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Career Cruising impact on the self efficacy of deciding majors

Anthony William Smothers
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CAREER CRUISING © IMPACT ON THE SELF EFFICACY
OF DECIDING MAJORS

A Dissertation
Submitted
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Approved:

Dr. Samuel V. Lankford, Committee Co- Chair

Dr. Christopher L. Kowalski, Committee Co- Chair

Dr. Michael J. Licari
Dean of the Graduate College

Anthony William Smothers
University of Northern Iowa
December, 2012

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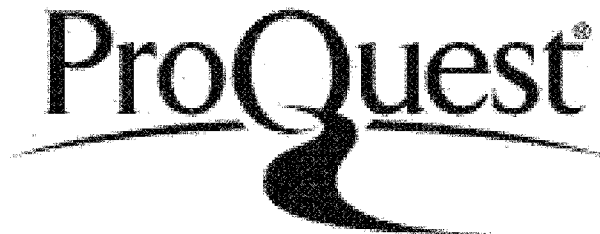


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ABSTRACT

The purpose of this study was to analyze the impact of *Career Cruising*® on self-efficacy of deciding majors in a university setting. The use of the self-assessment instrument, *Career Cruising*®, was used with measuring the career-decision making self-efficacy in a pre and post-test with deciding majors. The independent variables are the *Career Cruising*®, self-assessment instrument, gender, age, ethnic background, year in college, GPA, generation of education, and involvement. The dependent variables are the levels of self-efficacy in the five subscales of pre and post-test results. Those subscales include Accurate Self-appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving.

The study involved 73 deciding majors through the Office of Academic Advising at the University of Northern Iowa. The theoretical framework used was academic advising, student development theory, self-efficacy and career decision making self-efficacy. The instrument was the *Career Decision Self-Efficacy- Short Form* (CDSE-SF) used in a pre and post-test methodology. The treatment of a data was analyzed using a paired t-test and independent t-test to measure any differences in mean scores.

The results of the study indicated a slight increase in self-efficacy for students who took *Career Cruising*® combined with academic advising. Academic advisors including *discovery* majors like recreation may consider using *Career Cruising*® when advising. The results of this study have continued to build on the body of knowledge associated with deciding majors, *Career Cruising*®, and career decision self-efficacy. Further research on the topic of *Career Cruising*® and deciding majors should be conducted.

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CHAPTER 1

INTRODUCTION

There are over 19.8 million college and university students in the United States (U.S. Census, 2009). Of those students, 50-75% of them will change their major or career goals in college (Foote, 1980; Gordon, 1984; Kramer, Higley, & Olsen, 1994; Noel, 1985; Steele, 1994, 2003; Titley & Titley, 1980). Students often lack information in the decision-making process (Kramer et al., 1994). This lack of information has sometimes led faculty to consider their majors as *discovery* majors. Plumton's (2005) study on factors involved in choosing recreation as an academic major identifies this discovery with students taking introductory courses in recreation. Academic advisors assist students in their academic and career decisions. Advisors use student development theory, advising best practices, and self-assessment tools to assist students in the decision-making process. The social cognitive theory of a student's self-efficacy in the decision-making process is associated with student development. According to Bandura, self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required managing prospective situations" (Bandura, 1995, p. 2). In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation. Bandura (1994) described these beliefs as determinants of how people think, behave, and feel. This study will focus on how the use of a self-assessment tool, *Career Cruising*© (<http://public.careercruising.com/us/en>), assists college students in developing self-efficacy in the major decision-making process.

Statement of Problem

The goal of this study is to determine students' self-efficacy levels using *Career Cruising*©. The University of Northern Iowa has utilized *Career Cruising*© for the past ten years with only anecdotal information on its effectiveness with deciding majors and students' changing their majors. *Career Cruising*© has reported that they do not possess data about the impact of their instrument on college students and is supportive of this study.

Significance of the Problem

The significance of the problem relates to the large number of students who are deciding majors or major-changers who struggle with the decision-making process to find their major. College students, parents, colleges and universities are under tremendous financial pressures to make sure that the college experience is cost effective, efficient, and that students successfully matriculate. Annual college and university budgets, once funded primarily by tax payers are diminishing. The rising cost of tuition and the economic struggle in the United States is increasing the pressure on students to find sustainable careers (CollegeBoard, 2011). Lost in this process is the educational experience and focus on life-long learning.

The multi-variable issues of students' development at different stages also raise the question of when to use self-assessments and whether they are effective with student's self-efficacy in the decision-making process. For example, academic advisors have used self-assessments to identify areas of preferred interest to narrow major and career choices. However, the first question is whether self-assessments assist students. Next is the question, at what stage of development is a self-assessment give? Student Affairs professionals have found that the first six weeks of an academic school year are important for students to feel

connected to the university (Upcraft, 1994). However, finding the *perfect* time for self-assessment is difficult. Many students are learning how to meet their basic needs, such as shelter and food.

The significance of the problem is the gap in the literature of self-assessment effectiveness of student self-efficacy in the decision-making process. Self-assessment tools like *Myers-Briggs Type Inventory (MBTI)* (<http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/>), *Discover* (<http://actapps.act.org/eDISCOVER/>), *Strong Interest Inventory* (<https://www.cpp.com/products/strong/index.aspx>), and *Career Cruising*© (<http://public.careercruising.com/us/en>) have concentrated on refining their tool options and career bank resulting in a void of research on the impact on the end-users.

Theoretical Framework

The theoretical framework for this study is grounded in self-efficacy and appreciative advising. According to Bandura, self-efficacy is “the belief in one’s capabilities to organize and execute the courses of action required managing prospective situations” (Bandura, 1995, p. 2). Bandura (1994) described these beliefs as determinants of how people think, behave, and feel. The self-confidence that students have in their decision-making process may be the difference in a successful college experience leading to matriculation.

Appreciative advising (Cooperridor & Whitney, 2000) is part of developmental advising and assures the necessary development of the activity of advising (Crookston, 1972; O’Banion, 1972). Appreciative advising uses the four stages of Appreciative Inquiry- Discover, Dream, Design, and Deliver- to assist students with uncovering their strengths, dreaming about their future, designing a plan to make their dreams come true, and dealing with obstacles that they will inevitably encounter (Bloom, 2002; Bloom, Hutson & He,

2008). The foundation of Appreciative Inquiry has developed from research in developmental advising and has been recognized by the National Academic Advising Association since 1979. Table 1 gives a modern psychological typology (Table 1). A typology is developed on the unique ways people bring skill, learning, interest, and understanding to the categories of people. For example, *Myers-Briggs Type Inventory* (MBTI) organizes personality types in categories. In 1940, Katherine Briggs and Isabel Briggs Myers' work was an adoption of personality types from Jung's work (1923/1971) in which people identify how information is processed and their environments are perceived (Myers-Briggs & Briggs, 2012). The belief of Carl Jung was that people's behavior did have order and developed personality types based on environmental factors. The greatest contribution is that people are given ranges of personality types based with ongoing research in which the diverse nature doesn't label, but rather assists people in learning more about their personality preferences. The *Myers-Briggs Type Inventory* is used mostly with vocational types of behavior a person may prefer (Myers-Briggs & Briggs, 2012).

Table 1

Modern Psychological Typology

Frank Parson (1854-1908)	Knowledge of self, work environment and relationship between the two.	Parsons, F. (1909). <i>Choosing a vocation</i> . Boston: Houghton Mifflin.
Carl Gustav Jung (1875-1961)	Belief that people's behavior did have order and developed personality types based on environmental factors	Jung, C.G. (1971). <i>Psychological types</i> . (R.F.C. Hull, Ed.; H.G. Baynes, Trans.). Volume 6 of The collected works of C.G. Jung, NJ: Princeton University Press. (Original work published in 1923).
E.K. Strong (1884-1963)	Career assessment for military personal to find suitable jobs. 1927 Created Strong Interest Inventory	Strong, E. K., Jr. (1935). Predictive value of the Vocational Interest Test. <i>Journal of Educational Psychology</i> , 26, 332.
Kurt Lewin (1880-1947)	Behavior is a function of a person and their environment. $B = f(P, E)$	Lewin, K. (1935) <i>A dynamic theory of personality</i> . New York: McGraw-Hill.
Ralph Linton (1893-1953)	Dynamics of human behavior through cultural background	Linton, R. (1945). <i>The cultural background of personality</i> . New York: Century.
Katherine Briggs (1875-1968) & Isabel Briggs Myers (1897-1980)	Identify people based on how information is processed and their environment. Myers/Briggs Type Inventory (MBTI): Extroversion (E) or Introversion (I), Sensing (S) or Intuitive (N), Thinking (T) or Feeling (F), Judging (J) or Perception	Myers-Briggs, I & Briggs, K. (2012). Myers-Briggs Foundation. www.myersbriggs.org/my-mbti-personality-type/mbti-basics/
John Holland (1919-2008)	Personality types based on preferred behavior, work environment and social environment. Holland Codes: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C)	Holland, J.L. (1971) A theory-ridden, computer less, impersonal vocational guidance system. <i>Journal of Vocational Behavior</i> . 1,167-176. Holland, J.L. (1985) <i>Vocational Preference Inventory (VPI): Professional manual</i> . Odessa, FL: Psychological Assessment Resources. Holland, J.L. (1992). <i>Making vocational choices: A theory of vocational personalities and work environments</i> (2 nd Ed.). Odessa, FL: Psychological Assessments Resources (Original 1985).

The following are the dimensions of the *Myers-Briggs Type Inventory*

(<http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/>):

- Extroversion (E) or Introversion (I): a person prefers to focus on the outer world or inner world.
- Sensing (S) or Intuitive (N): a person prefers to take in through the five senses information or prefers to interpret and add meaning through a sixth sense of intuition.
- Thinking (T) or Feeling (F): a person prefers to make decisions based on logic and consistency or people and circumstances.
- Judging (J) or Perception (P): a person prefers organized and orderly surrounding or more flexible environment in a free flowing form.

(Myers-Briggs & Briggs, 2012)

The *Myers-Briggs Type Inventory* has been used for 40 years and is a guide for reflection.

In the context of career decision-making, the professional use of the MBTI should only be used as part of personal exploration as many self-assessment tools are (Gordon, 2006).

Another popular organization of personality types is John L. Holland's development of personality and work types with *Holland Codes*. *Holland Codes* (1985/1992) were personality types built on the work of Linton (1945) and Lewin (1935) taking into account work environments and social settings. The main expansion with *Holland Codes* is that people can combine codes as preferences. The following are the *Holland Codes* (1985):

- Realistic - practical, physical, hands-on, tool-oriented;
- Investigative - analytical, intellectual, scientific, explorative;
- Artistic - creative, original, independent, chaotic;
- Social - cooperative, supporting, helping, healing/nurturing;
- Enterprising - competitive environments, leadership, persuading;
- Conventional - detail-oriented, organizing, clerical.

