A STUDY EXPLORING THE RELATIONSHIP BETWEEN COLLEGE MAJORS AND FUTURE CAREERS

by

GEORGE F. THOMPSON

(Under the Direction of Diane L. Cooper)

ABSTRACT

This study explored the relationship between college majors and future careers of college students enrolled in a career development course. The subjects included two hundred thirty-one undergraduate students enrolled across nineteen sections of the same career development course at a large southern Research Extensive university. At the beginning and end of the course, all participants completed the Career Decision Scale (CDS) (Osipow, Carney, Winer, Yanico, & Koschier, 1976), Career Factors Inventory (CFI) (Chartrand, Robbins, Morrill, & Boggs, 1990), and two adapted parallel instruments to measure major decidedness (Thompson, 2003a, and 2003b). These instruments were used for comparison of perceived differences between majors and careers. The posttest design also involved completion of a qualitative questionnaire seeking to understand how students make meaning of majors through a series of open-ended questions (Thompson, 2003c). The study resulted in an in-depth appreciation of the role that college majors play in the lives of students. The results of this study also revealed significant understanding of how students perceive college majors in relation to future careers. Both qualitative and quantitative results offer support for further research on college majors employing various samples outside Research Extensive universities. Implications for retention

are discussed in relation to major and career indecision. Suggestions for further research and implications for practice are explored from both a curricular and administrative perspective.

INDEX WORDS: College Students, Major Indecision, Career Indecision, Career Decision Scale, Career Factors Inventory, Retention.

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DEDICATION

To my father, who began teaching me the meaning of unconditional love and support early on in my life. I could live a million years and would be happy to die if I am able to become one tenth of the man you were.

To my mother, my greatest supporter and friend; I am so proud to be your son and to have received the gift of your intelligence, strength, perseverance, and love.

To my brothers and sisters, there is no greater blessing in my life today than the role each of you plays. You are incredibly talented, creative, loving, and giving human beings who continue to inspire me on a daily basis.

Finally, to my nephews, you are the next generation of a family rich with love and spirit. You both have motivated me to finish this process by continuously reminding me of what it means to be a role model. Reach for the stars in everything you do and know that there will always be someone to support you in your quest.

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George F. Thompson
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INTRODUCTION

The developmental changes that occur during the college years are documented thoroughly in student affairs literature. This literature, however, has the ability to focus on both the process of development as well as the outcomes of development. Literature devoted to the process of development seeks to understand how a student thinks, feels, and behaves when exposed to the college environment. The general nature of such research is to create a picture for understanding the college student engaged in a multitude of tasks. In contrast, literature devoted to the outcomes of development seeks to report trends and actions taken by students as a result of developmental processes. Both types of research inform one another, but as a result of the breadth of research method and purpose, processes can be lost and outcomes can go unreported. This study explores the relationship between majors and careers of college students enrolled in a career development course.

The relationship between choice of major and future careers has not been fully researched in relation to college students. Researchers using college majors as a primary construct have focused on the number of times students change majors or the number of students remaining undeclared in major. (Foote, 1980; Theophilides, Terrenzini, & Lomanz, 1984). These outcome oriented statistics do not inform practitioners interested in understanding why students leave college or why it takes some students longer than others to graduate (Newton & Gaither, 1980; Plaud, Baker, & Groccia, 1990; Titley & Titley, 1980). Very little research attempts to

determine how students come to understand majors, their relationship to future career options, or the process of choosing a major (Kelly & White, 1990).

As choosing a major is part of the larger college experience, it is necessary to place students in a context to begin understanding factors that contribute to the process of selecting a major. It is in understanding the developmental processes of college students that allow for relationships to be explored between the collegiate major and other events taking place in a student's life. The college years offer research on both cognitive and psychosocial development as students begin to encounter events specific to the college experience and begin to think differently about those experiences (Baxter Magolda, 1992; Chickering & Reisser, 1993; Evans, Forney, & Guido-DiBrito, 1998; and Pascarella & Terenzini, 1991). Should a specific process regarding major decision-making be taking place, it would be occurring during a developmental period marked by vast amounts of transition (Pascarella & Terenzini, 1991).

The choice of a career for college students has been researched in both process and outcome. Employment statistics have historically been used as a means of determining a colleges' worth based upon the number of graduates employed (Chartrand, Dohm, Dawis, & Lofquist, 1987). Colleges promote their worth by asserting a connection between high profile career placement of graduates and the institution itself. Research on college career outcomes however does not place any value on the number of times a student changes their choice of career in college or the number of students who remain undecided on a career. This is an interesting contrast to collegiate majors, which are tracked based upon a decided/undecided status and also tracked based upon the number of times a student changes their mind regarding a major.

Career decidedness literature has offered a number of attributes associated with the career decision-making process (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). A number of variables related to psychological security have been uncovered regarding the process of choosing a career, including separation, attachment, and self-concept issues (Tokar, Withrow, Hall, & Moradi, 2003), anxiety (Newman & Fuqua, 1990), self-efficacy (Kraus & Hughey, 1999; Taylor & Betz, 1983), and impression management (Sabourin & Coallier, 1991). These psychological variables have all been related to the college experience, and as a result, there is much interest in knowing what prevents students from deciding upon a career and how students actually go about doing so in an expedient manner (Kraus & Hughey, 1999).

In order to place the career decision-making process into that of the entire college student experience, it is necessary to examine what is known about the career development process during the college years. Theories of career choice have historically focused on the broad psychological, sociological, and cultural factors that impact career choices (Brown, 2003). Researchers interested in the career choice process continue developing ideas that focus specifically on personality traits, human development processes, and social learning (Holland, 1997; Mitchell & Krumboltz, 1996; Super, 1990). These theories often include stages, which focus on developmental periods such as adolescence and the college years. Theories emphasizing personality development and learning processes have allowed for instruments to be developed as a means of testing the theories with college students (Chartrand, Robbins, Morrill, & Boggs, 1990; Osipow, Carney, Winer, Yanico, & Koschier, 1976). The processes associated with career choice in adolescence have been researched with great detail, but outcomes such as

the number of career changes during the college years is noticeably omitted from literature (Brown, 2003; Zunker, 2002).

The literature associated with career development is vast and spans the lifetime; therefore, it is no surprise that subdivisions of this literature have appeared. It is in a specific subdivision of career development literature that of career decision-making literature, that the focus of research has placed importance on the college student population. As a result of focusing on college students, it is in the career decidedness literature that the major and career decision-making processes have been combined in discussion. Career related literature has for decades used the terms major and career interchangeably and has assumed the choice of a major is a "proxy" for a career (Orndorff & Herr, 1996, p. 633). The emphasis that majors receive in career-oriented literature is therefore, not grounded in research, but is based on an assumption of the relationship between majors and careers (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). From this point forward in this paper, the current assumption that majors and careers are interchangeable terms will be acknowledged as an accepted outgrowth of literature. It is through this accepted outgrowth that major selection has been viewed as part of the career development process; with little done to discover the role major choice plays in the process of career decision-making. Current statistics available show that 56 percent of college graduates report a close or direct relationship between their undergraduate area of study and their job(s) (Digest of Educational Statistics, 2002). This data shows that just over half of recent college graduates actually fit the current career-centered trend. What is not understood is how the remaining population of college students views majors in relation to their careers.

Statement of the Problem

It is important to distinguish between choosing a major and choosing a career. Whereas choosing a major is a pre-requisite to graduating from college, students are not required to commit to a specific career to graduate. Some students may view choosing a major as unrelated to their future, while others may try to find a major that will lead them to a specific career. This is one observation that has the potential to illuminate discussion of a major decision-making process that differs from the career decision-making process. These differences also raise specific questions with regard to assisting students in choosing a major through interventions such as academic courses.

Across college campuses, career development courses purporting to address both academic and career planning are using a career-focused method. A review of texts available from three major educational publishing companies shows limited information about choosing an academic major (Luzzo, 2002, Michelozzi, 2000, Schein, 1985). In fact, no texts currently available are solely dedicated to making major decisions (www.amazon.com, 2003). One text reviewed devotes only one page of discussion to the major decision-making process (Luzzo, 2002). It is not known how the current trend of viewing a major as a "proxy" for a career impacts college students' major choice as they engage in career decidedness courses using widely sold educational texts that underscore the topic.

Should the concept of a major decision-making process actually occur prior to that of career decision-making process, the impact on career development courses and students enrolled could be profound. Courses in career development and decidedness fill college campuses each year with many dedicated to serving first and second year students, regardless of whether or not the student has chosen a college major. The place in which majors and the major decision-

making process fits into the career decision-making process remains unclear. This study will focus on how students describe the major decision-making process when enrolled in a career decidedness course. Understanding how students think about majors in a career context will help illuminate discussion of the appropriateness of current career-focused texts and course content predominantly directed at the career decision-making process.

In addition, information regarding how college students make meaning of majors and the major decision making process has the ability to further the role that majors play in college student retention. As both major and career indecision have been linked to attrition, the ability to inform understanding of both in the context of a collegiate course holds promise (Brown & Strange, 1981; Hartman & Fuqua, 1983; Newton & Gaither, 1980; Plaud, Baker, & Groccia, 1990; Titley & Titley, 1980; Upcraft, Gardner, & Associates, 1989).

Concepts Related to Major and Career Decidedness

In the early 1980s, 1,600 students attending the university used in the current study reported a need for assistance with career related concerns, academic issues, and personal issues. (Weissberg, Berensten, Cote, Carvey, & Heath, 1982). The university currently offers a course each semester that appears to meet some of the reported needs. The official title of the course used in the current study is entitled “Choosing a Major and Career Goal,” and may have been developed to meet the needs revealed in the Weissberg et al. (1982) study. The course name, syllabus content (see Appendix A), and the course text entitled *Making Career Decisions that Count* (Luzzo, 2002) build a compelling case for a course like this to meet some of the needs identified in the Weissberg et al. (1982) study. The course utilized in the proposed research (heretofore referred to as the career course) purports an ability to foster both major and career decidedness, while the text and course content focus predominantly on career decidedness. This

study will examine student understanding of majors and the major decision-making process when enrolled in this course. This particular career course is ideal for assessing whether or not the current assumption, implying that majors are a "proxy" for careers, is more than just an assumption (Orndorff & Herr, 1996).

Collegiate Academic Majors

The types of major specializations students can choose from could contribute to the notion that choosing a major and a career are a simultaneous process. Payton (1961) uses the concept of depth of education to offer three varying purposes for academic major specialization: non-preparatory specialization would involve learning for the sake of learning rather than preparing for either an occupational specialization (career) or preparatory specialization (graduate study). The coupling of majors with occupational specializations lends to the popular belief that majors serve as an indicator for career intentions (Orndorff& Herr, 1996).

Changes in Major

The purpose behind an occupationally specialized major is to prepare students for future careers (Payton, 1961). The implied connection between majors and careers would support the notion that as students are changing their minds about majors, they would be doing the same with regard to careers. This theory is difficult to confirm, however, because only information regarding major changes is available. Foote (1980) estimated that 87 percent of students change their majors during the first two years of college. Another study shows that 45 percent of college students change their majors within the first two years (Theophilides et al., 1984). There is the potential to hypothesize that only those students committing to an occupationally specialized major account for reported major change statistics when changing their minds regarding a career. In contrast, it is possible to hypothesize that students choosing preparatory and non-preparatory

major specializations do not change their majors due to the absence of a short-term career commitment. As both options are extreme and unlikely, the fact remains that little is known about the relationship between majors and careers. This study intends to look at how students make meaning of the relationship between majors and careers when students are enrolled in a course focused on career decidedness.

Timing of Major Decidedness

In viewing the number of times a student chooses to change his or her major during college, it becomes apparent that multiple factors could be at play that influences change of major and choice of major. Institutional needs and expectations can perhaps place pressure on a student to commit to an academic program long before he or she may be ready to do so. Kelly and White (1993) assert that most students have not been exposed to a range and variety of majors before deciding upon one. The choice of major is made based upon majors that are most familiar to students (Kelly & White, 1993). Students may also feel pressure to declare a major as early as the first year because of the time required to follow specific academic paths. A number of collegiate majors require declaration as early as the first year to be able to graduate in a four-year period. This highlights the necessity of committing to a major without having to simultaneously commit to a career. It is unknown whether or not students perceive choosing a major as different from choosing a career when motivated by graduating in a four-year period.

The Relationship between Majors and Careers

Although most career literature does not offer information on college majors beyond the history of majors and statistics on changes in major, the collegiate major does appear in a separate body of literature, that of career decidedness. In an attempt to explain the differences between majors and careers, researchers have begun to focus on major indecision. There is

significant evidence, however, that there are no considerable differences between undeclared and declared majors when factoring in career development and aspirations (Anderson, Creamer, & Cross, 1989; Lewallen, 1993). As a result, Bergeron and Romano (1994) have called for future research to focus on the decision-making process for majors and careers separately. The proposed research calls for a review of the major and career decision making processes separately and then in comparison to determine any change in relationship between the two. The research proposed in this study intends to evaluate the major and career decision-making processes separately and then in comparison.

Career Decidedness Courses

It appears that more than fifty different books are being used as texts for college level career courses (www.amazon.com, 2003). The market demand for such texts creates a strong focus on career decidedness rather than that of major decidedness. The particular text used in the career course sample for this study devotes very little attention to the topic of major decidedness (Luzzo, 2001). In using a career-focused text, career courses potentially support the current trend by assuming majors do indeed serve as a "proxy" for careers (Orndorff & Herr, 1996). Research needs to clarify if career courses that focus solely on career information impact the major decision-making process. Should the predominant trend - that major's serve as a "proxy" for careers - hold, the question arises as to whether career-focused courses impact the major decision-making process.

Career-focused courses often receive financial and other types of support because research has shown that these courses actually reduce career indecision and could be linked to attrition. Tinto (1993) and Noel, Levitz, and Saluri (1985) suggest that career indecision may have a direct effect on retention in college. To compliment the link to retention issues, Kraus

and Hughey (1999) found that upon completion of a career course, students reduced career indecision and exhibited more confidence in making career decisions. Interestingly enough, both major and career indecision have been linked to attrition (Brown & Strange, 1981; Hartman & Fuqua, 1983; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980; Upcraft et al., 1989), yet no research has taken place to determine the impact career focused courses have on reducing major indecision. This information supports the need for research to explore major decidedness within the context of a career-focused course. If majors and careers are in fact interrelated, the major decision making process should be revealed through quantitative and qualitative inquiry.

Career Decision-Making

The foundational literature for understanding the career decision-making process is vast compared to that of the major decision-making process. As the current trend has merged the process of major and career decision making into one, it becomes necessary to understand the two components being compared. Research has shown that choosing both majors and careers is considered solely as a career need for college students (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). This data does not allow for understanding how questions are posed regarding majors and the choices offered to students in explaining what, if anything, majors mean to their collegiate experience. This data could also explain why colleges continue to primarily focus solely on the choice of career in traditionally taught career decision-making classes (Orndorff & Herr, 1996). Research implemented regarding careers has not included the concept of majors.

Premature Career Decisions. Newman and Fuqua (1990) offer the notion that premature commitment to a career could have repercussions that prove costly in both human and economic

terms. The authors advance the notion that a developmentally delayed career commitment would allow individuals to avoid stress associated with changes in career and the cost of additional educational programs (Newman & Fuqua, 1990). If a major actually serves as a "proxy" for career decisions, the repercussions of premature major decidedness could be similar. The course utilized in this study allows for investigation of the role that majors play as students develop the skills necessary for making career decisions.

Career Decision-Making Constructs. The area of career decision-making has identified relationships between career decidedness and psychological security variables such as separation, attachment, and self-concept (Tokar, Withrow, Hall, & Moradi, 2003), anxiety (Newman & Fuqua, 1990), self-efficacy (Kraus & Hughey, 1999; Taylor & Betz, 1983), and self-deception/impression management (Sabourin & Coallier, 1991). Research has not been completed on the relationship between choice of major and similar psychological security variables.

Majors and Careers Linked to Retention

Retention of college students has been at the forefront of many research studies designed to understand this multifaceted component of the college student experience (Baker & Siryk, 1989, Braxton & Lien, 2000; Braxton, Sullivan, & Johnson, 1997; Noel et al., 1985). In making decisions regarding majors and careers, lack of self-knowledge, educational or career information, and decision-making skills has continued to negatively impact college students (Moore, 1976; Rayman, 1993). This fact alone is disconcerting; however, when coupled with the national increase in college student attrition, the cause for concern escalates. It is critical for institutions to discover if current career courses taught decrease indecision regarding both majors

and careers in a manner consistent with all components of retention literature and not just career related components.

Purpose of the Study

The purpose of this study is to compare the major decision-making process with that of the career decision-making process of students enrolled in a career decision-making course. The researcher will use the Career Decision Scale (CDS) (Osipow et al., 1976), Career Factors Inventory (CFI) (Chartrand et al., 1990), two adapted and complementary instruments to measure major decidedness (Thompson, 2003a, 2003b), and a qualitative questionnaire to measure how students understand college majors (Thompson, 2003c). By using the aforementioned instruments, the researcher will assess the differences between the major and career decision-making processes as well as how students come to understand these two concepts in relationship to one another when enrolled in a career course. The researcher intends to provide faculty and staff developing career courses with useful information regarding how students make meaning of the major decision-making process and any relationship the process has to that of the career decision-making process. This research has the potential to either confirm the current assumption regarding the relationship between majors and careers or perhaps open discussion for the revision of career courses.

Overview of Intended Approach to Research

The research proposed will last an entire semester and involve students enrolled in 19 sections of a career course offered at a large southeastern Research Extensive university. Participants will be provided two quantitative instruments measuring career decidedness, two adapted instruments measuring major decidedness, and a qualitative instrument assessing how students come to understand majors when enrolled in a career course.

Research Terms Defined

In order to obtain the clearest picture of how students come to understand majors when enrolled in a course and using a text designed to promote career decidedness, the constructs must be well defined. The following six terms were derived from the instruments used in this study (Chartrand et al., 1990; Osipow et al., 1976). Differences in major/career decidedness will be assessed based on the following constructs:

1) Major/career choice anxiety: measures the level of nervousness that is felt when making a major/career decision.
2) Generalized indecisiveness: measures a general tendency towards having difficulty making decisions.
3) Need for major/career information: measures the perceived need to acquire specific information about or experience in various occupations before making a major/career decision.
4) Need for self-knowledge: measures the desire for greater self-understanding, especially in regard to making major/career decisions.
5) Major/career certainty: measures the degree of certainty resulting from having made a decision regarding a major or career.
6) Major/career indecision: measures major/career indecision (Chartrand et al., 1990; Osipow et al., 1976).

Additional terms used throughout this study are also offered for understanding of the professional context involved with advising and counseling on both academic matters and career concerns:

7) Academic Counselor: For the purposes of this study, and academic counselor is a term used to distinguish counselors from advisors. An academic counselor, in the context of this study, represents and individual who works with academic advising and views their role as holistic with regard to student issues. Academic counselors are trained in graduate programs that include counseling courses. This term is inclusive of professional staff devoting their career to academic counseling and not faculty fulfilling the role as a part of their assigned duties.
8) Career Counselor: This term is used to distinguish university professionals who work with both the career development and job placement portions of a student's college experience. Career counselors are trained in graduate programs that include counseling courses.
9) Professional School Counselor: This vocabulary is applied in favor of the historic "high school guidance counselor" term.
10) Enrollment Manager: This term is used to identify individuals at the college level who work with recruitment, admission, and multiple efforts designed to retain and graduate students. The role of enrollment manager will vary on college campuses.
11) Career Center: A career center is recognized as a place on college campuses where students can receive both career counseling and job placement assistance. Larger college campuses may have multiple career centers on one campus. Career Centers are identified as having professional staff serving as career counselors.
12) Advising Center: An advising center is the place where college students would find counseling and guidance on academic issues. On many college campuses, advising centers will vary in size and location. It is not uncommon for each major on a college

campus to have its own advising center. Advising Centers are identified as having professional staff serving as academic counselors.

13) Counseling Center: A college counseling center is defined as a place where students go to obtain personal counseling that may include academic and career counseling. The distinction between a counseling center, and the aforementioned career and advising centers, is the training required of staff prior to employment. Counseling centers employ individuals with doctoral degrees in a psychology or counseling related field.

The instruments used in this study will examine the differences between major and career decidedness on each of the constructs. This study will also examine the differences between the pretest and posttest on each of the constructs.

Research Questions

The researcher will use the Career Decision Scale (CDS) (Osipow et al., 1976), Career Factors Inventory (CFI) (Chartrand et al., 1990), two adapted and complimentary instruments to measure major decidedness (Thompson, 2003a, 2003b), and a qualitative questionnaire to measure how students understand college majors (Thompson, 2003c). Based on instrumentation, research questions have been designed to uncover how students come to understand majors, the major decision-making process, and any difference between majors and careers when enrolled in a career course. The following research questions have been proposed:

Qualitative Research Questions

1. How do students who have just completed a career course describe the relationship between majors and careers?
2. How do students who have just completed a career course describe the process of choosing a major?

3. How do students who have just completed a career course describe the role of a college major in their current life?

Research Questions for the 2 Constructs of the CDS/MDS

RQ1: Is there a difference in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course at the beginning of the course?

H_{01}: There is no difference in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course at the beginning of the course.

RQ2: Is there a change in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course?

H_{02}: There is no change in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course.

RQ3: Is there a correlation between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course?

H_{03}: There is no correlation between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course.

Research Questions for the 4 Constructs of the CFI/MFI

RQ4: Is there a difference in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course at the beginning of the course?

H_{04}: There is no difference in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course at the beginning of the course.

RQ5: Is there a change in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course?

H_{05}: There is no change in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course.

RQ6: Is there a correlation between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and the major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course?

H_{06}: There is no correlation between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of

major choice anxiety, generalized major indecisiveness, the need for major information, and the major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course.

Limitations

In undertaking this research it is necessary to cite the limitations and discuss the generalizability of the study. The use of the qualitative component of this study to understand meaning making of majors/major decidedness cannot be generalized beyond the sample population. As this research is taking place at a Research Extensive institution the findings may be limited in their applicability to other institutions. In addition, the career decidedness course used in this study is not intended to account for all changes in major and career decidedness in the lives of first and second year students. The population chosen, although not entirely convenient based on the study's purpose, is not random. The population, however, is impacted by two considerations. First, the ability of individual instructors to teach the career course at different competence levels and with varying skill surely could impact the responses of students. Second, the students used in the study will have multiple reasons for taking the career course that have no relationship to major/career decidedness. For example, students may choose to take the career course based upon scheduling ease or perceived rigor of the course. Finally this study will not follow students in a longitudinal manner, an approach that would be ideal for understanding long-term changes in meaning making structure regarding majors.

Chapter Summary

Professional school counselors, college advisors, and career counselors have long acknowledged that people choose majors and careers for a variety of reasons. However, there is a distinct lack of consistent scientific evidence to explain the reasons behind why people choose

the majors they choose. The primary purpose of this research plan is to understand, through adapted quantitative instruments and a qualitative questionnaire, exactly how majors fit into the career decision-making process when students are enrolled in a career decision-making course. If major decisions are in fact a "proxy" for career decisions, this study will provide further information describing the major decision-making process. It is critical to understand how students think about majors in the context of a specific course designed to assist them in deciding upon a career. This research will simultaneously shed light on how students think about majors and how they make decisions about majors when enrolled in a course designed to foster career decidedness. This research also has the ability to either support or dispel the current trend and the notion that majors serve as a "proxy" for careers (Orndorff & Herr, 1996).

Chapter 2

LITERATURE REVIEW

The effects of combining major choice/selection and career decisions, in a career related context, without understanding how students make meaning of majors may result in any number of unexplained issues in the college student experience. To date, the predominant view of the literature is that "an academic major is a proxy for an occupation or career path" (Orndorff & Herr, 1996, p. 633). This view is not grounded in research but is an accepted outgrowth of literature equating major uncertainty with career uncertainty. The literature reviewed in this study will focus specifically on the evidence reported regarding major decision-making, career decision-making, major and career decision-making courses, and other factors that have been associated with the concepts of majors and careers. In undertaking a review of the literature to uncover how students make meaning of majors and careers, it is critical to acknowledge the quantifiable evidence and qualitative narratives reported thus far in all areas connected to major and career decidedness. The review of available methodologies and paradigms for increased understanding of majors and careers is intended to establish a foundation for understanding the value of the chosen methods of research for this study.

Student Development Context

The students participating in the current study have one thing in common; they are in enrolled in a course focused on the career decision-making process. This is where the commonalities end. Each student observed in this study differs in the way they experience tasks or responsibilities associated with the college experience and they way they think about those

tasks. There is an abundance of literature devoted to both the psychosocial tasks and cognitive processing stages associated with the college experience (Baxter Magolda, 1992; Belenky, Clinchy, Goldberger, and Tarule, 1986; Chickering & Reisser, 1993; Evans, Forney, & Guido-DiBrito, 1998; Josselson, 1987; and Pascarella & Terenzini, 1991).

The work of Chickering and Reisser (1993) offers comprehensive insight into the developmental tasks, or vectors, associated with the college experience. The vectors are described as "major highways for journeying towards individuation" (p. 24). Students can, and often do, move through the vectors at differing speeds. It is also not uncommon for a student, depending on the situation, to revisit the same vector at multiple points in the college experience and throughout the lifespan.

Chickering and Reisser (1993) assert that there are seven vectors associated with development including: developing competence, managing emotions, moving through autonomy towards interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing identity. Each of these vectors highlights different aspects of college student development and furthers understanding of potential differences across any research sample involving college students.

Supplementing the work of Chickering and Reisser (1993) are various research studies devoted to understanding the psychosocial tasks specific to women and minorities (Evans et al., 1998; Pascarella & Terenzini, 1991). The research of Josselson (1987) and Cross (1971, 1995) are frequently cited when discussing the development of college students. Josselson (1987) explored the differences in psychosocial development between women and men. Her research asserted that women's identities were developed primarily in relationship to others, as opposed to males who tended to build their identity through political, sexual, and occupational decisions

(Josselson, 1987). Cross (1971, 1995) explored the development of African American men and created a framework used for understanding the psychosocial tasks associated with that population. Results of this work showed a positive conversion process for African American men that asserted race as a defining factor in psychosocial development.

Although extremely informative, research on psychosocial development does not answer the question of how students think about the tasks they encounter throughout the college experience. It is the area of cognitive development that addresses how students think, learn, make decisions and intellectually process the experiences they have in college (Pascarella & Terenzini, 1991). A great deal of cognitive development research has centered on the intellectual development of college students.

Belenky et al., (1986) and Baxter Magolda (1992) explored gender differences in the cognitive development of college students. Both research efforts were influenced by Perry's (1968) work on the cognitive development of college males. Belenky et al. (1986) asserted that women's cognitive development was intricately related to their relationships and that women tend to learn in communion with others. Baxter Magolda (1992) attempted to understand gender-related patterns in the learning process. This work revealed Baxter Magolda's (1992) belief that knowledge is socially constructed for both men and women. Gender differences in cognitive development are most apparent when examining the strength of an individual's self-concept or voice, and relationships with authority figures and peers (Baxter Magolda, 1992, 1999).

