

2009

The effect of self-efficacy and psychosocial development on the factors that influence major changing behavior

Karen Cunningham
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THE EFFECT OF SELF-EFFICACY AND PSYCHOSOCIAL DEVELOPMENT ON
THE FACTORS THAT INFLUENCE MAJOR CHANGING BEHAVIOR

A Dissertation

Submitted

in Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

Approved:

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May 2009

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An Abstract of a Dissertation

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Approved:

Dr. Michael Waggoner, Committee Chair

Dr. Sue A. Joseph,
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ABSTRACT

This quantitative research study sought to determine the factors that distinguish those students who are classified as “major-changers” from those who are classified as “relatively stable” (never changing their initial major or changing only once or twice). Participants of this study were full-time undergraduate students attending the University of Northern Iowa. The following variables were measured as possible factors influencing major-changing behavior: (a) level of psychosocial development, (b) level of self-efficacy, and (c) level of parental education. The Life-Skills Inventory – College Form (LSDI-CF) was used to measure students’ level of psychosocial development and the General Self-efficacy Scale (GSES) was used to measure students’ level of self-efficacy. Four main research questions framed this study: (a) which factors distinguish those students who change their major multiple times from those who remain relatively stable? (b) how does perceived level of self-efficacy influence a person’s ability to make decisions? (c) how does a person’s psychosocial development affect their ability to make decisions? and, (d) is there a relationship between parental education and major-changing behavior?

Several statistically significant differences between major-changers and relatively stable students were found. Major-changers reported a lower level of self-efficacy than relatively stable students, and those students classified as “relatively stable” were found to have a higher level of self-perception on the Problem-Solving/Decision-Making Sub-scale on the Life-Skills Development Inventory than those students classified as major-

changers. There were no significant differences found between major-changers and relatively stable students on level of parental education.

ACKNOWLEDGMENTS

First and foremost, I would like to thank my family for their patience and unconditional love and support throughout this project. Most sincerely, I wish to acknowledge my husband and life-partner, Chad. Without his unwavering support and encouragement, this dissertation would not have been possible and, for that, I am extremely grateful. I wish to express my gratitude and love to my children, Alex and Katelyn. Their love and affection allowed me to maintain my sanity throughout this project. It is to them that I dedicate this dissertation.

To my parents, Joel and Catherine Wells, who inspired me to pursue a doctorate degree, I thank you whole-heartedly. To my brother, Brett, who read and critiqued countless drafts, I am forever indebted. And to my colleague, Kent Johnson, for his many hours of guidance and support, I am truly thankful. In addition to reading several drafts, he was readily available for consultation. I am also indebted to many friends who offered support throughout my doctoral program. Without their support and encouragement, I might not be where I am today.

I would like to take this opportunity to thank the chairperson of my dissertation committee, Dr. Michael Waggoner, for his continued support and guidance throughout this entire research process. I also wish to extend my thanks to the remaining members of my dissertation committee: Dr. Kim MacLin, Dr. Donna Vinton, Dr. Radhi A-Mabuk, and Dr. Barry Wilson. Their continual encouragement and professional guidance gave me the strength to complete this project. I could not have selected a better group of individuals to serve on my dissertation committee. Thank you!

Last, but certainly not least, I would like to thank Mark Jacobson for all his help and assistance with my data analysis. He truly went above and beyond what was expected to assist and support me and, for this, I am forever grateful!

TABLE OF CONTENTS

	PAGE
LIST OF TABLES	vii
CHAPTER 1. INTRODUCTION	1
Significance of the Study	8
Statement of the Problem	10
Research Questions	10
Methodology	11
Definitions of Terms	12
Limitations	14
Summary	14
CHAPTER 2. REVIEW OF THE LITERATURE	16
The Deciding College Student	16
Advising the Deciding College Student	22
Major-changers: A Special Type of Deciding Student	27
Advising Major-changers	31
Chickering's Psychosocial Theory of Student Development	32
The Seven Vectors	34
Bandura's Social Cognitive Theory (SCT)	37
Career Self-efficacy	41
Level of Parental Education	44
Conclusion	45

	PAGE
CHAPTER 3. METHODS.....	46
Research Design.....	48
Quantitative Research Design.....	49
Participant Selection	50
Research Apparatus	52
Procedures.....	55
Data Analysis	56
Summary.....	57
CHAPTER 4. RESULTS.....	59
Usable Data.....	59
Demographic Descriptions.....	59
Differences between Major-changers and Relatively Stable Students	62
Similarities between Major-changers and Relatively Stable Students	65
Summary of Findings.....	66
Research Question 1	66
Research Question 2	67
Research Question 3	67
Research Question 4	67
Summary.....	68
CHAPTER 5. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS	70
Discussion.....	71

	PAGE
Conclusions.....	77
Future Research	79
Recommendations.....	81
REFERENCES	84
APPENDIX A: MAJOR-CHANGERS SURVEY AND CONSENT FORM.....	90
APPENDIX B: GENERAL SELF-EFFICACY SCALE.....	105
APPENDIX C: LIFE-SKILLS DEVELOPMENT INVENTORY – COLLEGE FORM, LIFE-SKILLS DEVELOPMENT INVENTORY SCORING FORM, AND LETTER OF PERMISSION TO USE INVENTORY	107
APPENDIX D: HUMAN SUBJECTS.....	114

LIST OF TABLES

TABLE		PAGE
1	Selected Demographic Characteristics	61
2	What are the Most Important Factors in Choosing a Major?.....	62
3	Self-efficacy Scores for Major-changers and Relatively Stable Students.....	63
4	Life-Skills Development Inventory – College Form Subscale Mean Scores for Major-changers and Relatively Stable Students.....	64

CHAPTER 1

INTRODUCTION

Many students enter college committed to a particular academic major but change their minds during their college years. Major-changers account for 50 to 75% of the college population, however very little has been written about who they are or how to advise or counsel them during this important period of transition (Gordon, 1984). This period of indecisiveness is often considered a normal stage of development (Baird, 1969), yet it can be a main source of frustration for students, causing them to feel isolated and insecure. As a result, many major-changers are somewhat less satisfied with college than decided students, suffering from greater levels of anxiety and pressure (Gordon, 1984). While an abundance of anecdotal evidence explains why some students drift from one major to another, few institutions actually conduct research on this topic (Bertram, 1996; Steele & McDonald, 2000; Titley & Titley, 1980).

This chapter outlines the major components of this study including the statement of the problem, the research questions, methodology, definitions of terms, and limitations. It provides a useful theoretical framework for understanding the purpose, significance, and intended outcomes of this study as well as provides a justification for the chosen methodology.

This study sought to fill a gap in the research by investigating the factors that distinguish those students who vacillate between majors (major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice). Consequently, this research answered the question, "what are the factors that

distinguish those students who fluctuate between majors from those who remain relatively constant?" Among the variables considered in this study are: (a) level of psychosocial development, (b) level of self-efficacy and (c) level of parental education. To date, only a paucity of empirical research has been conducted on major-changers. Most studies spotlight the challenges faced by students in transition but almost no studies examine the factors that distinguish those students who waver from those who remain relatively focused. Most studies that have compared undecided and decided students have examined their characteristics prior to entering the institution (e.g., demographics and high school achievement). Once these students have entered the institution, variables typically examined include number of credits earned and grade point average (Lewallen, 1995).

This study examined issues regarding major-changers in an attempt to provide a more comprehensive understanding and appreciation of the challenges faced by major-changers on a Midwestern college campus. Although much of the existing research has described major-changers as "students at-risk" (Gordon & Polson, 1985; Pascarella & Terenzini, 1991; Pierson, 1962; Titley & Titley, 1980), who are unable, unwilling or unprepared to make academic and career decisions, several researchers suggest that changing decisions about a major is not necessarily a negative phenomenon, but may represent student discovery of other academic fields that stimulate greater personal interest or that are more compatible with their personal aptitudes and abilities (Astin, 1993; Lewallen, 1995; Tinto, 1993). Also, major changing may reflect an underlying process of cognitive maturation among college students, and their natural progression to

more advanced developmental stages of decision-making. As Tinto notes, "Movements from varying degrees of certainty to uncertainty and back again may in fact be quite characteristic of the longitudinal process of goal clarification which occurs during the college years. Not only should we not be surprised by such movements, we should expect, indeed hope, that they occur" (1993, p. 41). This study attempted to determine whether level of self-efficacy, level of psychosocial development and level of parental education are factors associated with a student's ability to select a major that will lead to a vocational and/or professional path.

By using Chickering's psychosocial theory of student development (1969) in this study, a foundation was laid on which to understand the maturation and development of the major-changer population. Chickering (1969) proposed seven vectors of development that contribute to the formation of identity. Chickering theorized that students move through these vectors at different rates as part of their quest to gain individualism. Influenced by Erikson's Theory of Human Development (1963), Chickering's developmental vectors provide a blueprint for student development programming and evaluation (Picklesimer, 1991). Chickering's theory can be used to evaluate and explain major-changer behavior and the challenges faced by those students who struggle with decisions about their majors. For instance, academic advisors and administrators alike can use Chickering's vectors as a basis for developing strategies and student programming to help major-changers in their search for an appropriate major. Chickering's theory offers college practitioners a template for evaluating who our students are and how college environments may inhibit or enhance their development

(Picklesimer, 1991). Additionally, Chickering's theory can provide examples of ways to help students address specific developmental issues related to changing majors and career choices.

It has been noted that Chickering's original theory was limited in that it was based on students at small liberal arts colleges who were of traditional age (Reisser, 1995). To correct this limitation and incorporate more than two decades of research and theory, Chickering and Reisser (1993) redefined and reordered some of the vectors to provide a more representative depiction of college student development.

Furthermore, this study focused on the development of one type of motivational process: perceived self-efficacy. Self-efficacy is grounded in a larger theoretical framework of Social Cognitive Theory (SCT), which postulates that human achievement depends on interactions between one's behaviors, personal factors (i.e., thoughts, beliefs) and environmental conditions (Bandura, 1986). In his theory, Bandura defines self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (1986, p. 2). Bandura postulates that those with high self-efficacy expectancies - the belief that one can achieve what one sets out to do - are healthier, more effective, and generally more successful than those with low self-efficacy expectancies. Results of various studies have demonstrated the arbitrational role of self-efficacy beliefs in the selection of a career choice (Betz & Hackett, 1981; Betz & Hackett, 1997; Taylor & Betz, 1983). Bandura's Social Cognitive Theory helps explain why students select some activities, and avoid others or why some students have clearly defined career goals and others do not.

Although the research of Bandura and his colleagues has mostly supported the usefulness of a focus on self-efficacy expectations in the treatment of several clinical problems, such as phobias, smoking behavior, and assertiveness (Bandura, Adams, & Beyer, 1977), the potential applicability of self-efficacy expectations to vocational behavior and career counseling has also been empirically investigated (Betz & Hackett, 1981). As a result of this research, it is commonly accepted that Bandura's self-efficacy theory can be used to understand and explain career indecision (Betz & Hackett, 1981; Taylor & Betz, 1983).

Self-efficacy expectations, when viewed in relation to careers, refer to a person's beliefs regarding "career-related behaviors, educational and occupational choice, and performance and persistence in the implementation of those choices" (Betz & Hackett, 1997, p. 383). They are reflected in an individual's perception about his/her ability to perform a given career-related task or behavior (efficacy expectation) and his/her belief about the consequences of behavior or performance (outcome expectation; Betz & Hackett, 1981).

A study on self-efficacy expectations and career indecision, conducted by Taylor and Betz (1983), showed a moderately strong relationship among career decision-making and self-efficacy and career indecision. Students who are less confident (low level of self-efficacy) in their ability to complete the tasks and behaviors required for effective decision-making are likelier to report being vocationally undecided (Taylor & Betz, 1983). On the other hand, students who are more vocationally decided exhibit more confidence (high level of self-efficacy) in their ability to complete the necessary tasks

related to career decision-making. According to Taylor and Betz (1983), the measure of career decision-making self-efficacy, while in need of further evaluative research, has considerable potential for the assessment and treatment of career indecision. Thus, the concept of self-efficacy as it relates to the selection of a major and career decision-making, plays a significant role in the intervention and evaluation of vocational indecision.

The roots of career indecision can be traced, in part, to a person's concept of self and career motivation which falls under the domain of self-efficacy. Markus and Nurius (1986) examine the concept of *possible selves*. Possible selves represent individuals' ideas of what they might become, what they would like to become, and what they are afraid of becoming, and thus provide a link between cognition and motivation for goal-oriented behaviors. According to Markus and Nurius (1986), possible selves are the cognitive components of hopes, fears, goals, and threats and are important because they function as incentives for future behavior (i.e., they are selves to be approached or avoided) and they provide an evaluative and interpretive context for the current view of self.

For example, the student majoring in political science who fears he or she will not get into Harvard Law School carries with him or her more than an undifferentiated fear of not getting accepted. Instead, the fear is personalized, and the student is likely to have a well-elaborated possible self that represents this fear – the self as having failed turns to other majors. The student thinks, "I want to be a lawyer, but I could be an accountant or

a psychologist.” Self-doubt creates indecisive behavior and suppresses the motivation needed to achieve desired goals, thus, potentially creating major-changer behavior.

Likewise, a student’s level of career motivation can strongly influence his or her ability to make vocational decisions. London (1983) proposed that students who frequently change their majors exhibit lower-levels of career motivation, making it difficult for them to select a career path. Career motivation is viewed as a multi-dimensional construct. Components consist of individual characteristics (career identity, career insight, and career resilience) and corresponding career decisions and behaviors (London, 1983). Recognizing the proposed connection between career motivation and major-changers can assist advisors in helping students develop motivational strategies aimed at reducing career indecision.

The connection between career motivation and major-changers can be found in the abundance of research that has been conducted on the relationships between socioeconomically disadvantaged students and college entry, persistence and attainment. For example, students from low-income families are less likely to attend 4-year institutions, attend full-time, enroll directly after high school and graduate from college (Pascarella & Terenzini, 2005). However, far less is known about the cognitive development of first-generation students, whose parents did not attend college (Hahs-Vaughn, 2004).

Studies have indicated that students whose parents have earned no more than a high school diploma are least likely to earn a bachelor’s degree (Horn & Bobbitt, 2000). Level of parental education has also been shown to directly influence the type of

institution students attend, irrespective of high school achievement and ability (Pascarella & Terenzini, 2005). First-generation students have been shown to be more certain of academic major, but no difference was found in students' commitments to their goals when compared to non-first-generation students (Pascarella & Terenzini, 2005). There is evidence to suggest that first-generation college students are less engaged in the educational process because they have little or no tacit knowledge about college campuses or college-related activities and lack the role models (e.g., parents) necessary to help them connect with the college community. Parents of first-generation college students are often ill-equipped to help their students because they also, lack the knowledge about the college experience. In contrast, second-generation college students, whose parent(s) earned a baccalaureate degree, are often more engaged in the educational process as their parents have modeled this behavior and have demonstrated the importance of becoming actively engaged in the college community (Kenny & Stryker, 1996; London, 1992). Is there a relationship between parental education and selection of an academic major? If so, recognizing this relationship can help uncover the factors that influence major-changing behavior by providing educational researchers with a multifaceted and comprehensive picture of the major-changer population.

Significance of the Study

Although several studies have discussed the realities of the major-changer population and the factors involved in selecting a major (Bertram, 1996; Gordon, Newton & Kramer, 1985; Pascarella & Terenzini, 1991; Steele & McDonald, 2000; Titley & Titley, 1980), very few have examined the factors that distinguish students who vacillate

between majors from those who remain relatively stable. Many studies have recognized the benefits of identifying the factors that influence the choice of major; however, few have examined the factors that differentiate these students. Why do some students select a major with little or no difficulty, while others struggle? This study attempted to shed light on this query by doing the following: (a) examining which central and peripheral factors are involved in making major changing decisions and (b) addressing some of the issues experienced by the major-changer population.

Not only did this study provide valuable institutional data, but it also has implications for the academic advising profession in higher education. A working knowledge of the major-changer population will provide academic advisors and career counselors with a foundation upon which to understand the challenges students face in making academic and career decisions and will offer a model for evaluating who our students are and how college environments may inhibit or enhance their development (Picklesimer, 1991).

According to Steele and McDonald (2000), academic advisors have an opportunity to influence deciding students' reactions and feelings as they journey through this transitional process. By studying the motivators that guide or influence students toward a certain academic or vocational goal, advisors can more effectively address the issues faced by the major-changer population. For instance, if we know students are more likely to change their major during their sophomore year ("sophomore slump"), then we can develop more effective ways (e.g., programming) to assist students during their second year. Working effectively with this population requires not only

understanding the transition/developmental process, but also how this population differs from other student populations. Epistemological assumptions are a part of almost every decision an individual makes. Therefore, by considering a person's "ways of knowing" advisors can better understand how decisions are made (Bertram, 1996).

Any academic advisor or career counselor who works with the major-changer population knows that it is often a daunting task to guide students down a particular academic or vocational path. If we are to take the time to engage students in the exploratory process, then we need to understand the factors involved in getting to that point (Gordon, 1984). Understanding what influences students to change their major is crucial information that can be used when planning for future curricular and staffing needs. Knowing why students change their majors and what the implications of these changes are to the institution is likely to benefit both the institution and its students.