Career Cruising© has over fourteen thousand vocational and professional employment traits that are used to identify the Holland Codes; realistic, investigative, artistic, social,

enterprising, and conventional that closely match a person (Holland, 1985/ 1992). *Career Cruising*® ask participants to answer 116 questions on preferences.

The theoretic framework of this study will be supported by explaining the history of academic advising, student developmental theory, academic advising models, self-assessment tools with a focus on *Career Cruising*® in use, and self-efficacy research.

Research Questions

This study sought to determine *Career Cruising*®'s impact on self-efficacy of students who are deciding majors at a university. The following are the research questions that framed this study.

1. Does perceived self-efficacy increase after deciding majors take *Career Cruising*®?
2. Is there an increase in self-efficacy scores on the subscale, Accurate Self-Appraisal?
3. Is there an increase in self-efficacy scores on the subscale, Gathering Occupational Information?
4. Is there an increase in self-efficacy scores on the subscale, Goal Selection?
5. Is there an increase in self-efficacy scores on the subscale, Planning for the Future?
6. Is there an increase in self-efficacy scores on the subscale, Problem Solving?

Limitations

As with any research, there are limitations to this study that should be acknowledged. The following limitations are noted:

1. The sample and control group is of only deciding majors which may restrict the generalizability of research findings.

2. Although validity estimates for the *Career Decision Self-Efficacy* scale are generally acceptable, predictive criterion validity has been inconsistent (Luzzo, 1996).
3. The study is only using *Career Cruising*© software for the sample.
4. The amount of time that students have to reflect post administration of *Career Cruising*© may be limited as this study will be completed within weeks compared to a semester based study.
5. The student population may lack ethnic diversity since the institution has less than 12% self-identified as minority students (UNIFactbook, 2010).

Delimitations

The following delimitations were identified in this study which defines the boundaries of this study:

1. Subjects were deciding majors at a Midwestern, comprehensive, public university offering over 120 majors, minors, and certificates. The researcher chose to study only one major group's self-efficacy.
2. The researcher administered the *Career Decision Self-Efficacy – Short Form* (Betz, Klein, & Taylor, 1996b) in the Office of Academic Advising during the spring term of 2012.
3. The *Career Decision Self-Efficacy – Short Form* (Betz et al., 1996b) is assumed to be valid.

Definition of Terms

For the purpose of this study, the following terms have been defined to clarify concepts and provide guidance throughout the study:

Academic advising is a developmental process which assists students in the clarification of their life/career goals and in the development of educational plans. Academic advising is a structured process for students and academic advisors to communicate and exchange information. The advisor serves as a facilitator of communication, a coordinator of learning experience through course and career planning and academic process review, and an agent of referral to other campus agencies as necessary (Crocket, 1987).

Appreciative advising uses four stages of Appreciative Inquiry- Discover, Dream, Design, and Destiny- to assist students with uncovering their strengths, dreaming about their future, designing a plan to make their dreams come true, and dealing with obstacles that they will inevitably encounter (Gordon, Habley, Grites & Associates, 2008). In practice, an appreciative advising session may involve the following:

- Exploring students' strengths, academic assets, and passion through intentional positive, affirmative questions. Inventories like Strength Quest, Strength finder 2.0, VIA signature strengths Questionnaire, or the MBTI can be used in this step to stimulate discussion (*Discovery*).
- Building on the students' response, the advisor and students' identify the student's articulated strengths, academic assets, and passions to formulate a purpose for their life (*Dream*).
- Student and advisor develop short- and long-term goals to assist the student in moving toward the purpose in Phase 2 (*Design*).
- The advisor continues to serve as a mentor while the student actively pursues the plan that had been put in place (*Destiny*).

(Amundsen, Bloom & Hutson, 2006)

Career Cruising© is a computerized self-assessment tool with 116 statements of vocational likes/dislikes and skills assessment. *Career Cruising*© has over fourteen thousand vocational and professional employment traits.

Career Decision Self-Efficacy- Short Form (Betz et al., 1996b, 1996c) measures an individual's degree of belief that he/she can successfully complete tasks necessary to make career decisions (Betz & Klein, 1996).

Deciding major are students who may not be ready to declare a major, lack decision-making skills, or not willing to commit to a major. The deciding major allows students' self-exploration, major exploration, and decision-making skills for future academic and personal goals. Students may not graduate in a deciding major.

Self-efficacy – “The belief in one's capabilities to organize and execute the courses of action required managing prospective situations” (Bandura, 1995, p. 2).

Student Development is a group of theories on how college students gain knowledge and evolve as members of the larger community during their time in a higher learning environment (Evans, Forney & Guido-DiBrito, 1998).

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study was to analyze the impact of *Career Cruising*® on self-efficacy of deciding majors in a university setting. The use of the self-assessment instrument, *Career Cruising*®, will be used while measuring the career-decision making self-efficacy in a pre and post-test with deciding students. The independent variables are the *Career Cruising*®, self-assessment instrument, gender, age, ethnic background, year in college, GPA, generation of education, and involvement. The dependent variables are the levels of self-efficacy in the five subscales of pre and post-test results. Those subscales include Accurate Self-Appraisal, Occupational Information, Goal Selection, Planning for the Future, and Problem Solving.

This chapter will review four major frameworks: academic advising, student development theory, self-efficacy, and career decision making self-efficacy. The literature review gives the history and development of academic advising and psychological roots of career-decision making for deciding students. This chapter begins with a broad review of the foundational framework leading to the recent studies directly relating to the research questions. The goal of this literature review will be to assist the reader to visualize and conceptualize the background of the purpose and need for this study.

Brief History of Academic Advising

Academic advising has been a part of higher education dating back to Harvard College in 1636. However, academic advising initially was mentoring male students who were studying to be priests and it was usually done by the President of the college. The

American colonial colleges expanded to the study of ministry, law, and medicine, therefore needing the advising by faculty. In the 1870s, higher education expanded to further vocations of farming, merchants and manufacturers by land grant institutions (Rudolph, 1962).

From 1636 until 1870, the period Frost (2000) described as “Higher Education Before Academic Advising was defined,” all students took the same courses, and no electives were available. In this era, the college ideal was “a large family, sleeping, eating, studying, and worshipping together under one roof” (Rudolph, 1962, p. 88).

(as cited in Kuhn, 2008, p. 4)

Colleges and universities continued to expand to more liberal arts degrees associated with science, writing, art, and music. Significant changes to colleges and universities were developed due to the cultural changes of war, civil rights, and economic demands.

Historically, the first organized faculty advising was constructed at Johns Hopkins in 1877 (Rudolph, 1962) to assist with the evolution of elective degree components that needed guidance and special attention to the interested subject area. With the number of students attending college and universities expanding, the 1900s brought faculty programs for orientation, advising, and traditions. The period from 1920 to 1970 is when advising was defined, but not the activity of advising (Frost, 2000). The activity of advising changed with the student unrest in the 1960 – 70’s. Due to the social justice movement it became an immediate need to study student development and formalize the activity of advising based on student demands. On November 8, 1965, President Lyndon B. Johnson signed the Higher Education Act providing federal financial aid to students and accessibility which allowed for the growth of academic programs and services. Naturally, this led to expectations of accountability of teaching and the services colleges and universities provided.

Research by Crookston (1972) and O'Banion (1972) assured the necessary development of the activity of advising. The evolution of faculty behavior also directed this change as the shift to more research and publication placed additional demands on the faculty. The birth of many academic advising professional units began as well as the National Academic Advising Association in 1979 (Frost, 2000; Kuhn, 2008).

Research on student development, as well as expanding expectations of faculty in regards to research, writing, and grants proposals, were on-campus factors which impacted academic advising development. Student's needs, expansion of curriculum, and career choices are critical to understanding the professional development of academic advising.

Academic Advising Methods

There are many academic advising methods; however, the most recognized methods are prescriptive advising, developmental advising, intrusive advising (Gordon, Habley & Associates, 2000) and appreciative advising (Gordon et al., 2008). When determining the best method of advising, advisors determine the situation based on student activity, background, interest, and direction the student has given. Methods are not exclusive. Many are combined in order to meet the need of the student. Additionally, academic advisors have multi-dimensional conversations with deciding majors and major-changers (Appendix D; Smothers, 2012).

Prescriptive advising occurs when an authoritative person diagnoses a student's issue and provides the answer much like a doctor and patient. Crookston (1972) emphasized that prescriptive advising demonstrates a power over an advisee instead of an information sharing session. Prescriptive advising is also described as a recipe in which you take A before B and you get down this road of accomplishment (Crookston, 1972). The sense is

that the advisor only shares the requirements of the major and degree. Although in practice, there are moments of prescription explaining requirements, it is developmental to explain the learning outcomes that may assist a student's interpretation of the liberal arts core or importance of courses before a particular major course focus (Brown & Mario, 1994).

Academic advisors need to keep in mind that prescriptive situations need not dominate a developmental partnership with a student.

Developmental academic advising concentrates on the whole student, holistically. The shared relationship between advisor and student to challenge, learn, develop, and set personal and academic goals together defines developmental advising (Crockett, 1987). Don Creamer and Elizabeth Creamer's (1994) list of developmental advising summarizes this shared relationship:

1. Caring attitude by advisors is important to advising success (Ford & Ford, 1989).
2. Goal setting and achievement is vital to student success (Trombley & Holmes, 1981).
3. Advising is seen as a process and is conducted collaboratively (O'Banion, 1972).
4. Advisors must help students choose appropriate majors (Gordon & Kline, 1989).
5. A supportive, or developmental, orientation is clearly favored by advisors over an information sharing, or prescriptive, orientation (Winston & Sandor, 1984).
6. Student preferences for advising orientation are mixed with some favoring a prescriptive orientation (Fielstein, 1989; Winston & Sandor, 1984).
7. A helpful strategy in advising is to view students as partners in the process (Kramer, 1988; Winston & Sandor, 1984).
8. A clear, positive relationship exists between good advising and student persistence (Lopez, Yanz, Clayton & Thompson, 1988).
9. Academic advising can be tied directly to positive educational outcomes of students (Ender, Winston, & Miller, 1982).
10. Academic advising can be tied to institutional effectiveness (Habley, 1988).
11. Good academic advising, especially developmental advising is grounded in philosophical and theoretical perspectives (Carberry, Baker, & Prescott, 1986; Kramer, 1988; Miller & McCaffery, 1982).
12. The best forms of academic advising demonstrate total integration of advising with other educational activities, including full institutional resources and clear

connection to institutional purpose (Winston, Miller, Ender, Grites, & Associates, 1984).

(Source: Creamer & Creamer, 1994, p. 17)

Additionally, the National Academic Advising Association (NACADA, 2012) developed three documents to support advising: (a) the concept of academic advising, (b) statement of core values, and (c) Council for Advancement of Standards (CAS) for Academic Advising. These resources support the growing development of advising.