The understanding of both psychosocial and cognitive developmental theories allow for greater understanding of the students surveyed in this study. Choosing a major is a psychosocial task associated with the college experience, and how a student comes to decide on a major could

exhibit varying levels of cognitive ability. Although development is not the focus of this study, the concepts reviewed here are relevant to understanding the subjects utilized in this study.

Academic Majors as a Construct

It is important to understand why students are compelled to commit to a particular area of study. According to the Carnegie Foundation for the Advancement of Teaching (1977), the academic major or concentration is the dominant feature in undergraduate education. Levine (1978) traces the evolution of the term "major" to the German word "hauptfach," which was part of Immanuel Kant's German university model. Kant's model first required students to complete a "hauptfach" (major concentration) to graduate from a university. In 1881, the major curriculum was introduced at the University of Indiana by Davis Starr Jordan, who is credited with giving the concept national visibility in the United States. When Jordan became the president of Stanford in 1881, he brought the concept to California, thus expanding the idea of majors geographically. By 1905, major requirements could be found across the United States in all types of institutions. Harvard introduced the concept of a major curriculum in 1905 but preferred to use the term concentration to distinguish between the required depth component of the curriculum and the student chosen elective requirements (Levine, 1978).

Purpose of Majors

The major or concentration usually consists of numerous courses in one field or in two or more related fields and usually is considered the depth component of the undergraduate curriculum (Levine, 1978). Payton (1961) clarified the concept of depth of education further by offering three purposes for a major: non-preparatory specialization, preparatory specialization, and occupational specialization. Non-preparatory specialization involves learning for the sake of learning rather than preparing for either an occupational specialization (career) or preparatory

specialization (graduate study). It is the area of occupational preparation that consumes much research linking majors and careers, an area that neglects both non-preparatory and preparatory specialization. In many ways colleges and universities have created the need for commitment to an academic program through the evolution of a defined curriculum. The focus on occupational specialization is understandable as research shows today's college students making career decisions earlier than their predecessors (Herr & Cramer, 1992). In addition, the coupling of majors with occupational specialization supports the current trend in research reporting with majors serving as an indicator of career intentions (Orndorff & Herr, 1996).

The concept of majors evolved from an institutional need to clarify the difference between a core specialized curriculum and that of electives or distribution requirements (Stark & Lattuca, 1997). The historical purpose of majors, originally reported as an institutional need for clarification of the curriculum, has also been connected to a student need for clarification. The Carnegie Foundation for the Advancement of Teaching (1977) asserts that getting "a detailed grasp of a specific field" was either important or essential to most undergraduate students (p. 201). The shift from viewing majors as solely meeting institutional needs to additionally meeting student needs has yet to be researched in literature. This information adds complexity to the major selection process and raises additional questions regarding student commitment to an academic major.

Changes in Major

Changes in major have been utilized in outcomes studies as a means of reviewing the number of times students change majors, but have yet to be explored as a means of understanding the developmental process behind why students change majors. Research on students who change majors shows that those students who entered a university with an

undeclared major changed their major fewer times than those who made an initial commitment (Kramer, Hughey, & Olsen, 1994). This finding implies that students who enter college with an undeclared major will later narrow their choice to one field, and therefore change less once committed to their academic program. Foote (1980) estimated that 87 percent of students change their majors during the first two years of college and that possibly 90 percent of freshman were unsure of their academic major. Theophilides et al. (1984) found that 45 percent of students changed their majors during both the first and second years, and on the other end of the spectrum only 25 percent of the students studied never changed their majors during their college experience. The implied relationship between majors and careers supports the notion that as students are changing their minds about majors, they are doing the same with regard to careers. Research has yet to ascertain whether major changes equate to career changes in the minds of college students.

Timing of Major Decidedness

Many factors complicate the major decision making process, with most factors centering on differing institutional requirements regarding the timing of major declaration. When an institution requests a student to make a formal commitment to an academic program and when it is mandated may make a difference in the level of commitment a student has to their academic discipline. In addition, “many colleges ask students to make a tentative major choice at the time of application in order to avoid mismatching student admittees with the institution’s distribution of faculty and physical resources” (Levine, 1978, p. 189). Finally, a large population of students will not make a formal commitment to an academic program at the point of admission. Whether students are asked to choose a major upon admission or come in with an undeclared major, final

commitment to an academic program is evidenced through student graduation with a specified major (Lewallen, 1993).

The fact that most colleges require students to declare a major in order to graduate creates a timing concern for college students and could result in varying levels of major decidedness. Institutional needs and expectations can place pressure on students to commit to an academic program long before they are ready to do so. Kelly and White (1993) assert that most students have not been exposed to a range and variety of majors before deciding upon one. The choice of major is made based upon majors that are most familiar to the student (Kelly & White, 1993). An example that highlights the importance of declaring a major in today's college environment is the time required to follow a specific academic path. Specific areas of study, particularly those in the natural sciences, encourage students to begin taking major courses as early as the first day of college (Levine, 1978). Failure to begin the major in the freshman year in some areas of study often means attending summer school or taking more time to finish a degree. Colleges and universities are also keenly aware of the importance placed on the average time it will take a student to complete his or her degree and will attempt to minimize that amount of time by encouraging students to declare a major as early as possible. What is not known is whether the timing of major declaration has a negative effect on students.

The Comparison of Majors and Careers

A relatively small but noteworthy area of examination is literature comparing majors and careers. The link between majors and careers has been examined by placing an emphasis on declared or undeclared major status and the relationship to career decidedness (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). There is a debate over this focus of research because it implies that students with declared majors are more

settled with their career decisions and that undeclared students are more unsettled and anxious about careers. There is significant evidence, however, that there is no difference between declared and undeclared majors in terms of career decidedness or career aspirations (Anderson, Cramer, & Cross, 1989; Lewallen, 1993). This initial attempt to separate majors and careers through the lens of major decidedness offered mixed results and lack of confidence in the predictability of the research.

Reporting on Majors and Careers

The decision of researchers to combine majors and careers in reporting occurs mainly in large-scale college surveys. The use of large-scale surveys coupling majors and careers into one reporting category give credibility to the notion of a "proxy" relationship between the two. Over one million students who took the American College Test assessment in 1983 reported needing help in finding both a major and a career (American College Testing Program, 1984). In addition, over 50 percent of college students surveyed at approximately 100 institutions of higher education expressed the need for special assistance in making both academic and career decisions (Hannah & Robinson, 1990). The dilemma faced in using this kind of reporting is that there is very little description of what exactly students mean when they express the need for assistance with major and career selection.

Shifting Focus to Careers

Major and career choices may be complimentary, equivalent, or perhaps not related, but to date there is no evidence showing proof of any of these claims. The amount of research that has been done attempting to understand the factors associated with career decidedness far outnumbers the work done to understand major decidedness. In offering the vast research on careers and the career decision-making process, the intent is to show the multitude of areas that

have been deemed equivalent to choosing a major without verified research for making such a claim. The following literature reviewed in this chapter is devoted to the sole exploration of careers and career decidedness. This literature is presented due to the limited amount of research focused solely on majors and major decidedness.

Career Development and the College Student

Theories of career development are concerned with broad psychological, sociological, and cultural factors related to the lifespan of human beings (Brown, 2003). It is though theories referencing the period of adolescence that career development literature relates to the college student experience. The career development literature centering on personality theory and social learning theory are quite applicable to the understanding of the college age population.

Holland's theory of vocational choice (1997) has been refined since original publication in 1959. Holland asserts that vocational choice changes across the lifespan based upon personality characteristics, career stereotypes, aspirations, and identity. This theory blends with other psychosocial development theories as he asserts that individuals choose different occupations based on the extent to which their identity is developed. Identity development is a hallmark of psychosocial development and is the foundation of Holland's theory. According to Holland (1997), there are six "pure" personality types contributing to career and identity development of individuals (p. 19). The six personality types are: realistic, investigative, artistic, social, enterprising, and conventional (Holland, 1997). It is through demonstrated vocational interests, educational interests, or employment that individuals are identified as one of the six personality types (Brown, 2003). As the identity development of college students is a continuous process, the adolescent stage references to Holland's theory involve uncertainty and transition (Brown, 2003).

Super began studying the lifespan associated with career development in the early 1950s. Super's theory focuses on an individual's self-concept or self-image in building the foundation for a process that is relational in nature. Super (1980) describes the college years as critical to the development of self-concept. He asserts and that a student's anticipation of a specific career plays a large role in enhancing self-concept and that careers are chosen as a means of obtaining a desired self-image (Super, 1980). It is the extent to which individuals allow the external environment and personal limitations to diminish self-concept that can contribute to compromised career goals. Super's theory rests upon the belief that self-concept determines career maturity (Super, 1980). It is the notion of self-concept and maturity when discussing college student development that adds variability to any research done with this population.

Krumboltz (1979) theory of career development is referred to as a learning-based theory as it assumes career choices are learned and result in specific beliefs and behaviors. Four factors asserted by Krumboltz (1979) as integral to career decision-making are: biological factors, environmental influences, learning experiences, and cognitive processing abilities. Each of the factors builds upon another as biology and environment contributes to learning experiences, which in turn contribute to cognitive growth. It is through learning experiences that individuals face either positive or negative outcomes resulting in learned behaviors. It is through multiple learned behaviors that individuals develop and are able to make career-oriented decisions with more advanced levels of cognition (Zunker, 2002). The integration of cognition to career development theory allows for understanding of how students think about making career decisions.

As was the case with student development theory, career development theory offers depth of understanding with regard to the issues facing students as they decide upon careers. The

career-related psychosocial tasks observed by both Super (1980) and Holland (1997) compliment the literature offered by Chickering and Reisser (1993) regarding the vector related to developing a life purpose. In addition, the work of Krumboltz (1979) is complimentary to the cognitive research of Belenky et al. (1986) and Baxter Magolda (1992). Each body of research refers to developing a more complex way of thinking as a result of exposure to social circumstances. The purpose of including career development theory in this review was to continue expanding the description of the student sample utilized in this study.

Career Decidedness as a Construct

Career related literature supports the idea that multiple factors are involved in making career decisions. In addition, research has shown that choosing both majors and careers is considered solely as a career need for college students (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). Considering the current trend of majors serving as an indicator of career choice, this data could explain why colleges continue to primarily focus on the choice of career in traditional career decision-making classes (Orndorff & Herr, 1996). It is necessary to understand that career researchers have offered a limited focus on the possible relationship between majors and careers in research done on the career decision-making process. The following are examples of numerous research studies completed regarding career-decidedness that are not inclusive of major-decidedness and have not been extended to include the concept of majors in reporting.

Premature Career Decisions

Newman and Fuqua (1990) assert that premature commitment to a career could have repercussions that could prove more costly in both human and economic terms than would a developmentally delayed career commitment. It is for this reason that investigation of career

decision-making constructs is necessary and must focus on career decided students as well as career undecided students (Newman & Fuqua, 1990). If the current trend holds, and majors are involved in the career decision-making process, the repercussion of premature commitment to a major could have an effect on career commitment. Additional research on the relationship between majors and careers is needed to ascertain a relationship and any impact majors might have on the career decision-making process.

Factors Associated with Career Decidedness

The area of career decision-making constructs has been evolving over the past two decades with much focus on the development of instruments to measure decidedness. The focus on decidedness has attempted to verify the factors involved in making a career decision. Thus far, research has identified relationships between career decidedness and psychological security variables such as separation, attachment, and self-concept (Tokar et al., 2003); anxiety (Newman & Fuqua, 1990); self-efficacy (Kraus & Hughey, 1999; Taylor & Betz, 1983); and self-deception/impression management (Sabourin & Coallier, 1991). Each of these factors has been linked to the career decision-making process with no research done on the possible relationship between majors and the same concepts. For instance, research has not been done to indicate whether students choose majors as a means of decreasing anxiety about the future or perhaps as a mechanism for impressing parents and friends.

Career Decidedness and Self-Concept. Tokar et al. (2003) broadened the call for further factors in defining career indecision by offering issues of attachment for consideration to those previously mentioned. The concept of attachment theory is not new in psychology but is relatively new in relation to career indecision. Tokar et al. (2003) asserted that attachment has played a role in a number of developmental issues including adjustment, and therefore could play

a role in career decisiveness. Tokar et al. (2003) used the Career Decision Scale (Osipow et al., 1976) along with the Adult Attachment Scale (Collins & Read, 1990), the Vocational Rating Scale (Barrett & Tinsley, 1977), and the Career Factors Inventory (Chartrand et al., 1990). The researchers began study in 2001 (N = 350) and by the end of data analysis in 2002 were able to offer no significant overall correlations between attachment and career indecision (Tokar et al., 2003). Adjustment and attachment are issues currently linked to college majors through retention (Baker & Siryk, 1989; Plaud, Baker, & Groccia, 1990). As the relationship between majors and careers remains unexplored, it is unknown whether academic majors played any role in the results reported by Tokar et al. (2003).

Career Decidedness and Anxiety. Newman and Fuqua (1990) sought to expand the definition of career indecision and offered a study focused on adding anxiety as a factor in career indecisiveness (Newman & Fuqua, 1990). The researchers indicated that premature commitment to a career could create a sense of anxiety within an individual. The results of the study ($N = 122$, $p < .05$) provided evidence that increased levels of career decidedness resulted in decreased anxiety. Newman & Fuqua (1990) recommended further tests to ascertain the role anxiety might play in promoting or developing career decidedness. The relationship between career indecision and anxiety has not been broadened to examine the role major indecision might play in the relationship between careers and anxiety.

Career Decidedness and Social Desirability. Sabourin & Coallier (1991) raised the question of whether a relationship existed between social desirability and career indecision. Their study (N = 185) was undertaken to determine if a relationship existed between career indecision, peer and family impression management, and self-deception (Sabourin & Coallier, 1991). This study took place in Canada with French speaking students and showed no

statistically significant correlations between the variables. The lack of evidence reported in this study called for further inquiry into the proposed relationship with a larger population. There has been no interest expressed by researchers in exploring any potential relationship between collegiate majors and social desirability.

Career Decidedness and Self-Efficacy. The concept of self-efficacy regarding career decisions has been evolving since the early 1990s. Kraus & Hughey (1999) offered research (N = 1625) exploring the role of self-efficacy in relation to career decidedness. Self-efficacy in this study referred to tasks and behaviors required in making career decisions and were measured using the Career Decision-Making Self-Efficacy Scale (Taylor & Betz, 1983). Career indecision was measured using the Career Decision Scale (Osipow et al., 1976). The researchers found no overall significant correlations ($p = .17$) between the two instruments used in this study but did find a relationship between gender and career decisiveness when taking self-efficacy into account (Kraus & Hughey, 1999). The authors indicated the need for further research on the relationship between gender, self-efficacy, and career decidedness. The possibility of a relationship between major decidedness and self-efficacy has not been explored, nor has their been any attempt to examine a potential relationship between gender, self-efficacy, and major decidedness.

If majors do in fact serve as a "proxy" for careers, the exploration of career decidedness factors is currently taking place without examination of the role that majors might play in determining a career. The direction of career researchers has typically been focused on uncovering factors and then attempting to explore quantitative relationships through the development of instruments. The next section centers on various instruments that have been developed to measure potential career factors.

Instruments Exploring Career Decision-Making

The topic of instrumentation and measurement offers a description of the literature completed by researchers interested in gaining a more complete understanding of the factors associated with career indecision. The following research efforts have been aimed at perfecting the ability to determine an individual's level of decision regarding a career by using various factors to determine exactly what the career decision-making process looks like. These efforts are solely focused on career decision-making and pay very little attention to the concept of academic majors.

Career Decision Scale (Osipow, Carney, Winer, Yanico, & Koschier, 1976). In the early 1980s, the Career Decision Scale (Osipow et al., 1976) was actively used within the counseling profession. The Career Decision Scale (CDS) was originally marketed to career counselors seeking to provide guidance to and effective interventions for college students who had yet to decide upon a career (Gordon, 1981). By 1981, Samuel Osipow was being heralded for uncovering the mystery behind career indecision (Gordon, 1981). The CDS was promoted as an instrument designed to measure individual understanding of self-identity concerns and other related psychological issues. It was assumed that measurement of these factors would allow for intervention and success in solving career related dilemmas. Through the use of two scales, the CDS attempts to measure both career decidedness and career indecision. Although the CDS has the ability to measure five different factors associated with vocational decision-making, the authors only support the use of factors combined into the aforementioned two scales due to reliability concerns.

My Vocational Situation (Holland, J.L., Daiger, D.C. & Power, P.G., 1980). My Vocational Situation (Holland et al., 1980) was developed as an instrument for "measuring

career decision-making along three dimensions: vocational goals, self-perception, and internal/external barriers" (p. 12). The dimensions created by Holland et al. were different in both name and theory from those offered by Osipow et al. (1976). The authors of My Vocational Situation (MVS) claimed to be measuring career indecisiveness in a different and more accurate manner than the CDS. Fuqua & Newman (1989) sought to test this assertion and found that the MVS and CDS actually measured the same constructs. The statistically insignificant results ($p > .05$) once again affirmed Osipow's position (1991b): his instrument was "not broken" and continued to measure the constructs of career indecision accurately (p. 332).

The Vocational Rating Scale (Barrett & Tinsley, 1989). To solve the problem of Osipow's reluctance to revise the CDS in light of emerging research, numerous instruments were developed to more accurately measure career decidedness (Barrett & Tinsley, 1989; Chartrand & Robbins, 1990; Holland, Daiger, & Power, 1980). The Vocational Rating Scale (VRS) was developed by Barrett & Tinsely (1977) to measure three of Donald Super's (1957) dimensions of self-concept and structure. Barrett & Tinsley created a construct they referred to as "career self-crystallization" (Tinsley, Bowman, & York, 1989). The authors believed that career self-crystallization could be measured through viewing vocational concepts separately and as a whole. The 40-item VRS was proven to measure career indecision in the same way as the CDS. Tinsley et al. (1989) used their publication to assert that the CDS "stands as a well-defined factor in analysis" (p. 119). The VRS was developed to measure career decidedness more accurately than the CDS, and the results affirmed that the CDS was operating effectively.

Career Factors Inventory (Chartrand, Robbins, Morrill, & Boggs, 1990). The Career Factors Inventory (CFI) was designed to assess the following constructs: career choice anxiety, generalized indecisiveness, the need for career information, and the need for self-knowledge

(Chartrand & Robbins, 1990). The CFI factor measuring the need for career information purports to measure the perceived need to acquire specific information about or experience in various occupations before making a career decision. The CFI factor focusing on the need for self-knowledge is offered as a scale measuring the desire for greater self-understanding, especially in regard to making career decisions. Career choice anxiety is a factor designed for the CFI to measure the level of nervousness that is felt when making a career decision. Finally, the fourth factor of the CFI, that of general indecisiveness is intended to measure a general tendency towards having difficulty making decisions. Research undertaken by Chartrand and Robbins (1990) with college students shows that the CFI measures completely different constructs than those of the CDS with very little overlap between the two instruments.

Career Decision-Making Courses

The concept of career indecision has a long history in the formal curriculum of higher education. Through a review of the literature associated with college career courses, the concept of majors periodically enters the discussion, but as is the case with career instrumentation, the focus remains on career indecision. The following section highlights the wealth of information related to the history of career development and measurement of career indecision in the curriculum.

Historical Background of Career Courses

Career decision-making courses date as far back as the early 1900s. Maverick (1926) noted freshman orientation and life-planning courses, which appeared as early as 1911, included academic credit. One of the early career courses was offered for women at Columbia University in 1921 with the title “Professional Occupations: Their Scope, Functions, and Newer Developments” (Maverick, 1926). In general, courses emerged at the turn of the century as one

way of delivering career services in colleges and universities. Little is known regarding the evolution of such courses, but the content of the courses takes shape in research from the early 1970s.

Borow (1960) was one of the first to describe a comprehensive course, "Vocational Planning," which was offered in the General College at the University of Minnesota in 1932. Carter and Hoppock (1961), however, suggested that Edgar Wiley had developed the first career course, which included a unit on occupations as part of a contemporary civilization course in 1923.

In the early 1970s, career classes appeared in the curriculum due to higher education's shift towards promoting holistic development of students and as a response to a restricted job market (Ripley, 1975). It was during the 1970s that career courses began to be offered in large lecture style classrooms due to a desire to maximize student exposure to these classes (Ripley, 1975). Faculty concern over the popularity of large career courses prompted debates on vocational courses as compared to traditional academic courses in the arts and sciences. The debates were fueled by faculty beliefs that vocational courses should not be receiving the same academic credit as courses in the arts and sciences. The vestiges of these debates are evident in the following section exploring the current state of career courses on college campuses.

Evidence of a Career Curriculum

Devlin (1974) conducted a survey of college placement offices to assess the extent to which career courses were offered in the college curriculum. This study revealed approximately 75 institutions offering this type of course and over 100 planning on doing so. Devlin pointed out that many of the career development courses offered in the 1970s covered three major areas: career choice factors, career information, and job-seeking techniques (Devlin, 1974). In

expanding on Devlin's (1974) work, Reardon, Zunker, and Dyal (1979) researched 450 colleges and universities nationally with a focus on career courses. Approximately 29 percent indicated that a career-planning course for credit was available at their campus. Further, 33 percent indicated that the issue of career education was being studied at their school.

In the early 1990s, Mead and Korschgen (1994) undertook a national study by assessing two institutions in each state to gain a broader understanding of current career course practices. This research reported 62 percent of institutions surveyed offered some kind of career course. Interestingly enough, three types of courses emerged: career decision-making, job search preparation, and specific disciplines related to careers.

It is important to note that career courses across college campuses differ in many ways. Several factors illuminate the impact of these courses on future discussion. On many college campuses, career courses are offered with credit ranging from 0–3 units per semester. In addition, career courses are designed with specific populations in mind, with some focused on the needs of first-year students and others focused solely on third-year and fourth-year students. At some institutions, an academic program might require a specific career course as part of the curriculum, whereas other career courses do not count towards a degree. At some institutions, career courses focus on personal growth, self-discovery and career exploration, while others focus predominantly on job search issues. In addition, the home department of career courses differs, with some offered by academic departments while others are offered solely through career centers. In addition, across institutions, the instructors designated to teach career courses can range from tenured faculty to career services staff to peer educators. Regardless of these differences among career courses, there is a wealth of data showing that career courses have a significant impact on the students enrolled in these courses.

Impact of the Career Curriculum

The ability of college career courses to increase levels of career decidedness has been cited in research since the 1960s. The career classroom has proven to be an effective source for data collection exploring career indecision. The career classroom has been used predominantly to test various career indecision instruments since the early 1960s. The studies offered in the following section have been grouped according to the instruments tested in each study.

Career Courses and Internal-External Locus-of-Control Scale (Rotter, 1966). Bartsch and Hackett (1978) were interested in studying the locus of control associated with career decisions. Locus of control refers to the feelings of responsibility or control student's feel they have with regard to a career decision. Bartsch and Hackett (1978) utilized a pretest/post-test design and the use of the Internal-External Locus-of-Control Scale (Rotter, 1966) in two sections of a career course setting. The study also utilized two control groups. Results showed that students enrolled in the career courses believed themselves to have more control over career decisions, a result that potentially leads to greater levels of self-efficacy in decision-making as well as ability to take responsibility for those decisions.

Career Courses and the Career Maturity Inventory (Crites, 1973). The Career Maturity Inventory (CMI; Crites, 1973) was designed to measure subjective reactions toward making a career decision along with other cognitive variables, such as how one comes to understand issues involved in making such a decision. Smith (1981) used the CMI (Crites, 1973) to assess the effectiveness of two career classes, with one offering a structured experience and the other offering an unstructured experience. This study included two career guidance classes and a control group comprised of randomly selected students living in a residence hall who did not participate in the course. Smith (1981) discovered that levels of career maturity were higher in

the structured course vs. the unstructured course. These findings suggest that the effect of a career course may be dependent on a high level of class organization or structure.

Ware (1981) also used the CMI (Crites, 1973) to research career decidedness in a career course setting, focusing on junior and senior psychology majors. The study consisted of an experimental group of psychology majors enrolled in a career course and a control group of psychology majors not enrolled in a career course. Using the CMI (Crites, 1973) it became evident that the course improved levels of career maturity and understanding of self.

A second study conducted by Ware (1985) used the My Vocational Situation instrument (MVS; Holland et al., 1980) in addition to the CMI (Crites, 1973) to gain further insight into Ware's (1981) previous results. This study involved a pretest/post-test design to assess change as a result of the course. Two sections of a career course were utilized, with psychology majors enrolled in both sections. Results showed no significant differences for students on the CMI constructs, but the researchers did find significant differences on the MVS. In reviewing pretest/post-test scores, Ware (1985) found differences in analyzing the MVS scores with regard to vocational identity, barriers to career planning, and the need for career information.

Career Courses and the Career Decision Scale (CDS, Osipow et al., 1976). Davis and Horne (1986) utilized the CDS (Osipow et al., 1976) and CMI (Crites, 1973) to examine the effects of one career course on career decidedness and maturity as compared to a group of students involved in small group career counseling treatment. Both groups were examined in pretest/post-test analysis, and results showed no significant difference between those involved in small group counseling and those enrolled in a career course. The instruments confirmed, based on pretest/post-test scores, that both treatments increased levels of career decidedness and maturity. The researchers noted that both treatments appeared to be equally effective.

Lent, Schmidt, and Larkin (1985) used a career course for data collection in a study focused on students devoted to the physical sciences. Using the CDS (Osipow et al., 1976), Lent et al. (1985) found that the course impacted students' career decision-making ability, self-knowledge in relation to careers, knowledge of career information, and career-information seeking outside of the class. Each of these areas is a construct the CDS was designed to measure (Osipow et al., 1976).

Quinn and Lewis (1989) focused their research on junior and senior business students with a hybrid career course. The researchers incorporated a career component into an existing business course by including career related topics such as resume writing, job search strategies, presentations, and personal exploration. In using an experimental design, along with the CDS (Osipow et al., 1976), the researchers found that career certainty increased for those enrolled in the hybrid course. Discussion of this study involved the potential collaboration of student affairs and faculty to bring career concepts into academic coursework rather than offering separate career courses.

Garis and Niles (1990) conducted a study that involved over 100 students enrolled in a career course at two separate colleges and using the CDS (Osipow et al., 1976). The study also involved a control group and use of two computer programs to aid in career decision-making. The researchers concluded that the career courses were highly effective in positively affecting career decidedness.

