identity	-.94	-.96	92.16%	.34	.25	6.25%
Diffusion	-.32	.15	2.25%	-.95	-.62	38.44%
Moratorium	.22	.53	28.09%	.88	.22	4.84%
Foreclosure	.00	.05	0.25%	-.37	-.40	16.00%
Achieved	-.07	-.32	10.24%	-.06	.21	4.41%
Adequacy			26.60%			13.99%
Rd			7.08%			1.99%
Rc^2			16.00%**			10.00%*
Rd			11.09%			7.28%
Adequacy			33.30%			26.98%
Satisfaction w/ Major	-.81	-.84	70.56%	-.38	.27	7.29%
Continuation in Major	-.14	-.66	43.56%	.88	.69	47.61%
Time in Major	-.44	-.42	17.64%	-.47	-.26	6.76%
Academic Achievement	.31	.12	1.44%	.56	.68	46.24%

Note. *$p < .05$, **$p<.01$. cc is the canonical (weight) coefficients, r_s is the canonical structure coefficient for each variable correlated between the canonical synthetic variable and the canonical coefficient, and r_s^2 is the squared canonical correlation coefficient for each function.

significant predictive relationship with I-FC Congruence ($\beta = .19$, $r_s = .62$, $r_s^2 = .38$).

Although not statistically significant, Diffusion ($\beta = -.16$, $r_s = -.48$, $r_s^2 = .23$) showed an

elevated beta weight and structure coefficient.

In review of the third research question, the well-being variables were measured

in respect to their bivariate relationship for both congruence measures. For I-M

Congruence, a positive statistically significant relationship was observed with

Satisfaction with Major ($r = .22$, $p < .01$) and Continuation in Major ($r = .18$, $p < .05$).

However, low Pearson r correlations were observed with Time in Major ($r = .04$, $p < .64$) and Academic Achievement ($r = .01$, $p < .95$). For I-FC Congruence, no statistically significant relationships were observed with any of the well-being measures (Satisfaction with Major $r = .07$, Continuation in Major $r = .08$, Time in Major $r = .08$, Academic Achievement $r = .05$). A strong correlation was observed between both I-M Congruence and I-FC Congruence ($r = .63$, $p < .01$). A theoretically expected statistically significant negative relationship was observed between the congruence indices and the CDS Indecisiveness scale (I-M Congruence $r = -.15$, $p < .05$; I-FC Congruence $r = .17$, $p < .05$).

The fourth research question assessed the relationship between two sets of variables, which included for one set Erikson's/Marcia's identity statuses and Holland's Vocational Identity, and for the other set of variables included the well-being measures of Satisfaction with Major, Stability in Major, and Academic Achievement. In order to analyze the two given sets of variables, a canonical correlation analysis was performed with interpretive results adapted from Thompson's (1997) suggested format (see Table 8). Canonical correlation analysis provides a means of relating two sets of variables, proving functions that describe for one set of variables the percent of variance accounted for by the other set of variables, with each function representing an orthogonally separate pattern of relationships between the two latent variables (Thompson, 1991). Furthermore, these function coefficients are maximized to represent the two highest loadings, given the dataset and sample size. Similar to multiple regression, canonical analysis produces both weights (cc) and structure coefficients (r_s) that aid in

interpretation of the results. Just as beta weights assist in explaining the combined

explanatory power on the criterion, canonical weights (also known as function

coefficients) provide the researcher with the standardized weighted contribution for a

given variable on the canonical correlation. The canonical structure coefficient indicates

the amount of variance in a given canonical variable on a given canonical correlation.

As a rule of thumb, this study uses Garson's (2005) interpretive rule that only canonical

weights and structure coefficients at .3 or above should be considered a part of the

canonical variable.

Function I (see Table 8) presents the squared canonical correlation coefficient

($\underline{Rc}^2$) that accounted for 16% ($\underline{p} < .01$) of the explained variance between the two sets of

variables. The second function (Function II) accounted for 10% ($\underline{p} < .05$) of the

explained variance between the two sets of variables. Combined, these two canonical

functions accounted for 26% of the overall variance in the two sets of variables. In

reviewing Function I, higher negative canonical coefficients were observed for

Vocational Identity ($\underline{cc} = -.94$, $\underline{r}_s = -.96$, $\underline{r}_s^2 = 92.16\%$), Diffusion ($\underline{cc} = -.32$, $\underline{r}_s = .15$, $\underline{r}_s^2 =$

2.25%), Satisfaction with Major ($\underline{cc} = -.81$, $\underline{r}_s = -.84$, $\underline{r}_s^2 = 70.56\%$), Time in Major ($\underline{cc} =$

-.44, $\underline{r}_s = -.42$, $\underline{r}_s^2 = 17.64\%$), and a slightly higher positive coefficient for Academic