Intrusive advising is often associated with *at-risk* students, but should be used with all students. Intrusive advising includes asking questions that go beyond what is seen on paper; class schedule, test scores, major and degree requirements and student activities. According to Earl (1988) intrusive advising is about inquiry into students' difficulty and recommending the appropriate action plan. Advisors need to make sure that the students know up front that they are working together in order to address a particular issue. The challenge for both the advisor and student is to talk about something uncomfortable. For example, a student may lack study skills, processing information, test taking, or be working through a personal issue. The complexity and numerous possible issues that are present in student lives can be difficult for advisors to address. An advisor's self-efficacy is important to at least refer students to the individuals who can assist that student. The following are just a few situations that students may encounter, as well as potential referrals for additional assistance beyond the academic advisor:

- Test taking difficulty – refer to the learning center specialist who can assist students test-taking.
- Writing papers- referral to a campus writing center or starting with the basic outline.

- Significant partner issues (boyfriend/girlfriend)- referral to Health Center or Counseling Center.
- Study skills- encourage student to take study strategies course at the learning center or find a resource book on efficient studying.
- Working over 15 hours a week- refer student to on-campus job, lighten their academic load, cut working hours, or even discuss how to let a supervisor know their limits.
- Roommate conflicts- refer student to seek out their Resident Assistant or Hall Director.
- Family issues (mom/dad) conflicts- seek a session at the University Counseling Center.
- Difficulty in understanding the material in class- teaches skills on approaching faculty and breaking down fears of the learning process.

There are additional intrusive questions that focus on long-term personal or academic issues. Advisors should be continually working toward assisting students in reaching their potential and challenge their comfort and abilities.

Appreciative Inquiry

Epistemological conversations often are surrounded by the debate of empirical scientific research (quantitative) vs. qualitative research. The birth of *Appreciative Inquiry* (Cooperrider & Srivastva, 1987) led the conversation in a new direction by distinguishing the importance of action-research as enlightenment of positive construction of society. Kurt Lewin (1935), a social psychologist began in 1944 using the term *action-research* as contributing scientific knowledge to better the “human condition” (Cooperrider & Srivastva, 1987). The purpose of this work was to transform and organize action-research into an organized structure, creating problem-solving paradigm and problem-solving processes. Cooperrider and Srivastva (1987) points to Levinson’s (1972a, 1972b) connection with problem solving in teaching and therapy. Simply put, Lewin’s work supports gathering data representing

accurate information on observed facts using collaborative forms of inquiry. The definition and principles of Appreciative Inquiry are:

- A research perspective that is uniquely intended for discovering, understanding, and fostering innovations in social-organizational arrangements and processes.
- Research into the social (innovation) potential of organizational life should be appreciative, applicable (theoretical knowledge), provocative, and collaborative.

(Cooperrider & Srivastva, 1987, p. 151).

The value of action-research may be the unforeseen variables that contribute to understanding of issues, individuals, and culture. Lewin's work reveals the necessity of organizing and the transformation of social sciences that contribute to epistemology, the truth in knowledge.

The "positive revolution" in organization management is described in case studies with GTE Telops, Leadershare, Nutrimental Foods of Brazil and the DIA Corporations. The uses of Appreciative Inquiry (AI) with employees at these companies are used as case studies to describe the four phases of the AI stages: Discovery, Dream, Design, and Destiny (Cooperrider & Whitney, 2000). The definition of AI is the following:

Appreciative Inquiry is about the co-evolutionary search for the best in people, their organizations, and the relevant world around them. In its broadest focus, it involves systematic discovery of what gives "life" to a living system when it is most alive, most effective, and most constructively capable in economic, ecological, and human terms. AI involves, in a central way, the art and practice of asking questions that strengthen the system's capacity to apprehend, anticipate, and heighten positive potential. It centrally involves the mobilization of inquiry through the crafting of the "unconditional positive question" often-involving hundreds or sometimes thousands of people. In AI the arduous task of intervention gives way to the speed of imagination and innovation; instead of negation, criticism, and

spiraling diagnosis, there is discovery, dream, and design. AI seeks, fundamentally, to build a constructive union between a whole people and the massive entirety of what people talk about as past and present capacities: achievements, assets, unexplored potentials, innovations, strengths, elevated thoughts, opportunities, benchmarks, high point moments, lived values, traditions, strategic competencies, stories, expressions of wisdom, insights into the deeper corporate spirit or soul, and visions of valued and possible futures. Taking all of these together as a gestalt, AI deliberately, in everything it does, seeks to work from accounts of this “positive change core”- and it assumes that every living system has many untapped and rich and inspiring accounts of the positive. Link the energy of this core directly to any change agenda and changes never thought possible are suddenly and democratically mobilized.

(Cooperrider & Whitney, 2000, p. 3)

The purpose of the case studies is to demonstrate the connection between theory and practice of the model and human relatedness that the process allows people to develop the best practices and culture. The reference of connection is from the theory and vision of “Appreciative Inquiry in Organizational Life” (Cooperrider & Srivastva, 1987).

Appreciative Advising

“Appreciative Inquiry is the cooperative search for the best in people, their organizations, and the world around them. . . AI involves the art and practice of asking questions that strengthen a system’s capacity to heighten positive potential” (Cooperrider & Whitney, 2000, p. 10). Appreciative Advising was constructed from the theory of Appreciative Inquiry (Bloom, 2002; Bloom et al., 2008) with four phases - Discovery, Dream, Design and Destiny. The following are suggested to improve advising:

- Believe in the goodness of each student who walks through your door. Treat him or her like you would want your son/daughter/best friend to be treated.
- Utilize positive open-ended questions to draw out what students enjoy doing, their strengths, and their passions. Listen to each answer carefully before asking the next positive question (Discovery phase).
- Help students formulate a vision of what they might become and then assist them in developing their life and career goals (Dream phase).

- Give students a clear idea of what they will need to do by devising concrete, incremental, and achievable goals to make these dreams come true (Design Phase).
- Be there for them when they stumble, believe in them every step of the way, and help them continue to update and refine their dreams as they go (Destiny phase).
(Bloom & Martin, 2002)

Self-efficacy is playing an increasing larger role in academic advising. The self-efficacy of students on probation in the Strategies for Academic Success (SAS) 100 program at the University of North Carolina-Greensboro was studied in 2005 with 223 participants and 23 volunteer journals in this mixed methods study (Hutson, 2006). The research questions included social and academic characteristics of students on probation, major reasons for poor performance, and how SAS 100 improved their academic strategies. An analysis on pre and post-test of social behavior, academic preparedness, interdependence, dedication, self-knowledge and confidence was surveyed using Student Strategies for Success Survey developed by Hutson (2003). The instrument was reported with a Cronbach's alpha reliability .84 in the first phase. The second phase was an interview of 23 volunteers using a verbal analysis. The results of the first phase using a dependent t-test were significant increases in academic preparedness, interdependence, and confidence. The second qualitative phase outlined the benefits of the SAS 100 program. For example, traditional students felt they were able to find supportive friends in their residential communities; they also experienced frustration with study skills. This study quantifies and qualifies the need for intervention with students on academic probation (Hutson, 2006).

Reviewing literature connecting positive movements with advising, Habley and Bloom (2007), discussed institutional imperatives for advising and the impact advisors will

have in making a difference with students. They outlined the following six core beliefs for giving advice:

- Advising must be viewed as more than giving information.
- Academic advising is a process, not an event or series of events.
- Advising must be characterized as a student-centered relationship.
- Advising must be viewed as a teaching/learning function.
- Advising must be embedded in and be central to the institutional mission.
- Advising must function as the hub of supportive services for students.

Student development, diversity, and the stages of student engagement are prerequisites that advisors must not only understand but continue learning about (Habley & Bloom, 2007). Building relationships using Appreciative Advising and advocating for life-long learning not only benefits student's college experiences, but enriches colleges and universities.

An early study on the effectiveness of the Strategies for Academic Success (SAS) 100, a course for students on probation, at the University of North Carolina-Greensboro in 2003 with 309 participants on academic probation and 80 students on academic warning as the control group demonstrated the importance of intervention (Kamphoff, Hutson, Amendsen, & Atwood, 2007). Their goal was to assess the success of the SAS motivational/empowerment model through pre and post grade point average (GPA) comparisons using a t-test with a confidence of $p=.04$. The results were a gain of .73 GPA versus .42 of the control group. Retention also showed marked improvement from 1999-2000 (40%) to 2002-2003 (58%). Repeated measures for years in between were also measured to see if improvement occurred. The motivational/empowerment model

demonstrated improvement as well as retention that may allow life-long learning skills (Kamphoff et al., 2007).

Appreciative advising examination of effects began with using the AAI interviews with 145 pre-nursing students below a 2.7 accumulative GPA at the University of North Carolina in Greensboro from the Student Academic Services department. The results were 30% of the students changing their major and 43% of those students continuing to work with that department in the SAS program through the process (Hutson & Bloom, 2007).

The diversity of graduate students and advisors using Appreciative Advising is studied in a qualitative study of characteristics that graduate students' value in advisors coding 24 nominations at the University of Illinois Medical Scholars Graduate Program (Bloom, Cuevas, Evans, & Hall, 2007). This study used grounded theory of Appreciative Inquiry, constant comparison, axial coding and members check to see if students value graduate advisors who care about them. Also included in the study was whether advisors are accessible, "good" role models, individually tailor advice for each student, and intentionally integrate students into the profession (Bloom et al., 2007).

Appreciative Inquiry (AI) questioning may be used with *at-risk* students who are under a 2.0 GPA to assist advisors listen to the stories of students and then focus more on positive aspects of life and academic pursuits (Truschel, 2007). Post-advising interviews with at-risk students and AI resulted in the students feeling better, believing in themselves and being more optimistic about the future (Truschel, 2007).

Appreciative Inquiry (AI) not only assists students, but may benefit parents. Parents of first-generation students need programming to support, and encourage their student, as well as aid parents in understanding the process of appreciative advising (Ashcraft, 2008).

The Academic Center for Excellence (ACE) at the University of South Carolina in 2007 initiated a retention program for students on financial aid probation with an ACE coach. The program began with a letter focusing on the students' potential, meeting with a coach a minimum of three times, and using the Appreciative Advising Inventory as a guide for discussion. Although Appreciative Advising is fairly new, anecdotal reports from the University of South Carolina ACE program are positive (Hall, 2008).

Advising first-generation college students using appreciative advising is an important method because of the benefit of providing positive reinforcement and an opportunity to tell their story to an advisor (Kocel, 2008). First-generation students are more likely to be older, have a lower socioeconomic status, have a family, and attend school part-time (U.S. Department of Education, 2006).