Kern (1995) examined the effect of a career planning and decision-making course on career indecision. The experimental group included students who had enrolled in a career course, and the control group included students who had enrolled in a social sciences course. The CDS (Osipow, et al., 1976) was used to measure career decidedness. A pretest/post-test

procedure showed that students enrolled in the career course did not experience a decrease in their career indecision and actually had higher levels of career indecision than the comparison group at the end of the course. This finding was partially explained by the fact that students with higher initial levels of career indecision had chosen to enroll in the career planning and decision-making course.

In a similar study, Halasz and Kempton (2000) undertook research that showed results different from that of Kern (1995). The researchers compared a credit career course, Exploring Careers, with two non-career related courses. Using both developmental and experiential instructional techniques to increase learning about careers in psychology, the researchers administered the CDS (Osipow et al., 1976) as a pre-posttest measure of course impact on career certainty and indecision. They found that students in the career course, in comparison to students in a psychology course and a communications course, indicated more comfort with their career decision-making situation and more certainty about their career choices.

My Vocational Situation (MVS, Holland, J.L., Daiger, D.C. & Power, P.G., 1980).

Johnson, Smither, and Holland (1981) evaluated two career development courses to see what kinds of interventions were helping which students. The focus of the study was on the interventions used and the impact on career decidedness. Results showed that the use of inventories, workbooks, written assignments, individual counseling, and student evaluation actually increased vocational identity as measured by the MVS (Holland et al., 1980).

Rayman, Bernard, Holland, and Barnett (1983) undertook research focused on undeclared students enrolled in a career course. Using the MVS (Holland et al., 1980) with 255 enrolled in a career course, results indicated that the course had a positive effect on vocational identity as measured by the MVS. Rayman et al. (1983) noted that over the semester there was a

fluctuation in career identity, with men scoring high early on in the semester and women scoring higher by the end of the course.

Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996). The CTI is based on Cognitive Information Processing (CIP) theory (Peterson, Sampson, & Reardon, 1991; Peterson, Sampson, Reardon, & Lenz, 1996). Three construct scores are included in the CTI assessment: 1) Decision Making Confusion, which is characterized by an inability to begin or continue the career decision-making process; 2) Commitment Anxiety, which is characterized by a reluctance to commit to a single career choice; and 3) External Conflict, which denotes negative thinking concerning the balancing of one's own career perceptions against those of significant others (Sampson et al., 1996). In a validity study, Sampson et al. (1996) reported that the CTI accurately discriminated between those seeking career services and those exhibiting negative or dysfunctional career thoughts.

Reed, Reardon, Lenz, & Leierer (2001) undertook research in a career course setting to scrutinize the work of Sampson et al. (1996). Reed et al. (2001) used the CTI to determine the validity of the instrument to distinguish between those seeking career services and those with dysfunctional career thoughts. The researchers evaluated the effect of a career course on negative or dysfunctional career thoughts with pretest, midtest, and posttest administrations of the CTI. The course involved much discussion of dysfunctional thinking as a barrier to career decision-making and an exploration of CTI scores. In addition, the course text (Reardon, Lenz, Sampson, & Peterson, 2000) includes a discussion of cognitive information processing theory and procedures for reframing negative career thoughts. Results showed that students decreased their negative thinking with regard to career planning on all three CTI subscales, with the greatest change occurring among students who began the course with negative career thoughts.

The researchers acknowledged that test-retest bias and test familiarity could have resulted in improved CTI scores but maintained that the instrument and the course decreased levels of negative career thinking. The researchers did not discuss the absence of a control group in this study.

Majors and Careers Linked to Retention

The review of research related to major indecision and career indecision in various settings has shown that there is a disproportionate amount of the published work focused on career indecision. The research focused on careers and career indecision has provided a blueprint of ideas for furthering research on majors, given the notion that majors could serve as a "proxy" for careers. There are however practical reasons for expanded understanding of collegiate majors and their relationship to careers. The growing interest of higher education in retaining students for economic reasons has prompted large amounts of research related to retention. What is of interest to this study is the continuous mention of both majors and careers in retention literature. It is the area of retention that completes the review of literature by focusing on the potential that greater understanding of both majors and careers could have on college student retention.

Because colleges and universities have come under fire in the past decade for their inability to retain college students, connections have been made between retention and the combined areas of major decidedness and career decidedness (Bergeron & Romano, 1994; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980). In outcome-oriented studies, the combined category of major indecision and career indecision has been linked to attrition (Brown & Strange, 1981; Hartman & Fuqua, 1983; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980; Upcraft et al., 1989). Recognizing that major indecision and

career indecision have yet to be linked to one another, Bergeron and Romano (1994) have called for future research to focus on the decision-making process for majors and careers separately because "it would appear that the processes by which individuals make career and college major choices are different for everyone" (p. 23). This research has yet to be completed.

The Academic Nature of Retention

Research on retention began with a theory behind why students leave college (Tinto, 1975). Vincent Tinto has achieved near-paradigmatic status with his internationalist theory of college student departure. (Braxton and Lien, 2000). Tinto (1993) describes the process of adjustment to college as being a critical factor in retaining college students. He states that adjustment "involves the meeting of explicit standards of the college or university and integration relates to an individual's identification with the structure of the academic system" (Tinto, 1993, p. 104). Tinto (1993) states that adjustment "involves the meeting of explicit standards of the college or university…and relates to an individual's identification with the structure of the academic system" (p. 104). In addition, adjustment further defined as a "reflection of the student's appraisal of the institution's academic system" (Tinto, 1993, p. 104). Academic adjustment did not receive notice in research until Tinto (1975) allowed for discussion of these issues by offering a broad definition of adjustment factors in the process of retaining and graduating students. Tinto (1975, 1987, 1993) describes a process of academic integration as being pivotal to a student's successful completion of degree. It is within Tinto's (1987, 1993) definition of academic adjustment that researchers have the ability to explore collegiate majors and potentially expand the definition.

There has been recent noteworthy criticism of Tinto's model in its description of academic adjustment and perceived missing elements (Braxton and Lien, 2000). In particular,

Tinto (1993) describes an academic adjustment process that does not account for factors beyond intellectual development and academic achievements. Braxton and Lien (2000) suggest that topics such as "intellectual isolation" of students and "academic normative congruence" are missing from Tinto's definition of academic adjustment (p. 24-25). Academic normative congruence refers to how closely a student aligns with the attitudes and mission of an academic system or program (Braxton and Lien, 2000). Intellectual isolation is concerned with the process a student engages in when they are unable to find a major field of study or interest (Braxton and Lien, 2000). This criticism opens up Tinto's model for expansion into areas that would focus on emerging factors to possibly link the past importance of academic programs to the college adjustment process.

Both Tinto (1993) and Braxton and Lien (2000) acknowledge there is significant room for improvement in the theoretical foundation of retention. What is evident is the lack of research focusing on the academic adjustment process of college students, a process that could involve the choice of academic major.

Career Courses and Retention

A majority of research done on career courses acknowledges the need to assess the long-term impact of such courses on students through graduation and into their careers (Collins, 1998). Recommendations for further research focus on how career courses impact student retention and the quality of work life after graduation (Collins, 1998). Tinto (1993) noted that career indecision is one of the factors that may influence student retention. Tinto suggested that extended career uncertainty leads students to question their continued presence on college campuses (Tinto, 1993). Noel et al. (1985, p. 12) offered the following with regard to retention: "Our experience indicates that the second major theme of attrition, uncertainty about what to

study, is the most frequent reason talented students give for dropping out of college." Tinto (1993) and Noel et al. (1985) appear to suggest that career indecision may have a direct effect on retention in college. It is theory such as this that calls for more extended and advanced research on the impact of college career courses.

In a simple assessment effort, Bechtol (1978) began his study with the mission of finding out why almost 50 percent of incoming freshman at the institution studied did not return the following year. A course entitled "Orientation to Higher Education" was developed to address the universities' dilemma. The course had the following objectives: support academic planning, assist in the choice of an academic counselor, and finally the selection of a major and a tentative career plan. Results of the study indicated that undecided freshmen that completed the course returned for the following school term at a rate significantly greater than undecided freshmen that did not complete the course. No discussion was devoted to whether or not course objectives were met and students actually chose majors as a result of the course.

The work of Collins (1998), Bechtol (1978), Noel et al. (1985), and Tinto (1993) highlight the connections made between career courses and college student retention. Although collegiate majors are not the focus of these research efforts, the area of retention literature is continuing to evolve and offers great possibility for further investigation of majors in relation to career courses.

Major Status and Retention

It has been established that adjustment issues, both social and academic, contribute to college student retention (Tinto, 1975, 1987, 1993). There has however been conflicting research over major decidedness as a determining factor in the retention of college students. Muskat (1979) suggested, "Personal commitment to either an academic or occupational goal is

the single most important determinant of college persistence (Muskat, 1979, p. 20)." Muskat's work (1979) supports the notion that declaration of major is a factor in college student persistence without being related to adjustment.

Lewallen (1993) undertook a study that eventually refuted evidence that undecided students have a greater chance of not persisting. The study asserts that undecided students are more of the norm than one would believe and that their inability to persist is based more on personal characteristics, the college environment, and college involvement, regardless of whether or not they are declared in a major. As Muskat (1979) believes that academic majors play a large role in retaining college students, regardless of adjustment, and Lewallen (1993) asserts that having a declared major does not play a role in retention, it appears there is room for research to explore this contradiction. The contradiction could be explained by research methods, or perhaps dispelled by replicating Lewallen's (1993) study and adding the concept of adjustment to the research. Regardless of interpretation, the concept of major decidedness has been linked to college student attrition and retention.

The Muskat (1979) and Lewallen (1993) studies appear to focus on major indecision at first glance, but are actually both outcome studies that used declared/undeclared major status as an indicator of retention rates. Neither study explored the process of major decision-making nor how students come to understand college majors.

Chapter Summary

The introductory chapter provided a brief overview of the issues at hand when attempting to understand the decision-making process associated with college majors. The literature reviewed in this chapter revealed a great deal of research on the concept of career indecision with little work exploring the concept of major indecision. In research, the constructs of major

decidedness have not been explored and a process for major decision-making has not been established. The specialized literature devoted solely to collegiate majors has remained outcome-based in primarily reporting the declared/undeclared status of majors and the number of times a students changes his or her major. In addition, the concept of major decidedness has consistently been coupled with that of career decidedness with very little attention given to any significant relationship between the two processes.

The current trend noted throughout this study assumes majors are a "proxy" for careers (Orndorff & Herr, 1996) and the literature reviewed in this chapter supports that notion. What is most apparent through the review of literature is that coupling of major and career indecision has yet to be statistically linked. The simultaneous and interchangeable use of the terms major/career when reporting results have done little to show similarities and differences between the two concepts as well as any interconnected content as expressed through student voice.

The issues raised in the introductory chapter, combined with the evident gap in literature regarding collegiate majors, suggest the need for research centering on the major decision-making process. The proposed study will review the relationship between the major decision-making process and the career decision-making process. In addition to collecting data in the context of a career course, the study is aimed at exploring how students come to understand college majors in relation to careers. The following questions will be answered through this study: Is there a difference between the major decision-making process and the career decision-making process when enrolled in a career course? Does enrollment in a career course impact how students think about the major and career decision-making processes? How do students decide on a major? How do students make meaning of college majors in their life? What do students believe the relationship to be between majors and careers? The following chapter is

devoted to explanation of the research questions posed in this study, rationale behind instrumentation and methodology, as well as the actual research plan.

Chapter 3

METHODOLOGY

The current research study involved a concurrent pretest/posttest mixed methods approach to better understand how college students enrolled in a career course come to comprehend the major decision making process. In the study, the Career Decision Scale (CDS) (Osipow et al., 1976), Career Factors Inventory (CFI) (Chartrand et al., 1990), and researcher adaptations of the CDS (Major Decision Scale; MDS; Thompson, 2003a) and CFI (Major Factors Inventory; MFI; Thompson, 2003b), were used to measure the relationship between major decidedness and career decidedness. At the same time, the concept of "college majors" was explored using open-ended questions designed to uncover how participants view majors in relation to careers when enrolled in a course focused on career development. This chapter further explains participant selection, selection of site, data collection, instrumentation, research design, and data analysis.

Participants

At the beginning of fall semester 2003, there were approximately 300 students enrolled in 19 sections of a course focused on career decidedness at a large southeastern Research Extensive university. Five different instruments were administered to a sample comprised predominantly of first and second year college students enrolled in this course. The pretest administration of this study had 287 participants. The final group of participants consisted of students who completed both the pretest and posttest instrument administration. The final number of

participants in the study was 231, with 87% of those participating in the pretest offering to participate in the posttest.

All research participants were students enrolled in a course entitled, “Academic and Career Planning/Choosing a Major and Career Goal.” The course bears the name “Academic and Career Planning” on the student registration system while presenting the name “Choosing a Major and Career Goal” on the course syllabus (see Appendix A). The course (heretofore referred to as the career course) promotes the development of both major and career decision making skills, using a text, which devotes only one page to making decisions regarding majors (Luzzo, 2002). The career course traditionally enrolls a majority of first and second year students with a mix of races, genders, and commitments to major/career goals. In addition, the course is offered through the College of Education at the institution utilized for data collection.

Selection of Site

Collecting data from a course designed to promote career decidedness allowed for both qualitative and quantitative results within the desired context. Prigogine and Stengers, (1984) assert that what students call reality, perhaps the reality assigned to choosing majors and a career, is revealed only through participation in active construction of that reality. The career course provides the opportunity for active construction of meaning regarding careers as evidenced through the design and activities in the course syllabus (see Appendix A). The career course utilized in this study provided an ideal environment for data collection. Course subject matter was designed to require students to actively construct meaning with regard to careers while the instrumentation used in the study was designed to require active construction of meaning regarding academic majors.

Data Collection

Data from participants was gathered over a period of sixteen weeks beginning on the first day of classes for fall semester, August 18, 2003, and ending the last day of classes December 8, 2003. Prior to administration, the researcher contacted all section instructors of the career course to obtain permission to attend the first thirty minutes of each initial class meeting. Permission was granted prior to the study by the department housing the course to contact the career course instructors to obtain permission to collect data. All 19 section instructors approved administration during the initial class meeting.

The study was conducted in two phases. The first phase involved collecting pretest data using the MDS, MFI, CDS, and CFI. Two of the 19 sections of the career course, comprised of thirty-eight students, were used to pilot the qualitative instrument (Thompson, 2003c). This approach was utilized to ensure a sample group understood the questions posed. Upon meeting with each section, the researcher explained the purpose of the study and distributed consent forms and paper instruments using a script to maintain consistency (see Appendix H and I). The instruments took approximately twenty minutes to fill out. The order of instruments in each student packet required participants to focus on majors first and then careers when completing the instruments. Participants completed the MDS and MFI prior to completing the CDS and CFI. Upon completion of the administration, the researcher gathered the completed consent forms and instruments from all volunteers. This process was replicated in the final week of the career course for pretest and posttest analysis.

The second phase involved collecting posttest data using the MDS, MFI, CDS, CFI, and the researcher developed qualitative instrument. The posttest administration took place during one of the final three classes of each section. The same protocol followed in the pretest

administration was followed during the posttest administration. The quantitative instruments were packaged in an order consistent with pretest administration. The additional qualitative instrument offered during posttest administration was completed before any of the quantitative instruments to encourage detailed responses. The researcher then gathered the completed consent forms and instruments from all volunteers. Participation in this study was confidential and names were removed from instruments once pretest and posttest matching of individuals had taken place.

Instrumentation

This project utilized two standardized career decidedness inventories, the Career Decision Scale (CDS) (Osipow et al., 1976) (see Appendix B) and the Career Factors Inventory (CFI) (Chartrand et al., 1990) (see Appendix C). These instruments were used to measure pretest and posttest changes in levels of career decidedness. Permission was granted to the researcher to adapt both the CFI and CDS to measure major decidedness in the same manner that career decidedness is measured (see Appendix D and E). For the sake of reporting, the parallel instruments are referred to as the Major Decision Scale (MDS, Thompson, 2003a) and the Major Factors Inventory (MFI, Thompson, 2003b). The instruments were used to measure pretest and posttest levels of major decidedness. All four instruments were utilized for comparison. A final qualitative instrument (Thompson, 2003c) was developed as a means of informing distinctions in quantitative responses (see Appendix F).

Researcher Designed Qualitative Instrument

In an undertaking of this nature, it is especially important to define the constructs to be evaluated when attempting to understand “meaning making” regarding majors, when students are enrolled in a course designed to foster career-decidedness. The most effective approach to

understand how students make meaning of majors and major decidedness is through the use of a constructivist paradigm and a qualitative instrument. Constructivists are concerned with understanding the reality that individual's experience in every day life, a reality that is difficult to understand through the use of standardized quantitative questions. The use of a constructivist paradigm in exploring major decidedness is relatively new as the study of career decidedness has been predominantly positivist in nature (Peavy, 1997). The underlying purpose for utilization of a qualitative component is to reveal the complexities of student thoughts that could be overlooked through positivist inquiry (Baxter Magolda, 1992, 1999). A qualitative measurement technique enhances the identification of data that a quantitative measure cannot tap. This mixed design allows for discussion of the perceived relationship between majors and careers, as well as examination of the applicability of the current trend's view of the interchangeability of the two concepts (Orndorff & Herr, 1996).

The Career Decision Scale

The CDS (Osipow et al., 1976) has been cited as the predominant instrument for measuring career decidedness (Chartrand & Robbins, 1990). The 21-item CDS was designed to measure career indecision through the use of a Decidedness Scale and an Indecision Scale (Chartrand & Robbins, 1990). The late 1980's and 1990's served as a period where much research was devoted to the critique and proposed revision of the CDS Indecision Scale (Savickas & Jarjoura, 1991; Vondracek, 1991; Vondracek, Hostetler, Schulenberg & Shimizu, 1990).

The first two questions of the CDS comprise the Certainty Scale and measure career certainty by asking about both majors and careers. As the CDS Indecision Scale is made up of the remaining 19 items of the instrument, the Indecision Scale questions were clustered to

provide greater understanding of the factors associated with indecision. The Indecision Scale of the CDS identifies the clustering of the following four factors: lack of structure and confidence, perceived external barriers, positive choice conflict, and personal conflict (Chartrand & Robbins, 1990). Lack of structure and confidence with regard to vocational decision-making indicates the possibility of choice anxiety leading to avoidance of decision-making. The second factor of the CDS, external barriers, reflects the possibility of an external barrier influencing vocational choice to a preferred choice of the individual. Positive choice conflict is revealed when an individual has difficulty choosing from several attractive possible vocations. The fourth factor represents a personal choice conflict that prohibits decision-making. The final question of the CDS is an open-ended question designed to allow students to list other barriers to decision-making not represented in the scale. The CDS was originally test run with 737 students and revealed test-retest coefficients between .70-.90 with most correlations falling between .60-.70 (Osipow et al., 1976). Although the authors of the CDS advocate the use of the two scales presented, much research has been done to expand or reconfigure the original scales.

Cluster Formation of the CDS. The first focus of criticism of the CDS began with the original clustering of items for analysis (Chartrand, et al., 1990; Larson, Heppner, Ham, & Dugan, 1988; Newman & Fuqua, 1990; Vondracek et al., 1990). The first two questions of the CDS allow for participants to be clustered into an undecided or decided status regarding career choice/academic choice with the remaining 19 items measuring the level of decisiveness/indecisiveness regarding a career. Larson et al. (1990) undertook a research study ($N = 113$) aimed at proving the original clustering of the instrument's decided/undecided categories was too narrow. Cluster analysis revealed four distinct and statistically significant ($p < .05$) areas of decision/indecision: avoiders, informed indecisive, confident but uninformed,

and uninformed (Larson et al., 1990). The authors believed this study dispelled the "uniformity myth" that asserts all decision and indecision is the same (Larson et al., 1990, p. 449). Larson et al. (1990) called for revision of the CDS based on this finding.

The work of Vondracek et al. (1990) offered a more in-depth look at the concept of indecision. The study (N = 465) completed with high school students was undertaken over a three-year period to uncover long-term change associated with career indecision. The study also took gender and age into account. The researchers reworked the original CDS questions into four new clusters identified as follows: 1) Diffusion, which represents feelings of confusion, discouragement, lack of experience, and lack of information in making career decisions, 2) Support, which represents uncertainty in career decisions and requires additional support for initial decisions, 3) Approach-Approach, which represents a traditional conflict associated with valuing the possibilities available through several careers, and 4) Barriers, which represents external barriers and lack of interest in making career decisions" (Vondracek et al., 1990). The results of this study offered mixed support for this method of clustering, with correlations falling between .36- .58 on factor-based scales and .70-.81 on the overall CDS score. The study however did not invalidate or prove the method of clustering was more accurate than the original CDS approach.

In 1991, Savickas & Jarjoura began a study (N = 386) that would introduce the concept of using the CDS as a method of decision typologies based on a new cluster formation. The results showed a relatively large increase in 15 sums of squares and therefore gave the researchers the ability to propose using their method in clustering the CDS differently. The work of Savickas and Jarjoura (1991) was the first to warrant a response in print from Osipow (1991a), who made mention of the potential for using the CDS as an indicator for typologies such as those

suggested by Savickas & Jarjoura. The typologies uncovered by Savickas & Jarjoura (1991) are illuminated through the following cluster formations: A) Implementing choice or making plans, B) Specifying choice through advanced exploration, C) Crystallizing a preference through broad exploration of self and occupations, D) Unrealistic or learning to compromise, and E) Indecisive or learning to make decisions" (Savickas & Jarjoura, 1991).

Factor Analysis of the CDS. As numerous researchers were breaking down and rearranging the cluster arrangements of how the CDS was analyzed, an equal number were busy offering new factors to be included in the CDS (Kraus & Hughey, 1999; Newman & Fuqua, 1990; Sabourin & Coallier, 1991; Tokar et al., 2003).

One of the first research efforts undertaken to expand the CDS was a study focused on adding anxiety as a factor of career indecisiveness (Newman & Fuqua, 1990). Newman & Fuqua (1990) rationalized that premature commitment to a career choice could prove expensive in human and economic resources. They also rationalized that commitment to a career prematurely could create a sense of anxiety within an individual. The results of the study ($N = 122$, $p < .05$) proved that all levels of decisiveness/indecisiveness regarding career had a direct impact on anxiety. Newman & Fuqua (1990) recommended further tests to ascertain the role anxiety might play for varying levels of career decidedness.

Sabourin & Coallier (1991) brought the question of social desirability into question when regarding career indecision. Their study ($N = 185$) was undertaken to determine the relationship between career indecision, impression management, and self-deception (Sabourin & Coallier, 1991). This study took place in Canada with French speaking students and showed no statistically significant ($p > .05$) correlations between the variables. The study was most useful in showing that the CDS was not subject to variability ($p > .05$) where social desirability, as

measured by the variables in this study, was concerned. The authors made no mention of whether or not the translation of the CDS from English to French was considered a limitation of the study.

The concept of self-efficacy regarding career decisions has been evolving since the early 1980's. Kraus & Hughey (1999) began research (N = 1625) exploring the role self-efficacy in relation to career decidedness. Self-efficacy in this study entailed specific tasks and behaviors required in making career decisions and were measured by the Career Decision-Making Self-Efficacy Scale (Taylor & Betz, 1983). Career decisiveness was measured by the CDS. The researchers found no overall significant correlations ($p = .17$) between the two instruments used in this study, but did find a relationship between gender and career decisiveness when taking self-efficacy into account (Kraus & Hughey, 1999). The authors indicate the need for further research on the relationship between gender, self-efficacy, and career decidedness.

Tokar et al. (2003) broadened the call for further factors in defining career indecision by adding issues of attachment to those previously mentioned. The concept of attachment theory is not new in psychology, but is relatively new in relation to career indecision. Tokar et al. (2003) assert that attachment has played a role in a number of developmental issues, such as adjustment, and therefore could play a role in career decisiveness. Tokar et al. (2003) began data collection in2001 (N = 350) and by the end of data analysis in 2002 were able to offer no significant overall correlations between attachment and career indecision.

It is clear through review of the CDS over the past two decades that there remains controversy over what exactly constitutes career decidedness and career indecision among experts. Instruments continue to be developed and revised along with a call for qualitative research to fill in gaps that cannot be accounted for with quantitative inquiry. Given the

extensive work done to validate the CDS, it was chosen as one of two instruments used in this study. One other instrument holds promise for measuring career decidedness constructs different from that of the CDS, the Career Factors Inventory (Chartrand et al., 1990).

The Career Factors Inventory

The CFI (Chartrand et al., 1990) was developed utilizing the following constructs: 1) career choice anxiety, 2) generalized indecisiveness, 3) need for career information, and 4) need for self-knowledge (Chartrand & Robbins, 1990). The need for career information comprises the first factor analyzed by the CFI and measures the perceived need to acquire specific information about or experience in various occupations before making a career decision. The need for self-knowledge is offered as a scale to measure the desire for greater self-understanding, especially in regard to making career decisions. Career choice anxiety is a factor designed to measure the level of nervousness that is felt when making a career decision. Finally, the fourth factor offered in the CFI is that of general indecisiveness, which is intended to measure a general tendency towards having difficulty making decisions. This CFI has the ability to round out and complete those factors not existing in the CDS (Chartrand & Robbins, 1990).

The CFI was developed in several stages (Chartrand et al., 1990). The first stage involved identification of five relevant issues involved in the issue of career indecision, the four factors mentioned previously and that of self-esteem. The second stage of development involved confirmatory factor analysis, which revealed that the factor of self-esteem was loading significantly on each of the other scales. Therefore, the self-esteem scale was removed and a 21-item, 4-factor model was presented. After presentation of the revised scale, the CFI was tested on a sample of 409 college students with promising results (goodness-of- fit index = .94). A second factor analysis was conducted with college students on the four-factor scale with similar

results (N = 331, goodness-of-fit index = .91). The tests showed that the instrument was measuring what it was intended to measure and fit well within the designed constructs.

The CFI was specifically normed on college students as the authors believed this group was actively engaged in the career decision making process was deemed salient for these individuals. Although college students served as the normative group for testing the CFI, the instrument has been given to over 4,000 adults of different races, genders, and locales. Results show that the CFI was consistent in mean scores across diverse populations in relation to the college age norming population (Chartrand & Robbins, 1997).

The Combination of the CDS and CFI

The choice of using two established career decidedness instruments was based upon a review of available instruments and literature related to the effectiveness of those instruments. The CDS was chosen for this study based on extensive external evaluation and the ability to withstand enormous scrutiny over a 25-year period. The CDS measures constructs relevant to college students and has the ability to accurately measure four constructs accurately. In addition, the CDS offers an open-ended question allowing for student's to add their own thoughts along with three questions specifically devoted to choosing a college major. The CFI was chosen based on the ability to measure constructs different from that of the CDS as well as strong history of reliability and validity. The CFI was also chosen because it was the only instrument developed for and tested solely on college students.