Achievement ($\underline{cc} = .31$, $\underline{r}_s = .12$, $\underline{r}_s^2 = 1.44\%$). These data seem to indicate that for the

given function Vocational Identity and Satisfaction with Major are primarily explaining

the amount of variance found in Function I, with Diffusion, Time in Major, and low

Academic Achievement accounting for additional loading weight. Furthermore, the

discrepancy between the function coefficients and the canonical structure coefficients for

Moratorium (cc = .22, r_s = .53), Achieved (cc = -.07, r_s = -.32), and Continuation in

Major (cc = -.14, r_s = -.66) indicates the possibility of negative suppression. Suppression

occurs within canonical correlation analysis when one variable with a low canonical

weight is being suppressed, as indicated by the higher canonical correlation for that

given variable, by virtue of a correlation with another variable (Thompson, 1997). One

possible interpretation for these data is that Moratorium, with 28.09% of the variance

accounted for by the given canonical variable, is being suppressed due to the related

variance accounted for by Diffusion, which only accounts for 2.25% of the given

canonical variable. Noticing the inverse canonical weights and structure coefficients for

Function II (Moratorium cc = .88, r_s = .22; Diffusion cc = -.95, r_s = -.62), this could very

well be the case.

In review of the well-being variables on Function I, a strong negative linearity is

observed with Satisfaction with Major (cc = -.81, r_s = -.84) and Time in Major (cc = -.44,

r_s = -.42), with the canonical structure coefficient for Continuation in Major (cc = -.14, r_s

= -.66) possibly being overlapped by Academic Achievement (cc = .31, r_s = .12).

In review of Function II, Diffusion (cc = -.95, r_s = -.62) and Moratorium (cc = .88,

r_s = .22) received high inverse coefficients for the identity variables, and moderate

loadings for both Vocational Identity (cc = .34, r_s = .25) and Foreclosure (cc = -.37, r_s = -

.40). Moderate to high loadings was observed for each of the well-being variables

(Satisfaction with Major cc = -.38, r_s = .27; Continuation in Major cc = .88, r_s = .69;

Time in Major cc = -.47, r_s = -.26; Academic Achievement cc = .56, r_s = .68).

Table 9

Canonical Weights and Structure Coefficients Using Identity Measures and Holland's Vocational Identity, Congruence Measures, and CDS Indecision

Variable/ Statistic	Function I			Function II		
	cc	r_s	r_s^2	cc	r_s	r_s^2
Diffusion	-.14	-.70	49.00%	1.14	.60	36.00%
Moratorium	-.65	-.86	73.96%	-.64	-.15	2.25%
Foreclosure	-.09	-.08	0.64%	.48	.44	19.36%
Achieved	.47	.73	53.29%	.38	.05	0.25%
Adequacy			44.22%			14.47%
Rd			19.55%			2.09%
Rc^2			33.41%**			5.48%
Rd			18.15%			2.07%
Adequacy			42.60%			14.40%
Vocational Identity	.76	.97	94.09%	1.05	.07	0.49%
IM Congruence	-.10	-.05	0.25%	.39	-.15	2.25%
IFC Congruence	-.08	-.06	0.36%	-.77	-.61	37.21%
CDS Indecision	-.29	-.87	75.69%	1.21	.42	17.64%

Note. *p < .05, **p<.01. cc is the canonical (weight) coefficients, r_s is the canonical structure coefficient for each variable correlated between the canonical synthetic variable and the canonical coefficient, and r_s^2 is the squared canonical correlation coefficient for each function.

The final research question investigated the relationship between Erikson's/Marcia's ego identity statuses and a theoretical representation of career development using Holland's Vocational Identity and both congruence indices. To further expand upon the multi-dimensional latent construct of career development and the influence of decision making in the process, CDS Indecision was also included. Canonical correlation results were tabulated and reported in Table 9. Function I accounted for 33.41% (p < .01) of the explained variance between the two sets of variables. Function II

($\underline{Rc}^2$ = 5.48%, $\underline{p}$ < .32) was not statistically significant in orthogonally explaining the canonical variance in these grouping of variables. In review of Function I, higher positive canonical coefficients were observed for Achieved ($\underline{cc}$ = .47, $\underline{r}_s$ = .73) and Vocational Identity ($\underline{cc}$ = .76, $\underline{r}_s$ = .97), with a negative canonical coefficient for Moratorium ($\underline{cc}$ = -.65, $\underline{r}_s$ = -.86). Finally, Diffusion ($\underline{cc}$ = -.14, $\underline{r}_s$ = -.70) and CDS Indecision ($\underline{cc}$ = -.29, $\underline{r}_s$ = -.87) appeared to have higher structural coefficients with much lower canonical correlation coefficients, possibly as a result of collinearity between each respective grouping of variables.