Statement of the Problem

This study sought to determine which factors distinguish those students who fluctuate between majors from those who remain relatively constant. Variables considered in this study include: (a) level of self-efficacy, (b) level of psychosocial development and (c) level of parental education.

Research Questions

Four main research questions framed this study: (a) which factors distinguish those students who change their major multiple times from those who remain relatively stable? (b) how does perceived level of self-efficacy influence a person's ability to make decisions? (c) how does a person's psychosocial development affect their ability to make

decisions? and (d) is there a relationship between level of parental education and major-changing behavior? It was hypothesized that those who change their major multiple times are more likely to report the relationship between major and career as linear (e.g., all accounting students become accountants) than those who change only once or twice (Gordon, 1984). Among those who remained relatively stable, a less dualistic view of the linear relationship between major and career is hypothesized when majors are selected based on interest and curiosity and not necessarily on earning potential or direct paths to specific careers. Furthermore, it was hypothesized that those who change their major multiple times, prior to graduation, would report a lower level of self-efficacy and psychosocial development than those who change only once or twice. Level of parental education was also predicted to be lower for those students classified as major-changers.

Methodology

A survey was created to assess the factors that distinguish those students who change their major multiple times from those who remain relatively stable (see Appendix A). It also gauged participants' level of self-efficacy and level of psychosocial development (see Appendix B and Appendix C). Participants in this study were full-time undergraduate students at the University of Northern Iowa (UNI), who were identified by the UNI Registrar's Office as "major-changers" as well as those identified as "relatively stable." For the purpose of this study, a major-changer was defined as a student who changes his or her major three or more times. A student who is "relatively stable" was defined as a student who never changes his or her initial major or changes only once or twice. A list of e-mail addresses for the major-changer population was generated by

Information Technology Services (ITS). These participants were sent an e-mail informing them about the study and directing them to a weblink where the survey was administered. The survey was administered via SurveyMonkey, survey software that enables researchers to create and administer surveys that can be completed online.

All potential participants were sent an e-mail giving them information about the purpose of the study and directions regarding how to access and complete the online survey. All participants were then sent two reminder e-mails approximately seven days and fourteen days after the original email, respectively, reminding them to complete the survey if they had not already done so. Various analyses were conducted, including, but not limited to, descriptive statistics, cross-tabulations, t-tests, chi-square analysis, and Pearson's correlation coefficient.

Definition of Terms

The following terms are operationally defined for this study:

Major-changer – an undergraduate student who enters college decided about a major but changes to another major three or more times before he or she graduates. Students who enter college undecided are NOT considered major-changers until they change after declaring an initial major.

Relatively Stable – an undergraduate student who never changes their initial major or changes only once or twice.

Early Changers – students who change their major in the freshman but not sophomore year (Theophilides, Terenzini, & Lorang, 1984).

Late Changers – students who change their major the sophomore but not freshman year (Theophilides, et al., 1984).

Constant Changers – students who report changing majors in both their freshman and sophomore years (Theophilides, et al., 1984).

Students in Transition – students who are unsure of their vocational/career path.

Developmental Advising – advising that is concerned not only with a specific personal or vocational decision but also with facilitating the student's rational processes, environmental and interpersonal interactions, and behavioral awareness, and problem-solving, decision-making, and evaluation skills (Crookston, 1972).

Prescriptive Advising – model of advising where the academic advisor tells the student what to do, and the student does it. Prescriptive advising is linear communication from the advisor to the advisee and places most of the responsibility not on the student, but the advisor. The advisor is required to have the answers. There is no discovery involved on the part of the student, nor is there any meaningful exchange of ideas or feelings (Crookston, 1972).

Self-efficacy – the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations (Bandura, 1986).

Psychosocial Development – views individual development as the accomplishment of a series of “developmental stages” or “vectors” (Chickering, 1969).

Possible Selves – an individuals' idea of what s/he might become, what s/he would like to become, and what s/he is afraid of becoming. It provides a link between cognition and motivation (Markus & Nurius, 1986).

Sophomore Slump – a "period of developmental confusion" that results from student's struggles with achieving competence, desiring autonomy, establishing identity, and developing purpose. In short, sophomores face a particularly difficult period in their academic, social and personal development (Steele & McDonald, 2000).

Ways of Knowing – based on the influential research of William G. Perry (1970), it refers to the cognitive and intellectual development of college-age students.

Limitations

As in any research, there are limitations that should be acknowledged and taken into consideration when reviewing this study. The following limitations of this study are noted:

1. The use of volunteer subjects and a convenient, random sample which restricts the generalizability of the research findings.
2. The use of a single methodology. The use of other methodological approaches to gather data would have provided a different perspective to this study.

By restricting not only the questions asked but also the availability of response alternatives (e.g., by using numerical rating scales), it is less likely to gain new insights from the research participants (Creswell, 2008). In the case of this particular study, the researcher has narrowed the scope of inquiry by asking a set of closed-ended questions.

Summary

The purpose of this study was to investigate the factors that distinguish those students who vacillate between majors (major-changers) from those who remain

relatively stable (never changing their initial major or changing only once or twice) so that there is a basic understanding of how, why and when students make these decisions. Additionally, this study not only provided valuable institutional data, but also had implications for the academic/career advising profession. A working knowledge of the major-changer population provides academic advisors and career counselors with a foundation upon which to understand the challenges students face in making major decisions. The more colleges and universities understand about the major-changer population, the better academic advisors and career counselors can serve students who are unsure about major decisions and career choices.

The literature review, presented in Chapter 2, examines the issues surrounding the major-changer population and provides an overview of the multiple literatures that support this study. Additionally, Chapter 2 investigates the role of the academic advisor in identifying, counseling, understanding, and retaining the major-changer population. It looks at the theoretical foundations that framed this study, such as Chickering's Psychosocial Theory of Student Development (1969) and Bandura's Social Cognitive Theory (1986), in particular his theory of self-efficacy. Chapter 2 also explores the question of whether level of parental education is linked to expressed attitudes toward one's real or perceived level of ability.

CHAPTER 2

REVIEW OF THE LITERATURE

This chapter provides an overview of the multiple literatures that support this study. It includes a review of literature related to the major-changer population and the importance of advising those students who are among the major-changer subset. Moreover, it examines the role of the academic advisor in identifying, counseling, understanding, and retaining the major-changer population. Finally, this chapter provides a summary of Chickering's Psychosocial Theory of Student Development (1969) and Bandura's Social Cognitive Theory (1986), in particular his theory of self-efficacy, and also explores the question of whether level of parental education is linked to expressed attitudes toward one's real or perceived level of ability. Both theories were used to evaluate and explain major-changer behavior and provided useful conceptual frameworks for understanding the major-changer population.

The Deciding College Student

In this study, the term *deciding* will be used, as opposed to *undecided*, to identify students who are unwilling, unable or unprepared to make educational and vocational decisions (Gordon, 1984). Other terms that have been used to describe this population include the following: *undecided*, *open-major*, *undeclared*, *exploratory*, *undetermined*, *general studies major*, *individual studies major*, *liberal studies major* and *special major*. However, the term *deciding* will be used for four important reasons: (a) the term *deciding* is a more positive term, thus shedding some of the negativity associated with one's status of changing majors, (b) the term *deciding* indicates action, movement, and engagement

on the part of the student, (c) the use of the term *deciding* is increasingly becoming the preferred term among the academic advising community, despite its infrequency in the literature and (d) the term *deciding* is more accurate as it emphasizes the process involved before a decision is made.

While the term *deciding* is generally accepted and understood, there is no mutual operational definition for describing this population of students among researchers. The manner in which students are determined to be *deciding* varies considerably among institutions. Some colleges and universities label students based on the expressed choice on an admissions form or survey that students use to select from a list of potential majors (Titley & Titley, 1980). Some label students deciding based on measures from a career decision scale/instrument, while others label students through personal interviews (Lucas & Epperson, 1988). Others identify *deciding* students as students who are not pursuing a degree program (Twining & Twining, 1987). Given the enormous discrepancies in operational definitions, it is not surprising that research studies have often been contradictory, conflicting, and confusing (Lewallen, 1993).

Although the terms used to describe deciding students have been used interchangeably, it should be noted that there is a considerable difference in the meaning and value ascribed to these terms (Lewallen, 1993). For example, some students cannot gain access to oversubscribed majors, such as business and engineering and, therefore, enter college as an “undeclared” or “prospective” student with the intention of transferring to their intended major when the opportunity arises (Gordon, 1984). These students often get labeled as “deciding” when in fact they have made a decision.

Difficulties with operational definitions create ambiguity and confusion among researchers interested in investigating deciding students.

Students deciding on an educational and/or vocational path have been the focus of concern among college administrators, faculty, counselors, academic advisers, and parents for many years. Much of this attention is influenced by the fact that deciding students represent a significant proportion of the entering student body at most colleges and universities. It is estimated that 20-50% of all students enter college undecided about a major (Astin, 1977).

Deciding students who are unable to make a sound decision often lack information in the following areas: (a) personal characteristics - the student has yet to assess his/her own goals, interests, and abilities; (b) available academic areas - the student is unaware of accessible programs or needs assistance evaluating these programs; (c) occupational areas - the student has yet to explore the job market (Gordon, 1984). The student who lacks the vocational motivation necessary to select a major may lack skills in decision making (Gordon, 1984). However, no matter the cause of their uncertainty, deciding students need assistance to overcome these obstacles.

Because a significant number of college students fall within the deciding category, an enormous amount of time and energy goes into identifying, counseling, and retaining them. Therefore, it is important to recognize and understand the commonalities and differences that exist among deciding students. The literature dealing with deciding students has a long-standing history, dating back to the 1920's. These students continue

to be examined today, as evidenced by the literature (Gordon, 1984), consequently creating a need to understand who they are.

Research conducted on deciding students has examined a variety of personal variables and characteristics (e.g., interests, aptitudes, abilities, family backgrounds, risk-taking tendencies, level of anxiety, and self-identity issues) of deciding students (Lewallen, 1995). Much of the focus regarding deciding students centers on indecision and often includes comparisons to students who are decided. Some studies have found differences between deciding and decided students, while others have not. Most of these inconsistencies have centered on the issue of retention or persistence toward graduation.

Many researchers believe that indecision regarding a major or career is one factor that may lead to student attrition (Gordon, 1984; Noel & Levitz, 1995). Gordon (1984) indicates that the identified characteristics for being undecided range from being generally indecisive (lacking decision-making skills in general), to having too many interests and not being able to select one path, to lacking the desire to attend college, thus leading to attrition. Being indecisive may result in a lack of clarity of personal goals, or a lack of goals altogether, due to a deficiency in decision-making skills. In contrast, Lewallen (1993) found no difference between declared and undeclared students in their level of persistence or likelihood to persist in college. In other words, Lewallen (1993) found no difference in student attrition rates between declared and undeclared students.

Retention research suggests that student commitment to educational and career goals is perhaps the strongest factor associated with persistence to degree completion (Noel & Levitz, 1995; Tinto, 1993; Wyckoff, 1999). There is an increasing trend among

new students to report that their ultimate goal for attending college is to “prepare them for an occupation” (Astin, Parrot, Korn, & Sax, 1997), so it is understandable that any difficulty in finding or committing to long-term goals will increase their risk for attrition. Furthermore, if students develop a feasible plan for identifying a college major and related career that is compatible with their abilities, interests and values, then their overall level of satisfaction with college should increase. In turn, student retention at their chosen college should be increased, because there is a well-established empirical relationship between students’ level of *satisfaction* with the postsecondary institution they are attending and their rate of *retention* at that institution (Noel, Levitz & Saluri, 1985, as cited in Cuseo, 2005).

Another concern connected to the issue of retention is the increasing reliance on work to fund students’ college education. Recent trends continue to put additional financial pressure on students and their families (Upcraft & Stephens, 2000). As a result, more and more students must work to contribute to their college education. It is estimated that eight out of ten students work while studying for their undergraduate degrees. Two-thirds of working undergraduates must be employed in order to finance their education. The problem, of course, is that when students work too much, they are more likely to drop out of school, and much less likely to earn good grades (Pascarella & Terenzini, 1991). Not getting good grades may affect entrance into certain majors (e.g., majors that have grade-point requirements) which may lead to major-changing behavior. However, little is known about the differences between deciding and decided students regarding work status and major-changing behavior.

Most researchers have concluded that deciding students are a diverse group and that making generalizations about them is difficult, if not dangerous (Gordon, 1984). However, despite the absence of strong empirical evidence regarding the difference between deciding and decided students, many institutions still put energy and resources into counseling and advising deciding students. For example, most colleges and universities have some sort of program or service devoted to assisting and retaining deciding students (Lewallen, 1995). Most studies that have compared undecided and decided students have examined their characteristics prior to entering the institution (i.e., demographics and high school achievement). Once these students have entered the institution, variables typically examined measure college achievement (e.g., credits earned, grade point average; Lewallen, 1995).

Differences and similarities between deciding and decided students have been the focus of much research. Many studies have compared these two groups by examining college test scores, results of personality tests, career inventories and other types of assessments and questionnaires. Evidence suggests that there is a significant difference in risk-taking behavior as it relates to vocational choice between deciding and decided students (Astin, 1993; Baird, 1969). In 1957, R.C. Ziller administered the Utility for Risk instrument to 182 sophomores in an ROTC program. The results indicated a statistically significant difference in risk-taking behavior between groups classified by vocational choice. Ziller (1957) postulated that indecision and utility for risk are negatively correlated; however, grouping students according to deciding and decided status, rather

than by vocational interests, might have provided stronger evidence of a difference between groups.

A deciding student has been described as any student who is not committed to an educational or career direction (Gordon, 1984); however, the conflicting research on deciding students presents a perplexing picture. Some investigators have found no differences in personality traits and ability measures between deciding and decided students, while others have found significant difference in personality traits and other variables. Reasons for this discrepancy may lie in the ways writers define, describe, and understand indecision (Gordon, 1982). Some view this indecision as an unhealthy, worrisome condition, while others see it as a perfectly natural, temporary state that most students experience (Hartman & Fuqua, 1983). It is not unusual to find that students themselves have mixed feelings about being a deciding student. Some students are very positive, open, and flexible about not knowing which academic path to take. They exhibit a general curiosity about being undecided, whereas other students are more anxious, apologetic, and negative about their status (Gordon, 1984). Being aware of these discrepancies can help advisors gain a better understanding of how best to advise the deciding college student.

Advising the Deciding College Student

Sooner or later we all have to ask the question, what do I want to be when I grow up?" Some students find it easier to answer this question than others who struggle because they are unwilling, unable or unready to make educational and vocational decisions. Because advisors spend most of their time teaching students how to select a

major, it is imperative that academic advisors have a better and more complex understand of this population (Gordon, 1984).

The question of why some students are decided while others vacillate regarding academic and vocational choice while in college has been the subject of research for many decades; however most of this research offers limited suggestions and then quickly shifts to defining subtypes of deciding students, rather than focusing on reasons for the differences (Gordon, 1982). Despite this shift, much can be said about the importance of identifying clusters of students who share the same educational concerns. An advantage to the deciding subtype perspective is that it can help focus on the development of interventions and training as well as the evaluation of program services. It can also help advisors recognize that the needs of each student will invariably differ.

Gordon (1998) reviewed fifteen studies that investigated subtypes of decided and deciding students. Based on her research, Gordon (1998) proposed seven subtypes (three decided and four deciding) whose characteristics are discussed here, along with possible advising considerations.

- *Very decided* – These students feel good about themselves, believe that they have control over their lives, and see themselves as making good decisions regarding their future. Although they are capable of implementing choices or making plans, it may still be necessary for advisors to review the exploration process with them.
- *Somewhat decided* – These students have some doubts about their decisions and have higher levels of state and trait anxiety and lower levels of self-clarity, decisiveness and self-esteem. They may have made premature choices because of

external pressures. By taking some time to encourage these students to explore their concerns, advisors can in the long run help them confirm their original choices or identify a well-grounded alternative.

- *Unstable decided* – These students exhibit high goal instability, a high level of anxiety, and a lack of confidence in their ability to perform adequately. They may also experience ambivalence about their choices and believe that when a decision has been made there is no reason to seek help to confirm or change their direction. Advising strategies would include discussing student's career development history along with the goal of improving their decision-making skills.
- *Tentatively undecided* – These students feel comfortable with themselves, have a strong sense of personal esteem, and are more vocationally mature. They may exhibit a vocational direction and are often intuitive decision makers. They do not perceive barriers to achieving their goals and are confident that a decision will be made when it feels right. Advisors can help these students establish a plan to explore and discuss the relationship of values to work and nonwork tasks, and concerns about commitment.
- *Developmentally undecided* – These students are dealing with the normal developmental tasks involved in the major and career decision-making process. They need to gather pertinent information about themselves and the world of work and develop decision-making skills. They may have multiple potential, that is, they may be interested in and competent to succeed in many areas. Advising

strategies would include traditional psychoeducational and career planning interventions.

- *Seriously undecided* – These students have low levels of vocational identity, self-clarity, and self-esteem. They have limited knowledge of educational and occupational alternatives and may be looking for the “perfect” choice. They may be seeking occupational information to support that choice. In addition to utilizing traditional psychoeducational and career planning intervention, advisors may need to refer these students to personal counseling due to the scope of their problems.
- *Chronically indecisive* – These students have excessive anxiety that permeates many facets of their lives. They are often distressed, unclear about their career options, and dependent on others’ assistance and approval when making decisions. Advisors need to refer these students to long-term counseling rather than begin academic and career advising with them.