A literature review showed the 21-item CFI to be measuring factors different from those measured by the CDS. In addition, Chartrand & Robbins undertook a study in 1990 (N = 740) to ascertain whether or not the two instruments were predicting the same outcome, career decidedness. The results of the study affirmed that the CDS and the CFI were indeed measuring

different constructs (goodness-of-fit index = .90) and therefore are not interchangeable. Chartrand & Robbins (1990) advised practitioners and researchers to consider using the CDS and CFI together.

Researcher Adapted Major Decision Scale (MDS)

The researcher was granted permission by Psychological Assessment Resources, Inc. to adapt the Career Decision Scale. Adaptation has involved making only minor changes to the CDS by replacing the word "career" with that of "major." This instrument will be referred to as the Major Decision Scale (MDS, Thompson, 2003a) for the sake of consistency and clarity across this document. The MDS (see Appendix D) was used to measure major decidedness and compared with the results from the CFI to determine any relationship between the major decidedness and career decidedness.

Research Adapted Major Factors Inventory (MFI)

The researcher was granted permission by Consulting Psychologists Press to adapt the Career Factors Inventory. Adaptation has involved making only minor changes to the CFI by replacing the word "career" with that of "major." This instrument will be referred to as the Major Factors Inventory (MFI, Thompson, 2003b) to maintain consistency and clarity across this document. The MFI (see Appendix E) was used to measure major decidedness and compared with the results from the CFI to determine any relationship between the major decidedness and career decidedness.

Research Design

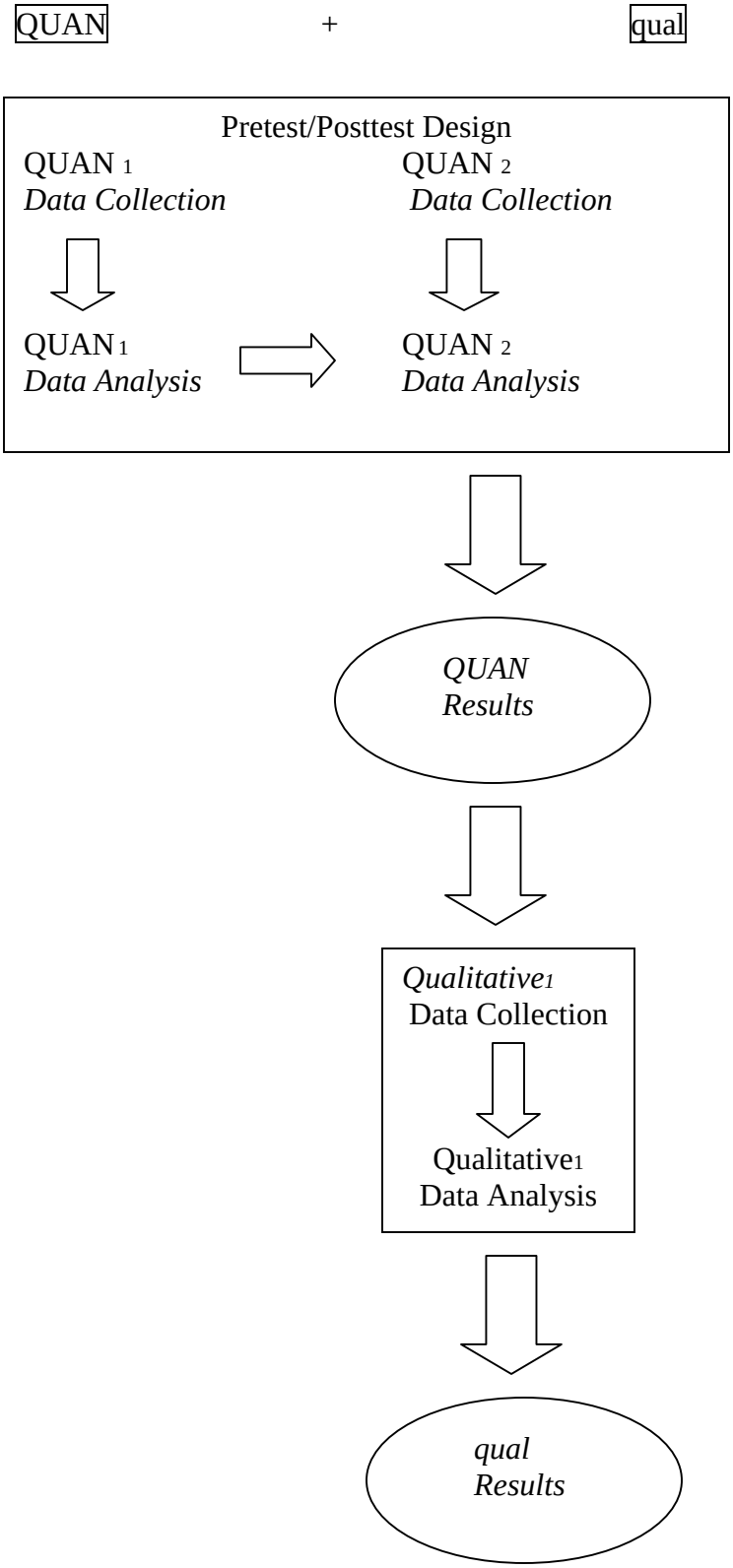
This study used a pre-experimental design for the quantitative portion of the research. Pre-experimental designs such as this involve a group of individuals examined in pretest measures then exposed to a treatment and finally examined again in a posttest measure. Pre-

experimental designs do not involve control groups and rely on investigation of the treatment in making causal statements. This approach is supported by Polkinghorne (1991), who asserts that quantitative inquiry proves useful when attempting to assess the effectiveness and usefulness of an intervention, such as the effectiveness of the career course in increasing levels of career decidedness or major decidedness.

The dependent variables used in this study were major decidedness and career decidedness. The qualitative portion of the instrument examined both the students' understanding of major and understanding of the relationship between majors and careers. The independent variable in this study was the career course treatment. This research utilized a mixed-model concurrent experimental design with a quantitative priority (Tashakkori & Teddlie, 2003). This design is used when a quantitative and qualitative method are used simultaneously with a deductive theoretical drive. The thrust of the research is identified through visual description in Figure 1 located on the following page.

Finally, the research design is an effective way to quantitatively test a theoretical model developed from literature (Tashakkori & Teddlie, 2003). This study is the first research to assess the components of major decidedness in a quantitative and qualitative manner. Triangulation of results included use of descriptive statistics from quantitative data for categorization of qualitative data. The combination of a qualitative instrument and two quantitative instruments, adapted to measure major decidedness, allowed for exploration of meaning making with regard to majors when students are enrolled in the career course.

Figure 1: Research Design.



Research Questions

Qualitative Research Questions

1. How do students who have just completed a career course describe the relationship between majors and careers?
2. How do students who have just completed a career course describe the process of choosing a major?
3. How do students who have just completed a career course describe the role of a college major in their current life?

Research Questions for the 2 Constructs of the CDS/MDS

RQ1: Is there a difference in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course at the beginning of the course?

H_{01}: There is no difference in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course at the beginning of the course.

RQ2: Is there a change in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students

enrolled in a career decision-making course from the beginning of the course to the end of the course?

H_{02}: There is no change in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course.

RQ3: Is there a correlation between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course?

H_{03}: There is no correlation between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course.

Research Questions for the 4 Constructs of the CFI/MFI

RQ4: Is there a difference in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course at the beginning of the course?

H_{04}: There is no difference in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course at the beginning of the course.

RQ5: Is there a change in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course?

H_{05}: There is no change in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course.

RQ6: Is there a correlation between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-

knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and the major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course?

H_{06}: There is no correlation between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and the major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course.

Data Analysis Techniques

The use of two established instruments for measuring career decidedness, the Career Decision Scale (Osipow et al., 1976) and the Career Factors Inventory (Chartrand et al., 1990), allowed for pretest and posttest measurement of levels of career decidedness. The adapted MDS and MFI (Thompson, 2003a, 2003b) allowed for pretest and posttest measurement of levels of major decidedness. Finally, a qualitative instrument developed for this study was used to uncover how students make meaning of college majors (Thompson, 2003c). Any relationship between the parallel constructs of the CFI/MFI and the CDS/MDS was explored in both pretest and posttest analyses of mean scores and correlations. Qualitative data collected during the posttest was analyzed based upon median scores on the Indecision Scale of CDS and MDS.

Pretest Quantitative Analysis

Two types of pretest analysis were conducted to answer the quantitative research questions posed in the previous section. Initially, the researcher looked at any differences in

means between the parallel constructs of the CDS/MDS and the CFI/MFI in the pretest results. The researcher reviewed the correlations between the parallel constructs to determine the ability of one to predict the other. The two types of pretest analysis allowed for presentation of descriptive statistics related to the parallel major and career constructs before exposure to the career course.

Posttest Quantitative Analysis

Posttest analysis included a comparison of difference in means between the pretest and posttest. Analysis of covariance was utilized as a means of determining the extent to which students perceive a difference in parallel constructs of the CFI/MFI and CDS/MDS upon completion of the career course. The researcher controlled for pretest scores to determine differences in mean scores as a result of the career course. Correlation scores were utilized to discuss any changes in the ability to predict responses of parallel constructs.

Posttest Qualitative Analysis

Review of qualitative data comprised another aspect of data analysis. In following qualitative protocol, responses to questions were reviewed in each category based upon the established research questions (See Appendix F). Miles and Huberman (1994) advocate early establishment of measurement criteria such as establishment of groups or categories of analysis. As the Indecision Scale of the Career Decision Scale (Osipow et al., 1976) has the longest history of reliability and validity, it was used with the adapted Indecision Scale of the Major Decision Scale (MDS) (Thompson, 2003a) as a tool for grouping qualitative responses.

Upon completion of posttest data collection, the results of the MDS and CDS were reviewed for each student to determine whether or not students fall into one of the following categories:

1. Below median scores on the CDS and below median scores on the MDS
2. Below median scores on the CDS and above median scores on the MDS
3. Above median scores on the CDS and below median scores on the MDS
4. Above median scores on the CDS and above median scores on the MDS

A posttest review of median scores on the CDS/MDS represent a standardized categorical point at which scores can be divided and grouped into four different quadrants. This method allowed for practical understanding of how students' think about majors and careers. Below median scores on the CDS/MDS represent the likelihood that students have already decided upon both majors and careers. Above median scores on both the CDS/MDS represent high levels of indecision regarding both majors and careers. A student with above median scores on the MDS and below median scores on the CDS represents a student who is likely to have decided upon a career and not on a major. In contrast, a student with below median scores on the MDS and above median scores on the CDS represents a student who is likely to have decided upon a major but not on a career. The categories, created from quantitative scores on the CDS/MDS, allowed for understanding of student perceptions of majors and careers.

The analysis of qualitative data was accomplished using recommended methods by Miles and Huberman (1994). Responses to the qualitative instrument were evaluated based upon categories created to reflect varying levels of major and career indecision. Thematic review of the four groups took place separately regarding each of the three qualitative questions posed to students (see Table 1).

Table 1

Qualitative Analysis Grouping Method

	MDS Median Scores	
CDS Median Scores	Above Median	Below Median
Above Median	Group 4	Group 1
Below Median	Group 3	Group 2

What is critical is that themes were allowed to emerge once the measurement criterion was established. In the case of this study, themes were allowed to emerge for each question asked and for each grouping of median scores on the CDS and MDS. Qualitative responses were transcribed in the groups outlined above and then analyzed twice before initial themes were generated. This allowed for understanding of what majors and major decidedness looks like at varying levels of career decidedness. Upon completion of initial theme generation, transcription data was sent to a colleague for secondary review and analysis. Primary and secondary review of thematic data were compared and revealed consistency in evaluation. Once themes were established in each group, the data was reported based on the outcome of how students make meaning of majors when they exhibit varying levels of major and career decidedness. Finally, triangulation of data was accomplished through final thematic review by instructors of the career course used in data collection. Upon completion of review, two researchers had evaluated the data for consistent themes and then a final review of themes took place with a third group of individuals. The importance of triangulation of qualitative data is based upon acknowledgement of researcher bias in allowing themes to evolve. Primary researcher bias with regard to majors

and major decidedness has been offered and included in a Subjectivity Statement (See Appendix G).

Chapter Summary

Acceptable protocol for both quantitative and qualitative research was followed at all stages of data collection and reporting. The end result is a greater understanding of how students make meaning of majors and the decisions surrounding majors. Chapter four will present the findings for this research.

Chapter 4

RESULTS

This chapter presents the quantitative and qualitative results of this study using data collected from the 231 participants. The chapter will first address the qualitative research questions and then describe the qualitative themes revealed through inquiry. Using the qualitative data as a foundation, the quantitative data will then be presented. Non-significant quantitative findings were reported in text for descriptive purposes only. Table 2 is offered below to summarize the demographics of the sample:

Table 2

Study Demographics

Gender	N	Percent N	Average Age
Men	87	37.7%	19.37
Women	144	62.3%	18.89
Combined	231	100%	19.13

Results of Qualitative Data Analysis

A median split of the scores on the MDS and CDS Indecision Scales were used to group students into one of the following four categories for qualitative analysis: major decided and career undecided, major decided and career decided, major undecided and career decided, and major undecided and career undecided. The posttest median score was 30 for the MDS Indecision Scale and 32 for the CDS Indecision Scale. On both scales, scores above the median reflect greater indecision regarding majors and careers, while scores below the median reflect

greater certainty on both factors. Each group was analyzed for themes on the three qualitative research questions. Themes were derived based upon student responses with themes reported when 30-50 percent of respondents in a group offered similar thoughts. Qualitative analysis was based upon established educational research principles (Miles & Huberman, 1994). The results in this section are presented for each group individually and separated by the questions posed. Table 3 is offered below as a cumulative description of the demographic breakdown of the qualitative groups:

Table 3

Qualitative Group Demographic Breakdown

Group	Group 1	Group 2	Group 3	Group 4
Participants				
Men	12.00	40.00	6.00	29.00
Women	16.00	52.00	22.00	54.00
Average Age				
Men	18.92	18.83	19.67	20.97
Women	18.56	18.50	19.59	18.89
Group Totals	28	92	28	83
Percent N	9.70%	31.90%	9.70%	28.80%

N=231

Note. Group 1 represents those who are Major Decided and Career Undecided. Group 2 represents those who are Major Decided and Career Decided. Group 3 represents those who are Major Undecided and Career Decided. Group 4 represents those who are Major Undecided and Career Undecided.

Group 1: Major Decided and Career Undecided

This group was composed of 28 participants (9.7 % of the total sample). The group included 12 men with an average age of 18.92, and 16 women with an average age of 18.56. The following themes emerged from transcript analysis for each of the following questions:

1. How do students who have just completed a career course describe the process of choosing a major?

The primary theme emerging from this group was the belief that an academic major serves as a foundation for a future career. This theme was reported with sole consideration being placed upon the future rather than the present. The following quotes provide insight into student thinking:

> "I choose a major based upon how the subject matter will be relevant and marketable in potential career options."
>
> "I consider the type of job the major will qualify me for. I also look at how adaptable it is. Would I be able to pursue another career with this major?"
>
> "When considering a major, I look at what the job offers, if there are any benefits, how good the pay is, and the location of the job I will take."

A secondary theme emerging from this group was a consideration of intrinsic personal interests and values. Many reflections emphasized the choice of major being dependent on personal values, abilities and strengths, personality types, interest in course work, and perceived enjoyment of course work. The use of interests and enjoyment in determining a major is consistently coupled with future career options rather than being a sole consideration. Some examples of this thinking included:

> "I consider my abilities in the subject matter related to that major, my enjoyment of the academic pursuit of that major, and my

options for a job after college. These are the things I find important."

"When choosing a major I consider my values, interests, abilities, and experience, because each of these considerations will lead a person to choose a more suitable career to pursue when making decisions. Overall, it's important because if you don't value your job, aren't interested in it, aren't able to do it, and are not experienced with it, it won't work."

"I look at whether or not it will interest me because I don't want to do something I don't like. Is it likely that I will be able to get a good job after college? I don't want a worthless degree."

2. How do students who have just completed a career course describe the relationship between majors and careers?

The primary theme emerging from this group was once again the belief that an academic major serves as a foundation for a future career. This theme reflects an almost absolute belief that majors are the "stepping-stones" to future careers. Student comments included:

"Majors prepare you for a career. Majors give you the training and knowledge needed to become proficient and experienced."

"The major that you get a degree in determines what type of job and career you will have."

"Your major gives you the knowledge necessary to fulfill the responsibilities in a career."

A secondary theme emerging from this group was the belief that the relationship between majors and careers is variable in nature. This theme reflects a much less absolute manner of thinking with some variability in the relationship between majors and careers. Student reflections show a belief that majors and careers are only related in certain circumstances. The following comments are presented for review:

> "In one way I feel like your major can be totally linked to your career, and it can guide you towards a career in the same field or help you find options for careers in the same field."
>
> "Majors are very important for some career choices (ex: medicine), and for others the relationship isn't as important."
>
> "I would say that it is a varying relationship. Certain careers need related majors while other careers just need someone with a degree who works hard at what they do."
>
> "I really don't think there is a huge connection between a major and a career except in professional studies. Law, medicine, and education all need specific majors, but I feel that every other career does not necessarily need a specific major, just a sound liberal arts education."

3. How do students who have just completed a career course describe the role of a college major in their current life?

The role of college majors in the lives of the students studied revealed a primary theme placing a great deal of importance on majors. The responses revealed some anxiety related to being undecided on a major or not being admitted to a major program.

The emotional reaction to majors was not significant enough to warrant a thematic grouping of its own. The following quotes reflect the importance of majors:

> "Not having a major is hard for me right now because I was just informed that I did not get into my major."
>
> "I would describe my major as rather important. I need to get into a major so that I can begin taking upper level coursework. I'm in between my second and third years and need a definite major to focus on."
>
> "I think that being a college student, our major is our link to our future and therefore plays a huge role. This is because college is the pre-grown-up time in which you discover what you need to know to survive in the real world."

The role of college majors in the lives of the students studied revealed a secondary theme placing a "lower level of importance on majors." The responses given by these students revealed the role of majors being used primarily to determine courses. In addition, students appear to place lesser emphasis on the role of majors in their lives when in the early stages of their undergraduate coursework. The following quotes provide insight into student thinking:

> "The role of a major is to provide a basic guideline of subject matter to focus on studying so I can open doors for job opportunities."

> "I am a double major at the moment in magazines and graphic design. At this point in time, my major is determining my classes and extracurricular activities."
>
> "My major will begin dictating what courses I take next semester because I just picked a major and am finishing my core classes."

Group 2: Major Decided and Career Decided

This group was composed of 92 study participants (31.9 % of the total sample). The group included 40 men with an average age of 18.83, and 52 women with an average age of 18.50.

1. How do students who have just completed a career course describe the process of choosing a major?

   The primary theme emerging from this group was the belief that an academic major serves as a foundation for a future career. Similar to the results found with Group 1, this theme was also reported with sole consideration being placed upon the future rather than the present. The following quotes are offered from the student perspective:

   > "When choosing a major, I consider what careers the major can lead into, the specific course load required by the major, which school or college it is located in, how many years it will take me to get a degree in it, whether or not I'll have to go to graduate school in order to get paid well, and whether or not I am going to enjoy studying it for four years or doing it as a profession for a long period of time."

> "I consider what jobs go along with the major. One of the main reasons for college and a major is to prepare you for employment. I consider what interests of mine that the major fulfills as I wish to do things that interest me. A major leads to a future career, therefore I consider what requirements the major entails."
>
> "I think about possible salaries available with a major. I take a look at the kinds of jobs that are typical of that major because I want a career that I will enjoy. Career earnings are probably the most important aspect of choosing a major because I feel that is important in choosing a career."

A secondary theme emerging from this group was thought being given to personal interests and happiness in relation to majors and future careers. The reflections offered by Group 2 emphasized the choice of major being dependent on personal values, abilities and strengths, personality types, interest in course work, and perceived enjoyment of course work. Also, the use of interests and enjoyment in determining a major is consistently coupled with future career options rather than being a sole consideration. Some comments that support this theme include:

> "I consider my values, skills, and wants in a job. I feel that when you think about what values I have and what I am good at, it will help me choose a major and career."
>
> "I consider the job opportunities that I could pursue with a certain major. I want a major that will work well with my skills, interests, and values."

> "I take into consideration my strengths and weaknesses as well as my values. I want to do something I am good at, or at least something I can do effectively. I also want to do something I enjoy and something that will be compatible with the way I want to live with regard to family and other aspects of living outside the workplace."

2. How do students who have just completed a career course describe the relationship between majors and careers?

The primary theme emerging from this Group 2 was the continued belief that an academic major serves as a foundation for a future career. This theme reflects an almost absolute belief that majors are a specific training ground for future careers. Students in this group reported:

> "Majors and careers are related in the fact that they have to do with the same subjects that you're interested in. If you major in business then you will have a business career. If you choose a certain major it is because you want to have that certain career."
>
> "Your major should prepare you for your career in the future because it is your only source of training outside the of on-the-job training."
>
> "A major provides you with the fundamental knowledge you will need to be successful in your career. A major prepares you for the working world."

Following the same pattern as Group 1, student reflections in Group 2 showed a belief that majors and careers are only related in certain circumstances and are variable in nature. A number of inaccurate assumptions appeared in this grouping as evidenced by the first quote presented. The following quotes provide insight into student thinking:

> "I don't think majors and careers are completely related, but I know you can't be a doctor with a history degree."
>
> "The relationship depends on how specific your major is and if you know exactly what you want your career to be. My major is broad since I don't know what I want my career to be."
>
> "The relationship between majors and careers is unique to everyone. Some majors are very specific to certain careers, others are more general and can lead to multiple careers in many different and sometimes unrelated fields."

3. How do students who have just completed a career course describe the role of a college major in their current life?

The predominant theme emerging from this group was the importance placed upon majors as they attempt to meet graduation requirements and plan future careers. It is apparent in this section that majors do in fact serve as a "proxy" for careers in the minds of students (Orndorff & Herr, 1996). The following thoughts are presented to further understanding of this theme:

> "My major is very important because it deals directly with the job I want. I cannot apply for this position until I graduate with this degree, therefore, it is a huge part of my life."

"My major is helping me to prepare for the future job I want. I am taking classes in my major that will help me graduate with it."

"A major is something that will give me some focus to achieve my educational goal of obtaining a degree. It is very important in my life because I must choose a major that will make me happy in my career for a very long time."

"The role of a major is very important right now as this is the time when I have to decide what I am going to do for the rest of my life."

Secondary to future careers were responses given by these students revealed the role of majors being used primarily to determine courses, but described as "not important" to students. In addition, students placed little emphasis on the role of majors in their lives when in the early stages of their undergraduate coursework. This section highlights student thinking on this theme:

"The only role a major is playing right now is informing me of which classes to take so that I can graduate."

"Currently my major is not playing an important role in my life. I am a first year student taking core classes not related to my major."

"A major is like a tour guide. It takes you through college making sure you take certain classes in order to graduate with that degree."

A final theme emerging from this group can be described as an emotional response to the role of majors in student's lives. This theme offers responses revealing anxiety when students are undecided in major, unable to obtain admission to majors, and

in contrast, excited when they are provided direction by majors. Examples of this thinking included:

> "My major is important to me because I have finally found something that I am passionate about and I know that I can do for a major. My major will allow me to pursue a career in one of two professions that intrigue me."
>
> "My major helps me stay on a path to what I want to do in the future. I like to tell people my major now because I am much more sure that I am happy with my major. I also enjoy my major classes and I am excited to learn more. I think all of this is because I am confident in my major decision and know where I am going."
>
> "At this point in my life, my major is very important because of the tough admission policies of the school I am focused on right now. It is so difficult to decide on a major because there are so many out there. Thinking about majors and possible careers can be very stressful."
>
> "My major basically consumes my life. I want to major in business which only accepts 25 percent of applicants last time, so I'm always worrying about what I can do to help myself get what I want."

Group 3: Major Undecided and Career Decided

This group was composed of 28 study participants (9.7 % of the total sample). The group included 6 men with an average age of 19.67, and 22 women with an average age of 19.59.

1. How do students who have just completed a career course describe the process of choosing a major?

As was the case with the first two groups, the predominant theme emerging from Group 3 was the belief that an academic major serves as a foundation for a future career. Once again, this theme was reported with sole consideration being placed upon the future rather than the present. Thoughts on major choices are presented below:

> "I think about the job opportunities that are associated with specific majors. It is important to choose a major that will leave a wide variety of possible careers."
>
> "I want to know that my major will be the right path in the direction of my desired field of work. I want to see that a large portion of graduates with my major have gone into that field. I also want to see that there are more than a couple of desirable job options with that major so that changing careers will be as easy as possible."
>
> "I consider primarily how my major will help me and how I will use it in the future. I want whatever I choose to be beneficial and to teach me about a specific career."

A secondary theme emerging from this group revealed student thoughts focused on personal interests and happiness in relation to majors and future careers. Similar to the first two groups responding to this question, Group 3 reflections emphasized the choice of major being dependent on personal values, abilities and strengths, personality types, interest in course work, and perceived enjoyment of course work. The use of interests and enjoyment in determining a major is consistently coupled with future career options rather than being a sole consideration. Thoughts on interests and happiness are presented below:

> "When choosing a major, one should consider work-related and core values. Personality type and interest are also important in looking into any major because by considering personality and interest, you are more likely to find a career that will both stimulate and challenge you."
>
> "I consider things that I am interested in because I would like my career to be involved with something I am interested in."
>
> "I consider what I enjoy doing, what I am good at, and the type of lifestyle I want to have when I get a job out of the major. This way I can increase the odds of me being happy with my job when I graduate."

2. How do students who have just completed a career course describe the relationship between majors and careers?

The primary theme evident in Group 3 was also similar to the first two groups. Students offered the notion that an academic major serves as a foundation for a future

career. Once again, this theme reflects a strong belief that majors are specific tools for obtaining to future careers and viewed as stepping-stones to future careers. The perceived relationship between majors and careers is reported below:

> "A major is the first stepping-stone to finding and attaining a career."
>
> "A major is the way to get a career. In my case, an education is needed to meet the requirements to get into my career, so my major is the first step in getting to my career."
>
> "The relationship between majors and careers is such that once you have a chosen major, you apply it to a chosen career. A major is designed to correspond with the chosen career. You learn the necessary information and skills when studying for a major, and they are carried on and elaborated throughout a career."

Following the same themes offered in Groups 1 and 2, a second theme emerging from this group was the belief that the relationship between majors and careers is variable in nature. Student reflections show a belief that majors and careers are only related in certain circumstances. The variable nature of the relationship between majors and careers is highlighted below with student comments:

> "Majors and careers are typically related by some sort of practical application. While some jobs do not require specific majors to get into that field, a major's intention is to provide a more than basic understanding of a topic that can be practically applied to a particular career. For example, if one majors in history, there is

> little chance for that person to be able to pursue an engineering career because engineering requires skills that only an engineering degree or major can provide. While this is not always the case, many professions are much more easily entered with a relevant major."
>
> "There can sometimes be a large relationship, but there doesn't have to necessarily be. For instance, a human resources manager can have a broad range of majors that go into that field, while an English teacher would most likely only have a few options to pick from."
>
> "There is definitely a clear relationship between some majors and careers, such as accounting or veterinary medicine, but many times there is a vague connection between people's degrees and their careers."