CHAPTER V

SUMMARY AND DISCUSSION

The results of this study are discussed in this section, beginning with an overview of the study. Following this, the implications for theory and practice are discussed. Finally, directions for future research and the limitations of this research are presented.

Overview

This study investigated the association between two key theories of the identity formation process in career development, Holland's theory of vocational choice and Erikson's/Marcia's theory of ego identity development. Determining identity development through the course of adolescence has been pursued for some time, with varying degrees of success. Marcia's quantification of ego identity development has grounded Erikson's theoretical identity vs. identity diffusion into a valid empirical interpretation of this stage of development, employing both exploration and commitment to derive a stable sense of values, beliefs, and self-determination. Erikson's/Marcia's ego identity development has also shown a great deal of consistency with adolescent career development. Accordingly, Erikson's/Marcia's measure of ego identity development has amounted to a reasonable measure of how adolescents progress through the career development process. Studies have shown that Erikson's/Marcia's identity development is related in important ways to career development measures. Nevertheless, little is known about this relationship and how it integrates with key theories of career development.

The purpose of this study was to clarify similarities of two popular theories of career development, Erikson's/Marcia's identity development and how it relates to facets of Holland's theory of career development, and controlling for career indecisiveness. The study attempted to answer the following research questions:

1. Is there a relationship between Vocational Identity within Holland's theory and Marcia's (1966) four statuses of identity formation derived from Erikson's theory? If so, how do these four identity statuses predict Vocational Identity?

2. Is there a relationship between P-E congruence (interest-major and interest-future career), Erikson's/Marcia's four identity statuses, and Vocational Identity? If so, how do the identity measures predict P-E congruence?

3. As replicable upon previous research, what is the relationship between P-E congruence and satisfaction with major, stability in major, and academic achievement?

4. What is the relationship between Holland's and Erikson's/Marcia's identity statuses in predicting satisfaction with major, stability in major, and academic achievement?

5. Using a combination of career development measures (career decision making, Vocational Identity, and P-E congruence), what is the relationship between career development and Erikson's/Marcia's identity statuses?

In answering these questions, initial concern was placed on the makeup of the two collection groups, and the representative nature of this sample to the university population. Although some changes were evident in regard to the percentage break-

down in comparison to the university population, in most cases the combined collection groups more closely approximated the university population percentages. Also, few differences emerged in regard to differences between means on the instruments used in this study, as indicated in Table 3.

Gender was also of concern, especially considering some inconsistent findings in previous research. For example, Lucas (1997) indicated higher levels of Achieved with females, yet Blustein et al. (1989) contends that few consistent differences exist between genders on identity status development. This research indicated an elevated mean for females on Achieved, yet these differences were not of statistical significance. The Diffusion identity status did reveal a statistically significant difference in means, indicating that males in this sample are more likely than females to display low exploration and commitment to their identity development. Although unconfirmed with other research, this finding may indicate that during this stage of development females become more committed to current and future beliefs, goals, and values. Females also tended to be more I-FC congruent than males, further explaining the more future-oriented accuracy of the given female sample. Given the inconsistent findings in previous research in regard to gender differences on the identity status variables and how they interact with measures of career development, further investigation into this topic has merit.

Implications for Theory

In regard to theoretical convergence on the identity variables, previous research was confirmed that Holland's Vocational Identity is related to Erikson's/Marcia's ego

identity statuses in predictable ways. First, as expected, those who indicated being in

either a diffused or moratorium identity status tended to be low on Vocational Identity.

Thus, individuals lacking either the desire (Diffusion) or the developmental progression

(Moratorium) in commitment empirically reveal low clarity and stability of their goals,

interests, and talents. Surprisingly, the Diffusion status was negated in regard to

explaining Vocational Identity when all identity status measures were combined as

predictors. It can be surmised that due to the high inter-correlation between the identity

statuses, a likely explanation is that while Diffusion is inversely related to Vocational

Identity, an arbitrary assignment of explained variance was given to other variables

(Thompson, 1991). Also as expected, Vocational Identity is strongly related to the

Achieved identity status. Nevertheless, Vocational Identity seems to be explained the

most by the inverse properties of the moratorium identity status. This is in agreement

with Blustein et al. (1989) that showed the highest correlation among all statuses with

occupational commitment as being the inverse relationship to Moratorium ($\underline{r} = -.56$). In

this regard, Vocational Identity seems to describe individuals as completing the

exploration process and showing a more crystallized definition of their identity

commitment, which seem to support Tinsley et al.'s (1989) findings regarding the MVS