A developmental approach to understanding deciding students is growing in acceptance and support. If entering college students are thought of as developing, maturing adults with specific psychosocial and cognitive tasks to accomplish, the programs and services provided to deciding students take on specific content, sequence and timing (Gordon, 1984). From this perspective this so called “worrisome condition” emerges as a normal developmental stage that will resolve at varying times and rates among students during the college years. A developmental approach to academic and career advising of deciding students (to be discussed in more detail later in this chapter)

recognizes the differing characteristics, needs, and rate of maturation unique to each student (Gordon, 1984). According to Gordon (1984), advisors who practice a developmental approach view deciding students *not* as individuals searching for an academic or career niche but as persons continually engaged in a series of developmental tasks that ultimately enable them to adapt and change in a pluralistic world.

Many advising strategies and resources that combine academic and career choice processes can be used with different types of deciding students. Although administratively academics and career may be considered separate concerns, many students do not make such fine distinctions, seeing the choice of major and career as one. A unified academic and career approach to advising may be more important to this group of students, therefore necessitating a need to integrate both. Based on her research, Gordon (1998) proposed four strategies that illustrate the need to integrate the academic and vocational choice processes:

- *Self-knowledge*: Addresses the need for assessment of personal interests, abilities, and values, as well as goal setting.
- *Educational Knowledge*: Includes an understanding of the value of different levels of educational programs, academic majors, curricula, academic skill development, and credentialing and licensure.
- *Occupational knowledge*: Addresses career development and job-seeking skills such as writing resumes and cover letters and interview techniques; job exploration and preparation activities, such as co-ops and internships; assessing occupational information, such as entry-level expertise,

occupational task identification, job marketability, salary ranges, and the physical demands of the job.

- *Decision-making knowledge:* Addresses the integration of self-knowledge with educational and occupational information, the influence of decision-making styles, the acquisition of decision-making strategies, and approaches to goal implementation.

One important group of students beginning to receive long overdue attention is the major-changer. Major-changers are considered a special type of deciding student because they often lack the skills necessary to make decisions, clarify values, and set goals. Advisors need to be sensitive to the major-changers' existence. If allowed to fluctuate too long, they will become frustrated and remain without goals, and since they generally have little or no sense of direction, they are more apt to drop out of college (Gordon, 1984).

Major-Changers: A Special Type of Deciding Student

Major-changers constitute a large segment of the undergraduate student population on college campuses today. Previous research on this group of students has estimated that between 50 to 75 percent of students change their major at least once prior to graduation (Gordon, 1984). Research indicates that students who change their major after entering college do so for a variety of reasons (Gordon & Polson, 1985; Pascarella & Terenzini, 1991; Titley & Titley, 1980). Many students make impractical and often hasty choices based on lack of knowledge of academic requirements or perceived notions of vocational opportunities (Pierson, 1962). Other obstacles to making prudent major

choices include societal/peer expectations (e.g., "all my friends are Business majors") or the underutilization of institutional resources (e.g., academic advising and career services; Gordon & Polson, 1985). Helping students move through the major-changing transition requires patience, advanced-level helping skills, and knowledge of college student development and career development theories (Steele & McDonald, 2000).

Regrettably, many students deviate from their educational plans due to poor academic performance rather than an intentional change of interests (Osipow, 1983). However, according to Gordon et al., (1985), some students change their majors even though they are academically capable of pursuing them. Theophilides et al., (1984) have classified major-changers into three categories: (a) early changers (those who change in their freshman but not sophomore year), (b) late changers (those who change sophomore but not freshman year), and (c) constant changers (those who report change in both their freshman and sophomore years). According to Theophilides et al., 1984, early changers reported a high likelihood of changing majors, performed well academically, and continued to develop intellectually as well as academically. Conversely, late changers indicated no desire to change majors upon entering college but performed poorly during the sophomore year. The constant changers seemed to drift aimlessly, showing weak academic ability and low levels of institutional and educational commitment. There is an abundance of anecdotal evidence to explain the reasons why some students drift from one major to the next; however, few institutions actually conduct any research on this topic, which is peculiar since it is estimated that between 50 to 75 percent of students change their major at least once before graduation (Titley & Titley, 1980).

Studies like the one conducted by Theophilides, et al. (1984) suggest that while students move through their course work, explore their options, and assess their talents, they are adjusting, adapting, and achieving various levels of success within the institution's curriculum. While most advising programs are designed to meet the needs of first-year deciding students, few are equipped to meet the specific needs of the major-changer (Steele, 1994). Changing decisions about a major is not necessarily a negative phenomenon; rather it may represent student discovery of other academic fields that stimulate greater personal interest and curiosity or that are more compatible with their personal goals and needs (Anderson, Creamer & Cross, 1989).

Naturally, there is a downside to changing majors. If the change takes place at a late juncture in the college experience, this can result in delaying graduation because of the need to complete additional courses required by the newly chosen major, especially if the change occurs after a sizable number of credit hours have been accumulated in a previous major. So, how can academic advisors assist students in selecting an appropriate major?

The first step in helping major-changers is to identify the reasons why they change majors. Lack of information, outside influence, developmental issues, and academic difficulties are some of the main categories that provide an explanation for this frequently occurring phenomenon (Steele & McDonald, 2000). According to Steele and McDonald (2000), lack of information is perhaps the most common reason for changing majors. At the high school level, students are exposed to a limited number of subject areas and are often overwhelmed by the variety of majors that colleges and universities

offer. Coupled with this is the fact that most students come to college with very little knowledge about the major and career decision-making process. They may pick majors based on inaccurate information or just to choose something, without knowing the steps for deciding on a major. According to Lewallen (1993), most of these students come from high schools that did not provide career planning or decision-making assistance.

Another reason for major-changing behavior is outside influence. Some students change their majors because their original choice was not their own. Parent, family members, and friends can influence students to follow particular academic paths. It is not uncommon to hear students say, "my mom was an elementary education major, so she wants me to have the same major," or "my dad told me I won't find a job unless I major in business." Doing what a parent or friend recommends is sometimes viewed as easier than taking the time to engage in the exploration process (Steele & McDonald, 2000). Once students realize that the major someone else has chosen for them is not interesting or too difficult, they will, inevitably, change majors.

Developmental issues are another reason for major-changing behavior. Not every student is ready to enter into a major and begin the career-decision-making process during the freshman year. According to Chickering and Reisser (1993), there are seven developmental stages that traditional-age students (ages 17-23) progress through during their college years. Upon entering college students begin working on the first three developmental stages (developing competence, managing emotions, and developing autonomy) simultaneously. According to the theory, it is not possible for students to pass through all three stages at the same time. Many students spend a great deal of time

adjusting to the social demands of college and questioning whether or not they belong. These developmental issues can delay the selection of a major and/or the career exploration process until they are resolved, potentially creating major-changing behavior (Steele & McDonald, 2000).

Advising Major-changers

Advisors who work with major-changers need to have a general knowledge of the programs and majors offered at their institution, as well as information about the career exploration process. Any advisor who has worked with major-changers knows it is often a daunting task to try to guide students down a particular academic or vocational path. If we are to take the time to engage students in the exploratory process, then we need to understand the factors involved in getting to that point. In many situations, major-changers have been denied entrance into a certain program and, as a result, experience a variety of emotions, including anger, disappointment, confusion, and anxiety. These students experience an incredible loss in realizing that they will not be able to achieve their goals (Steele & McDonald, 2000). Schlossberg and Robinson (1996) describe any event that does not happen, in this case the denial of admission to an academic program, as a *nonevent*. Schlossberg and Robinson (1996) developed a process, called the Dream-Reshaping Process, to help advisors deal with major-changers who have been denied admission to a selective program. The phases are described here and applied to the advising process.

- *Acknowledging* that the dream has not been fulfilled is the first step in the dream-reshaping process. The goal of advising in this initial stage is to

establish rapport and assess students' issues, concerns and coping strategies.

- *Easing Nonevent Stress* that comes from the loss of a dream can bring relief, especially if the emotional reactions were uncomfortable. The goal of advising at this stage is to process feelings resulting from rejection and to discuss support services.
- *Refocusing* involves letting go of old expectations and reframing the nonevent. At this stage, the advising goal is to assist students in reassessing their initial choice of major and in establishing a link between their previous and future choices.
- *Reshaping* the future is done by identifying new dreams or fresh visions. Advising strategies at this stage consist of reviewing students' academic records and having them discuss their academic strengths and limitations; re-examining self-information in relation to major and career information; referring to resources, such as specific Websites, advisors in academic units of interest; career services offices, employers, and so on. Advisors at this stage can help students integrate self, major and career information and implement their new choice.

Chickering's Psychosocial Theory of Student Development

Chickering's theory was first outlined in his landmark book, *Education and Identity* (1969). The theory is based in part on the work of Erik Erickson (1963) and on

the research Chickering conducted between 1959 and 1965 while he was employed at Goddard College.

Chickering (1969) proposed seven vectors of development that contribute to the formation of identity. Chickering used the term *vectors of development* “because each seems to have direction and magnitude – even though the direction may be expressed more appropriately by a spiral or by steps than by a straight line” (p. 8). Chickering theorized that students move through these vectors at different rates as part of their quest to gain individualism. These vectors can interact with each other and students often find themselves reexamining issues associated with vectors they had previously worked through. Chickering (1969) argued that, although not necessarily sequential, vectors do build on each other, leading to greater complexity, stability and integration as the issues related to each vector are addressed. To date, Chickering’s theory of psychosocial development is one of the most widely employed student development theory, especially among student affairs professionals.

Chickering and Reisser (1993) revised and reordered some of the original vectors to be more inclusive of various student populations, including the trials and tribulations of returning adult students. They also put greater emphasis on interdependence, the recognition that we can achieve emotional and instrumental autonomy and still rely on one another for support. Although some of the terminology has changed, the seven remain remarkably the same.

The Seven Vectors

1. *Developing competence* - Although intellectual competence is of primary importance in college, this vector includes physical and interpersonal competence as well. The student who attends college seeking only credentials for entry into the work world is sometimes surprised to find that his or her intellectual interests and valued friendships change as a result of his or her personal development through the college years.
2. *Managing emotions* - Moving from adolescence to adulthood means learning how to manage emotions like anger and sexual desire. The young person who attempts to control these emotions by “stuffing” them finds they can emerge with more force at a later time.
3. *Moving through autonomy toward interdependence* - Being able to take care of oneself, both emotionally and practically, is critically important to growing up and becoming independent from one’s family of origin. Emotional interdependence means freedom from continual and pressing needs for reassurance, affection, or approval. It begins with the separation from parents and proceeds with a reliance on peers, nonparental adults, and occupational or institutional reference groups. Developing autonomy culminates in the recognition that one cannot operate in a vacuum and that greater autonomy enables healthier forms of interdependence.
4. *Developing mature interpersonal relationships* - Developing mature interpersonal relationships involves: (1) tolerance and appreciation for

differences and (2) capacity for intimacy. Tolerance can be seen in both an intercultural and interpersonal context. At its heart is the ability to respond to people in their own right rather than as stereotypes or as transference objects calling for particular conventions. In addition to greater tolerance, the capacity for healthy intimacy increases. Developing mature relationships means choosing healthy relationships and making lasting commitments based on honesty, responsiveness, and unconditional regard.

5. *Establishing identity* - Identity formation depends in part on the other vectors already mentioned: competence, emotional maturity, autonomy, and positive relationships. Developing identity is the process of discovering with what kinds of experience, at what levels of intensity and frequency, we resonate in satisfying, in safe, or in self-destructive fashion.

6. *Developing purpose* - Developing purpose entails an increasing ability to be intentional, to assess interests and options, to clarify goals, to make plans, and to persist despite obstacles. It requires formulating plans for action and a set of priorities that integrate three major elements: (1) vocational plans and aspirations, (2) personal interests, and (3) interpersonal and family commitments. It also involves the growing ability to unify one's many different goals within the scope of a larger, more meaningful purpose, and to exercise intentionality on a daily basis.

7. *Developing integrity* - Developing integrity is closely related to establishing identity and clarifying purposes. Developing integrity involves three sequential

but overlapping stages: (1) humanizing values-shifting away from automatic application of uncompromising beliefs and using principled thinking in balancing one's own self-interests with the interests of one's fellow human beings, (2) personalizing values-consciously affirming core values and beliefs while respecting other points of view, and (3) developing congruence-matching personal values with socially responsible behavior.

These, then are the seven major developmental vectors for college students. Each vector has additional and more detailed components; however, this overview suggests the major configurations.

For the purpose of this study, Chickering's Psychosocial Theory of Student Development (1969) will provide the foundation upon which to understand the maturation and development of the major-changer population. The potential impact that this research may have on the field of advising is not only the introduction of new institutional information on the major-changer population, but the importance of gaining information that will more adequately contribute to student success. Chickering's theory can be used to evaluate and explain major-changer behavior and the challenges faced by those students who struggle with major decisions. For instance, academic advisors and administrators alike can use Chickering's vectors as a basis for developing strategies and programming to help major-changers in their search for an appropriate major.

Chickering's theory offers college practitioners a template for measuring who our students are and how college environments may inhibit or enhance their development (Picklesimer, 1991). Additionally, Chickering's theory can provide examples of ways to

help students address specific developmental issues related to changing majors and career decisions.

Bandura's Social Cognitive Theory (SCT)

Social Cognitive Theory (SCT) posits that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences (Betz & Hackett, 1981). SCT stems from the Social Learning Theory, which was originally proposed in 1941 by Miller and Dollard. Their proposition hypothesizes that if humans were motivated to learn a particular behavior that particular behavior would be learned through clear observations. By imitating these observed actions the individual observer would solidify that learned action and would be rewarded with positive reinforcement (Miller & Dollard, 1941). The proposition of social learning was expanded upon and theorized by Bandura and Walters (1963).

Bandura's Social Cognitive Theory broadens the scope of the Social Learning Theory by including a key element – self-beliefs, otherwise known as self-efficacy. Bandura (1977) identifies self-efficacy as the missing element in most of the prevalent learning theories. According to Bandura (1986), SCT revolves around the process of knowledge acquisition or learning directly correlated to the observation of models. The models can be those of an interpersonal imitation or media sources. Effective modeling teaches general rules and strategies for dealing with different situations.

Social Cognitive Theory is rooted in a view of human agency in which individuals are agents proactively engaged in their own development and can make things

happen by their actions. Key to this sense of agency is the fact that, among other personal factors, individuals possess self-beliefs that enable them to exercise a measure of control over their thoughts, feelings, and actions and that “what people think, believe, and feel affects how they behave” (Bandura, 1986, p. 25). Bandura (1986) provided a view of human behavior in which the beliefs that people have about themselves are critical elements in the exercise of control and personal agency. Thus, individuals are viewed both as products and producers of their own environments and of their social systems. Because human lives are not lived in isolation, Bandura (1986) expanded the conception of human agency to include collective agency. According to Bandura (1986), people work together on shared beliefs about their capabilities and common aspirations to better their lives.

Standing at the very core of social cognitive theory are self-efficacy beliefs. In his theory, Bandura defines self-efficacy as “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (1986, p. 2). Bandura postulates that those with high self-efficacy expectancies - the belief that one can achieve what one sets out to do - are healthier, more effective, and generally more successful than those with low self-efficacy expectancies. Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. Unless people believe, for example, that their actions can produce the outcomes they desire they have little incentive to act or persevere in the face of adversities. There is an abundance of empirical evidence to support Bandura’s contention that self-efficacy beliefs touch virtually every aspect of people’s lives – whether they think optimistically, productively,

pessimistically or self-debilitating; how well they motivate themselves or persist in the face of difficulties; their vulnerabilities to stress and depression; and the life choices they make (Betz & Hackett, 1981). Self-efficacy is also a critical determinant of self-regulation.

Bandura (1997) identifies four ways in which self-efficacy is learned and self-efficacy expectations are acquired: performance accomplishments, vicarious learning, verbal persuasion, and physical/affective status.

- *Performance Accomplishments* - the manner in which accomplishments are received has an influence on an individual's self-efficacy expectations and actions. In the classroom, for example, poor grades and other negative assessments of ability can lower self-efficacy beliefs.
- *Vicarious Learning* - beliefs are often acquired through observation and interpretation. In observing the modeling behavior of others, the learner is able to reflect on past experiences with such behavior and make meaning of its relevance in a new situation.
- *Verbal Persuasion* - beliefs about self are influenced by the messages conveyed by others. Encouragement supports career-related self-efficacy, criticism hampers it. Families, friends, and teachers who have their own agendas, may inadvertently (or even overtly) limit the educational and vocational progression by discouraging certain occupational interests, choices, and engagement.

- *Physical/Affective Status* - stress and anxiety have a negative effect on self-efficacy as well as learning. Therefore, conditions that cause conflict may portend low levels of self-efficacy and result in low participation and outcome expectations.

Bandura's (1997) key arguments regarding the role of self-efficacy in human functioning are that "people's level of motivation, affective states, and actions are based more on what they believe than what is objectively true" (p. 2). For this reason, how people behave can often be better predicted by the beliefs they hold about their capabilities than what they are actually capable of accomplishing. Students who lack confidence in their academic skills envision a low grade before they begin an exam or enroll in a course. Conversely, students who are confident in their academic skills expect high marks on exams and expect the quality of their work to reap personal and professional benefits. A student highly self-efficacious in her academic capabilities may select a more challenging or difficult major or career than the student who has little confidence in his academic abilities (Bandura, 1997).