3. How do students who have just completed a career course describe the role of a college major in their current life?

Continuing the trend outlined in Groups 1 and 2, students in Group 3 revealed a primary theme placing a large role on majors in their lives and describing them as important. The responses given by these students revealed some anxiety related to being undecided on a major. The emotional response of this group was not significant enough to warrant a theme itself, but rather used as a descriptor for gauging importance in the lives of students. This theme is illustrated through the following responses:

> "At this point, a major is playing a big role in my life because I am trying to pick one and I feel some pressure to do so. I also feel like my major is going to be important to what I want to do, so I'm trying to choose wisely and carefully."
>
> "The role of a major today is simply to lead me to a degree and eventually into a career, however, everything here is so competitive that I'm more worried about my degree than my career."
>
> "Crucial – I am at the point in my college career where I am just about done with core classes and must start focusing on major classes very soon. For this reason, finalizing a decision about my major is extremely important."

The role of college majors in the lives of the students studied revealed a secondary theme placing a lesser amount of importance on majors. The responses given by these students revealed the role of majors being used to determine courses. In addition, students placed little emphasis on the role of majors in their lives when in the early stages of their undergraduate coursework. The role of college majors is presented though the use of the following comments:

> "I am still just figuring out my major. It being only my first semester, I don't feel too pressured for time in choosing. I am just trying to figure out which major is most efficient for my future career."

"My major determines what classes I will enroll in for each semester."

"A major is a focused point of study that lets me bypass relatively useless core curriculum classes and allows me to start specializing in particular areas rather than acquire a broad base of knowledge."

Group 4: Major Undecided and Career Undecided

This group was composed of 83 study participants (28.8 % of the total sample). The group included 29 men with an average age of 20.07, and 54 women with an average age of 18.89.

1. How do students who have just completed a career course describe the process of choosing a major?

The primary theme emerging from this group, as with the previous three, was the belief that an academic major serves as a foundation for a future career. With all data reviewed, it is clear that students have a strong propensity to choose a career prior to committing to a major and use information related to the chosen career to make decisions. This theme is reported with sole consideration being placed upon the future rather than the present. Student response examples include:

"I consider what exactly it is that I want to do with my life. I also consider the job outlooks, financial outlook of that major and whether or not that major would fit the idea of what I want my life to look like."

"I consider salary, variety of tasks in the job, and security. These are the most important things I need in a job."

"I consider what career options I have with the major because that's what you will do for the rest of your life."

"Obviously I consider what I want to do for the rest of my life and if I think I could be happy with whatever career options that major will leave me with."

I consider the careers that one can be in with certain majors. A student should know the jobs they could get with the major or else it would be pointless to even be in college."

Again, consistent with all prior groups, a secondary theme emerging from this group was personal interests and happiness in relation to majors and future careers. Many reflections emphasized the choice of major as being dependent on personal values, abilities and strengths, personality types, interest in course work, and perceived enjoyment of course work. This theme, coupled with the same theme in the previous groups, allows for understanding of the considerations made by students when choosing both a major and career. The use of interests and enjoyment in determining a major is consistently coupled with future career options rather than being a sole consideration. The following quotes provide insight into student thinking:

"I consider possible job opportunities and what I see myself doing for the rest of my life. I also choose a major on the basis of how interesting and how much I enjoy the classes."

"I consider mainly my career options from it and whether or not it interests me. My career is what I am going to do with the major so

that is important and needs to be interesting to me so that I can make it through life."

"I consider what will make me happy, follow my values, allow me to support myself and may family, whether or not there is a great salary, good location, good work environment, and advancement possibilities."

"I consider subjects that I find enjoyable and interesting and a major that would lead to a career I find enjoyable."

2. How do students who have just completed a career course describe the relationship between majors and careers?

Similar to each of the preceding groups, the primary theme emerging from this group was the continued belief that an academic major serves as a foundation for a future career. With all groups reviewed, this theme reflects a prevailing belief across the sample that majors are specific stepping-stones to future careers. The perceived relationship between majors and careers is explored through the following comments:

"What you get your major in should get you ready for your career. A major should give you knowledge and skills for your job. When you get a job you should use knowledge and skills from your major."

"I feel like the relationship is very close because the major I pick causes me to take certain classes which I will use for my future career."

> "When you choose a major you are choosing a general area, an area you would like to study or learn more about. A career is what your job is. Your career is a result of your major."
>
> "Majors are something that you have to go about in order to learn about and prepare for a career. Majors are just something you declare so you can take related classes for careers."
>
> "By choosing a major you are beginning the path of specific careers, and getting a degree will allow you to get a career in one of those fields. To me, this seems to be the whole point of going to college."

Once again, consistent with each prior group, the secondary theme emerging from this Group 4 was the belief that the relationship between majors and careers is variable in nature. Student reflections show a belief that majors and careers are only related in certain circumstances. The variable nature of majors and careers is expanded through the use of student comments:

> "I think that majors are much more broad than careers because within every major there are multiple career choices. Like with a business major, there are so many fields of business that are possible and being a business major is hopefully what I want to do."
>
> "Some majors correlate with certain types of careers, such as education majors going on to teaching, but with others it doesn't matter what you major in."

> "Majors can lead you to careers but not always. There are many stories of people not being able to find jobs after graduating with a particular degree. There are also often many routes to the same career. I would say a clear idea of what career one wants and what real-world experience there is to be gained are more important than a major."
>
> "I think that some majors are needed and very important for certain careers (doctors, architects) but artistic or service majors are kind of silly because the skills you need can't be taught effectively in class."
>
> "The relationship isn't necessarily mutually exclusive, but obviously there are limitations placed on your career choices by what major you choose. A photography major isn't going to be able to make it as a lawyer."

3. How do students who have just completed a career course describe the role of a college major in their current life?

The primary theme emerging from this group was the importance placed upon majors as they attempt to meet graduation requirements and plan future careers. This fourth and final group responding to the role of majors in their lives offers no significant or distinct difference from the previous three groups. An understanding of the role of college majors is offered below through the use of student comments:

"A major is very crucial because I will have to declare, so I need to know what I want to pursue. I would be nowhere without a good major."

"The role of a major in my life is important. Right now I am taking required core courses. Good grades will determine if the school that has my major will accept me into its program."

"A major is extremely important thing in my life at this time. I am a sophomore in college and need to decide what direction I am going in. I need to choose what I want to major in because this will be a part of my life and my career for the rest of my life up to the time I retire."

"I just had my advising appointment two weeks ago and my advisor gave me the date I would be applying for my major. This made me realize how soon I am about to start on a career path."

Secondary to future careers were responses given by these students revealing the role of majors being used primarily to determine courses. As was the case with the previous three groups, students placed little emphasis on the role of majors in their lives when in the early stages of their undergraduate coursework. The following quotes provide insight into student thinking regarding the role of a major in their lives:

"My major will determine what classes I take. Also, it should help me determine whether or not I will enjoy a career in this field."

"Right now it's my first year of school so I don't believe my major is all that important."

"Since I am only a freshman, I don't feel pressured to choose a major. I am still undecided and I am keeping an open mind while I explore different majors and careers."

"The classes I choose each semester help me get closer to learning the information needed for my career."

"Right now all my major is doing is helping me decide what core classes to take. Currently this is going on because I do not have enough hours required to begin taking upper level classes."

A final theme emerging from this group can be described as an emotional response to the role of majors in student's lives. This theme detected only in Group 2 (Major Decided/Career Decided) and Group 4 (Major Undecided/Career Undecided), is perhaps due to the increase in size of each group. This theme offers responses revealing anxiety when students are undecided in major and unable to obtain admission to majors. The following quotes offer complexity to the role of the college major in the lives of students below:

"I think it is confusing and frustrating. I don't want to pick something that I may be doing for the rest of my life. It is too hard and there are so many choices. I wish I could test the water with many, but I would be wasting time."

"Right now my major is making me take only core classes because I haven't chosen a major. It honestly doesn't have much of a role other than stressing me out because I don't think that I'll ever be able to choose a career."

> "I just chose a major and am very excited and timid at the same time. My preference and likes/dislikes are still developing and I think it's too early to choose a life career."

The significant qualitative findings for this study are presented in Figure 3 for cumulative review. What has been revealed through qualitative analysis is information that can be coupled with the quantitative results presented in the next portion of this chapter. The qualitative results summarized below provide insight into why majors and careers are similar and why they are different in the minds of students. First, there is a link between majors and careers. Students assert that essentially majors serve as a "proxy" for careers (Orndorff & Herr, 1996). Qualitative results in three of the four areas express the belief that majors serve as the "stepping-stone" to future careers and lay the foundation for those careers. Of note is the ability of students to factor in their interests, happiness, and values when choosing a major that they believe will lead to a career. Students seem to understand that in certain cases, majors will yield specific careers, and in other cases will not. It appears that once career decisions are made, majors serve the role of determining courses and paving the way to graduation. What is interesting is the different levels of nervousness expressed in quantitative results appear in the qualitative data when students have not been accepted into their chosen major. This anxiety is understandable if they believe that a major provides a foundation for a career, and lack of admission to a major creates a situation where they are in essence being denied admission to their chosen future career.

Table 4

Qualitative Results Review

Groups	Questions		
	Role of Major In Life	*Process of Choosing Major*	*Relationship Between Majors and Careers*
Groups 1 & 3	1) Foundation for Career; 2) Determines Courses & Meets Graduation Requirements.	1) Foundation for Career; 2) Consider Interests, Values, and Happiness as Related to the Future.	1) Foundation for Career; 2) Variable in Nature and Dependent on Career Choice.
Groups 2 & 4	1) Foundation for Career; 2) Determines Courses & Meets Graduation Requirements; 3) Majors Create Anxiety.	1) Foundation for Career; 2) Consider Interests, Values, and Happiness as Related to the Future.	1) Foundation for Career; 2) Variable in Nature and Dependent on Career Choice.

Note. Group 1 represents those who are Major Decided and Career Undecided. Group 2 represents those who are Major Decided and Career Decided. Group 3 represents those who are Major Undecided and Career Decided. Group 4 represents those who are Major Undecided and Career Undecided. See Table 3 for demographic breakdown of each group.

Results of Quantitative Data Analysis

Each quantitative result is presented based upon the order of research questions. Within each section addressing research questions, descriptive analysis is provided regarding the construct measured and results found.

Research Question 1

The first research question was designed to see if there were any differences in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the respective constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course. The MDS/CDS each have two scales, the Certainty Scale and the Indecision Scale.

The MDSCERTN scale and CDSCERTN scale measure the degree of certainty that a student feels in having already made a decision about a major and a career. The MDS/CDS Certainty Scale revealed no significant differences between major certainty and career certainty on either the pretest or posttest. The findings, or lack thereof, for this research question indicate that once students have decided on a major or career, they exhibit similar levels of certainty on both majors and careers. The significant correlations presented in Table 7 show that once decided, the levels of certainty regarding majors and careers can be predictive of one another.

The MDS Indecision Scale (MDSINDEC) measures major indecision. The CDS Indecision Scale (CDSINDEC) measures career indecision. As scores on this scale decrease, indecision on the part of the student regarding either majors or careers also decreases. The parallel scales include 18 questions related to indecision. The findings for this research question indicate higher levels of indecision regarding careers than majors on both the pretest and posttest. The pretest and posttest also indicate a significant difference between major indecision

and career indecision. Students view indecision regarding majors differently than indecision regarding careers.

In Table 5, the pretest reports the means associated with paired scores on major indecision (MDSINDEC) and career indecision (CDSINDEC) at the beginning of the study. Means for pretest pairs (with standard deviations in parentheses) were 33.40 (7.37) for the MSCINDEC and 33.40 (7.24) for the CDSINDEC. In Table 5, the pretest also reports a significant difference between the means associated with major indecision and career indecision ($t = -5.34$, $df = 230$, $p = .000$).

In Table 5, the posttest reports the means associated with paired scores on major indecision (MDSINDEC) and career indecision (CDSINDEC) at the end of the study. Means for the posttest (with standard deviations in parentheses) were 30.26 (7.87) for the MSCINDEC and 32.04 (7.19) for the CDSINDEC. In Table 5, the posttest reports a significant difference between the means associated with major and career indecision ($t = -5.20$, $df = 230$, $p = .000$).

Table 5

Pretest and Posttest Differences on the MDS and CDS Indecision Scale

Scale	*M*	*SD*	*t*	*p*
Pretest:				
MDS Indecision Scale	33.40	7.47	-5.34	.00
CDS Indecision Scale	35.02	7.24		
Posttest:				
MDS Indecision Scale	30.26	7.87	-5.20	.00
CDS Indecision Scale	32.04	7.19		

N=231

Research Question 2

The second research question looked for changes in scores between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course from the beginning of the course to the end of the course. The MDS and CDS Certainty Scale and Indecision Scale were once again evaluated separately to explore possible changes between pretest and posttest scores. ANCOVA was utilized to determine changes between the pretest and posttest and to determine co-variants that could potentially account for change. An initial test for homogeneity of slopes was conducted to ensure ANCOVA analysis was appropriate for each construct. The covariates used in each analysis were the parallel major or career construct of each independent variable. For example, ANCOVA was conducted for the CDS Indecision Scale to ascertain significant change between the pretest and posttest. Major indecision was used as a covariate in this analysis to attempt to explain any variance or change. The findings at both pretest and posttest reveal that major indecision plays a role in career indecision. In addition, the findings show that as the course progressed and students became more decided about a career, their major played a role in that decision. What is still unclear is exactly what role majors play in the career decision. Earlier in this chapter, Table 5 was offered to support a statistical difference between major indecision and career indecision. Results presented in Table 6 were designed to provide evidence that, although different, majors play a role in career indecision. What remains unclear is exactly what role majors do play in career decision-making.

Table 6 highlights a significant decrease in the mean score associated with career indecision, $F (33, 196) = 1.631$, $p = .023$, and also showed that major indecision explained a

significant portion of that variance, F (1, 196) = 8.70, *p* = .004, Eta squared = .04. The MDS Indecision Scale revealed no significant changes regarding major indecision between the pretest and the posttest. In addition, the MDS and CDS Certainty Scale revealed no significant changes between the pretest and posttest.

Table 6

Pretest and Posttest Variance in Career Indecision Explained by Major Indecision

Scale	*F*	*df*	*p*	*Eta Squared*
MDS Indecision Scale pretest covariate	8.70	1	.004	.043
CDS Indecision Scale pretest/posttest	1.63	33	.023	

N=231

Research Question 3

The third research question was designed to look at both the correlation between major and career constructs and changes in the magnitude of correlation between the pretest and posttest. Specifically this research question aimed to discover whether there was a correlation between the constructs of career certainty and career indecision, as measured by the CDS, and the parallel constructs of major certainty and major indecision, as measured by the MDS, for undergraduate students enrolled in a career decision-making course. The findings for this research question highlight the ability of major certainty in predicting career certainty. This section also reports findings that indicate the ability of major indecision to predict career indecision at the beginning of the course used in this study, and the reduced ability to predict by the end of the course.

As seen in Table 7, Pair 1(MDS Certainty Scale and CDS Certainty Scale) reports a significant relationship between responses on the parallel questions regarding certainty of major/career choice (r = .90, .000). Pair 1 (MDS Certainty Scale and CDS Certainty Scale) also reports a significant relationship between posttest responses on the parallel questions regarding certainty of major/career choice (r = .85, .000). Pair 2 (MDS Indecision Scale and CDS Indecision Scale) reports a significant relationship between pretest responses on the parallel questions regarding indecision of major/career choice (r = .80, .000). Pair 2 (MDS Indecision Scale and CDS Indecision Scale) also reports a significant relationship between the posttest responses on the parallel questions regarding indecision of major/career choice (r = .77, .000). The magnitude of correlation between the two pairs diminishes between the beginning and end of the course.

Table 7

Pretest and Posttest Correlations on the Parallel Constructs of the MDS and CDS

Scale	*Pretest*	*Posttest*
Pair 1: MDS Certainty Scale And CDS Certainty Scale	.90	.85
Pair 2: MDS Indecision Scale And CDS Indecision Scale	.80	.77

N=231

Research Question 4

The fourth research question was designed to determine if there is a difference in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the parallel

constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course at the beginning of the course. Each construct was explored separately and the results are presented below.

The Major Factors Need for Information Scale (MFIINFO) measures the perceived need of students to acquire specific information about majors before making a decision about a major. In contrast, the Career Factors Need for Information Scale (CFIINFO) measures the perceived need of students to acquire specific information about careers before making a decision about a career. The findings in this section show the need for information regarding a major is not equivalent to the need for information regarding a career. The need for career information is greater at both the pretest and posttest.

In Table 8, the pretest reports the means associated with the need for either major information (MFIINFO) or career information (CFIINFO) at the beginning of the study. Means for the pretest (with standard deviations in parentheses) were 19.95 (3.09) for the MFIINFO and 24.87 (3.86) for the CFIINFO. In Table 8, pretest also shows a significant difference between the means associated with the need for major information and the need for career information ($t = -31.49$, $df = 230$, $p = .000$).

Additionally, Table 8 reports the posttest means associated with the need for either major information (MFIINFO) or career information (CFIINFO) at the end of the study. Means for the posttest (with standard deviations in parentheses) were 23.81 (3.59) for the MFIINFO and 24.68 (4.13) for the CFIINFO. In Table 8, posttest shows a significant difference between the means associated with the need for major information and the need for career information ($t = -4.05$, $df = 230$, $p = .000$).

Table 8

Pretest and Posttest Differences on the MFI and CFI Need for Information Scales

Scale	*M*	*SD*	*t*	*p*
Pretest:				
MFI Need for Information Scale	19.95	3.09	-31.49	.00
CFI Need for Information Scale	24.87	3.86		
Posttest:				
MFI Need for Information Scale	23.81	3.59	-4.05	.00
CFI Need for Information Scale	24.68	4.13		

N=231

The MFI Self-Information Scale (MFISELF) measures the perceived need of students for further self-understanding before making decisions about a major. In contrast, the CFI Self-Information Scale (CFISELF) measures the perceived need of students for further self-understanding before making a career decision. This section illustrates that finding that the level perceived self-understanding before making a decision regarding a major is not the same as the level of perceived self-understanding required before committing to a career.

In Table 9, the pretest reports the means associated with the need for self-understanding in order to make a decision regarding a major (MFISELF) or the need for self-understanding before making a decision regarding a career (CFISELF) at the beginning of the study. Means for the pretest (with standard deviations in parentheses) were 15.03 (3.71) for the MFISELF and 15.47 (3.79) for the CFISELF. In Table 9, the pretest reports a significant difference between the means associated with the need for major related self-understanding and the need for career related self-understanding ($t = -3.36$, $df = 230$, $p = .001$).

In addition, Table 9 also reports the posttest means associated with the need for self-understanding in order to make a decision regarding a major (MFISELF) or the need for self-understanding before making a decision regarding a career (CFISELF). Means for the Posttest (with standard deviations in parentheses) were 15.98 (3.71) for the MFISELF and 15.46 (3.79) for the CFISELF. In Table 9, the posttest reports a significant difference between the means associated with the need for major related self-understanding and the need for career related self-understanding ($t = -3.47$, $df = 230$, $p = .001$).

Table 9

Pretest and Posttest Differences on the MFI and CFI Self-Information Scales

Scale	*M*	*SD*	*t*	*p*
Pretest:				
MFI Self-Information Scale	15.03	3.71	-3.36	.001
CFI Self-Information Scale	15.47	3.79		
Posttest:				
MFI Self-Information Scale	15.98	3.71	-3.47	.001
CFI Self-Information Scale	15.46	3.79		

N=231

The MFI Nervousness Scale (MFINERV) measures the perceived level of nervousness felt by students when faced with making a decision regarding a major. In contrast, the CFI Nervousness Scale (CFINERV) measures the perceived level of nervousness felt by students when faced with making a decision regarding a career. This particular section offers understanding of differing levels of nervousness experienced by students when faced with the decision of choosing a major and career. The findings assert that students experience different levels of nervousness regarding majors and careers.

In Table 10, the pretest reports the means associated with the level of nervousness felt by students when faced with making a decision regarding a major (MFINERV) or the level of nervousness felt by students when faced with making a decision regarding a career (CFINERV). Means for the pretest (with standard deviations in parentheses) were 14.37 (4.34) for the MFINERV and 18.24 (5.41) for the CFINERV. In Table 10, the pretest also reports a significant difference between the means associated with level of nervousness felt by students when faced with making a decision regarding a major and the level of nervousness felt when faced with making a decision regarding a career ($t = -20.80$, $df = 230$, $p = .000$).

In addition, Table 10 reports the posttest means associated with the level of nervousness felt by students when faced with making a decision regarding a major (MFINERV) or the level of nervousness felt by students when faced with making a decision regarding a career (CFINERV). Means for Pair 6 (with standard deviations in parentheses) were 15.65 (5.24) for the MFINERV and 16.37 (5.35) for the CFINERV. In Table 10, posttest pairs report a significant difference between the means associated with level of nervousness felt by students when faced with making a decision regarding a major and the level of nervousness felt when faced with making a decision regarding a career ($t = -3.11$, $df = 230$, $p = .002$).

Table 10

Pretest and Posttest Differences on the MFI and CFI Nervousness Scales

Scale	*M*	*SD*	*t*	*p*
Pretest:				
MFI Nervousness Scale	14.37	4.34	-20.8	.00
CFI Nervousness Scale	18.24	5.41		
Posttest:				
MFI Nervousness Scale	15.65	5.24	-3.11	.002
CFI Nervousness Scale	16.37	5.35		

N=231

Research Question 5

The MFI General Decision-Making Scale (MFIGENER) measures students' general tendency towards having difficulty making decisions regarding majors. The CFI General Decision-Making Scale (CFIGENER) measures students' general tendency towards having difficulty making decisions regarding careers. The statistical analysis for MFIGENER and CFIGENER revealed no significant differences between major certainty and career certainty on either the pretest or posttest. The findings for this research question indicate that students experience no difference in general decision-making difficulty when faced with choosing a major or career.

The fifth research question was designed to uncover any change in scores between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge as measured by the CFI, and the respective constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and major need for self-knowledge, as measured by the MFI, for undergraduate

students enrolled in a career decision-making course from the beginning of the course to the end of the course. The MFI and CFI Scales (Need for Information, Self-Information, Nervousness, and General Decision-Making) were once again evaluated separately to uncover change between pretest and posttest. ANCOVA analysis was utilized to determine changes between the pretest and posttest and to determine co-variants that could potentially account for change. An initial test for homogeneity of slopes was conducted to ensure ANCOVA analysis was appropriate for each construct. The covariates used in each analysis were the parallel major or career construct of each independent variable. The findings for this section provide a strong link between majors and careers with the need for self-understanding before choosing a career being used to explain portions of the major decision-making process. It appears that self-understanding is linked to both major and career decision-making.

The MFI Self-Information Scale (MFISELF) measures the perceived need of students for further self-understanding before making decisions about a major. In contrast, the CFI Self-Information Scale (CFISELF) measures the perceived need of students for further self-understanding before making a career decision. Table 11 highlights a significant increase in the mean score associated with the need for self-understanding before making a decision about a major, $F (16, 213) = 1.83$, $p = .029$, and also showed that the need for self-understanding before making a career decision explained a significant portion of that variance, $F (1, 213) = 9.65$, $p = .002$, Eta squared = .04. This is the only ANCOVA that offered any explanation for variance in means across the course.

Table 11

Pretest and Posttest Variance in the Need for Major Self-Information as Explained by the Need for Career Self-Information

Scale	*F*	*df*	*p*	*Eta Squared*
CFI Need for Self-Information Scale pretest covariate	9.65	1	.002	.043
MFI Need for Self-Information Scale pretest/posttest	1.83	16	.029	

N=231

Table 12 reports the results of the remaining three scales of the MFI and CFI evaluated using ANCOVA. Significant results illustrate the impact the career course itself had on scores between the beginning and end of the course. The changes reported show increases in the perceived need for information, self-understanding, and general decisiveness with regard to both majors and careers. Of note are the MFI Nervousness Scale, which significantly increased levels of nervousness across the course, and the CFI Nervousness Scale, which significantly decreased levels of nervousness across the course. Although the changes reported are significant, these results offered no explanation for variation, as co-variants were not significant. The only scale missing is the MFI General Decision-Making Scale, which showed no significant change in the difficulty a student has in making a decision regarding a major. These results are helpful in showing the impact the course used in this study has had on the multiple variables examined. Table 12 shows that there were significant changes in levels of nervousness across the course for both majors and careers. Reviewing the results for nervousness in Table 14 show that the changes are directional with a significant increase in the level of nervousness regarding majors and a significant decrease in the level of nervousness regarding careers across the course.

Table 12

Pretest and Posttest ANCOVA Results for MFI and CFI

Scale	*F*	*df*	*p*
MFI Need for Information Scale	2.24	15	.006
CFI Need for Information Scale	3.87	19	.000
CFI Need for Self-Information Scale	2.95	13	.000
MFI Nervousness Scale	2.14	20	.004
CFI Nervousness Scale	1.64	24	.037
CFI General Decision-Making Scale	1.84	20	.018

N=231

Note: All results do not exhibit evidence of a significant covariate.

Research Question 6

The final quantitative research question was designed to explore a possible correlation between the constructs of career choice anxiety, generalized career indecisiveness, the need for career information, and career need for self-knowledge, as measured by the CFI, and the parallel constructs of major choice anxiety, generalized major indecisiveness, the need for major information, and the major need for self-knowledge, as measured by the MFI, for undergraduate students enrolled in a career decision-making course. The following significant correlations have been reported for the pretest and posttest:

In Table 13, Pair 1 pretest correlations report a significant positive relationship between responses on the parallel questions regarding the need for self-understanding before making either major or career decisions (r = .86, .000). Pair 1 posttest correlations report a significant

positive relationship between responses on the parallel questions regarding the need for self-understanding before making either major or career decisions (r = .80, .000). The magnitude of correlation between these two variables diminishes between the beginning and end of the course. It appears that the ability of one construct to predict the other becomes less influential between the beginning and end of the course.

In Table 13, Pair 2 pretest correlations report a significant positive relationship between responses on the parallel questions regarding the perceived level of nervousness felt before making either major or career decisions (r = .85, .000). Pair 2 posttest correlations report a significant positive relationship between responses on the parallel questions regarding the perceived level of nervousness felt before making either major or career decisions (r = .78, .000). The magnitude of correlation between these two variables diminishes between the beginning and end of the course, and by the end of the course is not predictive in nature.