Vocational Identity scale. Finally, the Foreclosure identity status reflected little

predictive or correlative relationship to Vocational Identity, indicating that those

individuals who "blindly" commit to choices based on external influences seem to

provide little explanation to Holland's construct of Vocational Identity. Overall,

Erikson's/Marcia's ego identity statuses explained almost one third ($\underline{R}^2 = .29$) of the

variance in Vocational Identity, a substantial amount given the multidimensionality that has been labeled upon this general construct (Holland et al., 1993). According to this research, it may be relevant to consider Vocational Identity as a continuum of the three statuses Diffusion, Moratorium, and Achieved, expressing the level of identity development during late adolescence. In this regard, individuals high on Diffusion and Moratorium may also be considered low on Vocational Identity, and high on Achieved indicating higher scores on Vocational Identity.

P-E congruence is regarded as a central construct to Holland's theory of career choice, identifying the level of connection between a person and an environment. In recognizing the level of congruence based upon the identity statuses, it was theoretically postulated that those who are more achieved on identity, either higher scores on Vocational Identity or the Achieved identity status, would indicate higher levels of both I-M and I-FC congruence. Consistent with DeMania's (1999) findings, little evidence was found to support this connection, although Vocational Identity did reveal some predictive association to both I-M and I-FC congruence. Considering that individuals who are higher on Vocational Identity tend to make better career decisions based on a more clear and stable sense of goals and self-perceptions, it was found that these same individuals make better decisions in selecting their academic majors and future vocational choices in regard to their current interest profiles. It's also noteworthy to recognize the elevated weight and structure coefficient for Diffusion, possibly indicating that individuals who are low on commitment to identity development are less likely to be congruent with their future career preferences. This would be in agreement with Marcia

(1993) in that diffused individuals tend to be more present-oriented rather than future-oriented. Theoretically speaking, Diffused individuals also tend to reflect a more poorly organized sense of self, avoiding issues of concern such as personal problems, conflicts, and decisions (Berzonsky, 1992, 1993). Indicated in this research, individuals who demonstrated a more diffused sense of ego identity also indicated lower academic achievement.

In review of the measure of congruence and its association with measures of well-being, namely Satisfaction with Major, Stability in Major, and Academic Achievement, it was expected that a relatively high effect would result. Considering that previous research maintains a "magic .30 correlational plateau" for congruence and satisfaction (Spokane, 1985, p. 335), these results fall within the normal range, approximating the mean Pearson r = .21 found in other studies, with this study's bivariate r = .22. It must be emphasized, however, that this relationship is still statistically significant and remains a key aspect in validating the measurement of P-E congruence. Furthermore, stability as measured by Continuation in Major also indicated a relationship with I-M congruence. Logically, the better fit between a student's interest and her/his academic major would lead to a higher tendency to want to remain in the same academic major. This conclusion seems to further strengthen the connection between Holland's congruence and behavior. As Holland indicated, "People find environments reinforcing and satisfying when environmental patterns resemble their personality patterns. This situation makes for stability of behavior because persons receive a good deal of selective reinforcement of their behavior" (p. 54, Holland, 1992).

In considering the association between identity measures and measures of well-being, the first canonical function coefficient accounted for 16% of the total variance, statistically significant at the $p < .001$ level. It was theoretically posited that Vocational Identity would receive high recognition given that individuals with high Vocational Identity are primarily identified as having a clear and stable aspect of their self-perceptions and clarity and explicitness of their environment (Holland et al., 1980a). As expected, higher relationships were found between Vocational Identity and Satisfaction with Major, Continuation in Major, and Time in Major. These findings add further support to Holland et al.'s (1993) theoretical position that Vocational Identity can be regarded as a general measure of psychological well-being, with a strong grounding in career development.

The canonical correlation analysis results further invigorated the notion of Holland's Vocational Identity as well-grounded in measures of well-being, primarily satisfaction with academic major. Additional support in explaining the overall Function I variance came from each of the well-being measures along with the Diffusion identity status. Further accounting for the combined variance in Function I, Diffusion and Moratorium seem to be contributing to the canonical function. Unexpectedly, however, a shift occurred for Diffusion where the lower positive structure coefficient revealed a higher negative canonical weight when combined with other variables to attain the canonical coefficient. As explained by Henson (2002), this may be the result of the higher inter-correlation between each of the identity status variables and the same variance that is being accounted for by each of the variables. Another possible

explanation is that Diffused individuals are in a state of inactivity, with low regard to exploring or committing to an ego identity. Thus, they are at least temporarily content with their status and have yet to delve into the anxiety-provoking tasks of exploring and committing to their ego identity status. In this conception, the indication of well-being as a primary characteristic for function I may explain Diffusion as being in a temporarily satisfied state of career development.