Results of various studies have demonstrated the arbitrational role of self-efficacy beliefs in the selection of a career choice. Bandura's Social Cognitive Theory helps explain why students select some activities and avoid others, or why some students have clearly defined career goals and others do not. Although the research of Bandura and his colleagues has supported the usefulness of a focus on self-efficacy expectations in the treatment of several clinical problems, such as phobias, smoking behavior, and assertiveness (Bandura, Adams, & Beyer, 1977), the potential applicability of self-

efficacy expectations to vocational behavior and career counseling has yet to be significantly pursued (Betz & Hackett, 1981). Nevertheless, several studies have demonstrated that there is a reasonably strong relationship between career decision-making and self-efficacy and career indecision (Betz & Hackett, 1981; Betz & Hackett, 1997; Lent, Brown & Hackett, 1994). Based on this evidence, it is commonly accepted that Bandura's self-efficacy theory can be used to understand and treat career indecision (Betz & Hackett, 1981).

Career Self-efficacy

Self-efficacy expectations, when viewed in relation to careers, refer to a person's beliefs regarding "career-related behaviors, educational and occupational choice, and performance and persistence in the implementation of those choices" (Betz & Hackett, 1997, p. 383). They are reflected in an individual's perception about his/her ability to perform a given task or behavior (efficacy expectation) and his/her belief about the consequences of behavior or performance (outcome expectation; Betz & Hackett, 1981).

A study on self-efficacy expectations and career indecision, conducted by Taylor and Betz (1983), reveals that there is a moderately strong relationship among career decision-making and self-efficacy and career indecision. Students who are less confident (low level of self-efficacy) in their ability to complete the tasks and behaviors required for effective decision-making are likelier to report being vocationally undecided (Taylor & Betz, 1983). When students have low self-efficacy expectations regarding their behavior, they limit the extent to which they can participate in an activity and are more likely to give up when things become difficult. Low self-efficacy beliefs can hinder

career development, making career decisions challenging (Betz & Hackett, 1981). On the other hand, students who are more vocationally decided exhibit more confidence (high level of self-efficacy) in their ability to complete the necessary tasks related to career decision-making. According to Taylor and Betz (1983), the measure of career decision-making self-efficacy, while in need of further evaluative research, has considerable potential for the assessment and treatment of career indecision. Thus, the concept of self-efficacy as it relates to the selection of a major and career decision-making, plays a significant role in the intervention and evaluation of vocational indecision.

The roots of career indecision can be traced, in part, to a person's concept of self and career motivation which falls under the domain of self-efficacy. Markus and Nurius (1986) examine the concept of *possible selves*. Possible selves represent individuals' ideas of what they might become, what they would like to become, and what they are afraid of becoming, and thus provide a link between cognition and motivation.

According to Markus and Nurius (1986), possible selves are the cognitive components of hopes, fears, goals, and threats and are important because they function as incentives for future behavior (i.e., they are selves to be approached or avoided) and they provide an evaluative and interpretive context for the current view of self.

The way in which possible selves influence behavior is thought to depend on the way in which they are evaluated. Negatively-evaluated selves engage in an avoidance motivational system to try to prevent the realization of the "feared possible selves," whereas positively-evaluated selves engage in an approach motivational system to

promote the realization of the “hoped-for possible selves” (Markus & Nurius, 1986). For example, the student who fears she won’t score high enough on the Medical College Admission Test (MCAT) to get into medical school avoids taking the test and, as a result, avoids the “feared possible self.” The belief she may not pass the test becomes more than an irrational fear, it becomes internalized, and coping with that possible failure creates avoidance-like behavior. This behavior forces her to reconsider career options, which causes a change in major (e.g., major-changing behavior). According to Markus and Nurius (1986), this pattern of behavior may continue until the student realizes the possibility of a positive future self.

Markus and Nurius (1986) identify three types of possible selves: (1) the ideal self, (2) the expected self, and (3) the feared self. The ideal self consists of positive attributes, which lead to hope-related activities; the expected self combines both positive and negative attributes; and the feared self consists of negative attributes, which causes the individual to withdrawal from hope-related activities, thus creating avoidance-like behavior. Having an image of what is possible in the future allows one to mentally simulate future scenarios that facilitate decisions in favor of or against specific actions and provide clues about when to persist and when to withdraw. Representations of hoped-for possible selves involve goals as well as scenarios about the means and strategies to achieve them and thereby organize and energize the adoption of behaviors (Markus & Nurius, 1986).

An examination of self-efficacy as it relates to the selection of major and career decisions suggests that efficacy-based interventions are needed in order to promote the

personal and contextual factors that lead to high levels of self-efficacy. Because self-efficacy expectations and outcomes are connected to the selection of academic major and occupational interests, strategies and interventions for enhancing the self-efficacy and career development of students are imperative.

Level of Parental Education

An abundance of research has been conducted on the relationships between socioeconomically disadvantaged students and college entry, persistence and attainment (Brown & Burkhardt, 1999; Horn & Bobbitt, 2000; Pascarella & Terenzini, 2005). For example, students from low-income families are less likely to attend 4-year institutions, attend full-time, enroll directly after high school and graduate from college (Pascarella & Terenzini, 2005). However, far less is known about the cognitive development of first-generation students whose parents did not attend college (Hahs-Vaughn, 2004).

Studies have indicated that students whose parents have earned no more than a high school diploma are least likely to earn a bachelor's degree (Horn & Bobbitt, 2000). Level of parental education has also been shown to directly influence the type of institution students attend, irrespective of high school achievement and ability (Pascarella & Terenzini, 2005). First-generation students have been shown to be more certain of academic major, but no difference was found in students' commitments to their goals when compared to non-first-generation students (Pascarella & Terenzini, 2005).

The notion that first-generation college students perform worse academically than students whose parents attended college is widely accepted by professionals in higher education (Brown & Burkhardt, 1999). Undoubtedly, research has shown that first-

generation college students are more likely to exhibit risk factors which may be associated with poor academic performance (Brown & Burkhardt, 1999); however, relatively little is known about the ways in which key risk factors (e.g., first-generation status) overlap, or interact, in affecting major-changing behavior. Is there a relationship between parental education and selection of an academic major? If so, recognizing this relationship can help uncover the factors that influence Major-changing behavior by providing educational researchers with a multifaceted and comprehensive picture of the Major-changer population.

Conclusion

This chapter provided an overview of the multiples literatures that support this study, including a review of the literature related to the major-changer population. It reviewed the role of the academic advisor in identifying, counseling, understanding, and retaining the major-changer population. Finally, this chapter identified the relationship between Chickering's Psychosocial Theory of Student Development (1969), Bandura's Social Cognitive Theory (1986), in particular his theory of self-efficacy, level of parental education and major-changing behavior as areas where further study is needed. The next chapter, will describe the empirical evaluation of these phenomena.

CHAPTER 3

METHODS

This study sought to investigate the factors that distinguish those students who vacillate between majors (major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice). Variables considered in this study include: (a) level of psychosocial development, (b) level of self-efficacy and (c) level of parental education. Past and present research illustrates how little academicians know about the major-changer population. To date, only a modest amount of empirical research has been conducted on major-changers, with most studies spotlighting the challenges faced by students in transition and very few studies examining the factors that distinguish those students who waver from those who remain relatively focused. Most studies that have compared undecided and decided students have examined their characteristics prior to entering the institution (e.g., demographics and high school achievement). Once these students have entered the institution, variables typically examined measure college achievement (e.g., credits earned, grade point average; Lewallen, 1995).

This study examined issues regarding major-changers in an attempt to provide a more comprehensive understanding and appreciation of the challenges faced by major-changers on our college campuses. Although a great deal of research has described major-changers as “students at-risk” (Gordon & Polson, 1985; Pascarella & Terenzini, 1991; Pierson, 1962; Titley & Titley, 1980), who are unable, unwilling or unprepared to make academic and career decisions, several findings suggest that changing decisions

about a major is not necessarily a negative phenomenon, but may represent student discovery of other academic fields that stimulate greater personal interest or that are more compatible with their personal aptitudes and abilities (Astin, 1993; Lewallen, 1995; Tinto, 1993). Also, major changing may reflect an underlying process of cognitive maturation among college students, and their natural progression to more advanced developmental stages of decision-making. As Tinto notes, “movements from varying degrees of certainty to uncertainty and back again may in fact be quite characteristic of the longitudinal process of goal clarification which occurs during the college years. Not only should we not be surprised by such movements, we should expect, indeed hope, that they occur” (1993, p. 41). Moreover, this study attempts to determine whether level of self-efficacy and psychosocial development are factors associated with a student’s ability to select a major that will lead to a vocational and/or professional path.

Undergraduate students who attended the University of Northern Iowa (UNI) full-time and who were identified by the UNI Registrar’s Office as “major-changers” as well as those identified as “relatively stable,” according to the operational definitions, were contacted via UNI email and asked to complete an electronic survey relating to their major-changing behavior and the motivators that guided or influenced their academic and vocational decisions. These participants were sent an e-mail informing them about the study and directing them to a weblink where the survey was administered. The survey was conducted using SurveyMonkey, a survey website that enables researchers to create and administer surveys that can be sent to participants for online completion. By analyzing the differences in participants’ responses, comparisons were made regarding

the factors that contribute to and impact the changing of a major(s). Variables in this study included: (a) level of psychosocial development, (b) level of self-efficacy and (c) level of parental education.

Research Design

The purpose of this study was to determine the factors that contribute to selecting and changing a major among students identified as “major-changers” and those who are “relatively stable.” An electronic survey was developed to uncover the factors that channel students toward a certain major and/or vocational goal. The survey, created by the investigator, consisted of 41 closed-ended questions. The survey was created to assess the factors that contribute to the selecting and changing of an academic major(s). The type of survey questions ranged from Likert-scale to numerical in nature and took approximately 10-15 minutes, for this portion of the survey, to complete (see Appendix A). The survey was completed on a volunteer-basis only. Several attempts were made by the investigator to locate a pre-existing survey for major-changers; however no such survey could be found (at least not one that fit the criteria of the study). As a result, a survey was developed that supported the research objectives.

In addition to the Major-Changers Survey, participants were also given the General Self-Efficacy Scale (GSES; Jerusalem & Schwarzer, 1992; see Appendix B) to determine their level of perceived self-efficacy and the Life-Skills Development Inventory – College Form (LSDI-CF; see Appendix C) to assess the students' psychosocial development (Picklesimer, 1991). The LSDI-CF is influenced by and incorporates the works of Chickering (1969), Erikson (1963), Havighurst (1953), Kolberg

(1973), and Perry (1970), all of whom formulated theories of student development. The survey combined the Major-changers Survey, the GSES and LSDI-CF into one survey, which was divided into three parts. Those students who participated in the study were given explicit instructions that directed them to a weblink where the entire survey was administered.

Quantitative Research Design

Four main research questions framed this study: (a) which factors distinguish those students who change their major multiple times from those who remain relatively stable? (b) how does perceived level of self-efficacy influence a person's ability to make decisions? (c) how does a person's psychosocial development affect their ability to make decisions? and (d) is there a relationship between parental education and selection of an academic major? It was hypothesized that those who change their major multiple times would report a lower level of self-efficacy and psychosocial development than those who changed only once or twice.

A quantitative methodology was used in this study. Quantitative research aims to classify variables, count them, and construct statistical models to explain what is observed. The researcher knows in advance what he or she is looking for and uses tools, such as surveys or equipment to collect numerical data. In contrast, qualitative research seeks to describe and explain in detail the social phenomenon that is observed. The design emerges as the study evolves, so the researcher does not always know in advance what he or she is looking for (Creswell, 2008). Given the type of questions to be answered, a quantitative method was the most appropriate approach for this study.

This study sought to generalize results from the sample to the population of interest and to explain major-changing behavior by showing how it is derived from theoretical assumptions and confirmable theories. Furthermore, this study sought to develop and utilize theories and hypotheses pertaining to major-changers in an attempt to provide a fundamental distinction between those students who vacillate between majors from those who remain relatively stable. These objectives are aligned with the objectives that define quantitative research. This methodology, which focused on a formal, objective systematic process of data collection, seemed appropriate given the nature of the research. Past researchers have used this method for investigating major-changers (Lewallen, 1993, 1995; Titley & Titley, 1980) as well.

Participant Selection

Approximately 12,908 students attended the University of Northern Iowa in Fall 2008. Fifty-eight percent (58.3%) of students attending UNI were female, 5.9 percent were minority students and 3.7 percent were international students. Of all students enrolled, 83.4 percent are full-time. The average comparative age of undergraduate students attending UNI is 21. It was anticipated that there would be a disproportionate number of females, minorities and international students included in this study given the demographic nature of the campus.

The sample was defined by identifying students who were “major-changers” and those who were “relatively stable.” According the definition set forth by The National Academic Advising Association (NACADA), a major-changer is defined as an undergraduate student who enters college decided about a major but changes to another

before he or she graduates. Students who enter college undecided are not considered major-changers until they change after declaring an initial major (NACADA CUES Major-changer Survey, n.d.). A major-changer in this study is defined as an undergraduate student who changes his or her major three or more times. A student who is defined as “relatively stable,” for the purpose of this study, never changes his or her initial major or changes only once or twice. It was also determined that only full-time students would be included in the sample because they make up a greater portion of the study body population and would, therefore, be more representative.

Certain criteria were established to determine the sample population. Participants who were included in the study met the following criteria: (a) students who changed majors three or more times prior to graduation (3+); (b) students who never changed their initial major or changed only once or twice prior to graduation (0-2); (c) full-time undergraduate students, including transfer students; (d) students between the ages of 18-24; and (e) students with all majors codes, including pre-business, which functions as a declared major.

A Student Information System Degree Audit Trail (SIS audit trail) for the sample population was created by the University’s Registrar’s Office and Information Technology Services (ITS) based on the above criteria. Demographic information was obtained by using a pre-existing ID system maintained by ITS, so that students were not asked to report on available information. The contents of the SIS audit trail included a record of the following information for each major change for the students selected: (a) student name and number; (c) admission semester; (d) classification as of the admission

semester; (e) classification as of current semester; and (f) date and semester of major change.

Once the sample was selected, a list of email addresses for this sample was generated by ITS. Participants were sent an e-mail informing them about the study and directing them to a weblink where the survey was administered. The survey was run through SurveyMonkey, a survey website that enables researchers to create and administer surveys that can be sent to participants online for completion. All participants were then sent two reminder emails approximately seven days and fourteen days after the original email, respectively, reminding them to complete the survey if they had not done so already. Students who agreed to participate were assured that their responses would be anonymous and that no names would be attached to the survey. In addition, students were informed that their responses would be kept confidential and only statistical analyses of their responses would occur, allowing for no connection to be made between the individual and his/her responses. All participating students were given the appropriate consent form (see Appendix D) before the survey was administered.

Research Apparatus

Because it was expected that the factors that contribute to selecting and changing a major would be different for those identified as “major-changers” and those identified as “relatively stable,” a Major-Changers Survey was administered to all participants. A Major-Changer’s Survey was developed by the investigator to assess the factors that contribute to selecting and changing a major. The survey was based on concepts and principles of major-changing behavior, specifically that of developmental task

achievement that typically occurs within the college setting. The survey was sectioned into three parts. Part One consisted of 41 closed-ended questions and related to the factors involved in selecting and changing a major. The type of survey questions ranged from Likert-scale to numerical in nature. This part of the survey took approximately 10-15 minutes to complete (see Appendix A).

Moreover, it was anticipated that the factors that contribute to selecting and changing a major would be positively or negatively influenced by one's level of self-efficacy and psychosocial development. Part Two of the survey included the Life-Skills Development Inventory – College Form (LSDI-CF; Picklesimer, 1991). The LSDI-CF was used to measure students' psychosocial development (see Appendix C). This portion of the survey took approximately 10-15 minutes to complete. The LSDI-CF is an 88-item self-reported, developmental assessment tool designed to assess life-skills mastery for students aged 17 to 24 years. The LSDI-CF is based on the assumption that identification of life-skill deficits can provide student development educators with essential information for establishing structured life-skills training for college students (Picklesimer, 1991). Alpha coefficients for the scale and subscales on the LSDI-CF indicate satisfactory levels of internal consistency ($\alpha = .77$).

A series of revisions by Picklesimer (1991) have resulted in the present version of the LSDI-CF, which now consists of 88 questions designed to measure skill achievement in four areas: interpersonal communication/human relations skills; problem-solving/decision-making skills; physical fitness/health maintenance skills; and identity development/purpose in life skills. Each of these categories is applicable to four settings:

home and family, school, work and the community. The LSDI-CF incorporates seven theoretical constructs of human development: (a) psychosocial, (b) physical-sexual, (c) vocational, (d) cognitive, (e) ego, (f) moral, and (g) affective.

The Interpersonal Communication/Human Relations (IC/HR) subscale of the LSDI-CF is composed of 25 items, which represents skills necessary for effective verbal and nonverbal communications. These skills enhance (a) establishing relationships, (b) participating in community activities, (c) managing interpersonal intimacy, and (d) articulating clear expression of thoughts and options (Picklesimer, 1991).

The 23-item Problem-Solving/ Decision-Making (PS/DM) subscale includes skills needed for (a) assessing and analyzing information, (b) identifying and solving problems, (c) setting goals, (d) managing time, and (e) resolving conflicts.