In Table 13, Pair 3 pretest correlations report a significant relationship between responses on the parallel questions regarding difficulty in making decisions on both majors and careers (r = .93, .000). Pair 3 posttest correlations reports a significant relationship between responses on the parallel questions regarding difficulty in making decisions on both majors and careers (r = .93, .000). The magnitude of correlation between these two variables does not change between the beginning and end of the course. This finding indicates the predictive ability of students having similar levels of difficulty making decisions regarding both majors and careers.

Table 13

Pretest and Posttest Correlations on the Parallel Constructs of the MFI and CFI

Scale	Pretest	Posttest
Pair 1: MFI Self-Understanding Scale and CFI Self-Understanding Scale	.86	.80
Pair 2: MFI Nervousness Scale and CFI Nervousness Scale	.85	.77
Pair 3: MFI General Decision-Making Scale and CFI General Decision-Making Scale	.93	.93

N=231

The significant findings for this study are presented along with insignificant findings in Figure 2 for cumulative review. Results show that once decided on a major or career, students view the two in the same manner and one can be used to predict the other. In addition, students experience the same levels of difficulty in choosing both majors and careers. That is where the similarities end.

In reviewing differences, students exhibit different levels of indecision regarding majors and careers. What is now known, given this research, is that career indecision can explain portions of major indecision. The qualitative data presented in the following section will attempt to shed light on exactly what role majors play in career indecision. Results indeed lead to the belief that majors cannot be chosen until a career is chosen, therefore explaining why career indecision plays a role in major indecision.

Students also believe they need more information regarding careers than majors in order to come to a decision on either. What is unknown is why more information is needed regarding careers than majors before deciding on either. Qualitative data reported in the previous section highlights the importance placed upon majors preparing students for careers, thus explaining the necessity of information on majors.

The quantitative data also revealed the difference between the self-understanding required before choosing a major and career. Students asserted that more self-understanding is required before choosing a career than a major. In addition, students revealed that the need for self-understanding required before choosing a major, can in part, explain the need for self-understanding before choosing a career. Finally, the level of nervousness felt when faced with choosing a major and career reveal a significant difference between the two. These are clearly not the same issue for students. The issue of anxiety and nervousness in choosing a major and career are also addressed in the previous section. Qualitative data in the previous section will attempt to shed light on the relationship between majors and careers.

Table 14

Quantitative Results Review

	Statistical Differences
Major and Career Indecision	Career indecision can in part explain major indecision; Major indecision cannot explain career indecision; Greater levels of career indecision exhibited on the pretest and posttest; Levels of indecision decrease significantly across the course for both majors and career; Constructs predictive at pretest and NOT predictive at posttest.
Major and Career Information	One construct does not explain the other; Greater need for information regarding careers than majors exhibited at both pretest and posttest; The need for major information significantly increases across the course; The need for career information significantly decreases across the course; Constructs are not predictive.
Major and Career Self-Understanding	The need for self-understanding before committing to a major can in part be explained by the need for self-understanding before committing to a career; The need for self-understanding before committing to a career cannot be explained by the need for self-understanding before committing to a major; The need for career-related self-understanding significantly decreases across the course;

[Table 14 continues]

Table 14 Continued

Quantitative Results Review

Statistical Differences	
Major and Career Self-Understanding	Posttest levels show a greater amount of importance placed on major self-understanding than career self-understanding; Constructs are predictive.
Major and Career Nervousness	Significant increase in nervousness making decisions regarding majors across the course; Significant decrease in levels of nervousness making decisions regarding careers across the course; Pretest and posttest exhibit greater levels of nervousness making decisions regarding careers; Constructs are predictive at pretest and not predictive at posttest.
Statistical Similarity	
Major and Career Certainty	No significant changes exhibited across the course; Constructs are predictive of one another.
Major and Career Decision-Making Difficulty	Significant increase in difficulty making career decisions across the course; No significant change in difficulty making major decisions across the course; Constructs are predictive.

Chapter Summary

What is now known through examination of data is that the relationship between college majors and future careers appears simple and perhaps less complex than originally thought. Chapter 5 will examine the results from Chapter 4 and offer thoughts on the implications of findings as well as offer recommendations for future practice.

Chapter 5

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to explore the relationship between college majors and future careers. Results presented in the preceding chapter provide the opportunity for discussion of the implications of this research and recommendations for future practice. For the sake of clarity, this chapter will briefly review the purpose and administration of this study before discussing the implications of findings and recommendations for future research and practice. Finally, a research summary will provide a final perspective on the entire completed study.

Purpose of Study

As stated in Chapter 1, it is important to distinguish between choosing a major and choosing a career. The literature related to academic majors or the decision-making process surrounding the choice of majors is sparse and in need of exploration. The amount of research on careers and the career decision-making process in comparison is bountiful. Researchers such as Bergeron and Romano (1994) have called for future research to focus on the decision-making process for majors and careers separately. Other research has noted how little research has attempted to determine how students come to understand majors or the process of choosing a major (Kelly & White, 1990). In addition, it is essential to remember that choosing a major is a pre-requisite to graduating from college; students however are not required to commit to a specific career to graduate from college. Some students view choosing a major as unrelated to their future, while others try to find a major that will lead them to a specific career. Prior to this study, the place in which majors fit into the career decision-making process was unclear, most

often assumed to be a “proxy” for careers (Orndorff & Herr, 1996). The results of this study indicate that the relationship between academic majors and future careers is much more distinct.

Expanding on the purpose of this study, greater understanding of collegiate majors was gleaned in the context of career decision-making course. Collegiate career development courses historically claim to address both academic and career planning but do so using a career-focused method (Mead & Korschgen, 1994). These courses assist students in choosing majors while using widely sold educational texts that underscore the topic. Understanding how students think about majors in a career context has allowed for discussion of the appropriateness of career-focused texts and career-centered curriculum. Results of this study provide information on how students describe majors in relation to careers when enrolled in a career decidedness course.

Finally, information regarding how college students make meaning of majors and the major decision making process has the ability to further the role that majors play in college student retention. As both major and career indecision have been linked to attrition, the ability to inform understanding of both in the context of a collegiate course holds promise (Brown & Strange, 1981; Hartman & Fuqua, 1983; Newton & Gaither, 1980; Plaud, Baker, & Groccia, 1990; Titley & Titley, 1980; Upcraft, Gardner, & Associates, 1989). The convenient coupling of major indecision and career indecision as factors related to student attrition may not be appropriate given the results of this study.

Administration of Study

This study began in the fall of 2003. The administration of this study took place over an entire semester and involved students enrolled in 19 different sections of a career decision-making course offered at a large southeastern Research Extensive university. Five different instruments were provided to a sample comprised predominantly of first and second year college

students enrolled in the aforementioned course. The pretest administration of this study included 287 participants with an average age of 19. The final group of participants consisted of students who completed both the pretest and posttest instrument administration. At the end of fall semester 2003, the final number of participants involved in the study was 231, with 87% of those participating in the pretest offering to participate in the posttest.

The researcher used the Career Decision Scale (CDS) (Osipow et al., 1976), Career Factors Inventory (CFI) (Chartrand et al., 1990), two adapted and complimentary instruments measuring major decidedness (MDS, MFI) (Thompson, 2003a, 2003b), and a qualitative questionnaire predominantly focused on college majors (Thompson, 2003c). The study was conducted in two phases. The first phase involved collecting pretest data using the four quantitative instruments (MDS, MFI, CDS, and CFI). Two of the 19 sections of the course, comprised of thirty-eight students, were used to pilot the qualitative instrument (Thompson, 2003c). This approach was utilized to ensure a sample group understood the questions posed. The second phase involved collecting posttest data using the MDS, MFI, CDS, CFI, and the researcher developed qualitative instrument. The posttest administration took place during one of the final three classes of each section. Participation in this study was confidential and names were removed from instruments once pretest and posttest matching of individuals had taken place.

Having provided an overview of the purpose of this study, the next logical step is to present results in a context for discussion. The discussion will follow an assumption tested through this research. Orndorff and Herr (1996, p. 633) have asserted that majors serve as a "proxy" for careers with no evidence to support that statement. This research has indeed proven that majors do in fact serve as a "proxy" or foundation for careers in the minds of students. What

is imperative now is discussion how the "proxy" is similar and differs from the actual intended career. What follows is an integration of the results presented in Chapter Four along with recommendations for practice and implications for future research. The discussion topics are arranged based upon findings from the qualitative and quantitative constructs of this study.

Qualitative Research Constructs

The qualitative research constructs were developed to look at how students describe the relationship between majors and careers, how students describe the process of choosing a major, and how students describe the role of a college major in their current life. In each of the three areas, students asserted that majors served as a foundation for future careers. Discussion of this primary theme will be addressed first and followed by four other themes related to the role of majors and the relationship between majors and careers. The qualitative discussion is presented prior to the quantitative as it provides many explanations for the quantitative data.

Majors Serve as a Foundation for Future Careers

Thematic review confirms that students primarily consider future careers when deciding upon a major, believe majors serve as the foundation for those careers, and assert that the role of a college major in their life is to prepare them for a future career. As exhibited by students in this study, they are coming to college to prepare for a career and hence choose a major related to that future career. This finding is perhaps the most obvious of any and serves as an overarching theme for the entire study. In addition, this finding is in direct conflict with the long held belief about the importance of a liberal or general education for college students (Nichols & Nichols, 2001; Stark & Lattuca, 1997). Given the Research Extensive classification of the institution where data was collected, it is important to note the inability to apply findings to institutions outside this classification. This discovery also supports prior claims that a student's principal

purpose for coming to college is to prepare for a future career (Astin, Korn, & Riggs, 1993; Weissberg et al., 1982). Majors really do appear to serve as a "proxy" for careers and are chosen as the path leading to a future career (Orndorff & Herr, 1996). This research clearly supports the findings of other literature in showing that choosing both majors and careers is considered solely as a career need for college students (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993).

Implications. The implication of this finding is that careers are chosen prior to majors and that the choice of major is dependent on the choice of career. This raises questions about the viability of majors that do not clearly identify with a specific career or related group of career options. Payton (1961) offered three purposes for a major: career specialized majors, graduate study preparation majors, and those majors that support learning exclusively for the sake of learning. The students in this study appear to be predominantly interested in majors offering specialized training for careers. It seems that, using Payton's (1961) definitions, this study did not reveal significant understanding of students interested in majors intended to prepare them for graduate study or students interested in majors intended to foster learning for the sake of learning. One explanation is that the use of a Research Extensive university for data collection could have resulted in a sample predisposed to occupationally specialized majors. Another explanation supported by data is that the students registering for this course did so with motives other than finding a major or career. The students in this study exhibited low levels of major and career indecision upon entering and leaving the course and may have chosen the course to merely support what they believed prior to entering the course. Regardless of motive for entering the course, the findings indicate two thirds of Payton's (1961) major classifications missing from review. It is not known if students attending college to prepare for graduate study,

or those interesting in learning for the sake of learning, would describe majors differently than those participating in this study.

If a major is the foundation for a career, this study allows for discussion of a perceived relationship to retention issues. Because colleges and universities have come under fire in the past decade for their inability to retain college students, connections have been made between retention and the combined areas of major decidedness and career decidedness (Bergeron & Romano, 1994; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980). Given that students perceive majors to be the foundation for careers, it would make sense that career indecision and major indecision may be attributed to attrition rates from college. It is however necessary to look beyond the obvious when discussing this notion. Through this study it has been determined that a career is chosen prior to a major. This would indicate that career indecision could solely result in a student leaving college if not provided assistance with choosing a career. Logic would also follow that major indecision would contribute to the decision to leave college. Attrition in these cases could be related to either a student's inability to identify majors related to future careers, or obtain admission to those major programs once identified. When considering why students may leave college as a result of a major, academic adjustment issues must also be considered. Tinto (1993) states that academic adjustment "involves the meeting of explicit standards of the college or university and integration relates to an individual's identification with the structure of the academic system" (Tinto, 1993, p. 104). If a student has not met the academic standards required for future study or the standards required to obtain admission to a specific major, that student could perceive the path to a future career as irrevocably blocked and decide to leave college. Average or poor academic performance on the

part of a student or major programs with selective admission requirements could potentially inhibit an intended career plan.

Recommendations. The relationship between academic and career counseling is of the utmost importance given the implications reported in the previous section. Unless institutions commit to cross-training academic and career counselors, there remains an important distinction between the works done by both. Students may come to academic counselors for a variety of reasons. Students certain of a career path may only be visiting academic counselors to determine if the coursework required of specific majors will match their career aspirations. Students may also be visiting an academic counselor to discuss the pros and cons of various major paths to one specific career option. Academic counselors should not be surprised by students, who when faced with choosing a major, are likely to have a career choice in mind already or be interested in knowing what a major can do for their future. In addition, it is important for academic counselors to be able to determine when students are experiencing career indecision versus merely attempting to find a major that will match their career desires. Academic counselors must be able to determine when their training in career-related issues is sufficient to meet student needs and refer when insufficient.

Career counselors must also develop a heightened sensitivity to the needs of students and refer to academic counselors when their training is not adequate for meeting student needs. As career decisions appear to be made prior to major decisions, career centers must continue to devote resources to assist students in choosing careers and then obtaining those careers upon graduation. The relationship between career and academic counselors must involve greater levels of understanding and enhanced referral practices. With a multitude of majors available to match career prospects, it is the academic counselor that is most well-versed in the fit between

student interests and aptitudes with required coursework. For example, it is the academic counselor that can assist students in understanding a curricular relationship between a foreign language program and that of an international business program. The academic counselor can discuss the rigor of both with regard to the student's academic record and proven ability. To be truly effective in assisting students in choosing a major to fit a desired career, career counselors must be highly aware of all the major possibilities, requirements, and specific points of referral to academic counselors.

In discussing the relationship between career centers and academic programs, it is imperative that career center leaders are aware of the role they play in the university's social, political, and economic environment. When employers are allowed by career centers to specify and limit interview slots to only specific majors, a clear message is sent to students regarding specific paths to future careers. This message can impact student perceptions of major viability and impact the economic status of majors unable to enroll students as a result of those perceptions. Future research could be undertaken to determine the impact career center and employer interviewing policies have on student perceptions of major programs. This kind of research has the potential to illuminate discussion of whether or not students believe that the only viable majors for obtaining jobs are the ones with which campus recruiters schedule interviews.

The issue of retention provides impetus for discussing the feasibility of coupling major and career indecision as equally contributing to college student attrition. It is recommended that enrollment management administrators place a greater emphasis on career indecision because of the potential for career uncertainty in explaining major indecision. As career indecision and changes in career aspiration are not tracked on college campuses, it appears that undeclared major status, changes in major, and student reports of career indecision are used as the primary

indicator of both major and career indecision (Bergeron & Romano, 1994; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980). The coupling of these two different constructs without any discussion of careers preceding majors in decision-making order has perhaps resulted in the inability to explain retention issues. There has to be a practical manner by which students can be identified as "career uncertain" other than self-identification or assumptions being made about undeclared major status. Lewallen (1993) proved in a national study that students with undeclared major status were not at greater risk of persisting in college. In addition, Kramer, Hughey, and Olsen (1994) showed that students who remained undeclared in major changed their majors less than those declaring upon entering an institution. Finally, there is significant evidence that there is no difference between declared and undeclared majors in terms of career decidedness or career aspirations (Anderson, Cramer, & Cross, 1989). This research advocates focusing on students academically at risk as well as those interested in majors with selective admission requirements. These students are likely to have chosen career paths and may feel unable to attain their goals without assistance. At the very least a place on college admission applications regarding certainty of career could assist in identifying those students in need of possible future intervention. Enrollment managers should have an idea of the extent of career indecision and the implied yet undetermined relationship to major changes as a result of career indecision.

Finally, future research must commence to examine students identifying themselves as learning for the sake of learning and those committed to graduate study. This research may be best undertaken on college campuses with less occupationally specific major options, such as a traditional liberal arts institution. Students graduate each year from colleges across the nation with degrees that are not occupationally specific, yet we have no information on the role of

college majors in their lives or how they go about choosing their majors. In addition, research aimed at understanding student perceptions of academic majors and their beliefs about future potential of all majors is necessary. This kind of research would assist college administrators in bridging the gap between what students think about specific majors and possibly how college career centers and employers support those notions. This kind of research has the ability to identify fallacies about majors as well as allow academic programs to attempt to confront such misconceptions.

Relationship between Majors and Careers is Variable and Dependent on Career

Students reported that the relationship between majors and careers should be interrelated in most instances, but that relationship would be determined by a career choice. Many responses addressed the conception that specific majors that must be declared in order to obtain a precise career match. Other responses speak to the idea that some career areas allow for students to choose among multiple majors. It would appear that based upon this finding that there could be a relationship between career changes and major changes. Statistics are available regarding the number of times students change majors, but no information is available to explain why students change majors. Foote (1980) estimated that 87 percent of students change their majors during the first two years of college and that possibly 90 percent of freshman were unsure of their academic major. In addition, Theophilides et al. (1984) found that 45 percent of students changed their majors during both the first and second years, and on the other end of the spectrum only 25 percent of the students studied never changed their majors during their college experience. The implied relationship between majors and careers supports the notion that as students are changing their minds about majors, they are doing the same with regard to careers.

Implications. In support of Bergeron and Romano's (1994) call for future research to focus on the decision-making process for majors and careers separately, this research has identified critical beliefs about college majors. The assertion that changes in major are linked to career indecision in some way creates a link that is critical to the discussion of retention of college students. In studies examining retention statistics, the combined category of major indecision and career indecision has been linked to attrition (Brown & Strange, 1981; Hartman & Fuqua, 1983; Newton & Gaither, 1980; Plaud et al., 1990; Titley & Titley, 1980; Upcraft et al., 1989). Should major changes actually indicate a change in career, the manner in which data has been reported requires revision. Major changes would not indicate major indecision rather career indecision. This link provides a viable and measurable indicator of career indecision and hence a method of intervention with students at risk of leaving college.

Recommendations. Major change data is traditionally used to determine time to degree statistics for colleges and universities. When students change majors they typically take longer to complete their degree and increase the costs incurred by the institution. Interventions with students who are taking extensive amounts of time to graduate are typically based upon economic concerns prompting a timely graduation rather than retention concerns. The findings in this section clearly support the use of major change statistics to identify and intervene with students regarding career indecision. A recommendation is made to undertake research aimed at why students change majors to provide support for the assertions made through this research. Should it be determined that major changes are consistent with career changes, further interventions are necessary. One consideration is to implement career decision-making courses that include components devoted to choosing a major upon completion of committing to a career. Previous research shows the effectiveness of such courses in reducing career indecision and

therefore provides a solid foundation from which to build and assess (Davis & Horne, 1986; Halasz & Kempton, 2000; Lent, Schmidt, & Larkin, 1985; Quinn & Lewis, 1989). This recommendation is merely an attempt to meet mass needs for addressing career indecision and major changes. Personal interventions by academic and career counselors as well as programmatic interventions can be practical depending on the institution and the extent to which career indecision and major changes are prevalent.

Interests, Values and Future Happiness Considered When Choosing a Major

The relationship expressed in this theme is completely centered on the future rather than any current considerations for students. Students expressed the desire to major in something that interested them, something they valued, and naturally something that would yield future career happiness. Many responses revealed no discernment on the part of students between a major and career. The impact of the course utilized in this study became apparent when reviewing responses. Courses related to career decision-making typically follow texts based upon prevalent career development theory (Luzzo, 2002, Michelozzi, 2000, Schein, 1985). Theories of career development are primarily concerned with broad psychological, sociological, and cultural factors related to the lifespan of human beings (Brown, 2003; Holland, 1997; Krumboltz, 1979; Super, 1980; Zunker, 2002). The course used in this study showed multiple positive impacts on students as evidenced by quantitative results presented in the previous chapter. The qualitative theme presented here supports the finding that majors not only serve as a foundation for future careers, but supports the impact a career-oriented curriculum has on student thinking about majors.

Implications. Students who were asked what they consider when choosing a college major responded with factors that related solely to the future rather than the present. These

students expressed an interest in their major subjects, but mainly in relation to how the major subjects yield a future career. These students also want to value what they are learning, yet the curricular value is specifically related to a future career. Finally, the majors chosen by these students are reportedly chosen based upon their perceived ability to provide future happiness. This implies that the career-oriented curriculum could result in students making present day decisions about majors and careers to which they have been minimally exposed. Kelly and White (1993) assert that most students choose majors before being exposed to a wide variety and often choose those most familiar. If this is true, and students have not had their skills and aptitudes tested by an academic curriculum prior to deciding upon a choice of profession, the results could be damaging. The latent consequences of future oriented aspirations driving present day decisions are increased major change statistics and potential career changes. A student's ability to meet the academic requirements of a future profession or a selective academic major could result in a career shift. The negative effects of career indecision have been examined in prior research, but what has yet to be examined is the impacts experienced by students when they discover they have not acquired the skills or possess the aptitude to be successful in a given career or major.

Recommendations. The simplest recommendation, and perhaps most difficult to achieve, would be a core curriculum designed to test student aptitudes for future careers and areas of study. The resistance expressed by faculty when discussing changes in well thought out general education curriculum would present the largest hurdle to accomplishing this recommendation (Stark & Lattuca, 1997). Currently the majority of core curricular or general education plans are grounded in faculty perceptions of what studies are critical for all students (Stark & Lattuca, 1997). Oftentimes these curricular programs require students to examine a number of areas

related to future careers, but these links are not part of the explanation to students when discussing the importance of general education programs. Another suggestion is the use of a period of waiting before allowing students to declare academic majors. Ideally students would be exposed to a variety of courses identified as critical to a professional area of study before being able to choose a major. Not as grand in expectation but clearly important is revision of college career courses to reflect the importance of academic aptitude and rigor in the career solidification process. Majors may not be part of the career decision-making process, but definitely play a role in how solid that career is and whether or not it will potentially change. Career courses must focus on the academic requirements of majors and the importance of academic exploration of coursework rather than exploration of majors. At the same time, colleges and universities should be bringing career centers and employers into critical discussions about why certain majors and courses are necessary to be able to interview with a company. College career centers have the ability to influence corporate recruiters to consider broadening the spectrum of interview candidates and simultaneously shape student perceptions of the kinds of majors that make them viable in a job search.

Majors Determine Courses and Assist in Meeting Graduation Requirements

The concept of majors evolved from an institutional need to clarify the difference between a core specialized curriculum and that of electives or distribution requirements (Stark & Lattuca, 1997). The historical purpose of majors, originally reported as an institutional need for clarification of the curriculum, has also been connected to a student need for clarification. The Carnegie Foundation for the Advancement of Teaching (1977) asserts that getting “a detailed grasp of a specific field” was either important or essential to most undergraduate students (p.

201). The shift from viewing majors as solely meeting institutional needs to additionally meeting student needs has been addressed through this research.

Implications. Earlier in this research endeavor, it was suggested that the necessity of declaring a college major and the timing of that requirement could be problematic for students. It appears that students appreciate the guidance academic majors provide regarding coursework and graduation requirements, rather than viewing these negatively. Of concern is the clear-cut role that majors play in the lives of students, a role that can often begin prior to matriculation (Levine, 1978). Many majors require students begin taking courses as early as the first day of college to meet a four-year graduation goal (Levine, 1978). The pressure to follow a major path before a career aspiration has been identified could result in increased major change statistics. Newman and Fuqua (1990) assert that a premature commitment to a career, perhaps driven by a desire to graduate in four years, could have repercussions that are costly in both human and economic terms. Career and human development literature acknowledge that the college years are filled with transition and discovery (Baxter Magolda, 1992; Brown, 2003; Chickering & Reisser, 1993; Zunker 2002). If college requirements force a premature career commitment, in a period fraught with transition, students following majors requiring early commitment to coursework could truly be at risk. Levine (1978) cites the natural and physical sciences as requiring commitment to coursework earliest in an academic journey. The implication regarding at risk students would certainly apply to students changing majors after following, and perhaps academically struggling with, curriculums determined as early as the first semester of college.

Recommendations. The ability of enrollment managers to track students in academic programs requiring large amounts of prerequisite coursework appears to have merit. Tracking the movement of students in and out of these majors would be a starting point to determine if

there is a connection between these academic programs and attrition rates. It is also necessary to acknowledge that a number of students will not be formally declared in an academic program yet will be following the same prerequisite coursework required of declared majors. It is therefore necessary to track students that appear to be taking prerequisite coursework leading towards major programs. The financial impact of this kind of tracking would be dependent on the size of the institution as well as the number of major programs an institution has that require extensive pre-requisite coursework. Identifying students in need of possible assistance is merely a precursor to intentional interventions for students following prerequisite oriented curriculums.

Interventions must be related to assisting both declared and undeclared students in understanding the requirements of undergraduate and graduate academic programs. Students can and should be exposed to multiple career alternatives related to their current choice of major should a change of career be necessary when students do not meet academic or career standards. This kind of intervention requires a collaborative effort on the part of academic and career professionals to capture the attention of students. Results presented earlier in this chapter show that students are likely to choose a career prior to a major, and that the major plays a role in the career decision. The most evident application of this knowledge is a combined intervention involving academic and career counselors. Early intervention could be achieved through routine student correspondence developed in conjunction with academic and career counseling staff. Correspondence that allows students the option of choosing to visit an academic or career counselor increases the opportunity for early intervention through the use of multiple sources. In addition, an intervention by academic and career counselors as early as the end of the first year of college could provide at-risk students viable alternatives before they have completed a significant amount of coursework. This of course requires academic and career counselors to

monitor progress in courses and be able to get the attention of students who perhaps do not want to hear their message. The key to success would be in determining what career goals the students have and formulating a timeline for improvement as well as a timeline for alternative careers and majors. This recommendation also carries the burden of both academic and career counselors being cross-trained in the other's functional area.

A final recommendation for future research involves examining student perceptions and expectations regarding academic and career counselors. It is not known whether students expect career counselors to be knowledgeable about course requirements nor is it known if they expect academic counselors to be able to discuss starting salaries of future careers. The result of this kind of research has the ability to revolutionize and potentially merge academic and career counseling centers across the country.

Choosing Majors Can Create Anxiety

Earlier in this chapter it was asserted that career indecision is likely to be coupled with major indecision as students are not able to choose majors until a career has been chosen. It was also declared that selective admission requirements to majors could potentially cause students to feel that chosen careers were being denied to them after they had already chosen their future career. The emotional responses found when students were asked about the role of majors in their lives support both of these claims. In addition, Newman and Fuqua (1990) have proven that a premature commitment to a career could create a sense of anxiety within an individual. It appears that students in this study do express anxiety regarding majors when they have either not decided on a career or their ability to obtain entrance to the major related to their chosen career is in question.