The second canonical function coefficient accounted for a statistically significant portion of the overall canonical variance ($\underline{Rc}^2 = 10\%$). In review of the canonical loadings, Diffusion and Moratorium inversely contribute to this function, with strong loadings from Academic Achievement and Continuation in Major, directionally siding with Moratorium. An explanation of the synthetic properties for this function seem to indicate individuals who are high in exploring identity status yet behaviorally stable in academic major and grades. This is reinforced by a positively elevated Vocational Identity and negatively elevated Foreclosure.

In review of the final research question, previous findings indicated that ego identity status is predictive of career decision making and development (Blustein et al., 1989; Guerra & Braungart-Rieker, 1999). Using a combination of Holland's Vocational Identity and the congruence indices and CDS Indecision as the career development canonical variable, an impressive amount of explained variance was indicated in function I ($\underline{Rc}^2 = 33.41\%$). These findings further support this theoretical connection between ego identity and career development.

In review of the canonical loadings for function I, a strong inverse relationship was further endorsed for Moratorium and Vocational Identity. Other contributions occurred for the Achieved identity status and higher canonical structure coefficients for Diffusion and CDS Indecision. The latter two variables showed marked decreases in loadings when compared to structure coefficients. The likely explanation is that several variables within the synthetic canonical variable are overlapping with other variance, thus explaining the same accounted-for variance. For example, the strong inter-correlation between Diffusion and Moratorium is negating much of the canonical weight for Diffusion, and likewise for CDS Indecision and Vocational Identity for the career development canonical variable. Overall, the CDS Indecision and Vocational Identity appear inversely related in measuring a very similar construct, with Vocational Identity indicating the ideal identity in career development and CDS Indecision indicating a low identity in career development and difficulties in engaging in the decision making process.

Implications for Practice

This research attempted to explain the relation between two theoretical positions of identity formation that occur during the career developmental process. Therefore, implications may be of most use for practitioners working with clients in a career counseling setting. In determining the client's readiness for selecting a career choice, it would be helpful for counselors to ascertain the client's readiness to explore career options given her/his status of ego identity development. For example, clients who are Diffused may be perfectly satisfied with inactivity in regard to exploring and committing

to a career direction, thus needing only minimal guidance and future direction for when the client is ready. Students rating higher on Moratorium may need a great deal of assistance in exploring who they are and what options may be more suitable for them. In understanding these same individuals, this research seems to indicate the usefulness of combining an understanding of the client's readiness to explore and commit to her/his ego identity while also taking into consideration the client's Holland Vocational Identity, which appears to be a strong indicator of where the client is in the progression toward establishing a clear and stable sense of identity. It may further be considered that Vocational Identity is the level of comfort or satisfaction with the client's current identity status, thus indicating the level of readiness for exploring her/his identity in relation to career development.

This research may also be useful for practitioners in regard to Holland's typology and the best possible fit between the client and the environment in which the client will interact (congruence). Although no evidence suggests a connection between ego identity development and P-E congruence, higher Vocational Identity did indicate individuals as being more P-E congruent. Thus, practitioners who use Vocational Identity may consider those with lower scores as needing more assistance in learning more about their RIASEC typology and how that typology may be useful in choosing a certain academic major or future career. Clients who demonstrate a Diffused ego identity may also need special attention in the same regard.

Finally, practitioners using the CDS may find use in combining this instrument with a measure of identity development such as EOM-EIS. Identifying students who are

more career indecisive may allow for a better understanding of how the client engages in the identity formation process and the difficulties that they may encounter in deciding upon an ego identity.

Recommendations for Future Research

Future research should attempt to replicate and extend these findings, especially in regard to the overlap between ego identity and Holland's measures of career development. For example, a strong relationship exists between the four ego identity statuses in relation to Vocational Identity. A replication of these statistically significant relationships is warranted, with application toward how these variables inter-relate in explaining other criteria of theoretical value, such as adjustment issues, flexibility and adaptability, psychological separation from parents, etc. Of specific interest is the inverse relationship of Moratorium and Vocational Identity, which given this sample seem to be the best indicators of the combined identity variables. Further research may also attempt to clarify the relationship of ego identity to the career development process, specifically focusing on career developmental tasks that may invigorate ego identity formation and assist individuals through the identity developmental process.

These findings as well as DeMania (1999) seem to indicate that both I-M and I-FC congruence have a low relationship to ego identity formation. However, due to changing economic and workforce realities in the U.S., different measures of P-E congruence (e.g. Holland, 1997) may provide a better means of understanding the connection between ego identity formation and P-E congruence. Furthermore, females

showing higher I-FC congruence and lower Diffusion may substantiate the need to further investigate congruence and identity status in relation to gender.