Academic advisors may use Appreciative Advising as a tool to assist students returning from international opportunities to reflect on their experiences. The process of open-ended questions may develop global citizenship through reflection, critical thinking about intercultural differences that they experience, and goal setting for continuing growth (Larkin, 2008).

The use of Appreciative Inquiry (AI) may also be used with parents to assist in supporting and encouraging their students (Oyler, 2008). The following are some examples used by academic advisors with parents:

- Tell me a time when you and your child worked well together.
- What is your biggest wish for your child?
- How can you assist your child to achieve their biggest dream?
- Parents examples of reaching their destiny.

“The capacity within the parent-student relationship will be enhanced if parents begin using the AI questions and techniques” (Oyler, 2008, p. 3). Advisors can use these types of conversations to benefit parents and to help students reach academic and personal goals.

The power of peer interaction in a group advising session with students using the appreciative inquiry method allows students to positively interact with peers and support each other in the process (Sanchez, 2008). “Using peer undergraduate student in various roles to support academic advising efforts is increasing according to ACT surveys” (Habley, 2004, p. 274).

Application of Appreciative Inquiry/ Advising has been discussed with pre-service teacher education using the AI concepts: Disarm, Discover, Dream, Design, Deliver, and Don't Settle (He, 2009). The purpose of this inquiry was to examine theories that may assist first-year teachers because of loss of motivation and passion due to “unrealistic optimism” (Weinstein, 1988). The paper revealed that positive teaching of Appreciative Inquiry/ Advising could assist first-year teachers and that empirical data needs to be gathered to understand the long-term impacts of positive inquiry.

The application of the Appreciative Advising theory can be seen in first-year student courses implemented at University of North Carolina Greensboro (Hutson, 2010). A study was conducted in the fall of 2005 with 591 students in a University Studies 101 (UNS 101) class in which two instruments were used to determine academic self-efficacy and academic self-perception. The first outcome-based instrument used was the First-Year Initiative (FYI) benchmarking survey by the Policy Center on the First Year College and Educational Benchmarking, Inc. (EBI) comparing similar first-year programs across 44 institutions measuring academic effectiveness of course and self-perception (Hutson, 2010). The second

outcome-based instrument used was the Student Strategies for Success Survey (Hutson, 2006) to measure academic self-efficacy. The results of the ANOVA were students' indication of the positive impact in four areas of the course: (a) being satisfied with college, (b) knowledge of campus policies, (c) knowledge of academic services, and (d) sense of belonging and acceptance. The pre and post-test also demonstrated an increased GPA for the term of 2.72 compared to a control group of non-UNS 101 cohort of 2.49 GPA. The results of the study indicate that appreciative advising contributes positively with students' self-efficacy, self-perception, and GPA (Hutson, 2010).

A literature review of the Appreciative Advising Inventory (AAI) reliability and usefulness was conducted in 2010 at the University of North Carolina-Greensboro (Hutson & He, 2011). The sample consisted of 124 students on academic probation with a GPA below 2.0 and lower than a 1.75 GPA for transfer students who were required to enroll in a Student Academic Success (SAS) course. The AAI instrument of 44 questions on a five point Likert-type scale (5-strongly disagree, 4-disagree, 3-neutral, 2-agree and 1-strongly agree) was given as an assignment and a pre and post GPA was compared using the Statistical Package for Social Sciences (SPSS) to analyze the data (see Appendix B). The instrument's reliability was a .98 Cronbach's alpha and there was a statistically significant increase in GPA (M-pre= 1.55, M-post: 1.77). There were 51 participants returned to academic good standing (41%) after participating in the study (Hutson & He, 2011). The results of the study confirmed usefulness in AAI and the reliability of the instrument. The goal of finding strengths and assets in students was achieved while noting traditional retention problems of *fixing* the problem approach (see Figure 1).

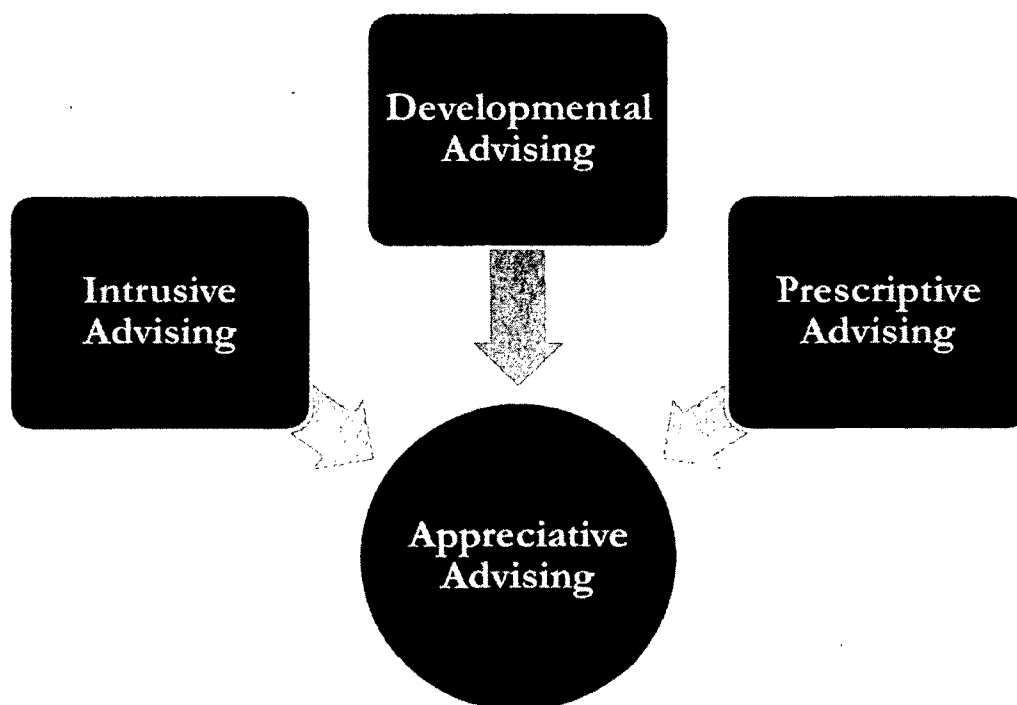


Figure 1. Academic Advising

Table 2 of Appreciative Advising is an illustration of research articles in categories: (a) researcher, (b) research, framework, and theory, (c) methodology, (d) analysis, and (e) results, discussion and future research. The purpose of constructing literature review tables is to observe development of patterns in research. For example, Table 2 demonstrates that Appreciative Advising may have a pattern of being used with *at-risk* populations and GPAs.

Table 2.

Appreciative Advising

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Coopender & Srivastva (1987)	Action-research Appreciative Inquiry				<p>"Appreciative Inquiry refers to a research perspective that is uniquely intended for discovering, understanding, and fostering innovations in social-organizational arrangements and processes"</p> <p>"Research into the social (innovation) potential of organizational life should be appreciative, applicable (theoretical knowledge), provocative, and collaborative" (Coopender, 1987, p. 151).</p> <p>Future inquiry into action-research structure.</p>
Coopender & Whitney (2000)	Appreciative Inquiry in Organization Life	GTE 67,000 employees	AAI	<p>Qualitative Interviews</p> <p>Principles:</p> <ul style="list-style-type: none"> Constructionist Simultaneity Poetic Anticipatory Positive 	<p>"Organizations, says AI theory, are centers of human relatedness, first and foremost, and relationships thrive where there is an appreciative eye-when people say the best in one another, when they share their dreams and ultimate concerns in affirming ways, and when they are connected in full voice to create not just new worlds but better worlds (Coopender & Whitney, 2000, p. 20)</p> <p>Future research into organizations appreciative inquiry used by organizations.</p>

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Bloom & Martin (2002)	Appreciative Inquiry (Coopender, 1986) Pygmalion phenomenon-classroom study where teacher is told student are high achievers.				<p>"Human tendency is to evolve in the direction of positive anticipatory images of the future" (Coopender, Soreson, Whitney, & Yager, 2000, p. 30). "Most of us will not find the answers to the causes of cancer, or solve the problems of the homelessness, or defuse international conflicts, but we feel that through our advising we may be able to make a small, but pivotal contribution to our students' ultimate work..." (Twiss, 1999).</p> <p>Future research on implementation of AI into academic advising programs.</p>
Hutson (2006)	Student Learning Theories Student Success Theories Student Retention Theories	n=223 n=23	Mixed Methods Student Strategies for Success Survey (Hutson, 2003)	Multi-analysis on pre-post of social behavior, academic preparedness, interdependence, dedication, self-knowledge, and confidence.	<p>SAS 100 (probation class) saw significant increases in academic preparedness, interdependence, and confidence.</p> <p>Research on long-term impact, validity and reliability of instrument.</p>
Bloom, Cuevas, Evans & Hall (2007)	Mentoring & Empowerment Theory (Selke & Wong, 1993) Graduate Student-Graduate Advisor relationship is the most important factor in graduate student success RQ- What are the perceived characteristics of graduate advisor that have positive impact.	Graduate Student nomination letters for MSP Outstanding Graduate Advisor of the Year 2001-2003	24 letters of nomination over 3 years for 15 graduate advisors	Grounded theory, Constant Comparison, Axial coding and member check verification	<ol style="list-style-type: none"> 1. Care for Students and Their Success 2. Be Accessible 3. Individually Tailor Guidance for Each Student. 4. Serve as a Role Model 5. Proactively Integrate Students into the Profession. <p>Appreciative Advising used as recommendation</p> <p>Future research on relationships with advisor and doctoral students...</p>

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Habley & Bloom (2007)	Positive Movement, Role of Advisor-Relationship Building, Appreciative Advising Inventory, Evolving Student Engagement, Advising Leader, Connecting Advising to the Mission of Learning, Students needs and Empowerment			Review of literature and studies; positive movement Cooperider, appreciative advising- Bloom & Hutson, Habley (2003) ACT survey on academic advising.	<ol style="list-style-type: none"> 1. Advising must be more than information giving. 2. Advising viewed as a process. 3. Advising must be characterized as a student-centered relationship. 4. Advising must be viewed as a teaching/learning function. 5. Advising must be embedded in and central to the institutional mission. 6. Advising must function as the hub of support services. <p>Future research on institution and individual intentional advising programs.</p>
Hutson & Bloom (2007)	Appreciative Advising	n=145 pre-nursing students	AAI interviews GPA comparison and retention rate of group.	Statistics ; 30% changed their major while 43% continued advising through SAS program GPA gain of .73 (p=.03) compared to control group of .42 90% retention (2006)	<p>"Appreciative Advising is a powerful tool for building rapport with students, discovering their strengths, unleashing their hopes and dreams, and devising plans to make those hopes and dreams come true." (p. 4) "Ultimately, students become appreciative of their strengths and how they may align with their academic and personal goals.</p> <p>Future research on infusion of AA on first-year programs, retention, and early warning programs.</p>

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Kamphoff, Hutson, Amundsen & Atwood (2007)	Motivational/ Empowerment Model <ul style="list-style-type: none"> - Personal Responsibility (Glasser's 2000) - Positive Affirmations (Bloom & Martin, 2004) - Goal Setting/Life Planning (Bandura, 1997) - Self-Management (Steven Covey, 1989) 	N=309 Males=156 Female= 153 below 1.5 GPA N=80 Control Group on warning 1.5-1.75 GPA	2003 Pre-Post GPA's, Diverse campus	T-test comparing GPA's	-11.91 credit hours – 8.69 credit hours (more realistic decisions regarding their academic schedule. -18% increase in retention (40% in 1999-0; 58% 2002-03. - GPA gain of .7309 vs. control group of .4202 confidence of p=.036 Program Success and providing life-long skills. "Improvement in self-efficacy also assists students in achieving improved life-planning skills regarding career choice (Pajares, 1996) p. 401. Future research on culture, language, adult students, commuter students, and rural/urban inquiry and intervention methods.
Truschel (2007)	Appreciative Inquiry At-Risk Students Storytelling (Pennebaker and Seagal (1999)				Post-advising interviews revealed positive results of feeling better, believed in themselves, and were more optimistic about the future. Additional research support from Bushe, 1995.
Ashcroft (2008)	Parents, First-Generation Students and Appreciative Advising				First-Generation parents of college students need programming to understand how to support and encourage their student and understand the appreciative advising.