Implications. The relationship between majors and careers continues to become more evident as does the order in which the two are chosen. Students experience anxiety when faced with choosing a major before they have committed to a career. Students also express nervousness when the have chosen a career, identified the major necessary to make a successful transition into that career, and are faced with the perceived or real inability to declare that major. The implications from the student perspective are clear. Anxiety over majors would be reduced if they were able to declare them on their own timeline and were allowed to enter their major of choice. What is not clear is whether or not students place pressure on themselves to find a career and major or the pressure is external. Student responses in this study did not identify external pressures. It is possible however that there could be both external and internal pressures associated with career decisions that were not identified through this study. Bartsch and Hackett (1978) used Rotter's (1966) Internal-External-Locus-of-Control Scale in studying the locus of control associated with career decisions in a career course setting. Results indicated that upon completion of a career course, students believed themselves to have more control over career decisions (Bartsch & Hackett, 1978). Should career indecision be directly related to major changes and admission decisions, attention must be paid to students who feel they cannot obtain their initial choice of career. Major changes and admission denials could be primary indicators of changes in career choice and therefore deserve the attention of practitioners.

Recommendations. Counseling centers on college campuses meet regularly with students exhibiting anxiety over the inability to choose a career and complimentary major. Counselors in these centers possibly contain the greatest wealth of information on college campuses for determining a mechanism to identify and track such anxious individuals. Counseling center practitioners could also assist in determining wide-spread interventions for students uncertain of

future careers. It is critical that students who are unable to decide upon a career are identified through any means possible. Those exceeding university requirements for major declaration are the most evident, but colleges need to individually determine a means for identifying and tracking career indecision. Finally, enrollment management professionals on college campuses could assist by carefully tracking each and every time a student is denied admission to a major program of study as it could represent a career shift for students or potentially a reason to leave college.

The ability to intervene with students Research using Rotter's (1966) Internal-External-Locus-of-Control Scale could provide useful in working with students who have been denied admission to selective major programs. Counselors could use the scale with students as they attempt to accept personal responsibility for skill and aptitude deficiencies, personal choices that have prevented them from meeting admission expectations, and any external pressures that have contributed to their particular situation. What is important is that these students are identified and an intervention is planned. Students are denied admission to majors every day on college campuses and they can either persist against a closed door or start over. Persisting against the closed door without intervention is only prolonging a potential career change and creating a situation where the student feels they have done too much work to consider alternatives. Starting over and choosing another path is equally difficult and usually not embraced by students without understanding the benefits of such a path. What is critical is that the next path chosen in either situation does not replicate the first path and place the student in a position of having to choose again. Persistence in college is related to careers and through careers related to majors. Colleges must use any information to identify at-risk students and target students who have been denied admission to an academic program.

Quantitative Research Constructs

The quantitative research constructs have been divided into two sections for clarity. The first section focuses on the findings that proved students view majors in the same manner as careers. There are two areas of similarity in the relationship between majors and careers and they are discussed below:

Similarity: Certainty Regarding Major and Career Decisions

The findings indicate that once students have decided on a major or career, they exhibit similar levels of certainty regarding both majors and careers. Results also indicate that once students view the two in the same manner that one can be used to predict the other. This finding certainly signifies that majors and careers can be coupled in reporting when students indicate certainty regarding both. These results are supported by the qualitative findings in the previous section.

From a practical perspective, the raw scores for the major and career Certainty Scales on the MDS and CDS at posttest reveal students who fall into the middle percentiles of normative data for the CDS (Osipow et al., 1976). These scores are described as indicating certainty of career choice and college major (Osipow et al., 1976). The pretest raw scores did fall into the lower 15 percentile range indicating a need for intervention. This information shows that the course appears to have served its purpose in creating confidence and certainty regarding both majors and careers. What is critical to remember is that the posttest scores indicate higher normative certainty levels. The reporting of this practical data confirms the qualitative responses that are reflective of students who view majors and careers in a similar way and with one construct having the ability to be predictive of the other.

Implications. For the purpose of this study, "certainty" is described as a state of confidence expressed after a decision regarding both a major and career has been made. These findings only apply when students have already made decisions regarding both majors and careers. The state of "certainty" can be interrupted by a change of mind regarding a career choice that can then affect the major choice. Therefore the state of "certainty" is variable as students can change their minds on majors multiple times during the college years (Foote, 1980; Theophilides et al., 1984). There is currently no specific tracking mechanism on college campuses for following changes in career aspirations. Changes in major have been used as a primary indicator of career changes in the college years, yet major changes do not always indicate a career change. Although information is not available to discern why students change majors, it is possible for students to change majors within the same discipline without changing their career direction. The data presented is merely a snapshot of students at the beginning and end of a career course exhibiting certainty at those points in the timing of test administration. We know that career changes can occur long after degrees have been conferred and major coursework completed. Current statistics available show that 44 percent of college graduates report no close or direct relationship between their undergraduate area of study and their job(s) (Digest of Educational Statistics, 2002). It is clear that changes in major provide a link to possible career changes, but ultimately are not completely reliable indicators.

Recommendations. The findings presented have the ability to impact researchers who are interested in understanding the extent to which certainty regarding both majors and careers varies across the college experience. This information is also useful for collaboration between advising centers and career centers on college campuses. Major change data is available on many college campuses; yet no data is available regarding the number of times students change their minds

regarding careers in the college years (Foote, 1980; Theophilides et al., 1984). Major change data is traditionally tracked to see how long it takes students to graduate and for identifying students in need of academic advising. Typically academic advising units are held accountable for ensuring students meet "time to degree" goals of an institution. College career centers however are not held to the same standard as career change statistics and career indecision are not tracked in any way on college campuses. The qualitative findings earlier in this chapter assert that career decisions are made prior to and necessary for the major decision-making process. Career indecision in most cases, with the exception of academic performance and selective major requirements, will prevent a decision regarding a major to be made. As Tinto (1993) asserts career indecision is one of the factors that may influence student retention. Career centers need to begin to carry some of the burden facing academic counselors when it comes to meeting to time to degree requirements, graduation rates, and retention statistics. This is a critical collaboration process which could enhance the retention rates of college students.

Similarity: General Difficulty in Making Decisions about a Major or Career

The general tendency toward having difficulty making decisions is the construct addressed in this section. The findings for this construct indicate that students experience no difference in general decision-making ability when faced with choosing a major versus a career. Across the course, the changes reported show increases in general decisiveness with regard to careers with scores remaining constant for majors. The predictive ability regarding generalized difficulty in making decisions is quite high and so it is expected that students experiencing difficulty making decisions regarding majors will surely experience the same difficulty with careers.

From a practical perspective, the raw scores for the MFI and CFI Generalized Indecisiveness Scales at pretest and posttest reveal students who fall into the middle 50 percent of normative data for the CFI (Chartrand & Robbins, 1997). These scores describe students who report some, but not a great deal of, difficulty in making decisions (Chartrand & Robbins, 1997).

Implications. Given the results presented in previous sections, it appears that once decided, students are quite certain about both majors and careers. This second finding shows that the students in this study are having equal difficulty deciding on majors and careers. In addition, the predictive nature of these two constructs alerts practitioners to the high probability of students expressing difficulty regarding majors and careers simultaneously. What the qualitative data presented earlier asserts is that the difficulty would come naturally from choosing a career, and if that was undecided, choosing a major would be coupled with choosing a career. Research has shown that students, primarily freshman and sophomores, express a strong need for assistance in choosing a major and a career with both needs being described solely as a career need (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; and Kelly & White, 1993). The findings in this section support historical research, as it appears that students are in need of assistance with careers, and hence complimentary majors to go with the chosen career.

Recommendations. General decision making ability with regard to careers has been addressed in Chapter 2. Multiple instruments have been designed and proven valid in assessing aspects of the career decision-making process (Chartrand & Robbins, 1997;Crites, 1973; Osipow et al., 1976; Taylor & Betz, 1983). These instruments can and should be used on college campuses as a means of assessing varying aspects of the career decision-making process. These instruments allow for use with large groups, but the actual counseling associated with instrument

results often requires time and staffing patterns not always available on college campuses. Career courses also provide a possible alternative for administration of career decision-making instruments. Research shows that these courses have been quite effective in reducing factors related to career indecision (Bartsch & Hackett; 1978; Davis & Horne, 1986; Garis & Niles, 1990; Halasz & Kempton, 2000; Lent, Schmidt, & Larkin, 1985; Quinn & Lewis; 1989; Smith, 1981). Career indecision is an issue that is not going to go away. It is imperative that institutions of higher education pay more attention to how it is being addressed on their campuses. It is also recommended that career centers and advising units on college campuses begin collaborating to connect career decided students with more than one major option when referring. The ability to open multiple major paths for student's career aspirations only increases the options aimed at keeping students in college.

As mentioned earlier in this Chapter, the quantitative research constructs have been divided into two sections for clarity. The second section centers on the findings that proved students view the complimentary constructs as statistically different. Keep in mind the qualitative results that can guide understanding of this section. Students reported differences between majors and careers in the areas of indecision, information necessary for making decisions, self-understanding necessary for making decisions, and finally nervousness about making decisions. There are four areas of difference reported in the relationship between majors and careers and they are discussed below:

Difference: Major and Career Indecision

Considering the results from a practical perspective, the raw scores for the MDS and CDS Indecision Scales at the posttest reveal students who fall in the middle percentiles of normative data for the CDS (Osipow et al., 1976). These scores are described as indicating a

non-serious level of indecision (Osipow et al., 1976). Once again, this information shows that the course appears to have served its purpose in reducing indecision regarding majors and careers. Based on the previous section discussing certainty, these students are not 100% certain of their majors and careers, but are also not at an alarming level of indecision on either. If viewed on a spectrum, this group is clearly leaning towards certainty regarding majors and careers versus indecision.

Implications. Students assert that a primary need for them is choosing both a major and a career, and describe this need exclusively as a career need (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Creamer, 1992; and Kelly & White, 1993). The quantitative results here state clearly that deciding on a major is not the same as deciding on a career, but how they differ can only be answered through other findings. Results in the next section will assist in showing that majors differ in the type of information required to make a decision, the amount of self-reflection needed prior to a decision, and the level of nervousness felt when faced with that decision. Qualitative results presented earlier support the notion that career indecision can in part explain major indecision, implying an order in the spectrum between indecision and certainty. It appears that careers must be chosen prior to majors in order to explain a portion of major indecision. This data fully supports the qualitative findings expressed earlier in this chapter.

Chapter 2 set the context for studying college students as they are immersed in a number of developmental tasks, including career development (Brown, 2003; Chickering & Reisser, 1993; Zunker, 2002). As the identity development of college students is a continuous process, the adolescent stage references to Holland's career development theory involve a great deal of career-related uncertainty (Brown, 2003). What is interesting about the students examined in

this study is that they show smaller amounts of indecision than normative scales (Osipow et al., 1976). This means that they are pretty well decided on majors and careers prior to the course and certainly afterwards. The levels of certainty reported in this study, coupled with Herr and Cramer's (1992) assertion that students are choosing careers earlier than previous generations allows one to wonder if the concept of uncertainty is a perception erroneously placed upon the students of this generation. The average age of students participating in this study is 19 years old, and most are only in their second semester of college. The data shows that the course utilized in this study assisted students in becoming less uncertain, but also shows that they did not enter the course at an alarming point of uncertainty. This raises questions as to whether or not this type of course merely sustains the ideas students enter with and/or serves merely as a support mechanism for previously made decisions. We also do not know whether a course devoted to solely choosing a major would attract students who were undecided on both a major and a career. It appears that student motivations for taking the course have resulted in a sample that significantly changed as a result of the course, but were not what one would deem "at-risk." A final consideration is that the students taking this course could have been motivated by other factors such as a two-unit course that fit into their schedule or perhaps the belief that this course would positively impact their grade point average. Regardless of motivation, this study has provided a solid look at occupationally specific decided students sharing their process for choosing a career and major.

Recommendations. The findings presented in the previous section have the ability to impact academic counselors, career counselors, and faculty who design curriculum. It seems that career indecision would be an issue for students registering for a career decision-making course. As all results point to a step-like process of choosing a career first and then a major, and

that those processes do differ in a number of ways, a series of courses might be appropriate. Career decision-making courses date back to the early 1900's (Maverick, 1926). Current research by Mead and Korschgen (1994) conducted with over 100 institutions in 50 states found courses devoted to the examination of career issues and not academic concerns. In addition, a review of texts available from three major educational publishing companies shows limited information about choosing an academic major (Luzzo, 2002, Michelozzi, 2000, Schein, 1985). As courses devoted expressly to careers and the career decision-making process are already prevalent on college campuses, the next logical step would be designing major related courses to follow career courses. There is the potential for creating a specific course designed to expose students to majors and assist in the major decision-making process. The remaining sections to be discussed highlight topics for such a course as students have deemed differences between majors and careers in the areas of information needed before deciding, self-reflection necessary before deciding, and nervousness associated with majors. In addition, the qualitative data uncovered the need for alternative paths when desired majors are unattainable. Future research could then be done to look at the impact of courses devoted only to choosing a major. The interaction between majors and careers appears simple until something such as denial to an academic major causes a student to re-evaluate careers then majors.

In addition, it is important to acknowledge and test the findings reported in this study. The importance of assessing the development of college students in a longitudinal manner cannot be stressed enough. This research captures student beliefs and ideas at two points in their undergraduate experience. To fully understand the student experience is research needs to follow students through changes in the college years. The extent to which decidedness regarding majors and careers fluctuates across the undergraduate experience remains unknown. It is not

understood whether or not students change their minds about careers as they change majors. The necessity of undertaking research to really explore whether or not courses such as the one examined in this study really make a difference in the lives of students is paramount. Longitudinal research would shed light on the results reported in this study and provide further insight into changes in majors and careers across the undergraduate experience.

The need to undertake research with students at traditional liberal arts institutions is great. As this study looked at students considered to be focusing on "occupationally specific" majors at a Research Extensive institution (Payton, 1961, p. 58), a study has yet to be done with students choosing to attend higher education institutions for reasons other than professional training. As Payton (1961) states, there are two other kinds of major paths, that of preparatory majors (graduate and professional study) and non-preparatory majors (learning for the sake of learning). It would seem that students choosing to attend traditional liberal arts colleges, where majors typically do not translate into specific careers, would potentially exhibit differences regarding the role of college majors in their lives. This kind of research has the ability to inform practice with students approaching their undergraduate education with a desire other than preparing for a specific career upon graduation.

Finally, college choice literature highlights initial commitment to an academic program before matriculation (Hossler & Gallagher, 1987). This pre-college process focuses on student's academic aspirations which include choice of academic program as one of the top three determining factors in the decision of which college to attend (Hossler & Gallagher, 1987). As college choice data does not focus on any connection between academic aspirations and career aspirations, it is not known when exactly students begin to view a major as a "proxy" for a career (Orndorff & Herr, 1996). What is known is that students are choosing careers at earlier ages

than ever before (Herr & Cramer, 1992). These combined notions lead to an assertion that careers could be chosen prior to college matriculation with academic programs serving as a "proxy" for careers on college applications (Orndorff & Herr, 1996). If students are in fact choosing colleges based on their perceived ability to yield future careers, the functional area of enrollment management has the potential to be expanded to include career services. The role of careers in the college choice process must be examined to determine whether it is academic programs that boost enrollment rates or the promise of a future career related to an academic program. This information is vital to how institutions market themselves to students and how well they follow-thru with recruitment promises once students matriculate. Research done with high school students and the college choice process is yet another potential link to understanding how to retain college students.

Difference: Need for Information before Choosing a Major or Career

The construct measuring the need for information was intended to evaluate the perceived need to acquire specific information about or experience in various majors or occupations before making a decision on either. The findings for this construct show the need for information regarding majors is not equivalent to the need for information regarding careers. The need for career information is greater at both the pretest and posttest. Students also believe they need more information regarding careers than majors in order to come to a decision on either. What is unknown is why more information is needed regarding careers than majors before deciding on either. Significant results illustrate the impact the career course itself had on scores between the beginning and end of the course. The changes reported show increases in the perceived need for information with regard to both majors and careers.

Implications. Students in this study view these constructs as very different perceived needs. It appears that there are specific things that are important before choosing majors and specific, yet different, things before choosing careers. This indicates that academic counselors and career counselors are expected to provide different types of information. Students must be aware of where to obtain the information they are looking for, especially on large college campuses. The ability to easily obtain information can be challenging on campuses depending on how advising units and career centers promote their services and are perceived by students.

The qualitative data reviewed earlier shows that students believe majors are in place to assist them in choosing courses and meeting requirements. The data did not reveal any strong role of academic or career counselors in assisting in the major choice process. The perception students hold regarding the abilities and competencies of academic and career counselors is able to be somewhat managed by these professionals. Academic advising centers have the capability to promote themselves as more than the place students go once a semester to choose classes and review requirements. In addition, career centers have the ability to present themselves as much more than the place students go to interview for jobs and obtain resume critiques. Both career centers and academic advising centers have the ability to change student perceptions of services provided to better serve constituents. The implication of changing student perceptions of campus units requires the budgets to support such moves as well as the ability to effectively assess student perceptions.

Confusion may exist when institutional requirements call for major declaration before students are ready to commit to a career (Levine, 1978). A stated requirement could cause a student to declare a major for the sake of meeting a requirement, and eventually change that major once decided on a career. The issue related to the timing of major declaration

requirements could again be a point of collaboration between academic counselors and career counselors. The identification of students in need of formally declaring a major is information that does not have to stay in the hands of academic counselors alone. A collaborative team of academic and career counselors could provide appropriate interventions to students that are facing the deadline of declaring a major.

Recommendations. As students are expressing different needs for information regarding majors and careers, it must be clear to students as to where they can find the information they desire. The clarity of purpose for both career centers and advising centers must be articulated to the greater student population. To accomplish this it would be useful for campuses to undertake an environmental assessment effort to determine how students perceive career and advising centers. This information could be used to build upon collaborative efforts to promote a seamless relationship between campus units. Career and advising centers may assert their knowledge of how students perceive their work, and may need assistance in understanding the importance of unbiased evaluation. Once a report of findings is presented, career and advising centers have the ability to clarify misconceptions with the student population as well as collaborate on developing new perceptions.

To address the issue associated with students who must declare majors before they have had an opportunity to decide on a career, a collaborative venture is again advised. Academic counselors and career counselors have the ability to engage in both written and oral correspondence with students that are fast approaching the deadline for declaring majors. This joint correspondence would ideally offer the services of both units in assisting students through this transitional period. This additional connection would also allow the institution to assess where students actually go for counseling when faced with a mandatory major declaration. It

would also allow counselors and counselors to gain insight into reasons other than career uncertainty for delayed major declaration. The prospective gains of career and advising centers collaborating and perhaps cross-training have not been assessed in literature but appear limitless. Practitioners associated with both academic and career counseling would certainly agree that the two functional areas are interconnected.

Difference: Need for Self-Understanding before Choosing a Major or Career

This construct was designed to uncover the desire of students to have greater self-understanding before making a decision regarding a major or a career. The results in Chapter 4 illustrate that the level of perceived self-understanding before making a decision regarding a major is not the same as the level of perceived self-understanding required before committing to a career. Students asserted that more self-understanding is required before choosing a career than a major, and that the need for self-understanding before choosing a career is part of the major decision-making process. The findings demonstrate yet another link between majors and careers.

From a practical perspective, the raw scores for the MFI and CFI Self-Understanding Scales at pretest and posttest reveal students who fall into the top percentile of normative data for the CFI (Chartrand & Robbins, 1997). These scores describe students who report a high need for self-understanding before making a choice regarding both a major or career (Chartrand & Robbins, 1997).

Implications. The implication of these findings is that students place a high value on self-understanding before choosing both a career and major. It is also asserted that through career related-self understanding that students are able to engage in a major related self-understanding process. This information supports previous qualitative data which affirmed the belief that

careers are chosen prior to majors. Although these constructs are described as different kinds of self-understanding, career self-understanding is clearly part of the major self-understanding process. If career related self-understanding is to be part of the major self-understanding process, it follows that it would be accomplished first. This seems apparent as the course decreased the need for career related self understanding and increased the need for major related self-understanding. This implies that once an individual feels accomplished in self-understanding with careers, it is then time to move on towards greater self-understanding regarding a major.

Recommendations. Research to this point has cited first and second year college students as possessing insufficient levels of self-understanding to make career decisions (Moore, 1976; Rayman, 1993). Additional research asserts that students choose majors and careers based upon familiarity with little thought given to self-understanding (Kelly & White, 1993). It is clear that the students in this study have a different belief as the need for self-reflection is deemed important for both majors and careers. What is concerning, based upon the qualitative discussion, is that the self reflection related to majors appears to focus on interests and values as they relate to future happiness. What is also known is that students view majors as providing them guidance in coursework and necessary for meeting graduation requirements. What is still unknown is what major related self-reflection means for students. It is believed that the career-oriented curriculum which students were exposed to has not done an effective job in exploring issues such as academic aptitude and skills. The potential for students be exposed to this type of curriculum is not limited to the institution utilized through this research. It is reported that there are three primary types of career courses taught nationally: career decision-making, job search preparation, and specific disciplines related to careers (Mead & Korschgen, 1994). Discussion of

the perceived differences between self-reflection required before choosing a major versus a career deserve further research and attention. The following discussion represents one viewpoint on differences most evident to practitioners.

The qualitative data presented earlier in this chapter reflects the angst reported by students when self-reflective career plans are interrupted by academic requirements. As a result of competition for resources, colleges have to restrict admission to desirable programs based upon an academic skill set that can send interested students searching for new majors and possibly new careers. Academic policies, grade point averages, and admission requirements that prevent students from declaring their major once decided surely result in the need to re-evaluate career options. No amount of career-related self-reflection however can prepare a potential doctor and biology major for a string of failures organic chemistry courses and the career ramifications of those failures. In most career courses, self-reflection regarding a career can range in focus from salary desires to skills to preferred work environments, and although applicable to majors are not entirely inclusive (Luzzo, 2002). These are not and should not be the same reflection topics explored when choosing a major. Should career courses continue to emphasize career related self-reflection, a new piece of the curriculum must be considered to ensure reflection upon the skills required to succeed in an academic program.

Difference: Nervousness Felt Before Choosing a Major or Career

Newman and Fuqua (1990) provided evidence that lower levels of career indecision would result in decreased anxiety regarding careers. This study supports the findings of Newman and Fuqua (1990) with regard to careers but evidence regarding majors provided differing results. Nervousness and anxiety regarding major decisions actually increased as students became more decided on majors and careers.

From a practical perspective, the scales used to measure nervousness reveal students who fall into the lowest percentile of normative data for the scales at pretest and posttest (Chartrand & Robbins, 1997). These scores reflect students who report little distress when faced with making a decision about a major and only mild conflict when considering a career decision. Although the course decreased levels of anxiety regarding careers and increased anxiety over majors, the raw scores still show careers creating a greater and different kind of nervousness. It is believed that these scores are reflective of a sample group who entered and left the career course with higher levels of decidedness than normative scores for the CFI (Chartrand & Robbins, 1997).

Implications. Given the decided nature of the sample group studied, it is not surprising that raw scores indicate low levels of nervousness. Regardless of raw scores, students still experienced an increased level of nervousness as they became more certain about majors and careers. As asserted previously, this could be representative of the perceived order of choosing careers prior to choosing majors. The increase in nervousness could be indicative of bringing closure to the career decision-making process and the beginning of the major decision-making process. Another consideration supported by the qualitative results is the notion students not yet admitted to highly selective majors or recently denied admission are reflected in this data.

Recommendations. The implication that students experience anxiety when attempting to decide upon a major to fit their chosen career requires examination. This research has determined that the nervousness felt when choosing a major is different than that of a career. At this point we do not know why the nervousness is experienced as different. Speculation offered in the qualitative discussion questioned whether or not students are feeling external or internal pressure to choose majors and careers. Further inspection of anxiety and nervousness related to college majors is necessary. College counseling centers have the ability to undertake qualitative

studies with students who are undecided on both major and career to provide understanding of anxiety and nervousness. In addition, use of Rotter's (1966) Internal-External-Locus-of-Control Scale could be used in conjunction with qualitative interviews to provide a comprehensive review of all potential issues associated with major and career anxiety. The use of a mixed approach to research has been cited as the most effective way to obtain understanding of subjects in an exploratory study (Polkinghorne, 1991; Tashakkori & Teddlie, 2003). This research effort clearly would not have been able to gain such a grasp of the role of college majors in the lives of students without the qualitative aspect of the study.

When discussing students who have yet to be admitted to selective majors or have already been denied admission, it is necessary to identify why these students experience anxiety or nervousness. It is evident through this research that students truly believe specific majors are determining factors in their perceived ability to attain specific careers. The anxiety could be heightened because these students identified as desiring "occupationally specific majors" (Payton, 1961, p. 58). It is not known whether students who are seeking "preparatory" majors experience an increase in nervousness should they be denied entrance to graduate or professional school (Payton, 1961, p. 59). A recommendation for practitioners and researchers to focus on students who have, in some way, been denied access to their chosen future career is warranted. For instance, academic advising units can view transcripts and determine a student's chances of obtaining admission to medical school. These units also hold the information regarding major admission acceptances and denials. Practitioners holding this type of information are encouraged to begin using that data through proactive interventions. Although difficult, realistic conversations with students regarding the probability of future careers must take place. The data presented in the previous chapter affirms that students are relying on the assistance of academic

and career counseling professionals to help determine their future path (Hannah & Robinson, 1990; Healy & Reilly, 1989; Herr & Cramer, 1992; Kelly & White, 1993). Academic counselors, considered experts by students, have a particular advantage in shaping student perspectives on life transitions and failures (Baxter Magolda, 1992). Academic units have got to be the starting point for assisting students in academic difficulty and must not waste any time in creating outreach programs for early intervention.

Although important to each of the findings presented, the final recommendation is for practitioners working with students prior to college. Professional school counselors have on-going contact with students preparing to attend college. These students choose colleges for a number of social, economic, and educational reasons (Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999). Colleges will ultimately find students enrolled who have chosen the institution prior to making a career commitment. These students, upon choosing a career, may not be able to find a major remotely related to that career. These are also the same students that have the potential to become part of retention statistics at a college or university should no viable major alternative be found. Realizing that majors do indeed serve as a "proxy" for a career, professional school counselors have the ability to work with students in choosing institutions that meet their desired career goals (Orndorff & Herr, 1996). Research shows that students are choosing careers at earlier ages than ever before (Herr & Cramer, 1992). The timing for early intervention on the part of professional school counselors could not be better.

Implications and Recommendations for Career Courses

Given the specific use of a career course for data collection in this study, recommendations have been made throughout this chapter regarding improvements to this type

of course. It is however necessary to combine those recommendations for clarity and practical application.