This study employed a single-item response for the indication of the participant's satisfaction with academic major. Although support has been provided for single-item responses (Robinson et al., 1991), a more extensive scaling of these measures would have been preferred. Furthermore, investigating satisfaction in areas other than academic major may further contribute to explaining how this measure of well-being relates to identity development.

Finally, Vocational Identity has received a great deal of empirical support as a general measure of career development, with emphasis upon clarity and crystallization of beliefs, goals, and values. Nevertheless, in accordance with this research as well as others (see Holland et al., 1993), this latent construct seems to further endorse a general sense of well-being, both psychologically as well as vocationally. Replication and refinement are needed in clarifying how Vocational Identity relates to the well-being measures used in this research as well as other potential measures, i.e., other measures of achievement, more expanded measures of satisfaction, and other key indicators of stability in one's academic major/career/life.

Summary

This study sought to clarify similarities of two popular theories of career development, Erikson's/Marcia's identity development theory and how it relates to facets of Holland's theory of career development. First, a strong relationship was indicated between Holland's Vocational Identity and each of Erikson's/Marcia's ego

identity statuses, with the exception of Foreclosure, which appeared unrelated to any of the measures used to employ the synthetic constructs of the career development process. As indicated in previous research, Holland's P-E congruence also indicated little to no relationship to ego identity development. In review of the canonical analysis, ego identity development appears to be related to measures of well-being. However, Vocational Identity seems to be most strongly related to measures of well-being, designating this scale as a general measure of well-being. Finally, ego identity development appears to be strongly related to a general construct of career development. These results have clear implications for theory and practice and lay a foundation for further research in comparing these two theories of adolescent and young adult career development.

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APPENDIX A

INFORMED CONSENT FORM AND QUESTIONNAIRE

CONSENT FORM

Person-Environment Congruence and the Identity Development of Young Adults: Converging Two Theories of Career Development

I have been asked to participate in a research study on career awareness and development. I was selected to be a possible participant because of the classes in which I am enrolled. A total of 200 people have been asked to participate in this study. One purpose of this study is a required dissertation for completion of the doctoral degree for Brian Lancaster. Another purpose of this study is to compare individual identity on two theories of career development. If I agree to be in this study, I will be asked to complete a packet of career awareness and development instruments outside of class and return the packet at a specified date.

This study will only take maximum 40-50 minutes. The risks associated with this study are that there is a slight risk that some students may feel uncomfortable about their career awareness or their career choice. There are several benefits of participation in this study. First, I will receive feedback about my career interest profile. Second, I will receive information about potential careers that are compatible with my interest profile. Third, I will receive information on sources to contact in order to learn more about my career development. Finally, I will receive gift certificates (listed on attached Gifts & Awards page) when I turn in my packet and will be entered into a drawing to receive either a $25, $50, or $75 gift certificate to Post Oak Mall. The drawing will occur at the conclusion of the fall semester, approximately early December. This study is anonymous in that my name will not be linked to the packets that I complete. The records of this study will be kept confidential. No identifiers linking me to the study will be included in any sort of report that might be published. Research records will be stored securely and only Brian Lancaster will have access to the records. My decision on whether or not to participate will not affect my current or future relations with Texas A&M University. If I decide to participate, I am free to refuse to answer any of the questions that may make me uncomfortable. I can withdraw at any time with out my relations with the university, job, benefits, etc., being affected. I can contact Brian Lancaster at (979) 845-0544, blancaster@tamu.edu, or Dr. Linda Parrish at (979) 845-1831, l-parrish@tamu.edu, with any questions about this study.

This research study has been reviewed by the Institutional Review Board- Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, I can contact the institutional Review Board through Dr. Michael W. Buckley, Director of Research Compliance, Office of Vice President for Research at (979) 845-8585 (mwbuckley@tamu.edu). I have read the above information.

I have asked questions and have received answers to my satisfaction. I have been given a copy of this consent document for my records. By signing this document, I consent to participate in the study.

Name (Please Print):_____

Signature:_____ Date: _____

Signature of Investigator:_____ Date: _____

Thank you for participating in this study. Please answer **all** of the following questions on the space provided.

1. Gender (check one):

_____Male   _____Female

2. Age: _____

3. Current Academic Major: _____
(If **double majoring**, which major is more relevant to where you think you will be in your future career?)