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Hall (2008)	Academic Center and New Retention Program				<ol style="list-style-type: none"> 1. Letters focus on students' potential. 2. Academic Center for Excellence coach met three times with students minimum. 3. Appreciative Advising Inventory Instrument. <p>Future research should try and quantify and document success with AA</p>
Kocel (2008)	First-Generation College students and AA Intrusive Advising				<p>"A first generation college student is more likely to be older, have a lower socioeconomic status, have a family, and attend part-time (U.S. Department of Education, 2006)" (p. 1)</p> <p>Personal experience with being a first generation student- "I was anxious about trying something no one in my family had attempted and frustrated that everyone else seemed to be more knowledgeable about campus" (p. 1)</p>
Larkin (2008)	Appreciative Advising Reflection				<p>AA can assist students reflect on their international experience. "Reflection is defined as the intentional consideration of an experience in light of particular learning objectives" (Hatcher & Bingle 1997)</p> <p>Global citizenship- list of ideas of questions.</p>
Opler (2008)	Appreciative Inquiry & Parents				<p>"students whose parents intervene on their behalf are more active and satisfied with college" (Lipka, 2007)</p> <p>"...valuable things a parent can do is support and encouragement (Menezes, 2005)</p> <p>Appreciative inquiry questions for parents to think about.</p>

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Sanchez (2008)	AA into group advising Shaping the "create a vision"				Group Advising sessions give advisors the opportunity to teach students how to positively interact with their peers and support each other.
He (2009)	Strength Based Theories: Appreciative Advising Model StrengthsQuest Hope Theory Academic Optimism Happiness			Strength-based mentoring program	"Researchers have found that first-year teachers often possess 'unrealistic optimism' (Weinstein, 1988). Teacher mentoring programs with strength based theories should be studied. (p. 272). Future research on empirical data on long-term impact of strength-based teacher mentoring.
Hutson (2010)	Appreciative Advising First-Year Students seek growth is self-efficacy (Chickering & Reisser, 1993) Bloom, 2008; Development of both the advisor and student taken into consideration (p. 5)	n= 591 483 female 102 male UNS 101	Student Strategies for Success Survey (Hutson, 2004) Pre-Post survey	ANOVA analysis of pre-post survey responses	The positive outcomes evidence in the evaluation appear to be related to the centrality of the appreciative advising approach to the course (p. 11); student wellness, sense of belonging and acceptance, and their self-perception of interdependence. Future research of triangulation with qualitative and quantitative data to determine the impact on specific outcomes.
Hutson & He (2011)	Appreciative Advising Inventory use in student success programs to identify students' assets and strengths for successful transition to college. Focus from "what's wrong" to "what works"	n=124 70 female 54 male Academic probation students in student success course	AAI instrument of 44 questions 5-point Likert scale strongly disagree - strongly agree Pre/Post-test beginning of 8 week class to the end.	SPSS- compare Student asset development and GPA using correlation and regression analysis. Reliability .98	Comparing participants' pre- and post-GPA in this study, a statistically significant increase was noted in table (p. 31). The results of this study not only confirmed the reliability and usefulness of the AAI instrument, but also shed light on how colleges and universities could leverage student' assets (p. 32) Self-reflection on their strengths and assets in learning. Future research on use of AAI subscales as goals and measures of the ideal impact of their work.

Student Development Theory

Student development theory has a long history of psychological assessment from the early 20th century beginning with Frank Parson's (1909) work on the need for "vocational guidance" (Crites, 1981; Parson, 1909; Pope, 2000). Morris Viteles also established a vocational guide on clinical trials in 1920. The most famous was the Hawthorne studies in 1927 in leadership, morale, and human relations. These are only a few studies and models that grew out of WWI (Crites, 1981). Scientific studies have guided an understanding of psychosocial development, cognitive development and more recently typology to assist students to know who they are, where they are developmentally, and what is next as a goal. However, students may not understand the complexity of this puzzle of understanding who they are, and how they set a goal and reach it. Advisors need to understand this development in order to appropriately advise "next steps" for students to continue to grow in identity, skills, and goals. Creamer and Creamer (1994) identified more than twenty-five student development and career advising theories. Hagen and Jordan (2008) cite fifty-one theoretical foundations for advising; the following are some of the most significant.

Psychosocial development in student development was explored by Chickering (1969); the research suggested that students develop in stages that are expressed in seven vectors. Erik Erikson's (1959/1980) research focused on balancing internal self and external environment from infancy to adulthood and D.J. Levinson's (1986) research targeted male development in a 25 year cycle. The common factor is that they are all identifying stages to understand where students are and where they want to go.

Erik Erikson's (1959/1980) research leads to a sequence of developmental tasks or stages confronted by adults when their biology and psychology converge and "qualitatively

change their thinking, feeling, behaving, valuing, and relating to others and oneself” (Chickering & Reisser, 1993, p. 2). Erikson’s work is the identity development between the biological and psychological response to critical situations and decisions. This development of eight stages: (a) hope; (b) will; (c) purpose; (d) competence; (e) fidelity; (f) love; (g) caring; and (h) wisdom are from the ego of Freud (Erikson, 1959/1980). However, Erickson’s development is around conflict and stages intertwined in development. Chickering continues the foundation of Erickson but without the conflict and specifically on how college students develop.

Chickering (1969) developed seven vectors of student development by qualitative analysis of 13 dissimilar small colleges across the country. His work has been revised for the purpose of including women, African-American, and Hispanic student development (Chickering & Reisser, 1993; Schuh, 1994). Interestingly, he believed his work would assist with psychological development understanding and did not realize it would be the catalyst for a movement of student affairs. Chickering observed, “We may not know for years that a single lecture or conversation or experience started a chain reaction that transformed some aspect of ourselves” (Chickering & Reisser, 1993, p. 39). The following are the seven vectors:

1. *Developing competence* is the intellectual, physical, manual and interpersonal competence.
2. *Managing emotions* are important to the learning environment.
3. *Moving through autonomy toward interdependence* is learning to function with relative self-sufficiency, responsibility for goals and being less influenced by others.
4. *Developing mature interpersonal relationships* is a two-part vector. The first part is tolerance and appreciation. Second, recognize one’s culture and appreciate other cultures.

5. *Establishing identity* depends on body image, gender and sexual orientation, sense of self, life-style, response from feedback, self-acceptance and self-esteem and personal stability and integration.
6. *Developing purpose* of college experience is dependent on personal aspirations, career goals, and commitment to family and aspects of one's own life.
7. *Developing integrity* is establishing identity and clarifying purpose (beliefs, values, identity, and socially responsible behavior is an overlapping stage).

(Chickering & Reisser, 1993)

Schuh (1994) speculated that Chickering advanced student development theory more than any other research work (as cited in Evans et al., 1998). Chickering has inspired additional research such as Astin's (1984) theory on student involvement, and Upcraft (1994) and Tinto's (1993) understanding that students need to find their "connection" within the first six weeks of college or they are not likely to graduate from the institution. Pascarella and Terenzini's (1991) research surveyed thousands of students to write *How College Affects Students*. Chickering spawned many more examples of student development theories for advisors to understand college students as our foundation.

Advisors also need to recognize cognitive development of our students. Piaget (1896-1980) was a biologist who studied children's cognitive-structural theories of schema (1952) in which stages of thinking, reasoning, and meaning of their experiences were examined. He was particularly interested in how people organized their thoughts in relation to the environment. The cognitive stages were continued by Perry (1968) who conducted a longitudinal study of Harvard and Radcliffe University students. Perry's contributions are the cognitive development of basic duality (right/wrong), multiplicity (honoring diverse views), relativism (based on evidence and supporting arguments), and commitment (choices, decisions, and affirmations). Kohlberg (1969) contributed to cognitive development with

moral reasoning theory. Kohlberg's (1969) moral reasoning stages are extensions of Piaget's work. Additionally, human service professionals have developed a typology to assist in examining individual differences in how people view and relate to the world (Evans, et. al., 1998).

Typology is developed on the unique ways people bring skill, learning, interest, and understanding to categories of people. For example, MBTI organizes personality types in categories (Myers-Briggs & Briggs, 2012). In 1940, Myers-Briggs and Briggs work was an adoption of personality types from Jung's work (1923/1971) in which people identify with how information is processed from their environment. Jung (1971) believed that people's behavior did have order and developed personality types based on environmental factors (Myers-Briggs & Briggs, 2012). The greatest contribution is that people are given ranges of personality types coupled with on-going research in which the diverse nature does not label, but rather assists people in learning more about their personality preferences. The MBTI is used mostly with vocational types of behavior a person may prefer. The following are the dimensions of the MBTI:

- *Extroversion (E)* or *Introversion (I)* referencing that one prefers focus on the outer world or inner world.
- *Sensing (S)* or *Intuitive (N)* referencing that a person takes in basic information or prefers to interpret and add meaning.
- *Thinking (T)* or *Feeling (F)* referencing that a person prefers logic and consistency or people and circumstances.
- *Judging (J)* or *Perception (P)* referencing to a person getting decisions made or preferring more information.

(Myers-Briggs & Briggs, 2012)

The MBTI has been used for 40 years and is a guide for reflection. The professional use of the MBTI should only be used as part of personal exploration as many self-

assessment tools are. Another popular organization of personality types is John L. Holland's development of personality and work types, *Holland Codes*.