Implications. It has been established that majors serve as a foundation for careers, thus implying an order of choice with careers being chosen prior to majors. Evidence of this process was established in the qualitative results section of this study and clearly supported with complimentary quantitative data. For example, as the need for career information decreased across the course, the need for major information increased. Students also showed a greater amount of importance placed upon major self-understanding in relation to career self-understanding at the end of the course. In addition, as the level of nervousness regarding careers decreased across the course, the level of nervousness regarding majors increased. Each of these results also showed statistically significant differences in the minds of students at the end of the course. The combined implication of this data is that as students bring closure to the career decision-making process, they are exhibiting signs of beginning a new and different process, that of choosing a major to fit their desired career. This new process may appear similar to the career decision-making process, but is quite different, and additionally impacted by institutional resources and policies related to major declaration. This process deserves attention in the career curriculum and perhaps warrants a curriculum of its own.

It is evident that both career courses and related texts do not pay significant attention to the difference between future-oriented career choices and present day major choices. The career course utilized in this study, similar to many career courses taught nation-wide, may not prepare students for dealing with current barriers to intended future careers. The results presented earlier in the study provide a salient example of this potential dilemma. The concept of self-understanding presented earlier indicates that career-related self-understanding is part of major-

related self-understanding. The implication of this data is that students may be entering the major decision-making process, after completion of a career course, and attempting to apply the self-understanding process they were taught in relation to careers. As a result, students could be using a process of major-related self-reflection and understanding that does not give consideration to academic requirements and major availability on their campus. The texts used in career courses, and hence the courses themselves, do not assist students in identifying and coping with potential present-day barriers inherent in obtaining admission to major programs of study.

Finally, it is necessary to address student motivation for taking academic and career decision-making courses. The results of this study show that students entered this course at a normative level of indecision regarding careers and majors (Osipow et al., 1976). It appears that these students used the course to decrease anxiety regarding career decision-making and gather information to confirm their tentative choices. It also appears that the course assisted students in beginning the process of choosing or declaring a major upon completion of the course. The concern must be raised however about how college career courses are being perceived by students and whether or not there is a need for further education regarding a major decision-making process.

Recommendations. It is now known that choosing a major takes place after the choice of career. It is also known that the career curriculum and career-related texts do not address the significant differences expressed by students in between choosing a major and a career. The lack of consideration given to assisting students in understanding the differences between choosing a career and choosing a major must be addressed in both the curriculum and texts used to support that curriculum.

To begin the process of developing a major-related curriculum and text, the topics related to career decision-making can be re-worked to be inclusive of differences related to choice of major. For example, students should be introduced to a variety of majors through intentional assignments, much in the way that they are introduced to an assortment of careers in the current curriculum. This recommendation is supported by research showing that students do not possess adequate levels of information and exposure to college majors to make informed decisions (Kelly & White, 1993). Additional areas such as locus-of-control regarding major declaration could be addressed in an academic planning course due to the current nature of major choice as related to institutional resources and admission requirements (Rotter, 1966). As mentioned earlier, it is also critical to address academic aptitude and ability when reflecting on choice of major. Should a separate curriculum be developed regarding major decision-making, it is necessary to begin research to determine the impact of such a curriculum. Bergeron and Romano (1994) called for separate research on majors and careers over a decade ago, and the development and use of separate academic and career planning courses provides the ideal environment for that research effort.

Given the discussion regarding student motivation for taking career decision-making courses, consideration must be given to offering space in both major and career courses to students exhibiting serious indecision. A step-like curriculum with major decision making courses offered separately, and after career decision-making courses, appears to have merit at the institution utilized in this study, but may not apply to all institutions. A more generalized recommendation is made for institutions to consider the use of major and career decidedness instruments in determining eligibility for both academic and career planning courses respectively. Many career courses require students to pay for a battery of assessment

instruments once enrolled in a course, yet it is not known if any require assessment prior to and enroll based upon assessment results. This idea deserves consideration as a means of enrolling those most in need of assistance. The notion of restricted enrollment also merits attention as a mechanism for monitoring both major and career indecision on college campuses. A final recommendation is made for institutions to consider saving spaces in both academic and career planning courses for students denied admission to academic programs. As expressed earlier, it is not known whether denied admission to an academic program results in a major change or a career change. The ability to guide these students into one of the two courses mentioned could increase institutional efforts to understand how restriction from an academic program impacts the students.

Summary of Research

The purpose of this study was to explore the relationship between college majors and future careers of college students. Professional school counselors, college counselors, and career counselors have long acknowledged that people choose majors and careers for a variety of reasons. Those reasons have been narrowed through this study. This study has resulted in an in-depth appreciation of the role that college majors play in the lives of students as well as an understanding of how students perceive college majors in relation to future careers.

It appears that major choices are determined by their choice of future career and serve as a foundation for that career. Students examined in this study were extremely future-oriented and considered majors only in relation to their ability to ensure long run success and happiness. It became evident that students understood that some majors yielded specific careers while others were more variable in nature. Even though students described majors as merely assisting them in choosing courses and meeting graduation requirements, a deep emotional response was garnered

when admission to majors was denied. The differences between majors and careers appeared grand in data analysis until it was determined that a process existed whereby careers were chosen prior to majors. This revelation brought clarity to many of the differences revealed in qualitative analysis and allowed for a platform for discussion.

The practical implications of this study are far reaching and recommendations have been made that potentially can impact career centers, academic advising centers, career courses, enrollment managers, and most importantly college students. The majority of recommendations rely upon the ability of career and academic counselors to collaborate and design intervention mechanisms for students in need. The implications of this study require multiple campus constituencies to begin dialogue regarding the interconnected nature of majors, careers, and retention of college students.

The research implications of this study also have the ability to impact retention issues as they relate to college students. The implications of this study question historical assumptions made regarding the college choice process and college student attrition. In addition, there is still much research to be done with students who are attending college with the desire to obtain admission to graduate or professional schools as well as those attending purely for the sake or learning. The research recommendations span the years prior to college and have the potential to impact student experiences well beyond college.

Finally, this research actually tested Orndorff & Herr's (1996) assertion that college majors served as a "proxy" for future careers. Prior to this study there was a distinct lack of consistent scientific evidence to explain the reasons behind how and why students selected specific majors. This study revealed support for Orndorff & Herr's (1996) belief while simultaneously presenting a dilemma for the academic counseling profession. As professional

academic counselors often encourage students to choose majors based upon ability and scholarly interest, the understanding that students are approaching major selection in a very different manner implies that a professional shift may be necessary. Academic counselors nationally must re-visit their own philosophies in working with students as they bring clarity to their future career through choice of an academic program. The process asserted in this research may contradict beliefs held by many academic counselors, but appears necessary in order to truly understand student needs and aspirations. It is through honest self-reflection on the part of all professionals assisting students with the major decision-making process that the ability to understand and help students will be most productive.

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APPENDICES

Appendix A

CAREER COURSE SYLLABUS

The University of Georgia

Fall Semester 2003

Course: Choosing a Major and Career Goal

Time: Two Hours per Week

Instructor: E-Mail:

Location: Telephone:

Office:

Office Hours:

Texts: The required text for the course is *Making career decisions that count* (2002) by Darrell Anthony Luzzo. The text is available at the University Bookstore.

Course Description:
This course is a two (2) hour course that will orient you to the process of career and life planning. It will focus on self-research, decision-making, and career exploration. The course will also educate you on how to choose a course of study compatible with your personality style, skills, abilities, and values. Through learning this process you have the skills necessary to choose a major and/or career direction.

Research Fee:
A $20.00 fee will be assessed at the beginning of the course to cover the cost of administering the career instruments. They will include the Strong Interest Inventory (SII), the Career Decision-Making System (CDM), and TypeFocus. Please bring a check or cash with you to the 2nd class meeting. This fee must be paid in order to receive a grade for the course. Also, if you miss the test administration day (third week of classes) you will need to drop the course. Make checks payable to the UGA Career Center.

Course Requirements:
Class Participation and Attendance: Active engagement in this course is required for you to receive the full benefits. You will be asked to work in groups on particular assignments and will be encouraged to join the discussions in class. In addition, the research interpretation sessions are not possible to make-up. Therefore, attendance is very important. You are allowed one unexcused absence for any day other than the test administration day. After one absence, points

will deducted from the class participation part of the grading. If you are late to class three times, it will count as one absence.

Journals: At least two journal reactions will be assigned and will include your reaction to a class activity or assignment. Your instructor may give additional journal assignments to you during the semester. Each journal reaction should be typed and about 1 – 2 pages in length.

Majors Fair (October X) and/or Career Fair (September X): You will be required to attend one of these campus events for one of your journal assignments. We highly recommend the Majors Fair for those enrolled in this course.

Career Research: You will be taking a battery of career inventories to assess your personality type, interests, and abilities. Most will be administered during class time. You are responsible for completing the others as homework assignments. They will include the Strong Interest Inventory (SII), the Career Decision-Making System (CDM), TypeFocus, and Sigi Plus.

Quizzes: There will be two short quizzes during the semester. Quizzes will consist of multiple choice, true/false, and short answer questions and will come from the readings and class discussions.

Exams: There will be one exam. It will be composed of multiple choice and/or short-answer essay questions.

SIGI PLUS: This is a computer-based guidance system designed to help you make informed and appropriate career choices. You can access this program from any university computer. You will be given access information while visiting the Career Center.

Career Center: You will be asked to familiarize yourself with resources in the Career Center. By the end of the course you will be able to demonstrate your ability to implement career searches using resources in the center.

Career Search Presentations: After completing all the career research, you will begin to narrow down your career search. To assist you in this process, you will be asked to investigate one career in depth and present your findings to the class. An outline listing requirements for this assignment will be provided. Each presentation is expected to last approximately ½ hour with time set aside for questions.

Final Integrative Paper: Your assignment on this final paper will be to integrate the information generated by course activities. This is due the last day of class (November X)

Grading Procedures and Policies:
A= 540 - 600 points
B= 480 - 539 points
C= 420 - 479 points
D= 360 - 419 points
F= Less than 360 points

All assignments and/or activities within each category must be completed in order to get full credit.

Assignments, journals, and classroom activities will count toward your grade in this course. You must be sure to hand in all written assignments on the dates they are due.

Quizzes and the exam must be taken at the scheduled time. Make-up quizzes or exam will only be given in the event of a documented medical emergency.

- The instructor throughout the semester may add other topics.
- Academic Honesty - The University of Georgia policy on Academic Honesty will be followed in this class. It can be found in The University of Georgia Undergraduate Bulletin (page 43) and the Student Handbook (pages 22-23). If you have any doubts, please read it.
- Diversity - Diversity in the student population and workforce will be highly valued in this course. Whenever possible, class topics and discussions will be approached from a diverse perspective.
- Disability - If you require any academic accommodations due to a disability please see me the first week of classes. To receive accommodations, you must be registered with the Disability Services Office on campus.

Grading Criteria:

The actual grade you receive in the course will be based on completion of the following:

Exam	100 points
Integrative Paper	100 points
Career Search Presentation	100 points
• *Career Investigation Sheet*	
• *Visuals*	
• *Oral Presentation/Extent of Investigation*	
Classroom Attendance & Participation	150 points
Quizzes (15 points each)	30 points
SIGI PLUS	40 points
Research and Other Related Activities	80 points
• TypeFocus	
• Career Decision-Making System (CDM)	
• Strong Interest Inventory (SII)	
• Values Exercises	
• Skills/Abilities Work Sheet	
• *Work Motivations Work Sheet*	
• *Journal Reactions*	
• Job Rating Chart	
Total Possible Points	600

CLASS CALENDAR

Week 1 (Aug 20 and Aug 22)
Course Overview
Class Introductions/Email List/Contact Info
Go over syllabus

Choosing a Major and Career Goal Overview

Assignment:

- Read Chapter 1 in the Luzzo text for Thursday's class

Week 2 (Aug 27 and Aug 29)

Taking stock: Understanding the world of work and the Career Decision-Making Process
Lecture – World of Work chapter 1

Career Autobiography Dyads (exercise 2.1)
Process autobiography info
Lecture on Super information in Chapter 2
Process Exercise 2.2 using Table 2.1

Assignment:

- Read Chapter 2 in the Luzzo text for Tuesday and Chapter 3 for Thursday class
- REMEMBER TO BRING $20 TEST FEE TO CLASS NEXT WEEK

Week 3 (Sept 3 and Sept 5) –Class taking place in Career Center ☺

Taking Stock: Self-Research
Our Tuesday class will meet in Aderhold as usual, but our last class of this week and the first class of next week will meet at the Career Services Office on the second floor of Clark-Howell. Please be on time as we have 2 on-line research (TypeFocus and SIGI Plus) and one paper/pencil research (Strong Interest Inventory) to complete this day.

YOU MUST ATTEND THIS CLASS THIS DAY OR DROP THE COURSE.
** We will meet in Room 246 Clark Howell Hall to complete online inventories **

Assignment:

- Review Chapter 3 in the Luzzo text for Tuesday.

Week 4 (Sept 10 and Sept 12)

** We will meet in Room 246 Clark Howell Hall to complete online inventories **

Personal Research
Lecture of personality types
Interpretation of TypeFocus
Explain journal assignment

Assignments:

- Print your Type information and highlight the information that best describes you. Use this information, "Do What You Are" handout, TypeFocus information, your readings, class discussion, and Chapter 3 to write your 1st Journal assignment
- Read Chapter 5 in the Luzzo text for Thursday class

Week 5 (Sept 17 and Sept 19)
Strong Interest Inventory discussion
Lecture on Holland (Types and Environments)
Go over SII results
Explain CDM sections

Assignment Due:
Turn in 1st Journal assignment

Assignments:

- Read Chapter 4 in the Luzzo text
- Complete CDM sections and list responses on answer sheet flap as shown by your instructor

---

Week 6 (Sept 24 and Sept 26)
Finish CDM (complete remainder in class and discuss results)
Begin work values discussion
Complete work/personal values research in class

Assignment Due:
CDM Section

Assignment:

- Read Chapter 6 in the Luzzo text

Week 7 (Oct 1 and Oct 3)

Identifying Your Skills
Complete skills research

Assignments:

- *Quiz on material from chapters 1-5 on Thursday*
- *Read Chapter 6 in the Luzzo text*

*Complete and print out all 3 sections of SIGI Plus for class next week
*Bring all research results/materials to class next week

Week 8 (Oct 8 and Oct 10)
Integrating information
Complete Research Integration sheet to focus on career/major
Discussion of results
Explain and hand out instructions for career presentation and integrative paper requirements.

Assignment Due:

SIGI Plus Research printouts

Assignments:

- *Read Chapter 7 and 8 in the Luzzo text*

Week 9 (Oct 15 and Oct 17)
Introduction to Decision-Making
Decision-Making Styles and Skills
Focus on the connection between choice of major and future careers
Artificial Heart Group Decision-Making Activity

Assignment:

- Read chapter 9 in Luzzo text

Week 10 (Oct 22 and Oct 24)
The World of Work and You

Assignments:

- *Read chapter 10 in Luzzo text*

*Majors Fair Journal Project (due the beginning of class next week)

Week 11 (Oct 29 and Oct 31)

Practical suggestions for job preparation –resumes writing, interviewing skills.
Imagining exercise

Assignments:

Quiz on material from chapters 6-10

Major/Career Fair Journal Project Due

Week 12 (Nov 5 and Nov 7)
Putting It All Together!!
Presentations - Career Searches
Tuesday Presentations: Thursday Presentations:
_____ _____
_____ _____
_____ _____

Week 13 (Nov 12 and Nov 14)
Putting It All Together!!
Presentations - Career Searches
Tuesday Presentations: Thursday Presentations:
_____ _____
_____ _____
_____ _____

Week 14 (Nov 19 and Nov 21)
Putting It All Together!!
Presentations - Career Searches
Tuesday Presentations: Thursday Presentations:
_____ _____
_____ _____
_____ _____

Assignment:
Complete Final Integrative Paper

Week 15 (Nov 26)
Putting It All Together!!
Presentations - Career Searches
Tuesday Presentations:
_____
_____
_____

Assignments Due:
Final Integrative Paper

Week 16

Final Exam

Time/Date: In Course Book
Location: TBA

Appendix B

CAREER DECISION SCALE EXCERPT

Name		Date of Birth
Age		Class/Grade

REMEMBER – 4 is *exactly like me*, 3 is *very much like me*, 2 is *only slightly like me*, and 1 is *not at all like me*.

CIRCLE ANSWER

Like Me Not Like Me

4 3 2 1

1. If I had the skills of the opportunity, I know I would be a _____ but this choice is really not possible for me. I haven't given much consideration to any other alternatives.

Like Me Not Like Me

4 3 2 1

2. Several careers have equal appeal to me. I'm having a difficult time deciding among them.

Like Me Not Like Me

4 3 2 1

3. I know I will have to go to work eventually, but none of the careers I know about appeal to me.

Like Me Not Like Me

4 3 2 1

**Only 3 questions permitted for reprint by authors.*

Appendix C

CAREER FACTORS INVENTORY EXCERPT

*Name*_____ *Date*_____

Directions: *To respond to each item, you must circle the NUMBER that best indicates how you feel. For example, if you strongly agree with the item, you would circle the number 5 as illustrated below.*

1. Before choosing or entering a particular career, I need to gain practical knowledge of different jobs through as much work experience as possible.

   Strongly Disagree 1 2 3 4 5 Strongly Agree

2. Before choosing or entering a particular career area, I need to answer, what are my personal values?

   Strongly Disagree 1 2 3 4 5 Strongly Agree

3. When I think about actually deciding for sure what I want my career to be, I feel.

   Relaxed 1 2 3 4 5 Tense

4. While making most decisions, I am:

   Relaxed 1 2 3 4 5 Tense

**Only 4 questions permitted for reprint by authors.*

Appendix D

ADAPTED CAREER DECISION SCALE EXCERPT (MDS)

Name		Date of Birth
Age		Class/Grade

REMEMBER – 4 is *exactly like me*, 3 is *very much like me*, 2 is *only slightly like me*, and 1 is *not at all like me*.

CIRCLE ANSWER

Like Me Not Like Me

4 3 2 1

1. If I had the skills of the opportunity, I know I would major in _____ but this choice is really not possible for me. I haven't given much consideration to any other alternatives.

Like Me Not Like Me

4 3 2 1

2. Several majors have equal appeal to me. I'm having a difficult time deciding among them.

Like Me Not Like Me

4 3 2 1

3. I know I will have to choose a major eventually, but none of the majors I know about appeal to me.

Like Me Not Like Me

4 3 2 1

**Only 3 questions permitted for reprint by authors.*

APPENDIX E

ADAPTED CAREER FACTORS INVENTORY EXCERPT (MFI)

*Name*_____ *Date*_____

**NO questions permitted for reprint by authors.*

Appendix F

QUALITATIVE SURVEY QUESTIONS

1. How would you describe the role of a major in your life at this point in time? Why do you think this is so?
2. What things do you consider when choosing a major? Why?
3. How would you describe the relationship between majors and careers? Why?

Appendix G

SUBJECTIVITY STATEMENT

Personal Background

I was born and raised in Lowell, Massachusetts, an urban blue-collar city just north of Boston, Massachusetts. The city is one of the birthplaces of the industrial revolution and a melting pot of European and Asian immigrants. My own family is of Irish, English and Scottish heritage. I grew up in a traditional blue-collar family with both of my parents having attained a high school diploma and secured jobs that were paid on an hourly basis. Although money was not abundant, my parents found a way to send their children to private school.

My family consisted of a mother, a father, an older sister, and a younger brother. This family unit remained in tact until the death of my father over three years ago. Although I was 27 at the time of his death, this played a profound role in how I viewed relationships and religion. My father was the spiritual center of our family and had insisted his children attend Catholic school for their pre-college education. My father played the largest role in the development of my spirituality and after his death from cancer; I have spent a great deal of time angry with God.

My mother played a significant role in my educational goals as she took a great deal of interest in my academic progress. It was made clear early on in my life that I was the “smart” one in the family. This signifier meant that I was going to college regardless of my feelings on the matter. Somewhere in my educational process I was able to find a career and educational values that were my own rather than an attempt to satisfy my parents. The pressure they placed on me was well intended, but as a child I didn’t understand the difference between satisfying my parents and satisfying myself. I would do almost anything to make my parents proud.

Although raised in a family where my father proclaimed that he was affiliated with no political party and therefore voted "independent," I have finally come to the conclusion that I am a democrat and have pretty liberal views on most matters. The liberal nature of my views may come from being alienated as a kid by peers and not wanting others to feel similar pain. Somehow this belief escalated into not wanting animals to feel pain; thus becoming a vegetarian seemed natural. The thought of others feeling pain and losing their dignity resulted in a long history of support for causes such as Amnesty International and the Southern Poverty Law Center. I would also be remiss if I didn't mention a title I hold with pride: Feminist. Somewhere in all of this lies a deep-rooted concern that society not ostracize people for the things they believe and things that are beyond their control. I would be willing to bet the roots gained strength in growing up gay in a Catholic family.

Professional Background

My professional interests lie in understanding the development of college students and what I can do to foster their chances of being admission, retention, and graduation from college. I, of course, have a strong commitment to working with any student or group that has been placed at a disadvantage by society. I am, by profession and gift, a counselor and student development specialist. My informal training with college students began at the University of Massachusetts, Lowell in the Division of Student Affairs. After completion of my bachelor's degree, I attended and graduated from the Master of Science program in College Student Personnel at Miami University, Oxford, Ohio. It was during this academic experience that I realized that my passion was in working with students who were "confused" about their path in

life and how college fit into the evolving plan. I spent a great deal of time working with students who were in academic peril in both Northern and Southern California.

Based on my personal and professional experience, I hold a number of beliefs regarding academic majors. While majoring in business administration at the University of Massachusetts Lowell, I yearned to major in history because of my passion for the subject, but stayed with business due to parental influence. I do believe that my parents would have been satisfied with a major in history but I was internally convinced that they would be happiest with me majoring in business. When I began working in the Dean's Office, College of Letters and Science, at UC Davis, my primary responsibility was to dismiss students from school for poor academic performance. It was during this experience that I encountered a number of students who were majoring in areas outside of their talent and ability levels. Many of these students were influenced to stay in these majors because of both parental and peer influences. When I began working with admission at the University of Southern California, I found many students only interested in obtaining admission to my program due to the prestige associated with a nationally ranked academic education. Through these experiences I have learned that a major does not equal a career, and have found that students have multiple reasons for choosing a major.

In Closing

These pieces of my personal and professional background, which I have shared, should paint a picture of a researcher with many biases. I have resolved many of my issues with regard to my father's death and religion. I still hold a very soft spot in my heart for anyone I meet who is dealing with the death of a parent regardless of age or circumstance. The topic of sexuality is one in which I tend to divorce myself from when interacting with clients as it has been such a long process to acceptance personally, but the bias towards these stories still remains. I would

have to assert that my greatest level of personal bias and feelings come into play when interacting with individuals who lack any sort of tolerance for individuals different from themselves, whatever the issue may be. I am thankful that so many years of counseling college students have allowed me to work with each student individually to foster their development in multiple ways. This of course is a critical statement, as in researching I am not developing anyone, rather observing to understand. I will leave on that final note, which may be my greatest challenge as a researcher.

Appendix H

INFORMED CONSENT FORM

I agree to take part in a research study titled "Making Meaning of College Majors When Enrolled in a Course Focused on Career Development: Challenging a Paradigm," which is being conducted by George F. Thompson, a doctoral student in the Department of Counseling and Human Development Services, University of Georgia, who can be reached at 678-516-4280 or via email at geo@uga.edu. The research is being conducted under the direction of Dr. Diane L. Cooper, Associate Professor, Department of Counseling and Human Development Services, University of Georgia, who may be reached at 542-1812 or via email at dlcooper@uga.edu.

I do not have to take part in this study. I can stop taking part at any time without giving any reason, and without penalty. I can ask to have information related to me returned to me, removed from the research records, or destroyed.

The purpose of the study is to gain a more complete picture of the issues associated with the major decision-making process and how college students come to understand majors when enrolled in a course focused on career development.

I will not benefit directly from this research. However, my participation in this study may advance the available literature on college majors and the relationship between majors and careers.

If I volunteer to take part in this study, I will be asked to do the following things:

1. I will read and sign this consent form. (Be sure to ask any questions if you have any.)
2. I will complete questionnaires at two different times, once during the first week of classes and once during the final week of classes. The questionnaires include: The Career Decision Scale (Osipow, S., Carney, C., Winer, J., Yanico, B. & Koschier, M.,1976), The Career Factors Inventory (Chartrand & Robbins, 1990), two major decidedness inventories (Thompson, 2003), and a series of short answer questions asked only in the final week of classes (Thompson, 2003). Testing at the beginning of the semester will take approximately 20 minutes. Testing at the end of the semester will take approximately 25 minutes.
3. I understand that I may elect not to answer any question without having to explain why.

No discomforts or stresses are expected. No risks are expected to any participant. The results of this participation will be confidential and only the researcher will be aware of my identity.

The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by telephone at: 678-516-4280.

My signature below indicates that the researcher has answered all of my questions to my satisfaction, I am at least 18 years of age, and that I consent to volunteer for this study. I have been given a copy of this form.

_____

_____

Signature of Participant Date

Signature of Researcher. Date

George F. Thompson, (678) 516-4280
geo@uga.edu

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, GA 30602-7411; Telephone (706) 542-3199; E-Mail Address: IRB@uga.edu

Appendix I

DATA COLLECTION SCRIPT

1. Thank you for taking the time to consider my research project. My name is George Thompson and I am a doctoral student in the Department of Counseling and Human Development.
2. The title of my research is "A Study Exploring the Relationship between College Majors and Future Careers."
3. Through this research I am hoping to understand the relationship between majors and careers.
4. Specifically, I am hoping to understand how each of you comes to think about college majors when enrolled in this course.
5. There are a few things that I must tell you upfront:

a. You do not have to take part in this study.

b. You can stop participating at any point without penalty.

c. You can ask for me to return any of the forms you fill out or have them destroyed.

d. You must be at least 18 years old to participate in this study.

e. You will not benefit directly from this research, but those who come after you may benefit through what is revealed by this study.

f. No discomforts, stress, or risk is associated with this study.

g. Results of this study will be confidential. The use of your names on the surveys will only be used to match pretest-data with posttest data.

6. If you choose to volunteer for this study, you will be asked to do the following:

a. Participate in the pretest today and the post-test during the last week of this class.

b. Read and sign the consent form provided. You will be provided a copy of this form today.

c. Complete a total of 9 surveys. Four are included in the pretest today and 5 are included in the posttest at the end of the semester.

d. The questionnaires should take approximately 20 minutes to fill out and include both open-ended questions and circled-response questions.

7. Are there any questions?

8. I will now hand out the survey.

9. Please tear off the first sheet of the survey, which is your copy of the consent form.

10. Please read and sign the second consent form for my records.

11. The entire survey follows with 4 sections. They may look alike but I assure you they are different.

a. The Major Decision Scale.

b. The Major Factors Inventory

c. The Career Decision Scale.

d. The Career Factors Inventory.

12. Please fill out each name and information section on page.

13. Directions are provided in writing at the beginning of each survey.

14. I will be available to answer any questions as you fill out the survey, just raise your hand.

15. Are there any questions before we begin?