4. When did you begin your Current Academic Major?   _____ _____

Month   Year

5. Number of Hours Completed: _____

6. Current Overall Grade Point Ratio (GPR): _____

7. Race & Ethnicity (check one or more):
_____American Indian or Alaska Native
_____Asian
_____Hispanic or Latino
_____Not Hispanic or Latino
_____Black or African American
_____Native Hawaiian or Other Pacific Islander
_____White
_____Some Other Race

8. What **career** would you like to do **after graduation**?
_____

9. How **satisfied** are you with your **current academic major**? (please circle a number)

1	2	3	4	5
Dissatisfied		Neutral		Satisfied

10. How likely are you to **change to another major** before you graduate?

1	2	3	4	5
Not Likely		Neutral		Likely

APPENDIX B

IACHAN (1984) M INDEX WEIGHTS

	1st Letter	2nd Letter	3rd Letter
1st Letter	22	10	4
2nd Letter	10	5	2
3rd Letter	4	2	1

APPENDIX C

HAND-OUT PROVIDING INFORMATION ABOUT GIFTS AND AWARDS FOR

PARTICIPATION

Gifts & Awards

**Special thanks to each of the sponsors below for donating
the following items to this research project:**

Donor	Gift	#	Disbursement
Marble Slab Creamery	Free mixin'	200	All students receive following completion of packet
Dominos Pizza	free order Cinnastix	100	Half receive this following completion of packet
Margarita Rocks	free regular queso	50	One in 4 receive this following completion of packet
ALL PARTICIPANTS WILL RECEIVE ONE OF THE FOLLOWING :			
Dominos Pizza	free large pizza	50	Provided to participant following completion of packet
Buppys Catering	$5 gift certificate	13	Provided to participant following completion of packet
Fuddruckers	free hamburger	24	Provided to participant following completion of packet
Freebirds	free huge burrito	3	Provided to participant following completion of packet
Hot Dogs Etc.	2 free hotdogs	100	Provided to participant following completion of packet
Margarita Rocks	$10 gift certificate	10	Provided to participant following completion of packet
Marble Slab Creamery	free ice cream	6	Provided to participant following completion of packet
Casa Ole	$10 gift certificate	3	Provided to participant following completion of packet
ALL PARTICIPANTS ENTERED INTO END-OF-SEMESTER DRAWING FOR THE FOLLOWING GRAND PRIZES:			
BL Enterprises	$75 Gift Certificate	1	End of semester lottery for all completed packets
BL Enterprises	$50 Gift Certificate	1	End of semester lottery for all completed packets
BL Enterprises	$25 Gift Certificate	1	End of semester lottery for all completed packets

APPENDIX D

HAND-OUT PROVIDING INFORMATION ABOUT HOLLAND CODES AND ON-

CAMPUS AND WORLD WIDE WEB RESOURCES TO ASSIST PARTICIPANT

WITH CAREER DEVELOPMENT
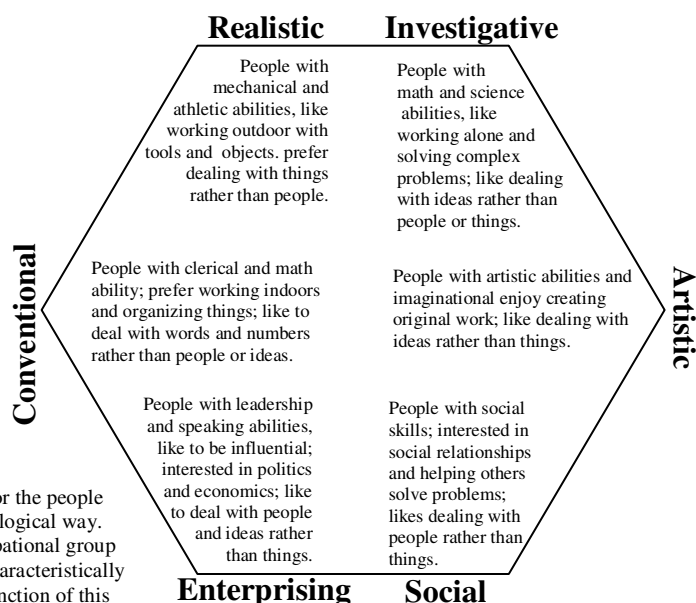
Holland Summary Code:

☐   ☐   ☐

Highest   2nd   3rd

Using the Self-Directed Search (SDS), please write your Holland Summary Code in the 3 boxes above.

One popular theory of career choice (John Holland's Person-Environment Fit) assumes that occupations, or the people that work in those occupations, may be grouped in a logical way. It further assumes that members of a particular occupational group frequently have similar personalities and that they characteristically respond to similar situations in similar ways. As a function of this similarity of style, these persons create a "characteristic interpersonal environment." Finally, it's assumed that a person's occupational satisfaction is a function of the "match" between the person's interest and the environment in which the person works.

Realistic — People with mechanical and athletic abilities, like working outdoor with tools and objects. prefer dealing with things rather than people.

Investigative — People with math and science abilities, like working alone and solving complex problems; like dealing with ideas rather than people or things.

Conventional — People with clerical and math ability; prefer working indoors and organizing things; like to deal with words and numbers rather than people or ideas.