Holland Codes (1985/1992) were personality types built on the work of Linton (1945) and Lewin (1935) taking into account work environments and social settings. The main expansion with *Holland Codes* is that people can combine codes as preferences. Figure 1 displays the graphic representation of the *Holland Codes* (1959) which are as follows:

- *Realistic* - practical, physical, hands-on, tool-oriented
- *Investigative* - analytical, intellectual, scientific, explorative
- *Artistic* - creative, original, independent, chaotic
- *Social* - cooperative, supporting, helping, healing/nurturing
- *Enterprising* - competitive environments, leadership, persuading
- *Conventional* - detail-oriented, organizing, clerical

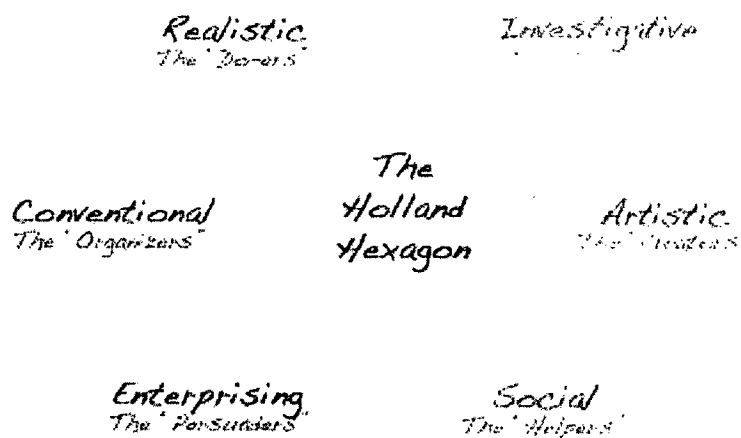


Figure 2. Holland Codes (Holland, 1985/1992)

The *Holland Codes* are indicators of personality types based on preferred behavior, work environment and social environment. For example a person may assess a score of

realistic and investigative, but would be low on social and enterprising. Personality types with *Holland Codes* may have partners but stay away from opposites.

The self-assessment has vocational likes and dislikes, skills assessment, level of education and career opportunities. *Career Cruising*© allows a person to see occupations that are similar to those they may prefer and information on job descriptions, testimonials, advice from professionals, employment outlooks, pay ranges regionally, and information on educational paths they should consider if interested in a particular area (Appendix C).

Academic Advisors often use *Career Cruising*© as a self-reflective tool for students and not as a definitive answer to the question: “What am I going to major in?” For example, advisors may tend to use the “Clusters” to identify a college or range of majors in which students may be interested. *Career Cruising*© allows advisors to illuminate physical vocational positions to allow students to see area of academic interest and potential employment opportunities. *Career Cruising*© is an inexpensive tool for educational institutions to use for students. However, if the student displays more diverse range of interest, *Career Cruising*© may be too broad for their reflection. Another self-assessment tool is the Strong Interest Inventory based on *Holland Codes*.

The *Strong Interest Inventory* (SII) is comprised of four main categories of scales: General Occupational Themes (GOTs), Basic Interest Scales (BISs), Personal Style Scales (PSSs), and Occupational Scales (OSs). *Strong Interest Inventory* contains a more detailed collection of 244 random interest questions based on the four scales; while *Career Cruising*© uses the Holland Codes in an occupational sense. At the end, the *Strong Interest Inventory* report explains interest areas, strong occupational areas, personal style, and working environment people may prefer. The *Strong Interest Inventory* typically takes a student longer to

complete and uses more contemplation. *Career Cruising*© may be used as a first reaction type assessment. All assessments must be used with caution as academic advising may use them as discussion points and not definitive conclusions. In the end, students need to be responsible for their choices of academic major and progress. Academic advising methods also play a role when meeting with students.

Self-Efficacy

The framework of self-efficacy was constructed from social-cognitive theory. Social cognitive theory is a group of theories of learning behavior through observation. Self-efficacy theory is a person's perception of their abilities or capabilities to perform a specific behavior(s) or task in specific situations (Bandura, 1977, 1993, 1994, 1997; Maddux, 1995). Self-efficacy is a specific capability of human motivation, behavior, and attitudes in various situations and context (Bandura, 1977, 1993, 1997; Maddux, 1995). Simply stated, self-efficacy is a person's confidence in his or her ability to perform a specific task or behavior in situations. The foundation of the framework of self-efficacy comes from reviewing literature on sources of information associated with cognitive processes: (a) performance accomplishments, (b) vicarious experiences, (c) verbal persuasion, and (d) psychological state.

Cognitive processing of information is not always performance based; it includes stimuli and immediate consequences. Past learning research concentrated on presenting action-response type mechanisms to measure cognitive processes without examination of motivation, confidence, or avoidance (Bandura, 1977, 1993, 1997; Maddux, 1995). The construct is not worried about the results of the action; rather, self-efficacy develops with a person's belief in his or her ability to execute the action as well as understand how that

action is reflected on daily life (Bandura, 1977, 1994, 1997). The following section is a continued review of informational sources of self-efficacy.

Performance accomplishments in the past assist in raising expectations and sustained effort of behavior in the future (Bandura, 1977, 1993, 1997; Maddux, 1995). The positive consequence of behavior sets a new set of goals and cognitive processing of future behavior. For example, learning a new game by participating and achieving a self-directed goal may lead to a new goal and further reinforce self-efficacy. A person not reaching a set goal may inhibit further participation resulting in lowering self-efficacy. Bandura (1977, 1993, 1997) discussed the importance of coping skills assisting in the process of development of performance as well.

Vicarious experience is the learning process of observing a behavior. Modeling behavior should have clearly defined outcomes. For example, a person watches an anxiety producing activity, but witness's positive behavior with that activity. Observation by multiple or diverse models will assist a person in the learning process of appropriate behavior with reduction of anxiety with activity by watching reduced adverse consequences. Some of the most important human functions require modeling for learning processes (Bandura, 1977, 1993, 1997; Maddux, 1995).

Verbal persuasion is another source of self-efficacy information. Although weaker than performance accomplishments, this self-directed form may provide raised outcome expectations more than self-efficacy depending on the task or environment. Any information to desensitize fear or anxiety may assist in developing self-efficacy. However, verbal persuasion needs to come from a perceived credible source in which the source's characteristics are evaluated based on: age, experience, trust, adaptiveness, perseverance, and

authenticity (Bandura, 1977, 1997; Maddux, 1995). For example, a professional advisor who has themselves been a deciding major may be credible to talk through the decision-making process, major, and career choice.

Bandura (1977, 1994, 1997; Maddux, 1995) framed psychological arousal as emotional arousal, processing information of anxiety affecting behavior. High arousal may elevate anxiety levels beyond perceived threat and often debilitates performance (Bandura, 1977, 1993, 1997). These potential threats can be reduced by learning coping skills and diminish avoidance behavior. Performance success will increase self-efficacy, especially if self-directed and not done to satisfy another person's expectations. Past psychological studies through therapy assist in anxiety reduction, but only self-directed continued behavior will provide accomplishment and new goals (Bandura, 1977, 1994, 1997; Maddux, 1995). For example, a therapist may reduce anxiety through exercises, but unless the person believes in his or her ability and sets his or her own goal attainment, the exercise may be short lived and the person may retreat to past anxiety. Additionally, any deception or false feedback may lead to increased anxiety of behavior (Bandura, 1977, 1994, 1997; Maddux, 1995).

Outcome expectation and self-efficacy expectation is different; a person may believe that a specific behavior will result in an outcome, but he or she need to believe in their ability to accomplish the behavior and desired outcome (Bandura, 1977, 1993, 1997; Maddux, 1995). Efficacy expectation is what determines outcome expectation through choice to participate, effort exerted, and duration of participation (Bandura, 1977, 1997; Maddux, 1995). Figure 2 demonstrates the process of self-efficacy and outcome expectations.

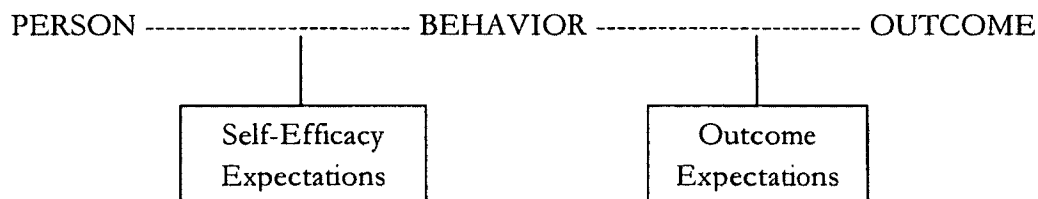


Figure 3. Difference between self-efficacy expectations and outcome expectations (Bandura, 1977, p.193).

“People process, weigh, and integrate diverse sources of information concerning their capacity and they regulate their choice behavior and effort expenditure accordingly” (Bandura, 1977, p. 212). Critical to the framework of self-efficacy is an independent performance working toward self-directed mastery using diverse information of past performance, modeling, reducing anxiety, learning coping skills, and goal expectations with situations.

A study on self-evaluation and self-efficacy mechanisms to understand goal system on performance motivation was performed using 90 participants, half were men and half were women (Bandura & Cervone, 1983). The purpose of this study was to determine if challenge goals enhance performance motivation through psychological mechanisms. The participants were divided into four groups: (a) goals and performance feedback, (b) goals alone, (c) feedback alone and (d) no factors. Treatment was given to 20 men and 20 women in these groups consisting of five minute sessions with participants uninformed how many sessions on an ergometer task, fan bike, with moderate, but attainable goal. Groups with goal setting were kept from knowing the common goal of a 40% performance increase above the baseline. “A 25-point scale was used of self-satisfaction, ranging from “highly

self-satisfied,” through “neutral,” to “highly self-dissatisfied.” Additionally, a 14 point performance attainment tool was given in 10-unit intervals to a 100 point scale, ranging from “high uncertainty” to “intermediate values of certainty” to “complete certitude” (Bandura & Cervone, 1983, p. 1021). Mean percentage increases revealed goal setting and feedback more than doubled the performance mean of goal alone or feedback alone. There were no differences found between males and females by comparing goals and feedback to performance sessions. Self-dissatisfied, but self-efficacious increased performance; inefficacious did not increase performance at all (Bandura & Cervone, 1983). “Goal systems gain motivating power through self-evaluation and self-efficacy is activated by cognitive comparison” (Bandura & Cervone, 1983, p. 1025).

The purpose of Lent, Brown, and Larkin’s (1986) study was to examine whether self-efficacy beliefs predict academic grades and retention. Two career educational planning courses of 105 students (75 men and 30 women) participated in three surveys: (a) a self-efficacy instrument using educational requirements of 15 major/career fields for technical/scientific areas (Lent et al., 1986), (b) Career Decision Scale (CDS; Osipow, 1980), and a (c) Self-Esteem Scale (R- SES) with reliability test-retest of .89, .70 and .90, and .85. A three-way repeated measures analysis of variance (Gender x Course Section x Pre-Post) was conducted and resulted in comparable self-efficacy for men and women, with no difference in course sections, and no significance in variation of time (Lent et al., 1986). The results of combining genders, courses, and pre-post using correlations analysis resulted in self-efficacy expectations relating to academic performance behavior and vocational interests and range of career options extending the vocational behavior studies of Betz and Hackett, 1981.