The Physical Fitness/Health Maintenance (PF/HM) subscale consists of 20 items including (a) nutritional maintenance, (b) weight control, (c) physical fitness, (d) selection of leisure activities, and (e) physiological aspects of sexuality.

The Identity Development/Purpose in Life (ID/PL) subscale has 20 items, including skills in (a) developing awareness of personal and emotional identity, (b) maintaining one's self-esteem, (c) clarifying values, (d) establishing moral dimensions of sexuality, and (e) developing meaning of life (Picklesimer, 1991).

Part three of the survey consisted of the General Self-Efficacy Scale (GSES; see Appendix B). The General Self-Efficacy Scale (Jerusalem & Schwarzer, 1992) is a 10-item psychometric scale that is designed to assess optimistic self-beliefs to cope with a variety of different demands in life. The GSES takes approximately 4 minutes to

complete. Alpha coefficients for the scale indicate satisfactory levels of internal consistency ($\alpha = .70$ to $.90$).

The scale was originally developed in 1981 by Jerusalem and Schwarzer and has been used in many studies with hundreds of thousands of participants. In contrast to other scales that were designed to assess optimism, this one explicitly refers to personal agency (the belief that one's actions are responsible for successful outcomes). The ten items are designed to reflect an optimistic self-belief - the belief that one can perform a novel or difficult tasks, or cope with adversity within the various domains of human functioning (Jerusalem & Schwarzer, 1992). Each item refers to successful coping and implies an internal-stable attribution of success. Perceived self-efficacy is an operative construct (e.g., it is related to subsequent behavior and, therefore, is relevant for clinical practice and behavior change; see Appendix A).

Procedures

Prior to the distribution of the survey, a pilot study was administered to declared General Studies majors at UNI through an e-mail listserve. These participants were sent an e-mail informing them about the pilot study and directing them to a weblink where the survey was administered online via SurveyMonkey. Students who agreed to participate in the pilot were not eligible to take part in the final study. They were also informed that their names would be deleted from the final listserve and they would not be contacted again for the final study. Seventeen students voluntarily participated in the pilot. This small scale version of the study gave the investigator information on the feasibility of the study and identified areas for improvement. It also identified areas where research

protocols may not have been followed, or whether proposed instrumentation was appropriate or too complicated. The pilot study provided valuable information on the procedures and design of the study. Follow-up interviews were conducted with the 17 participants to obtain feedback on the functionality of the survey. Participants reported no difficulties in understanding the survey and stated that the online survey functioned properly. Suggestions were made about adding certain choice options to some of the questions, which were later added to the survey to improve its overall quality.

Data Analysis

The data were analyzed to determine (a) the extent to which one's level of psychosocial development effects major-changing behavior, (b) the extent to which one's level of self-efficacy effects major changing-behavior and (c) the extent to which level of parental education affects major-changing behavior. Participants indicated on the Major-changers Survey how many times they changed their major and the factors that influenced those decisions. To examine differences and associations among variables, four statistical methods were employed. For variables that were measured with nominal data, Chi-square (χ^2) tests of significance and cross tabulation were used to determine associations among variables. For variables that were measured with interval or ratio data, a *t*-test of significance was used to determine differences. For variables that were used to measure positive and negative linear relationships, Pearson's correlation coefficients were used to establish significant relationships. Because of the large sample population, statistical tests were performed at the .05 level of significance, which was used to either accept or reject the null hypothesis.

Participants indicated on the Life-skills Development Inventory – College Form (LSDI-CF) the degree to which they agreed with each question, based on a four-point scale of (1) Completely Agree, (2) Mostly Agree, (3) Mostly Disagree, and (4) Completely Disagree. Some of the items on the LSDI-CF were reverse scored, so individual logic statements and algebraic linear transforms (shift values) were established to reverse the item weights. For example, if a plus (+) sign was given to an item it was weighed accordingly: (1) Completely Agree = 4, (2) Mostly Agree = 3, (3) Mostly Disagree = 2, and (4) Completely Disagree = 1. If the item was given a negative (-) sign, it was weighed accordingly: (1) Completely Agree = 1, (2) Mostly Agree = 2, (3) Mostly Disagree = 3, and (4) Completely Disagree = 4. Scores were reported both by individual subscale and as a total scale score. Higher scores indicated a higher psycho-social development or life-skill development.

Participants indicated on the General Self-efficacy Scale (GSES) the degree to which they agreed with each question, based on a four-point scale of (1) Not at all true, (2) Hardly true, (3) Moderately true and (4) Exactly true. Scoring involved the sum of responses to all 10 items to yield the final composite score with a range from 10 to 40. A high score indicated a higher level of self-efficacy and an indicator of one's quality of life.

Summary

This chapter has described the design of this quantitative methodology research and has provided a rationale for employing such methods. It has explained the setting of this study so that others may judge the generalizability of results of this inquiry. The

instruments used, methods for selecting participants, and methods of analysis have been detailed. The next chapter will report the results of these procedures.

CHAPTER 4

RESULTS

The purpose of this study was to investigate the factors that distinguish those students who vacillate between majors (major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice). Among the variables considered in this study were: (a) level of psychosocial development, (b) level of self-efficacy and (c) level of parental education. The survey was designed to determine how major-changers and relatively stable college students at the University of Northern Iowa differ with regard to the factors that influence major-changing behavior and to assess students' level of psychosocial development, level of self-efficacy and level of parental education. The factors that distinguish major-changers from relatively stable students and how these factors relate to level of psychosocial development, self-efficacy and parental education are presented in this chapter. This chapter reports the results of the study intended to answer the research questions formulated in Chapter 1.

Usable Data

Of the 9,854 students contacted to participate, 1,765 students completed the survey, resulting in a 17.5% response rate. Of the 1,765 participants, 1,542 (87.4%) participants completed all required questions.

Demographic Description

The age range of the participants was 17 to 24 ($M=20.30$, $SD=1.578$). Four hundred and seventeen (24.1%) participants were male and 1,316 (75.9%) were female.

Fifty-eight percent (58%) of undergraduate students attending UNI for Fall 2008 were female, so it was not surprising that the majority of participants in this study were female. Three hundred and forty-two (19.7%) listed themselves as freshman, 367 (21.2%) as sophomores, 466 (26.9%) as juniors, and 558 (32.2%) as seniors (see Table 1 for complete demographic data). When asked what their major was upon entering UNI, most (14.5%) participants reported that they were “deciding,” or listed themselves as Elementary Education majors (13.2%).

A vast majority of the participants (90.3%) revealed that interest in subject matter was the most important factor in selecting an academic major. Other factors indicated by respondents were as follows: future career (79.9%), gut feeling (46.2%), personal values (40%), earning potential (36.9%), consideration of future family and financial plans (30.4%), reputation of major (21.7%), marketability (16.5%), and family pressure/expectations (9.4%). When asked how many times they changed their major, almost half (47.7%) of participants indicated that they never changed their initial major. A little over a third (34.1%) changed only once, with fewer changing twice (11.3%), three times (5%) or four or more times (1.8%).

Table 1

Selected Demographic Characteristics

<u>Characteristic</u>	<u>Frequency</u>
<u>Gender</u>	
Male	417
Female	1,316
<u>Marital Status</u>	
Never Married	1,683
Married	48
Divorced	2
Widowed	1
<u>Work Status</u>	
Employed full-time	57
Employed part-time	1,184
Unemployed	441
<u>Classification</u>	
Freshman	342
Sophomore	367
Junior	466
Senior	558
<u>Hours Upon Entering UNI</u>	
0-29	1,279
30-59	187
60-89	233
90 or more	30
<u>Major Upon Entering UNI</u>	
Deciding	237
Elementary Education	217
Accounting	119
Biology	95
Psychology	79
Management	68
Communication Studies	63
Music	63
Marketing	53
Finance	40
Early Childhood Education	34

Three hundred and ten (18.6%) participants reported that they are the first member of their immediate family to attend college. First-generation college students are defined by the U.S. Department of Education as “students whose parents don’t have more than a high school education” (Horn & Bobbitt, 2000, p. 2). However, the majority of the literature defines first-generation college students as “students whose parents have no postsecondary education” or “as students whose parents have never earned a bachelor’s degree but may have some postsecondary education” (Choy, 2001, p. 3). For the purpose of this study, the latter definition was used.

Differences between Major-changers and Relatively Stable Students

A chi-square test of independence and cross tabulations were performed to measure the relationship between major-changers and relatively stable students and the factors associated with choosing a major (see Table 2).

Table 2

What are the Most Important Factors in Choosing a Major?

Factors	Major-changers		Relatively Stable	
	Frequency	Percent	Frequency	Percent
Interest in subject	109	92.4	1,446	90.1
Future career	91	77.1	1,285	80.1
Earning potential	51	43.2	585	36.4
Reputation of major	18	15.3*	356	22.2*
Consideration of family/financial plans	33	28.0	492	30.7
Personal values	54	45.8	636	39.6
Marketability	19	16.1	264	16.4
Gut feeling	50	42.4	746	46.5
Family pressure	16	13.6	145	9.0

* $\chi^2 = 3.103, df = 1, p < .05$

Of those respondents who indicated that reputation of major was the most important factor in choosing a major, the overwhelming majority were relatively stable students (95%) as compared to major-changers (5%). Relatively stable students were more likely than major-changers to choose reputation of major as the most important factor in selecting a major, $\chi^2 = 3.103$, $df = 1$, $p < .05$.

Table 3 indicates mean scores for the major-changer population and for relatively stable students on the General Self-efficacy Scale (GSES). For the GSES, the mean scores for the major-changer population was significantly lower ($M = 30.25$; $SD = 5.350$) than the mean scores for relatively stable students ($M = 31.43$; $SD = 5.102$), $t(1487) = 2.230$, $p < .05$, indicating that those participants who changed their major three or more times were more likely to have a lower self-efficacy.

Table 3

Self-efficacy Scores for Major-changers and Relatively Stable Students

	N	Mean	Std. Deviation
Major-changers	102	30.25	5.350
Relatively Stable	1387	31.43	5.102

$t(1487) = 2.230$, $p < .05$

Table 4 indicates the mean scores for major-changers and relatively stable students on the Life-Skills Development Inventory – College Form (LSDI-CF). For the LSDI-CF, the mean scores for the major-changer population on the Problem-

Solving/Decision-Making Subscale (PS Subscale) was significantly lower ($M = 70.13$; $SD = 8.213$) than the mean scores for relatively stable students ($M = 72.79$; $SD = 7.721$), $t(1496) = 3.329, p < .001$. This indicates that those students classified as relatively stable were found to have greater problem-solving and decision-making skills than those classified as major-changers. No statistically significance differences were found for the other three subscales.

Table 4

Life-Skills Development Inventory – College Form Subscale Mean Scores for Major-changers and Relatively Stable Students

Subscale	Major-changers		Relatively Stable	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Interpersonal Comm./ Human Relations	80.00	7.755	81.32	7.165
Problem Solving/Decision- Making	70.13*	8.213	72.79*	7.721
Physical Fitness/Health	39.25	6.832	39.23	7.209
Identity Development	35.29	6.969	34.16	6.652
Sum of Subscales	212.84	32.142	214.60	35.394

* $t(1496) = 3.329, p < .001$

When asked if they were the first member of their immediate family to attend college, 15.3% of major-changers reported “yes,” with 19.0% of relatively stable students reporting that they were the first member of their immediate family to attend college. No statistically significant differences were found between level of parental education and major-changing behavior; however, frequency of responses indicated that parents of

major-changers (66.7%) were less likely to have earned a bachelor's degree than parents of relatively stable students (72.8%).

Similarities between Major-changers and Relatively Stable Students

Examination of the factors that influence a student's decision to change majors showed that for the vast majority of participants (88.4%) a change in interests/curiosity, a change in career focus, and/or dislike of the course curriculum and length of the major were the most important factors. No differences were reported between major-changers and relatively stable students with regard to the reasons for changing majors, besides reputation of major, reported previously. In fact, major-changers and relatively stable students were more likely than not to report the same factors that influenced their decision to change majors.

When asked how connected they felt to the University community (e.g., not at all connected, somewhat connected, pretty well connected, extremely well connected), the majority of participants (50.4%) felt somewhat connected to the University. Most students (51%) reporting not meeting with an academic advisor each time they changed majors. Of those participants who indicated meeting with an advisor each time they changed majors, 37.7% reported that they met with a faculty advisor.

In addition, a vast majority of participants (65.1%) indicated that they had not utilized the services provided by UNI Career Services. Of those participants who did use career services, 60.9% reported using CareerLink, a web-based database management system. When asked whether they had utilized the services provided by UNI Academic Advising Services, 55.6% of participants indicated, "yes." Of those using these services,

only 36.5% reported employing these services to explore majors and/or careers.

Additionally, the majority of participants (70.4%) indicated that they were employed part-time. Of those participants working part-time, 40.8% reported that they worked off-campus.

Summary of Findings

This study consisted of four major research questions: (a) which factors distinguish those students who change their major multiple times from those who remain relatively stable? (b) how does perceived level of self-efficacy influence a person's ability to make decisions? (c) how does a person's psychosocial development affect their ability to make decisions? and (d) is there a relationship between level of parental education and major-changing behavior?

Research Question 1

Which factors distinguish those students who change their major multiple times from those who remain relatively stable? The most important factors for selecting a major for both major-changers and relatively stable students were: (1) interest in subject matter, (2) future career, (3) earning potential and (4) reputation of major. Frequency of responses indicated very few differences in factors reported for changing majors, with the exception of "reputation of major." A statistically significant difference was found, with relatively stable students reporting "reputation of major" as the most important factor compared to major changes. ($\chi^2 = 3.103, df = 1, p < .05$). Data analysis of the factors that influenced students' decisions to select and change their major resulted in two basic observations: extrinsic and intrinsic factors. Factors such as interest in subject matter,

gut feeling it was the right major for me, and change in interests/curiosity involved intrinsic influences. Factors such as change in career focus, length of major, future career, earning potential and consideration of future family and financial plans involved extrinsic motives.

Research Question 2

How does perceived level of self-efficacy influence a person's ability to make decisions? Major-changers ($M = 30.25$; $SD = 5.350$) reported a lower level of perceived self-efficacy than relatively stable students ($M = 31.43$; $SD = 5.102$) on the General Self-efficacy Scale, $t(1487) = 2.230$, $p < .05$.

Research Question 3

How does a person's psychosocial development affect their ability to make decisions? Major-changers ($M = 70.13$; $SD = 8.213$) reported a lower level of problem-solving and decision-making skills than relatively stable students ($M = 72.79$; $SD = 7.721$), $t(1496) = 3.329$, $p < .001$.

Research Question 4

Is there a relationship between level of parental education and major-changing behavior? No statistically significant differences were found between level of parental education and major-changing behavior; however, frequency of responses indicated that parents of major-changers (66.7%) were less likely to have earned a bachelor's degree than parents of relatively stable students (72.8%).

Summary

This study produced findings in four areas: (1) factors that distinguish major-changers from relatively stable students, (2) level of self-efficacy, (3) level of psychosocial development and (4) level of parental education.

Data regarding the factors that distinguish major-changers from relatively stable students confirm findings from other studies (Firmin & MacKillop, 2008; Lewallen, 1993; 1995), conducted on this population of students, that indicated that major-changers and non major-changers are more alike than they are different regarding the factors in selecting a major. Unlike findings in earlier studies (Gordon, 1984; Holland & Holland, 1977, Lewallen, 1995) this study measured multiple variables believed to influence major-changing behavior and found significant differences between major-changers and relatively stable students concerning level of self-efficacy, level of psychosocial development, and level of parental education.

Statistically significant findings were found for level of self-efficacy and major-changing behavior, which suggests that major-changers have a lower level of self-efficacy than relatively stable students. In addition, level of problem-solving and decision-making skills was found to differ such that major-changers possess a lower level of these skills than relatively stable students. The relationship between level of parental education and major-changing behavior was not found to be statistically significant, with major-changers and relatively stable students reporting no differences.

The next chapter will discuss and interpret the results of this study regarding the differences and similarities between major-changers and relatively stable students. It will also provide recommendations for student services providers and for researchers.

CHAPTER 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to explore the factors that distinguish those students who fluctuate between majors from those who remain relatively stable. This study sought to investigate whether major-changers (students who changed their major three or more times) differ regarding the factors that influence their decision to select and change a major(s) from those students who remain relatively stable (never changing their initial major or changing only once or twice). Variables considered in this study included: (a) level of self-efficacy, (b) level of psychosocial development and (c) level of parental education. Specifically, this study was designed to determine: (a) how major-changers and relatively stable students would rank the factors that influenced their decision to change their major; (b) how major-changers and relatively stable students would score on the Life-Skills Development Inventory – College Form (LSDI-CF), (C) how major-changers and relatively stable students would score on the General Self-efficacy Scale (GSES) and (d) how level of parental education would affect major-changing behavior.

It was hypothesized that major-changers and relatively stable students would differ somewhat in regards to the factors that influenced their decision to change majors. Furthermore, it was presumed that major-changers would have a lower level of psychosocial development and lower self-perception of life-skill development than relatively stable students. It was also predicted that major-changers would report a lower level of perceived self-efficacy than relatively stable students. Level of parental education was also expected to differ for major-changers and relatively stable students.