Artistic — People with artistic abilities and imaginational enjoy creating original work; like dealing with ideas rather than things.

Enterprising — People with leadership and speaking abilities, like to be influential; interested in politics and economics; like to deal with people and ideas rather than things.

Social — People with social skills; interested in social relationships and helping others solve problems; likes dealing with people rather than things.

From these basic assumptions about people and occupations, Holland suggests that people can be classified into several generic categories or personality types (six, to be exact). These basic personality types can be arranged on a hexagonal scale (seen above), and the environments that typically match these environments are as follows (for more details about each of these fields, please visit http://www.couns.msu.edu/self-help/holland.htm):

- **Realistic** occupations include mechanics, carpenters, surveyors, farmers, and other occupations requiring mechanical abilities.
  - Typical Majors associated with R - http://www.couns.msu.edu/self-help/r-theme.htm
- **Investigative** occupations include scientific occupations such as chemists, physicists, biologists, anthropologists, and other occupations requiring mathematical and scientific abilities.
  - Typical Majors associated with I - http://www.couns.msu.edu/self-help/i-theme.htm
- **Artistic** occupations include musicians, writers, interior decorators, actors, and other occupations requiring writing, musical, artistic or creative abilities.
  - Typical Majors associated with A - http://www.couns.msu.edu/self-help/a-theme.htm
- **Social** occupations include counselors, psychologists, social workers, teachers, clergy, speech therapists, and other occupations requiring social and interpersonal abilities.
  - Typical Majors associated with S - http://www.couns.msu.edu/self-help/s-theme.htm
- **Enterprising** occupations include salespeople, politicians, buyer, sports caster, television reporter, and other occupations requiring leadership and speaking abilities.
  - Typical Majors associated with E - http://www.couns.msu.edu/self-help/e-theme.htm
- **Conventional** occupations include accountants, bankers, analysts, bookkeepers, executive assistants, industrial engineer and other occupations requiring clerical and arithmetic abilities.
  - Typical Majors associated with C - http://www.couns.msu.edu/self-help/c-theme.htm

On-Campus Student Support Offices

Student Counseling Services (*website:* http://scs.tamu.edu *phone number:845-4427 location: Henderson Hall)* – The SCS provides services for students at Texas A&M University, including Academic and Career Services, Personal Counseling, Volunteer Opportunities, etc. Their goal is to help students achieve as much success as possible at A&M.

Counseling & Assessment Clinic (*website: http://mentors.tamu.edu/Information/Resource/CouselandAssessClinic.htm phone number: 845-8021 location: 1st Floor Harrington Education Tower*) - The Counseling and Assessment Clinic (CAC) is a training facility for Masters and Doctoral students in the Educational Psychology Department. The students provide counseling services under the supervision of the Educational Psychology Department faculty.

ATMentors (*web site: http://mentors.tamu.edu phone number: 845-6900 location: Henderson Hall*) - AT*Mentors* is a volunteer organization composed of faculty, staff and administrators who have agreed to be available during some office hours to listen to students who "just want to talk to someone." Members listen to students and stay informed about services and programs at TAMU.

APPENDIX E

JAVASCRIPT SOURCE CODE

```
<!doctype html public "-//w3c//dtd html 3.2//en">

<html>
<HEAD>

<SCRIPT LANGUAGE="JavaScript">
<!-- Original:  Ronnie T. Moore -->
<!-- Web Site:  The JavaScript Source -->
<!-- Based on code by:  Cyanide_7 -->

<!-- This script and many more are available free online at -->
<!-- The JavaScript Source!! http://javascript.internet.com -->

<!-- Begin
function getRandomNum(lbound, ubound) {
return (Math.floor(Math.random() * (ubound - lbound)) + lbound);
}
//  End -->
</script>
</HEAD>

<body bgcolor="#ffffff" text="#000000" link="#0000ff" vlink="#800080"
alink="#ff0000">

<!-- STEP TWO: Copy this code into the BODY of your HTML document  -->

<BODY>

<SCRIPT LANGUAGE="JavaScript">
<!-- Begin
document.write("Random number in [1,4]:  ");
document.write(getRandomNum(1,4));
//  End -->
</script>

this is a test

<!-- Script Size:  0.94 KB -->

</body>
</html>
```

VITA

Brian Paul Lancaster

_____

PERMANENT ADDRESS

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                       Bryan, TX 77802
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Ph.D. in Educational Psychology   1997- 2006
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Texas A&M University, College Station, Texas

MS in Counseling Psychology   1995-1997
Abilene Christian University, Abilene, Texas

BA in Bible, Ministry, Cum Laude   1992-1994
Abilene Christian University, Abilene, Texas

Associate of Arts   1991-1992

White's Ferry Road School of Biblical Studies
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