Perceived self-efficacy contributes to the development and behavior influenced by cognitive, motivation, affective, and selection processes (Bandura, 1993). The following paragraphs describe those processes.

Bandura (1993) described cognitive processes through ability, control, feedback, goals, and proactive motivation. Ability may be viewed as an inherent or acquirable skill. The ability to acquire a skill strengthens self-efficacy, where inherent is the limit of that capacity. As challenges or stress is perceived, a person views the situation as up to an inherent capacity, therefore lowering self-efficacy. A person believing in an acquirable skill will set goals and learn from mistakes and success. Efficacious people can resolve diverse environments with finding what they can control; non-eficacious people may feel they have no control in situations or environments. The importance of interpreting feedback of positive gains will increase self-efficacy; feedback viewed as not meeting goals undermines self-efficacy. Goal attainment and perception of those goals builds self-efficacy; personal goals not met will erode self-efficacy (Bandura, 1993).

Motivation is an important role in cognitive development. The process of forethought, receiving expected incentives and consequences, assists with growth of this process (Bandura, 1993). Setting goals and rewards spur on motivation of achievement. Efficacious people believe that failure to reach their achievement is related to unsatisfactory effort; inefficacious people ascribe failure as low ability (Bandura, 1993). Additionally, the ability to control conscious thought of self-efficacy allows perception of coping skills and avoidance of behavior.

Recognizing self-efficacy research may cover a wide range of individual people, populations and cultures; this study centers on college students. Collectively, studies in

teachers' self-efficacy, parental self-efficacy, and career self-efficacy have shown that building self-efficacy with authentic experiences of goal setting, coping, and reducing stress develops cognitive processes in learning and behavior (Bandura, 1993).

Over a 20 year period, over 202 self-efficacy researchers have been studying the relationship between self-efficacy and work-related performance. The purpose of reviewing these studies was to do a meta-analysis procedure developed by Hedges and Olkin (1985) to determine if there was a weighted average correlation between self-efficacy and work-related performance and heterogeneity of individual correlations (Stajkovic & Luthans, 1998). The methodology was to first have a moderator code and separate groups of studies after inclusion and exclusion criteria were met. For example, studies that used secondary data or that were not task specific with work-performance were eliminated. The study consisted of 114 studies with 21,616 participants. The overall result of the meta-analysis was that self-efficacy was found to be positively and strongly related to work performance (Stajkovic & Luthans, 1998). The larger implications from this study may be a foundation to build on the size of the contribution that self-efficacy has to action.

Colleges and universities have become more interested in students' self-efficacy and goal orientation because of increasing challenges in student retention. Hsieh, Sullivan, and Guerra's (2007) study on self-efficacy and goal orientation explores student attrition. Their study included 112 undergraduate students in a large public southwest university using the Patterns of Adaptive Learning Survey, or PALS (Midgley, Maecher, & Urdan, 1993) and Achievement Goal Orientation Inventory (Elliot & Church, 1997). The hypothesis included whether to determine students' scores on self-efficacy and each of the goal orientation scales' predicted achievement, and whether successful (2.0 GPAs and above) and

unsuccessful student (GPAs under 2.0 GPA) different in terms of self-efficacy levels? Sixty students in good standing and 52 students on probation were surveyed. The results related to the first hypothesis using simple correlations (mean and standard deviation) revealed that GPA was positively related to both self-efficacy ($r = .36, p < .01$) and mastery goal orientation ($r = .40, p < .01$). The results associated with the second hypothesis using an ANOVA shared that students self-efficacy judgments were higher for those in good standing ($M = 4.41, SD = .51$) than probation students ($M = 3.85, SD = .78$). Although adding to the literature with results that self-efficacy has been one of the strongest predictors of academic achievement (Bandura, 1997), there are many limitations with this study such as a single institution, number of participants, validity, and statistical analysis of variables.

Table 3 is an illustration of research articles associated with self-efficacy in the following categories: (a) researcher, (b) research, framework, and theory, (c) methodology, (d) analysis, and (e) results, discussion and future research. The purpose of constructing literature review tables is to observe development of patterns in research. For example, patterns may develop, such as defining self-efficacy, theory development with performance accomplishment, vicarious experiences, verbal persuasion, and psychological state, and statistical analysis of research.

Table 3.

Self-Efficacy

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Bandura (1977)	<p>Self-Efficacy Theory:</p> <ol style="list-style-type: none"> 1. Performance accomplishments 2. Vicarious Experiences (Modeling) 3. Verbal Persuasion 4. Psychological state (emotional) 				<p>Performance accomplishments by setting goals and achievement and setting new goals. Diverse modeling of behavior in diverse environments assists in reduction of anxiety. Verbal persuasion may assist in raised outcome expectations. Reduction of emotional states will raise self-efficacy of belief.</p> <p>Future research on theory will increase understanding between cognitive and behavioral change.</p>
Bandura & Cervone (1983)	Self-evaluation and self-efficacy)	N=90 45 men 45 women 20/20	Exometer task (fan bike) Survey of self-evaluation of goals 25 point and 14 point; survey of self-efficacy	Two-way variance	<ol style="list-style-type: none"> 1. Goals and performance feedback doubled goals alone and feedback alone. <p>"Goal systems gain motivating power through self-evaluation and self-efficacy activated by cognitive comparison." P. 1025</p> <p>Future research on motivators of action of the two self-reactive factors.</p>

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Lent, Brown & Larkin (1986)	Self-Efficacy (Bandura, 1977, 1982) Examine the utility of two different self-efficacy scales, and explored their construct validity by assessing their relation to career indecision and global self-esteem	N= 105 75 men 30 women	-Self-Efficacy for Technical/ Scientific Fields - Career Decision Scale (CDS)(Osipow, 1980) - Self-Esteem Scale (R-SES) (Rosenberg, 1965)	Three-Way repeated measures analysis (Gender X Course Selection X Pre-Post) Correlation analysis on two instruments. Correlations on self-efficacy, vocational interests and traditional predictors of academic success.	“The major findings of this study support and extend previous results showing that self-efficacy expectations are related to indices of academic performance behavior (Hackett & Betz, 1984) as well as vocational interests and range of perceived career options (Betz & Hackett, 1981, 1983). Hierarchical regression analyses indicated that self-efficacy does contribute significantly to the prediction of technical grades, persistence, and range of career options. (Lent, Brown, Larkin, 1986, p. 268) Future research to develop and test instruments on self-efficacy beliefs of career choice, adjustment, and achievement behavior.
Bandura (1993)	Perceived Self-Efficacy Cognitive, Motivational, Affective and Selection Process				Cognitive process through ability, control, feedback, goals, and proactive motivation. Ability viewed as inherent or acquirable skill; control over resolving situations and environments; setting goals and perception of feedback and being proactive with perceived rewards and consequences.
Maddux (1995)	Perceived Self-Efficacy Theory: Magnitude, Strength, and Generality			Symbolizing capabilities; behavior is purposive and goal-oriented, self-reflective; self-regulation; vicarious by observing capabilities; control	“Self-efficacy theory’s most important contribution to the body of research on perceived competence/control and psychological adaption and adjustment... determinants of mastery and control beliefs and the role of these beliefs...”(p.27)

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Bandura (1994)	Self-Efficacy			Sources of Self-Efficacy Beliefs Efficacy-Mediated Processes Adaptive Benefits of Optimistic Self-Beliefs of Efficacy Development and Exercise of Self-Efficacy Over the Lifespan	Perceived self-efficacy is concerned with people's belief in their capabilities to exercise control over their own functioning and over events that affect their lives. Beliefs in personal efficacy affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression. (p.12)
Bandura (1997)	Perceived Self-Efficacy Cognitive, Motivational, Affective and Selection Process			Self-efficacy Theory -Enactive Mastery Experience -Vicarious Experience -Verbal Persuasion -Physiological and Affective States -Integration of Efficacy Information	"By influencing the choice of activities and motivational level, beliefs of personal efficacy make an important contribution to the acquisition of the knowledge structure on which skills are founded." "Perceived self-efficacy occupies a pivotal role in the social cognitive theory because it acts upon other classes of determinants." (p. 35) Exploratory Decision Making and Fulfillment of Occupational Roles

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Stajkovic & Luthans (1998)	Self-Efficacy -Work Performance	114 studies K=157, N=21,616	Moderator, inclusion requirements and exclusion requirements over a 20 year period; 202 were reviewed in which 88 (43%) were eliminated (Example: excluded use of secondary data)	Meta-Analysis (Hedges and Olkin's meta-analytic procedures; 1985). Low, Medium, and High task complexity.	A result of meta-analysis is of relationship between self-efficacy and work-related performance and not as indicators of causal effects of self-efficacy on performance. Meaning- self-efficacy was found to be positively and strongly related to work-related performance. Future research on the nature and underlying mechanisms with self-efficacy and work performance.
Hsieh, Sullivan & Guerra (2007)	Self-Efficacy Goal Orientation	N= 112 60 Good standing 2.0 52 Probation	Two Sets: 6 items measuring self-efficacy Patterns of Adaptive Learning Survey (PALS); Achievement Goal Orientation Inventory (1997)	Internal reliability: coefficient alpha for self-efficacy .90; mastery .77; performance approach .83; performance-avoidance goals .72 Simple Correlations; mean, SD, and correlations among variables ANOVA conducted for two groups of students (independent variable) and self-efficacy, 2x2 MANOVA for variables; mastery, performance approach and avoidance	-GPA was positively related to both self-efficacy -Student's self-efficacy judgments were significantly higher for those who were in good academic standing. -Significant difference in goal adoption between the successful and unsuccessful students. - Students in good academic standing tended to endorse significantly more mastery goals for learning. - Even students on probation with high self-efficacy adopt more self-sabotaging goals for learning, the performance avoidance goals Future research on the "analysis of other student behaviors, attitudes, and perceptions that could impact technology use and system "success" within academia" (p. 37).

Career Decision-Making Self-Efficacy

Self-efficacy of career perceptions among males and females were studied using 20 traditional and non-traditional occupations from six themes of *Holland Codes* (Holland, 1985, 1992; Betz & Hackett, 1981). The purpose of this empirical study was to determine if male (101) and female (134) self-efficacy differences existed with regard to educational requirements and self-efficacy with regard to job duties of the occupation. Females' and males' cognitive abilities were similar in this study according to GPA comparison and the surveys were given in a first year psychology course at a large Midwestern university. The method of measuring relationships of sex and occupation was a chi-square analysis. One-way analyses of variance were used to examine sex differences and confidence of occupations. The results of the study suggested that women have lower self-efficacy with traditional male occupations such as engineering and math, while men's self-efficacy appears equal in traditional and non-traditional occupations. Another suggested result is that personal efficacy is related to the career choice process and those self-efficacy expectations on career development have "direct implications" (Betz & Hackett, 1981, p. 410).