In other words, a student whose parents did not earn a bachelor's degree (first-generation college student) would be more likely to vacillate between majors than those students whose parents did earn a bachelor's degree.

The sample was defined by identifying students who were "major-changers" and those who were "relatively stable." For the purpose of this study, a major-changer is defined as a student who changes his or her major three or more times. A student who is "relatively stable" was defined as a student who never changes his or her initial major or changes only once or twice. It was also determined that only full-time students would be included in the sample because they make up a greater portion of the study body population and would, therefore, be more representative.

Discussion

The first question sought to examine the extent to which major-changers and relatively stable students differ with regards to the factors that influence their decision to select and change their major(s). I found that there was very little difference in the factors that contribute to the selecting and changing of majors between major-changers and relatively stable students. In fact, each of the nine factors were ranked in identical order with interest in subject matter, future career, gut feeling it was the right major for me, consideration of future family and financial plans, and earning potential all selected as the top five factors for both groups. The only difference that was found between major-changers and relatively stable students was reputation of major, with relatively stable students reporting reputation of major as the most important factor. This finding suggests that relatively stable students are more likely to choose a major and stick with it

based on reputation of major. This finding contradicts the notion that relatively stable students would be less likely to select a major based on dualistic views (the idea that a person is more likely to find a career based on reputation of the major).

Additionally, there was no significant difference between groups regarding the factor(s) that contribute to changing an academic major(s). For both major-changers and relatively stable students, change in interest/curiosity, change in career focus, dislike of course curriculum and length of major were among the most common factors reported by both groups.

Data analysis of the factors that influenced students' decisions to select and change their major resulted in two basic observations: extrinsic and intrinsic factors. The extrinsic factors involved a change in career focus, length of major, consideration of future family and financial plans, future career and earning potential, which dealt with outside, external influences that played a significant role in the decision to change majors. Intrinsic factors included choosing a major based on gut feeling, interest in subject matter, and change in interests/curiosity.

There was also little difference in responses to the questions relating to the use of resources on campus, such as the UNI Academic Advising Office, with the exception of the services utilized from the UNI Career Services office. More than half (65.1%) of the overall sample population stated that they did not utilize any services provided by UNI Career Services; however, interestingly, major-changers reported using the services provided by UNI Career Services more often than relatively stable students. Prior to gathering the results of this study, it was presumed by the investigator that relatively

stable students would have reported using the services provided by UNI Career Services far more often than those of their counterparts, thus contributing significantly to changing their major(s) less often. Furthermore, there were only modest differences between major-changers and relatively stable students regarding the source and location of their academic and career advising. Both groups reported receiving most of their advising from a faculty advisor.

A closer investigation of who students sought academic advice from indicated that major-changers were more likely to seek out the advice of a family member (e.g., parents) for academic and vocational advice than were relatively stable students. While relatively stable students did occasionally report receiving academic and vocational advice from family members, they were more likely to report receiving advice from a professional advisor, faculty advisor or from some other source on campus. However, this was not a statistically significant difference. Doing what a parent or friend recommends is sometimes viewed as easier than taking the time to engage in the exploration process (Steele & McDonald, 2000). It is not surprising that today's college students would turn to their parents for advice on academic and career decisions. Studies conducted on millennial college students, have indicated that this generation of students is exceedingly close to their parents, who assume participatory roles in their children's educational pursuits (Coomes & DeBard, 2004; Howe & Strauss, 2000). In this capacity, parents may serve as advisors, thus playing an influential role in their children's decision-making process. Although few would argue that being a parental advocate for one's children is a negative occurrence, this kind of parental involvement can often be

damaging to students. For instance, once students realize that the major someone else has chosen for them is not interesting or too difficult, they will, inevitably, change majors, thus having the potential to create a pattern of major-changing behavior (Howe & Strauss, 2000).

Perhaps one of the most interesting findings was that major-changers were found to have a lower level of perceived self-efficacy than relatively stable students, suggesting that major-changers may struggle more than relatively stable students with regards to making academic and career decisions. This finding indicates that major-changers may be more prone to self-doubt when it comes to academic and vocational decisions and, as a result, change majors more often. A lower level of self efficacy may create more fear regarding making long-term career decisions, especially if these decisions are perceived as irreversible (Bertram, 1996).

Studies on self-efficacy expectations and career indecision reveal that there is a moderately strong relationship between career decision-making and self-efficacy and career indecision. Students who are less confident (low level of self-efficacy) in their ability to complete the tasks and behaviors required for effective decision-making are likelier to report being vocationally undecided (Betz & Hackett, 1981; Taylor & Betz, 1983). On the other hand, students who are more vocationally decided exhibit more confidence (high level of self-efficacy) in their ability to complete the necessary tasks related to career decision-making. The findings of this study have reinforced the contention that low self-efficacy expectations have a significant impact on major-

changing behavior. In other words, there appears to be a strong correlation between major-changing behavior and level of self-efficacy.

Concerning students' level of psychosocial development, only one of the four Life-skills Development Inventory – College Form Subscales produced significant differences or associations, and so the hypothesis that major-changers would have a lower level of psychosocial development was generally not supported. Differences in the mean scores for the Problem-Solving/Decision-Making Subscale (PS Subscale) for major-changers and relatively stable students were found, indicating that major-changers may have more difficulty making realistic academic and vocational choices than relatively stable students.

It was a predicted outcome of this study that students who changed their majors less often (relatively stable) would be more highly developed on the Problem-Solving/Decision-Making Subscale. Deciding on a major requires students to engage themselves in the decision-making process, which can be a significant challenge since research has shown that most college students lack the decision-making skills necessary to make those decisions on their own. Many college students have not yet reached the developmental stage required to make a decision about a major and/or career, making them more prone to major-changing behavior (Bertram, 1996).

With regard to level of parental education, no statistically significant differences were found between major-changers and relatively stable students. In other words, no statistically significant relationships were found for level of parental education and major-changing behavior. However, frequency of responses indicated that parents of

major-changers were less likely to have earned a bachelor's degree than parents of relatively stable students.

There is evidence to suggest that first-generation college students are less engaged in the educational process because they have little or no tacit knowledge about college campuses or college related activities and lack the roles models (i.e., parents) necessary to help them connect with the college community. Parents of first-generation college students are often ill-equipped to help their students because they also lack the knowledge about the college experience. In contrast, second-generation college students, whose parent(s) earned a baccalaureate degree, are often more engaged in the educational process, as their parents have modeled this behavior and have demonstrated the importance of becoming actively engaged in the college community (Kenny & Stryker, 1996; London, 1992).

The results of this study yielded no significant difference in how connected students felt to the University community. The majority of both major-changers and relatively stable students reported feeling somewhat connected to the University, with few reporting that they did not feel connected. It was anticipated that major-changers would feel less connected to the University as a result of their inability to persist in one area of study. Studies have shown that if students develop a feasible plan for identifying a college major and related career that is compatible with their abilities, interests and values, then their overall level of satisfaction/connection with college should increase (Pascarella & Terenzini, 2005; Tinto, 1993).

It was also presumed that work status might play a role in major-changing behavior. Due to an increasing trend in the numbers of undergraduate students who must work to contribute to their college education, it was thought that a reliance on work to fund students' college education would result in major-changing behavior. As a result of working too much, students would be less likely to earn good grades. Not getting good grades may affect entrance into certain majors (e.g., majors that have grade-point requirements) which may lead to major-changing behavior. The results of this study found no connection between the need to work and major-changing behavior.

Overall, the notion that major-changers are more likely to see the relationship between major and career as linear (e.g., all accounting students become accountants) and viewing this relationship as more dualistic than those students classified as "relatively stable" was not supported by the results of this study, with the exception of relatively stable students' tendency to select a major based on reputation. Both major-changers and relatively stable students reported choosing a major based on interest and curiosity not necessarily on earning potential, thus substantiating findings from other studies that suggested changing majors is not always an indication of procrastination or an inability to make decisions, but rather a deliberate choice to explore various area of study (Lewallen, 1993; 1995; Tino, 1993).

Conclusions

This study demonstrated to a large extent that major-changers and relatively stable students, despite certain differences, are more alike than different when it comes to the factors that contribute to selecting and changing a major(s). Although some

significant differences were found, this study appears to support what many others have concluded: As cited by Lewallen (1995), Holland and Holland (1977) states:

Attempts to comprehend the vocational decisiveness of some students and the indecisiveness of others are characterized by conflicting findings, negative findings, or negligible findings. Although vocationally undecided students have been assessed in many ways and with vast range of variables, few clear and compelling differences emerge. Instead the most striking outcomes of these studies are that decided and undecided high school and college students are much more alike than different and that the relatively few differences are conflicting and confusing (p. 404)

Although further research is required to gain a more complex and comprehensive understanding of factors that distinguish major-changers from relatively stable students, an attempt was made to provide a more widespread understanding and appreciation for what it means to be classified as a major-changer. Taking another "glimpse" into the minds of students only serves to strengthen the methods we employ to assist them. For example, academic advisors and career counselors can try to focus more on the process of choosing a major and less on the outcomes (Bertram, 1996). Giving students the skills to make informed decisions will allow them to engage in the process of decision-making. According to Gordon (1995), advisors and students tend to see the role of an academic advisor as a problem-solver or trouble-shooter. Gordon (1995) argues that advisors often dispense information to students as if this were the main goal of the advisor-student relationship. More than thirty-years ago, Crookston (1972) advanced the idea that advising is a form of teaching. Just as professors teach their students skill and content, advisors also teach students skills such as decision-making and critical thinking, as well as content like curriculum and academic regulations (Koring, Killian, Owens, & Todd, 2004).

According to Bertram (1996) the saying, “seeing is believing” rings true for most college students; they learn by watching. Therefore, it is imperative that advisors try to view the academic world from a major-changers’ perspective. This study has attempted to learn what factors influence major-changing behavior in hopes of gaining new insights concerning how to better serve this population of students. By recognizing what motivates students to change majors, advisors can begin to develop decision-making strategies to help students during this important transitional period.

Future Research

An important area for future research lies in answering the question, “what does it mean to be a major-changer?” With few studies conducted on this population of students, the answer remains unclear. As Gordon (1984) so aptly pointed out, “there are as many reasons for being undecided as there are students” (p.75). All evidence thus far points to major-changers being fairly typical students on the surface (e.g., measures of background, academic ability and experience; Lewallen, 1993). Perhaps if we are to continue studying this population of students, we need to find out if there truly is “something unique” about being a major-changer (Lewallen, 1993). This study, unlike other studies conducted on the major-changer population, examined differences and similarities between major-changers and relatively stable students from a multi-variable perspective. Unlike other studies conducted on major-changers, this study sought to answer *how* students decide on a major and the factors that contribute to that decision. To date, no other study has examined level of self-efficacy, level of psychosocial development and level of parental education to ascertain if these factors impact major-changing behavior.

Future research that contributes to the findings of this study regarding the factors that distinguishes major-changers from relatively stable students would enhance our understanding of who these students are and how college environments can enhance their development. For example, identifying how colleges and universities handle and advise major-changers would be a worthy research endeavor, since most institutional policies and procedures, as well as advising practices, have the potential to impact how student make academic decisions.

Due to the nature of this study, a quantitative instrument was utilized to assess the factors that distinguish those students who vacillate between majors (major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice) and to examine level of self-efficacy, level of psychosocial development and level of parental education among these two groups of students. However, it is recommended that future studies be undertaken:

1. Further investigation and adaptation of the instrument is a reasonable next step in examining the factors that distinguish those students who vacillate between majors (major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice).
2. Replication of the study should be considered using random samples, extended geographical locations, and other population groups.
3. Investigations should be conducted using qualitative methods. Although the risk of the impact of social desirability on responses is higher with qualitative approaches,

interviewing participants may yield more responses regarding factors that contribute to major-changing behavior and would provide a different perspective.

4. Extending the research to include other population groups, not just the use of a single institution, would be advantageous. Future researchers will want to expand the study across institutions, such liberal arts colleges, research institutions, and specialized and professional colleges to gain a different perspective.

5. Conducting a longitudinal study on this topic should be considered. Tracking students as they make multiple major changes and exploring issues of persistence toward graduation would add significantly to the findings of this present study.

Recommendations

So, how can the findings of this study be applied to improve existing college policies and advising practices? When establishing college policies and advising practices that impact major-changers, it is necessary for policy-makers and academic and career advisors to be mindful of the following findings of this study: (a) major-changers reported a lower level of perceived self-efficacy than relatively stable students, suggesting that major-changers may be more prone to self-doubt when it comes to academic and vocational decisions and, as a result, change majors more often, (b) major-changers more than relatively stable students have fewer problem-solving and decision-making skills that may affect their ability to make realistic academic and vocational decisions and (c) relatively stable students are more likely than major-changers to believe that reputation of major is the most important factor in selecting a major, indicating a stronger propensity to choose a

major based on dualistic views (the idea that a person is more likely to find a career based on reputation of the major).

It is also important for academic and career advisors to understand that, despite certain differences, major-changers and relatively stable students are more alike than they are different when it comes to selecting and changing a major. The findings of this study suggest that changing decisions about a major is not necessarily a negative phenomenon, but may represent student discovery of other academic fields that stimulate greater personal interest or that are more compatible with their personal aptitudes and abilities (Cuseo, 2005). Recognizing that major-changers change majors for a variety of reasons can help academic advisors to improve developmental advising approaches that nurture and support student discovery and interest/curiosity. When creating educational practices and policies for major-changers, academic and career advisors need to be cognizant of the reasons *why* students select and change majors.

These findings also strongly suggest that current advising practices and college policies should be reexamined to account for the differences between major-changers and relatively stable students. Knowing how major-changers and relatively stable students differ regarding level of self-efficacy and problem-solving/decision-making skills can help academic and career advisors to develop problem-solving and decision-making strategies that promote effective academic decision-making and career planning. Studies on self-efficacy have indicated that some training methods designed to enhance self-confidence can improve one's level of self-efficacy (Bandura, 1986; Gist & Mitchell, 1992), so developing campus-wide programming to facilitate self-confidence regarding academic and vocational

decisions, can potentially help enhance students' self-efficacy perceptions. By creating an academic environment that centers on developing intellectual, physical and social competence, academic and career advisors can help students to view the relationship between major and career from a multi-dimensional perspective.

Lastly, academic and career advisors need to integrate the findings of this study into their current advising practices to ensure that students will pursue an academic and career path that is both personally meaningful and self-fulfilling.

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APPENDIX A
MAJOR-CHANGERS SURVEY
AND
CONSENT FORM

MAJOR-CHANGERS SURVEY

The purpose of this survey is to investigate the factors that contribute to the selection and changing of an academic major(s). The results of this study will be used to provide a more comprehensive and complex understanding of the challenges students face in making academic and career decisions.

Directions: This portion of the survey takes approximately 10-15 minutes to complete. Please respond to the following questions as honestly as possible. You may change your responses at any time prior to the completion of the survey. All responses will be kept confidential. Thank you for your participation.

1. What is your gender?
 - a) Male
 - b) Female
2. What is your age? _____
3. What is your marital status?
 - a) Single
 - b) Married
 - c) Divorced
 - d) Widowed
 - e) Separated
4. Which of the following best describes your *primary work status* at this time?
 - a) Employed full-time
 - b) Employed part-time
 - c) Unemployed
5. If employed, do you work on-campus or off-campus?
 - a) I work on-campus
 - b) I work off-campus
 - c) Does not apply
6. How many hours/credits did you have upon being admitted to UNI?
 - a) 0-29
 - b) 30-59
 - c) 60-89
 - d) 90 or more
 - e) Other (please specify)
7. What is your current student classification (e.g., freshman, sophomore, junior, senior)?

8. Upon entering UNI, what was your declared major?

- 1) Accounting
- 2) American Studies
- 3) Anthropology
- 4) Applied Physics
- 5) Art
- 6) Asian Studies
- 7) Athletic Training
- 8) Bioinformatics
- 9) Biology (B.S.)
- 10) Biology (B.A.)
- 11) Biotechnology
- 12) Business Teaching
- 13) Chemistry (B.S.)
- 14) Chemistry (B.A.)
- 15) Chemistry-Marketing
- 16) Communication
- 17) Communication/Electronic Media
- 18) Communication/Public Relations
- 19) Communication/Theatre Teaching
- 20) Communicative Disorders
- 21) Computer Information Systems
- 22) Computer Science
- 23) Construction Management
- 24) Criminology
- 25) Early Childhood Education
- 26) Earth Science
- 27) Earth Science: Interpretive Naturalist Emphasis
- 28) Economics
- 29) Electrical and Information Engineering Technology
- 30) Elementary Education
- 31) English
- 32) European Studies
- 33) Family Services
- 34) Finance
- 35) French
- 36) General Studies
- 37) Geography
- 38) Geology
- 39) Geology: Environmental Science Emphasis
- 40) German
- 41) Gerontology
- 42) Graphic Communications
- 43) Health Education-Teaching
- 44) Health Promotion
- 45) History
- 46) Humanities
- 47) Individual Studies
- 48) Inter-American Studies
- 49) Interior Design
- 50) Leisure Youth and Human Services
- 51) Liberal Studies
- 52) Management
- 53) Management Information Systems
- 54) Manufacturing Technology
- 55) Marketing
- 56) Mathematics
- 57) Mathematics-Applied
- 58) Mathematics-Statistics and Actuarial Science
- 59) Middle Level Education Dual Major
- 60) Modern Languages Dual Major
- 61) Music
- 62) Music Composition Theory
- 63) Music Education
- 64) Music Performance
- 65) Networking System Administration
- 66) Philosophy
- 67) Physical Education
- 68) Physical Education Teaching
- 69) Physics (B.A.)
- 70) Physics (B.S.)
- 71) Political Communication
- 72) Political Science
- 73) Pre-Professional
- 74) Psychology
- 75) Public Administration
- 76) Real Estate
- 77) Religion
- 78) Russian
- 79) Russian and East European Studies
- 80) Science Teaching
- 81) Social Science Teaching
- 82) Social Work
- 83) Sociology
- 84) Spanish

- | | |
|--|---------------------------|
| 85) Teaching English to Speakers of
Other Languages | 89) Technology Management |
| 86) TESOL/Modern Language | 90) Textile and Apparel |
| 87) Technology | 91) Theatre |
| 88) Technology Education and
Training | 92) Deciding |
| | 93) Other |

9. What were the most important factors in choosing a major (check all that apply)?

- a) Interest in subject area
- b) Future career
- c) Earning potential
- d) Reputation of major
- e) Consideration of future family and financial plans
- f) Personal values
- g) Marketability
- h) Gut feeling it was the right major for me
- i) Family pressure/expectations
- j) Other (please specify)

10. How many times have you changed your major? _____

11. What did you change your major to the first time you changed your major?

- | | |
|------------------------------------|--|
| 1) Accounting | 27) Earth Science: Interpretive
Naturalist Emphasis |
| 2) American Studies | 28) Economics |
| 3) Anthropology | 29) Electrical and Information
Engineering Technology |
| 4) Applied Physics | 30) Elementary Education |
| 5) Art | 31) English |
| 6) Asian Studies | 32) European Studies |
| 7) Athletic Training | 33) Family Services |
| 8) Bioinformatics | 34) Finance |
| 9) Biology (B.S.) | 35) French |
| 10) Biology (B.A.) | 36) General Studies |
| 11) Biotechnology | 37) Geography |
| 12) Business Teaching | 38) Geology |
| 13) Chemistry (B.S.) | 39) Geology: Environmental Science
Emphasis |
| 14) Chemistry (B.A.) | 40) German |
| 15) Chemistry-Marketing | 41) Gerontology |
| 16) Communication | 42) Graphic Communications |
| 17) Communication/Electronic Media | 43) Health Education-Teaching |
| 18) Communication/Public Relations | 44) Health Promotion |
| 19) Communication/Theatre Teaching | 45) History |
| 20) Communicative Disorders | 46) Humanities |
| 21) Computer Information Systems | 47) Individual Studies |
| 22) Computer Science | 48) Inter-American Studies |
| 23) Construction Management | 49) Interior Design |
| 24) Criminology | 50) Leisure Youth and Human Services |
| 25) Early Childhood Education | |
| 26) Earth Science | |

- | | |
|--|---|
| 51) Liberal Studies | 73) Pre-Professional |
| 52) Management | 74) Psychology |
| 53) Management Information Systems | 75) Public Administration |
| 54) Manufacturing Technology | 76) Real Estate |
| 55) Marketing | 77) Religion |
| 56) Mathematics | 78) Russian |
| 57) Mathematics-Applied | 79) Russian and East European Studies |
| 58) Mathematics-Statistics and Actuarial Science | 80) Science Teaching |
| 59) Middle Level Education Dual Major | 81) Social Science Teaching |
| 60) Modern Languages Dual Major | 82) Social Work |
| 61) Music | 83) Sociology |
| 62) Music Composition Theory | 84) Spanish |
| 63) Music Education | 85) Teaching English to Speakers of Other Languages |
| 64) Music Performance | 86) TESOL/Modern Language |
| 65) Networking System Administration | 87) Technology |
| 66) Philosophy | 88) Technology Education and Training |
| 67) Physical Education | 89) Technology Management |
| 68) Physical Education Teaching | 90) Textile and Apparel |
| 69) Physics (B.A.) | 91) Theatre |
| 70) Physics (B.S.) | 92) Deciding |
| 71) Political Communication | 93) Other |
| 72) Political Science | |

12. What factor(s) influenced your decision to change your major the first time (check all that apply)?

- a) Length of major: Major too long/required too many credits
- b) Major is academically challenging/too difficult
- c) Information provided on UNI's website and/or the Internet
- d) Professor/Classroom instructor
- e) Staff member
- f) Academic Advisor
- g) Peer Advisor in Residence (PAIR)
- h) Residence hall staff (i.e. hall coordinator)
- i) Experience with an organization on campus (volunteer, student activities, co-op/internship, job shadowing, etc.)
- j) Change in career focus
- k) Change in interests/curiosity (i.e. did not like previous major)
- l) Poor quality of teaching in major
- m) Dislike of course curriculum
- n) Financial status
- o) Lack of information
- p) Parental expectations
- q) Family and/or friends recommendations
- r) Other (please specify)

13. What did you change your major to the second time you changed your major?

- | | |
|---|---|
| 1) Does not apply | 46) History |
| 2) Accounting | 47) Humanities |
| 3) American Studies | 48) Individual Studies |
| 4) Anthropology | 49) Inter-American Studies |
| 5) Applied Physics | 50) Interior Design |
| 6) Art | 51) Leisure Youth and Human Services |
| 7) Asian Studies | 52) Liberal Studies |
| 8) Athletic Training | 53) Management |
| 9) Bioinformatics | 54) Management Information Systems |
| 10) Biology (B.S.) | 55) Manufacturing Technology |
| 11) Biology (B.A.) | 56) Marketing |
| 12) Biotechnology | 57) Mathematics |
| 13) Business Teaching | 58) Mathematics-Applied |
| 14) Chemistry (B.S.) | 59) Mathematics-Statistics and Actuarial Science |
| 15) Chemistry (B.A.) | 60) Middle Level Education Dual Major |
| 16) Chemistry-Marketing | 61) Modern Languages Dual Major |
| 17) Communication | 62) Music |
| 18) Communication/Electronic Media | 63) Music Composition Theory |
| 19) Communication/Public Relations | 64) Music Education |
| 20) Communication/Theatre Teaching | 65) Music Performance |
| 21) Communicative Disorders | 66) Networking System Administration |
| 22) Computer Information Systems | 67) Philosophy |
| 23) Computer Science | 68) Physical Education |
| 24) Construction Management | 69) Physical Education Teaching |
| 25) Criminology | 70) Physics (B.A.) |
| 26) Early Childhood Education | 71) Physics (B.S.) |
| 27) Earth Science | 72) Political Communication |
| 28) Earth Science: Interpretive Naturalist Emphasis | 73) Political Science |
| 29) Economics | 74) Pre-Professional |
| 30) Electrical and Information Engineering Technology | 75) Psychology |
| 31) Elementary Education | 76) Public Administration |
| 32) English | 77) Real Estate |
| 33) European Studies | 78) Religion |
| 34) Family Services | 79) Russian |
| 35) Finance | 80) Russian and East European Studies |
| 36) French | 81) Science Teaching |
| 37) General Studies | 82) Social Science Teaching |
| 38) Geography | 83) Social Work |
| 39) Geology | 84) Sociology |
| 40) Geology: Environmental Science Emphasis | 85) Spanish |
| 41) German | 86) Teaching English to Speakers of Other Languages |
| 42) Gerontology | 87) TESOL/Modern Language |
| 43) Graphic Communications | 88) Technology |
| 44) Health Education-Teaching | 89) Technology Education and Training |
| 45) Health Promotion | |

- | | |
|---------------------------|--------------|
| 90) Technology Management | 93) Deciding |
| 91) Textile and Apparel | 94) Other |
| 92) Theatre | |

14. What factor(s) influenced your decision to change your major the second time (check all that apply)?

- a) Does not apply
- b) Length of major: Major too long/required too many credits
- c) Major is academically challenging/too difficult
- d) Information provided on UNI's website and/or the Internet
- e) Professor/Classroom instructor
- f) Staff member
- g) Academic Advisor
- h) Peer Advisor in Residence (PAIR)
- i) Residence hall staff (i.e. hall coordinator)
- j) Experience with an organization on campus (volunteer, student activities, co-op/internship, job shadowing, etc.)
- k) Change in career focus
- l) Change in interests/curiosity (i.e. did not like previous major)
- m) Poor quality of teaching in major
- n) Dislike of course curriculum
- o) Financial status
- p) Lack of information
- q) Parental expectations
- r) Family and/or friends recommendations
- s) Other (please specify)

15. What did you change your major to the third time you changed your major?

- | | |
|------------------------------------|--|
| 1) Does not apply | 22) Computer Information Systems |
| 2) Accounting | 23) Computer Science |
| 3) American Studies | 24) Construction Management |
| 4) Anthropology | 25) Criminology |
| 5) Applied Physics | 26) Early Childhood Education |
| 6) Art | 27) Earth Science |
| 7) Asian Studies | 28) Earth Science: Interpretive
Naturalist Emphasis |
| 8) Athletic Training | 29) Economics |
| 9) Bioinformatics | 30) Electrical and Information
Engineering Technology |
| 10) Biology (B.S.) | 31) Elementary Education |
| 11) Biology (B.A.) | 32) English |
| 12) Biotechnology | 33) European Studies |
| 13) Business Teaching | 34) Family Services |
| 14) Chemistry (B.S.) | 35) Finance |
| 15) Chemistry (B.A.) | 36) French |
| 16) Chemistry-Marketing | 37) General Studies |
| 17) Communication | 38) Geography |
| 18) Communication/Electronic Media | 39) Geology |
| 19) Communication/Public Relations | |
| 20) Communication/Theatre Teaching | |
| 21) Communicative Disorders | |

- | | |
|---|--|
| 40) Geology: Environmental Science
Emphasis | 67) Philosophy |
| 41) German | 68) Physical Education |
| 42) Gerontology | 69) Physical Education Teaching |
| 43) Graphic Communications | 70) Physics (B.A.) |
| 44) Health Education-Teaching | 71) Physics (B.S.) |
| 45) Health Promotion | 72) Political Communication |
| 46) History | 73) Political Science |
| 47) Humanities | 74) Pre-Professional |
| 48) Individual Studies | 75) Psychology |
| 49) Inter-American Studies | 76) Public Administration |
| 50) Interior Design | 77) Real Estate |
| 51) Leisure Youth and Human Services | 78) Religion |
| 52) Liberal Studies | 79) Russian |
| 53) Management | 80) Russian and East European Studies |
| 54) Management Information Systems | 81) Science Teaching |
| 55) Manufacturing Technology | 82) Social Science Teaching |
| 56) Marketing | 83) Social Work |
| 57) Mathematics | 84) Sociology |
| 58) Mathematics-Applied | 85) Spanish |
| 59) Mathematics-Statistics and
Actuarial Science | 86) Teaching English to Speakers of
Other Languages |
| 60) Middle Level Education Dual
Major | 87) TESOL/Modern Language |
| 61) Modern Languages Dual Major | 88) Technology |
| 62) Music | 89) Technology Education and
Training |
| 63) Music Composition Theory | 90) Technology Management |
| 64) Music Education | 91) Textile and Apparel |
| 65) Music Performance | 92) Theatre |
| 66) Networking System Administration | 93) Deciding |
| | 94) Other |

16. What factor(s) influenced your decision to change your major the third time (check all that apply)?

- a) Does not apply
- b) Length of major: Major too long/required too many credits
- c) Major is academically challenging/too difficult
- d) Information provided on UNI's website and/or the Internet
- e) Professor/Classroom instructor
- f) Staff member
- g) Academic Advisor
- h) Peer Advisor in Residence (PAIR)
- i) Residence hall staff (i.e. hall coordinator)
- j) Experience with an organization on campus (volunteer, student activities, co-op/internship, job shadowing, etc.)
- k) Change in career focus
- l) Change in interests/curiosity (i.e. did not like previous major)
- m) Poor quality of teaching in major
- n) Dislike of course curriculum
- o) Financial status
- p) Lack of information

- q) Parental expectations
- r) Family and/or friends recommendations
- s) Other (please specify)

17. What did you change your major to the fourth time you changed your major?

- | | |
|---|--|
| 1) Does no apply | 42) Gerontology |
| 2) Accounting | 43) Graphic Communications |
| 3) American Studies | 44) Health Education-Teaching |
| 4) Anthropology | 45) Health Promotion |
| 5) Applied Physics | 46) History |
| 6) Art | 47) Humanities |
| 7) Asian Studies | 48) Individual Studies |
| 8) Athletic Training | 49) Inter-American Studies |
| 9) Bioinformatics | 50) Interior Design |
| 10) Biology (B.S.) | 51) Leisure Youth and Human Services |
| 11) Biology (B.A.) | 52) Liberal Studies |
| 12) Biotechnology | 53) Management |
| 13) Business Teaching | 54) Management Information Systems |
| 14) Chemistry (B.S.) | 55) Manufacturing Technology |
| 15) Chemistry (B.A.) | 56) Marketing |
| 16) Chemistry-Marketing | 57) Mathematics |
| 17) Communication | 58) Mathematics-Applied |
| 18) Communication/Electronic Media | 59) Mathematics-Statistics and Actuarial Science |
| 19) Communication/Public Relations | 60) Middle Level Education Dual Major |
| 20) Communication/Theatre Teaching | 61) Modern Languages Dual Major |
| 21) Communicative Disorders | 62) Music |
| 22) Computer Information Systems | 63) Music Composition Theory |
| 23) Computer Science | 64) Music Education |
| 24) Construction Management | 65) Music Performance |
| 25) Criminology | 66) Networking System Administration |
| 26) Early Childhood Education | 67) Philosophy |
| 27) Earth Science | 68) Physical Education |
| 28) Earth Science: Interpretive Naturalist Emphasis | 69) Physical Education Teaching |
| 29) Economics | 70) Physics (B.A.) |
| 30) Electrical and Information Engineering Technology | 71) Physics (B.S.) |
| 31) Elementary Education | 72) Political Communication |
| 32) English | 73) Political Science |
| 33) European Studies | 74) Pre-Professional |
| 34) Family Services | 75) Psychology |
| 35) Finance | 76) Public Administration |
| 36) French | 77) Real Estate |
| 37) General Studies | 78) Religion |
| 38) Geography | 79) Russian |
| 39) Geology | 80) Russian and East European Studies |
| 40) Geology: Environmental Science Emphasis | 81) Science Teaching |
| 41) German | 82) Social Science Teaching |
| | 83) Social Work |

- | | |
|---|---------------------------------------|
| 84) Sociology | 89) Technology Education and Training |
| 85) Spanish | 90) Technology Management |
| 86) Teaching English to Speakers of Other Languages | 91) Textile and Apparel |
| 87) TESOL/Modern Language | 92) Theatre |
| 88) Technology | 93) Deciding |
| | 94) Other |

18. What factor(s) influenced your decision to change your major the fourth time (check all that apply)?

- a) Does not apply
- b) Length of major: Major too long/required too many credits
- c) Major is academically challenging/too difficult
- d) Information provided on UNI's website and/or the Internet
- e) Professor/Classroom instructor
- f) Staff member
- g) Academic Advisor
- h) Peer Advisor in Residence (PAIR)
- i) Residence hall staff (i.e. hall coordinator)
- j) Experience with an organization on campus (volunteer, student activities, co-op/internship, job shadowing, etc.)
- k) Change in career focus
- l) Change in interests/curiosity (i.e. did not like previous major)
- m) Poor quality of teaching in major
- n) Dislike of course curriculum
- o) Financial status
- p) Lack of information
- q) Parental expectations
- r) Family and/or friends recommendations
- s) Other (please specify)

19. How often do you visit an academic advisor or faculty member for academic or career advice?

- a) 2 or more times a month
- b) Once a month
- c) Only during registration
- d) Never

20. Did you meet with an academic advisor or faculty member each time you changed your major? If yes, please go to question 23.

- a) Yes
- b) No

21. Who did you meet with at UNI about changing your major?

- a) A professional advisor
- b) A faculty advisor
- c) A professional advisor in an advising center (i.e., College of Business/College of Education)
- d) Residence Life Coordinator
- e) Other (please specify)

22. Why did you choose NOT to meet with an advisor or faculty member each time you changed your major (check all that apply)?

- a) Takes too much time
- b) Not sure who my advisor is
- c) Got advice from some other source
- d) Not able to get appointment with my advisor
- e) I did not need the help of an advisor
- f) Other (please specify)

23. Have you utilized any services provided by UNI Academic Advising? If no, go to question 25.

- a) Yes
- b) No

24. Which services did you utilize from UNI Academic Advising?

- a) Advising
- b) Scheduling
- c) Exploring major/careers
- d) Peer Advisors in Residence (PAIR)
- e) CareerLink/Career cruising
- f) Other (please specify)

25. How often do you utilize the services provided by UNI Academic Advising?

- a) Once a semester
- b) Once a month
- c) 2 to 3 times a month
- d) 3 or more times a month

26. Have you utilized any services provided by UNI Career Services? If no, go to question 28.

- a) Yes
- b) No

27. Which services did you utilize from UNI Career Services (check all that apply)?

- a) CareerLink
- b) Career Library
- c) Co-op/internship
- d) Sigi3/ Career cruising
- e) Career Fair
- f) Volunteer Fair
- g) Help with resume and/or Cover Letter
- h) Help with finding a job
- i) On campus recruiting
- j) Other (please specify)

28. How often do you utilize the services provided by UNI Academic Advising?

- e) Once a semester
- f) Once a month
- g) 2 to 3 times a month
- h) 3 or more times a month

29. How connected do you feel to the University community?

- a) Not connected at all
- b) Somewhat connected
- c) Pretty well connected
- d) Extremely well connected

30. How prepared were you academically to attend UNI?

- a) Very prepared
- b) Prepared
- c) Somewhat prepared
- d) Not at all prepared

31. Did you attend New Student / Transfer Orientation at UNI?

- a) Yes
- b) No

32. Are you receiving financial aid (loans, grants, scholarships, work study, etc.)?

- a) Yes, Loan(s)
- b) Yes, Grant(s)
- c) Yes, Scholarship(s)
- d) Yes, Work Study
- e) Yes, Other (please specify)
- f) No

33. Are you the first member of your immediate family to attend college? If yes, go to question

- a) Yes
- b) No
- c) I don't know

34. If no, what is your Mother's highest level of education?

- a) Some College
- b) 2-year College Degree (Associates)
- c) 4-year College Degree (Bachelor's)
- d) Master's Degree
- e) Doctoral Degree
- f) Professional Degree (MD, JD, PsyD)

35. If no, what is your Father's highest level of education?

- a) Some College
- b) 2-year College Degree (Associates)
- c) 4-year College Degree (Bachelor's)
- d) Master's Degree
- e) Doctoral Degree
- f) Professional Degree (MD, JD, PsyD)

36. If your Mother attended college, what did she major in? _____

37. If your Father attended college, what did he major in? _____

38. Does your Mother work outside of the home?

- a) Yes
- b) No

39. If yes, what is your Mother's profession? _____

40. Does your Father work outside of the home?

- a) Yes
- b) No

41. If yes, what is your Father's profession? _____

CONSENT FORM

You are invited to participate in a research study conducted by Karen Cunningham, Coordinator of the Individual Studies Program at UNI. The goal of this study is to investigate the factors that contribute to the selection and changing of an academic major(s). The results of this study will be used for a doctoral dissertation and will provide a more complex understanding of the challenges students face in making academic and career decisions.

Background Information:

This study aims to understand the factors that distinguish those students who vacillate between majors (Major-changers) from those who remain relatively stable (never changing their initial major or changing only once or twice). Your responses will provide the data needed for a statistical analysis of major-changing behavior in the research study. The results of this study will provide a more comprehensive and complex understanding of the difficulties students undergo in making academic and career decisions.

Procedures:

If you agree to be in this study, you will be asked to do the following:

1. Click on the Weblink contained in your e-mail message to access the survey.

Duration of the study:

The survey will take approximately 35-40 minutes. Please answer each question to the best of your ability and be aware that you have the option to stop taking the survey at any time with no penalty.

Statement of Risks and Benefits of being in the study:

I do not anticipate any risks as a result of participating in this study. Your answers are confidential, and no individual will ever be identified in any shape or form. In published reports, the data will be presented only in aggregate form. While there may be no individual benefits to participating in this study, the knowledge gained as a result of this study will help improve the academic environment for all UNI students.

Confidentiality:

1. The records of this study will be kept confidential.
2. Only the researcher will see the completed individual surveys to protect confidentiality of responses.
3. Research records will be stored securely and only the researcher will have access to the records.
4. Once all data are collected, the identifiers (i.e. your UNI email address and UNI student number) will be deleted from data.
5. All results with the exception of open-ended responses will be reported in aggregate. Participants will be warned that their responses to open ended questions will be reported

verbatim in the report, without an indication of whose opinion is being reported.

6. Only the researcher will be responsible for sending out reminder surveys or emails to non-respondents. No one other than the researcher will be informed of who did not respond to the survey. Your responses to the survey will only be linked through a code to identifying information (i.e., UNI e-mail address and UNI student number) and will not be linked to responses directly.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with UNI. If you decide to participate, you are free to not answer any question or withdraw at anytime without affecting those relationships. Your completion of the survey serves as your voluntary agreement to participate in this research project and your certification that you are 18 years of age or older.

Contact and Questions:

The researcher conducting this study is: Karen Cunningham. If you have questions, you are encouraged to contact 319-273-6065 or karen.cunningham@uni.edu

1) If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the UNI's Human Subjects coordinator at 319-273-6148.

I am indicating my consent to participate in the study by responding below and filling out this survey.

- (Check only one)** I have read the information above, and I consent to participate in this study.
- I do not consent to participate.

APPENDIX B

GENERAL SELF-EFFICACY SCALE

GENERAL SELF-EFFICACY SCALE

1. I can always manage to solve difficult problems if I try hard enough.
2. If someone opposes me, I can find the means and ways to get what I want.
3. It is easy for me to stick to my aims and accomplish my goals.
4. I am confident that I could deal efficiently with unexpected events.
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
6. I can solve most problems if I invest the necessary effort.
7. I can remain calm when facing difficulties because I can rely on my coping abilities.
8. When I am confronted with a problem, I can usually find several solutions.
9. If I am in trouble, I can usually think of a solution.
10. I can usually handle whatever comes my way.

RESPONSE FORMAT: 1 = Not at all true; 2 = Hardly true; 3 = Moderately true; 4 = Exactly true

APPENDIX C

**LIFE-SKILLS DEVELOPMENT INVENTORY – COLLEGE FORM,
LIFE-SKILLS DEVELOPMENT INVENTORY SCORING FORM AND
LETTER OF PERMISSION TO USE INVENTORY**

- Response Code:
- A. Completely agree
 - B. Mostly agree
 - C. Mostly disagree
 - D. Completely disagree

Life-skills Development Inventory – College Form
(1996 Version)

1. If I have a different opinion from what is being said, I am afraid to express my views.
2. I can accept different values in people my age.
3. My feelings keep getting in the way when I relate to people.
4. I have no problem saying “no” to friends and people my age.
5. Laws are necessary but can be questioned if unjust.
6. I am able to adapt to get along with different groups of people.
7. I do not understand why people behave the way they do.
8. I do not understand my parents.
9. When I listen to others, I am able to understand their feelings.
10. I get very little emotional support from people my own age.
11. I am able to maintain meaningful relationships with members of the opposite sex.
12. When I am with people my own age, I feel like an outsider.
13. I maintain my independence within my friendships.
14. I choose my friends by the way they look.
15. I do not get along with most members of my family.
16. Other people can depend on me.
17. I have good relationships with my peers.
18. I am able to communicate my needs and wants with my peers.
19. I make new friends easily.
20. I respect people with different backgrounds, habits, values, or appearances.
21. I am involved in community service.
22. I am able to manage any conflicts that might arise between home and school.
23. I am able to give to and receive from people.
24. I frequently discover important things by interacting with peers.
25. Being in groups is satisfying to me.
26. I am able to take directions and follow through on tasks.
27. I have set goals in life for myself.
28. I do not know what strengths to work on that will help me in the future.
29. There is no role model for me to look to in order to find out about the kind of work I might like to do.
30. I know how to find reliable information about jobs.
31. When solving problems, I am willing to explore multiple solutions.
32. I gather as much information as possible when making educational decisions.

33. I feel that I have to sacrifice my personal values when I make decisions.
34. Once I have made a decision, I do not usually change my mind.
35. I am able to use my experience in part-time work to help me decide my future occupation.
36. I know what steps to take to get the kind of job I want.
37. I do not have any effective way of making decisions.
38. I have made the right educational decisions so far.
39. I am able to handle my own money matters.
40. I have confidence in the decisions I make.
41. I can envision my future.
42. My emotions interfere with my ability to deal with the facts.
43. I know how to think clearly and solve problems in a crisis.
44. I am able to understand ideas and issues from different points of view.
45. I understand how emotions influence my decisions and actions.
46. I am able to use my problem-solving skills when encountering new situations.
47. I am able to resolve inner conflicts.
48. I think about the success or failure of my plans and goals.
49. I am unsure about what is normal in terms of sexual arousal and expression.
50. I do not like to participate in individual or team sports.
51. I have good health habits.
52. I exercise at least 20 minutes a day three times per week.
53. I do not actively pursue my interests and goals.
54. I have satisfying leisure-time activities.
55. I understand the importance of choosing healthy foods.
56. I do things regularly that help me keep fit and healthy.
57. I practice preventive health measures such as exercise, stress management, and maintaining a healthy diet.
58. I am aware of methods to control stress.
59. I have the willpower to eat healthy foods in moderation.
60. I understand the effects of alcohol on the body.
61. I understand how nicotine affects the body.
62. I consume caffeine on a daily basis.
63. I am aware of the foods that are high in fat content.
64. I limit the daily intake of sugar in my diet.
65. I am overly concerned with my body weight.
66. I would like to have the "perfect body."
67. I realize the psychological benefits of maintaining an exercise program.
68. I understand how to prevent the spread of sexually transmitted diseases.
69. I have a positive attitude about work.
70. I get confused about what is appropriate behavior for males and females.
71. When I interact with people, I am able to be myself.
72. I understand the role of sexual intimacy in a love relationship.
73. I want to be more independent but cannot do it without hurting others.
74. I understand there are broad ranges of differences among individuals.

- Response Code: A. Completely agree
E. Mostly agree
F. Mostly disagree
G. Completely disagree

75. My personal values guide me when I do things.
76. Everything considered, the way I am developing is fine.
77. Though I consider other people's ideas, I am not controlled by them.
78. I have a good sense of humor.
79. I do not act responsibly in relationships.
80. I have a specific career goal.
81. I am bothered by the differences between what I believe and what society expects.
82. I am able to deal positively with any frustrations and failures I face.
83. The way I express my anger either hurts me or somebody else.
84. Life is boring and I really cannot get excited about it.
85. The way I handle my emotions often hurts me or somebody else.
86. I am able to handle ambiguous situations.
87. I often think and act on my own.
88. There are certain people besides teachers from whom I learn.

Picklesimer, B. K. (1991). The development and evaluation of the life-skills development inventory – college form. Unpublished doctoral dissertation, University of Georgia, Athens.

LIFE-SKILLS DEVELOPMENT INVENTORY COLLEGE FORM

SCORING DIRECTIONS

The LSDI-CF uses a Likert scale ranging from A (completely agree) to D (completely disagree). Higher scores indicate a higher self-perception of life skill development.

Normative data is still being collected. Therefore, scores obtained from the LSDI-CF are currently utilized in research projects only. Scores can be reported by individual sub-scales or as a total scale score.

Some items are reversed scored. Refer to the positive/negative coding of individual questions as stated below.

LSDI-CF POSITIVE/NEGATIVE CODING OF INDIVIDUAL QUESTIONS

<u>IC SUB-SCALE</u>		<u>PS SUB-SCALE</u>		<u>PF SUB-SCALE</u>		<u>ID SUB-SCALE</u>	
1.	-	26.	+	49.	-	69.	+
2.	+	27.	+	50.	-	70.	-
3.	-	28.	-	51.	+	71.	+
4.	+	29.	-	52.	+	72.	+
5.	+	30.	+	53.	-	73.	-
6.	+	31.	+	54.	+	74.	+
7.	-	32.	+	55.	+	75.	+
8.	-	33.	-	56.	+	76.	+
9.	+	34.	+	57.	+	77.	+
10.	-	35.	+	58.	+	78.	+
11.	+	36.	+	59.	+	79.	-
12.	-	37.	-	60.	+	80.	+
13.	+	38.	+	61.	+	81.	-
14.	-	39.	+	62.	-	82.	+
15.	-	40.	+	63.	+	83.	-
16.	+	41.	+	64.	+	84.	-
17.	+	42.	-	65.	-	85.	-
18.	+	43.	+	66.	-	86.	+
19.	+	44.	+	67.	+	87.	+
20.	+	45.	+	68.	+	88.	+
21.	+	46.	+				
22.	+	47.	+				
23.	+	48.	+				
24.	+						
25.	+						

IC = Interpersonal Communication/Human Relations sub-scale (25 items)

PS = Problem-Solving/Decision-Making sub-scale (23 items)

PF = Physical Fitness/Health Maintenance sub-scale (20 items)

ID = Identity Development/Purpose in Life sub-scale (20 items)

SCORING DIRECTIONS

If the sign is +, weight the items as follows:

A (completely agree)	= 4
B (mostly agree)	= 3
C (mostly disagree)	= 2
D (completely disagree)	= 1

If the sign is -, reverse the item weights to be:

D (completely disagree)	= 4
C (mostly disagree)	= 3
B (mostly agree)	= 2
A (completely agree)	= 1

Permission to use this inventory must be obtained from Dr. Billie K. Picklesimer, Dr. George M. Gazda, or Dr. Michael Illovsky.

RECORD SHEET

Participant's Name _____ ID # _____

	IC/HR (25 items)	PS/DM (23 items)	PF/HM (20 items)	ID/PL (20 items)	89. Gender:
* 1.	_____	26. _____	49. _____	69. _____	
* 2.	_____	27. _____	50. _____	70. _____	
* 3.	_____	28. _____	51. _____	71. _____	Classification:
4.	_____	29. _____	52. _____	72. _____	
5.	_____	30. _____	53. _____	73. _____	Age:
6.	_____	31. _____	54. _____	74. _____	
* 7.	_____	32. _____	55. _____	75. _____	Marital Status:
* 8.	_____	33. _____	56. _____	76. _____	
9.	_____	34. _____	57. _____	77. _____	Ethnicity:
10.	_____	35. _____	58. _____	78. _____	
11.	_____	36. _____	59. _____	79. _____	GPA:
* 12.	_____	37. _____	60. _____	80. _____	
13.	_____	38. _____	61. _____	81. _____	Institution:
* 14.	_____	39. _____	62. _____	82. _____	
* 15.	_____	40. _____	63. _____	83. _____	Residence:
16.	_____	41. _____	64. _____	84. _____	
17.	_____	42. _____	65. _____	85. _____	
18.	_____	43. _____	66. _____	86. _____	
19.	_____	44. _____	67. _____	87. _____	
20.	_____	45. _____	68. _____	88. _____	
21.	_____	46. _____			
22.	_____	47. _____			
23.	_____	48. _____			
24.	_____				
25.	_____				

Total: _____ Total: _____ Total: _____

Mean: _____ Mean: _____ Mean: _____

OVERALL TOTAL: _____ OVERALL MEAN: _____

SUMMARY STATEMENT:

J.L. Mann High School
Guidance Department
160 Fairforest Way
Greenville, SC 29607

September 29, 2008

Ms. Karen Cunningham
Ed.D. Candidate
University of Northern Iowa

Dear Karen,

I am pleased that you are interested in examining the Life-Skills Development Inventory, College Form (LSDI-CF). This letter provides author permission for its use. We do ask, however, that you not give the LSDI-CF to anyone else since users must be granted permission for its use. If you do decide to use this instrument in any study, upon completion of your study, we ask that you send us any information that might add to our reliability and validity data. The contact person for reporting this information is Dr. Earl Ginter. His address is:

Dr. Earl Ginter
The University of Georgia
Division of Academic Enhancement
243 Milledge Hall
Athens, GA 30602
Phone: 706-542-5436
eginter@uga.edu.

Sincerely,

Billie K. Picklesimer

APPENDIX D
HUMAN SUBJECTS



Office of Sponsored Programs

Human Participants Review Committee
UNI Institutional Review Board (IRB)
213 East Bartlett Hall

Karen Cunningham
Individual Studies
0285

Re: IRB 08-0012

Dear Ms. Cunningham:

Your study, **The Effect of Self-efficacy and Psychosocial Development on the Factors that Influence Major-changing Behavior**, has been approved by the UNI IRB effective **10/08/08**, following an Expedited review performed by IRB member, **Helen Harton, Ph.D.** You may begin enrolling participants in your study.

Modifications: If you need to make changes to your study procedures, samples, or sites, you must request approval of the change before continuing with the research. Changes requiring approval are those that may increase the social, emotional, physical, legal, or privacy risks to participants. Your request may be sent by mail or email to the IRB Administrator.

Problems and Adverse Events: If during the study you observe any problems or events pertaining to participation in your study that are *serious* and *unexpected* (e.g., you did not include them in your IRB materials as a potential risk), you must report this to the IRB within 10 days. Examples include unexpected injury or emotional stress, missteps in the consent documentation, or breaches of confidentiality. You may send this information by mail or email to the IRB Administrator.

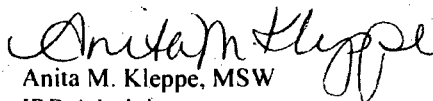
Expiration Date: Your study **approval will expire on 10/07/09**. Beyond that, you may not recruit participants or collect data without continuing approval. We will email you an Annual Renewal/Update form about 4-6 weeks before your expiration date, or you can download it from our website. You are responsible for seeking continuing approval before your expiration date *whether you receive a reminder or not*. If your approval lapses, you will need to submit a new application for review.

Closure: If you complete your project before the expiration date, or it ends for other reasons, please download and submit the IRB Project Closure form. It is especially important to do this if you are a student and planning to leave campus at the end of the academic year. Advisors are encouraged to monitor that this occurs.

Forms: Information and all IRB forms are available online at www.uni.edu/osp/research/IRBforms.htm.

If you have any questions about Human Participants Review policies or procedures, please contact me at 319.273.6148 or at anita.kleppe@uni.edu. Best wishes for your project success.

Sincerely,


Anita M. Kleppe, MSW
IRB Administrator

✓Cc: Michael Waggoner, Advisor