The value of the *Career Decision Making Self-Efficacy* (CDMSE) scale is discussed in a study of 233 undergraduate students from introductory psychology and sociology courses at a large Midwestern university (Luzzo, 1993). This study is linked to Bandura's (1977) self-efficacy theory of expectations as an estimate of personal confidence in ability to successfully master a behaviorally specific task. Additionally, variables of career decision making skills, career decision making self-efficacy, age, gender, and grade point average were compared using Pearson product correlation coefficients, multiple regression analyses, and t-test for gender. The results suggested a link between CDMSES and the CDM process. However,

the findings questioned the CDM attitudes and skills in the comparison with GPA. The research also concluded that focusing on evaluating the effects of intervention of career decision making self-efficacy may need more exploration.

The development and evaluation of the short form of the CDMSE scale was the focus of a study with 184 participants in an introductory psychology class at a large Midwestern university in fall 1993. The purpose of the pre and post-test evaluation was to evaluate five subscales: (a) Accurate Self-appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, and (e) Problem Solving (Betz, Klein, & Taylor, 1996b). The short form eliminated five items out of 10 for each of the subscales which were built off the original construct of *Career Maturity Inventory* (Crites, 1978). Additionally administered were the *Career Decision Scale* (CDS) and the *My Vocational Situation* (MVS). The results of this study were a value of alpha for the short form of .94 and nearly .97 for the 50 item original scale. The coefficient alpha for the subscales were compared from short form to the original scale; they were as follows: (a) Self-Appraisal .73 and .88, (b) Gathering Occupational Information .78 and .89, (c) Goal Selection .83 and .87, (d) Planning for the Future .81 and .89, (e) Problem Solving .75 and .86 (Betz et al., 1996b). The results showed a comparable reliability between the short form and the original form. The significance of this study is that in a pre and post-test study the short form may be desirable for its utility of advising interventions and assessments (Betz et al., 1996b).

The strengths and weaknesses of the CDMSE scale were examined in a psychometric evaluation (Luzzo, 1996). The scale stems from Bandura's (1977) self-efficacy theory as a belief about an individual's own ability to successfully perform a given task or behavior. An internal consistent reliability of coefficient alpha value of .97 for the total

group of 346 participants in a study from Taylor and Betz (1983) was found. This article discussed the general acceptance of a general domain of career decision making task and behaviors in many studies including Robbins (1985) and Luzzo (1993). However, the weakness is that only college students have been examined with little attention to ethnicity with the CDMSE scale. Additional analysis of validity will enhance the acceptable foundation the scale is based on social cognitive theory, understanding, predicting, and changing human behavior.

The inquiry of self-assessments and career decision-making self-efficacy was first studied by Luzzo and Day (1999). The study was conducted with 99 participants (64 women and 35 men). The purpose of the study was to investigate and evaluate the *Strong Interest Inventory* (SII) effects on career decision-making self-efficacy using three groups; (a) SII and feedback, (b) SII, and (c) a control group of 25 college students in an orientation course. The hypothesis was based on the framework of Bandura's self-efficacy performance and verbal persuasion (Bandura, 1977). The results using the Tukey post hoc test revealed an absence in SII with feedback and the control group; however the analysis did reveal a significant difference in SII with feedback and SII alone. The importance of career intervention in treatment was confirmed as well as high satisfaction with the SII (Luzzo & Day, 1999).

A study investigating career development of women in male dominated careers (e.g. engineering and sciences) expanded the literature review of self-efficacy at college (Betz & Schifano, 2000). Fifty-four participants screened from a first year psychology course at a Midwestern public university took part in the study. The students were prescreened for a low level of self-efficacy according to the Realistic and Investigative Holland codes (1997).

Thirty students were in the control group with no intervention, while 24 participated voluntarily in three sessions of architecture, hardware, and hand tools as the intervention/treatment. A pre and post-test questionnaire combining the (a) *Skills Confidence Inventory* (SCI), (b) *Occupational Self-Efficacy Scale* (OSES), (c) *Realistic Interest*, and (d) *Bem Sex Role Inventory* (BSRI) was used as the instrument (Bem, 1974; Betz & Hackett, 1981). Using repeated-measures analysis and ANOVA, the data results showed significant increases in self-efficacy with women who attended the three sessions in the Realistic domain of Holland's (1997) vocational theory. For example, in Investigative Confidence, there was an increase of four times the change in the control group, from $M=2.9$ to $M= 3.26$ (a net of .36) compared to the control group of (.09). Intervention building self-efficacy may lead to increase women variety of careers (Betz & Schifano, 2000).

The use of Albert Bandura's (1977, 1997) self-efficacy in studies and practice in career advisor is summarized by identifying areas of low self-efficacy using CDMSE (Betz, et al, 1996b; Betz & Luzzo, 1996). This study addressed the students' needs for successful experiences, role models who have succeeded in similar challenges, management of anxiety, and encouragement of small steps (Betz, 2004). For example, a student who has difficulty choosing a major may be given the CDMSE which identifies interest in Holland's (1997) vocation theory code of Artistic, but the student may exhibit low self-efficacy of skill. The advisor can use examples from the students' past art experiences, an artist who may have struggled with confidence, or suggest managing anxiety by referring student to a member of the art faculty who could relate to student and encourage the student to take an art class. Research studies of self-efficacy over a period of twenty years continue to promote the connection between theory and practice (Betz, 2004).

Intervention with deciding students and major change was the focus of a small study hypothesizing whether a career development course increased career self-efficacy. The framework of the study was 99 participants; 30 in a career development course and 66 in a control group in an introduction to psychology course. The career course emphasized a cognitive information processing model (Reese & Miller, 2006). The CDMSE-SF and the *Career Decisions Difficulty Questionnaire (CDDQ)* were implemented in a pre and post-test. The results of ANOVA revealed significant statistical increases overall with students taking the career development course, $F(1,94) = 6.41, p = .02, \eta^2 = .07$ (Reese & Miller, 2006). Simplistically, the greatest improvement was the informational gathering during the class which used self-assessments; SII, MBTI, and SIGI as self-assessments.

Table 4 of Career Decision Self-Efficacy is an illustration of research articles in categories: (a) researcher, (b) research, framework, and theory, (c) methodology, (d) analysis, and (e) results, discussion and future research. The purpose of constructing literature review tables is to observe development of patterns in research. Table 4 of Career Decision Self-Efficacy gives the history of the development of theory, reliability, validity, application of instrument (CDSE-SF), and data analysis of research studies.

Table 4.

Career Decision Self-Efficacy

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Betz & Hackett (1981)	Self-efficacy of traditional and non-traditional roles (20 occupations used based on stats within 6 themes of Holland Codes)	n= 235 134 female 101 male Ohio State U. Psychology 101 class	Survey of occupations 1-10 scale of confidence; unsure (1) to completely sure (10) and interest and degree of interest like(1), indifferent (2) or dislike (3)	Chi-square analyses of the associated between sex and the percentage of yes response for each occupation	Results indicate significant and consistent sex differences in self-efficacy with regard to traditional and non-traditional occupations. Personal efficacy is related career choice process (p. 408) Future research on self-efficacy expectations abilities and interest. Additionally, types of occupations associated with low self-efficacy among women.
Luzzo (1993)	Career Decision Making Self-Efficacy, Career Decision Making attitudes (Crites, 1978) and Career Decision Making Skills	n-233 162 women 71 men Large mid-western community college (20-30 classroom setting in Intro to Psych and Sociology class	Survey of CDMSE (50 questions; no confidence (0)-complete confidence (9), CMI Attitude Scale (50 true/false), CDM skills 20 questions with four options	A Correlational Matrix of continuous variable. Person product-moment correlations.	Person product-moment correlation revealed significant, positive relationships between CDMSES scores and the assessments of CDM attitudes and age. Relationships were not found between CDMSES scores and CDM skills or GPA. (p.197) Future research to clarify the relationship of CDM self-efficacy, CDM process, and focus of interventions in career development and maturity.
Betz, Klein & Taylor (1996)	Career Decision-Making Self-Efficacy Scale (CDMSE-SF) evaluation between CDMSE 50 questions and short form of 25 questions in five subcategories	n=184 81 men 103 women Intro to Psych OSU	Pre-Post Survey	t-test (50 Q vs. 25 Q) Fishers' Z transformation (gender)	Findings suggest that the short form of the CDMSE possesses psychometric characteristics comparable to or better than long form with only half the length (p.54) The alpha value of .94 for the 25-item scale suggest, as did the value of .97 for the 50-item scale homogenous general construct. (p. 55) Future research to examine the correlations, consequences and counseling utility of the new short form.

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Luzzo (1996)	Career-Decision-Making Self-Efficacy Scale Bandura (1977, 1982, 1986)				Review of Studies (p. 277) Luzzo, 1993; Robbins, 1985; Taylor & Popma, 1990 assess reliability and validity of scale to clarify psychometric properties Strength of CDMSES is framework of social-cognitive theory and reliability. Weakness- college student survey and ethnicity Future research of the psychometric qualities with regard to validity and longitudinal studies.
Luzzo & Day (1999)	Strong Interest Inventory & Career Decision-Making Self-Efficacy	N=99 Men= 35 Women=64	1.SII & Feedback 2. SII completion only 3. Control group of 25	ANOVA, ANCOVA, TUKEY	Results showed that the key is intervention with assessment tool and feedback to build self-efficacy in career decision self-efficacy. Real change occurred between SII feedback and SII only in the Tukey Post Hoc Future research on changes in CDMSE, career beliefs, treatment (inventory) and feedback in career decision-making.

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Betz & Schifano (2000)	Bandura (1977, 1986) Holland (1997)	N=54 24 treatment women group. 30 control women group Treatment: 3 Sessions; Realistic Skills; Architecture, Hardware and Hand tools.	Pre-Post Test for control and treatment Introductory Psychology Class; Skills Confidence Inventory, Occupational Self-Efficacy Scale (Betz & Hackett, 1981), Realistic Interest, Bem Sex Role Inventory (BSRI; Bem, 1974	Repeated-Measures Analysis evaluating changes in confidence, interest, and occupational self-efficacy over time and as a function of the treatment group ANOVA used to examine posttest statistical differences in instrumentality.	The results of the study were self-efficacy expectations of college women with respect to the Realistic domain of Holland's (1997) vocational theory could be significantly increased with a 7-h intervention designed to include the four sources of efficacy information (Bandura, 1977, 1986) p. 47 "The posttest mean of 3.45 can also be compared to with the mean of 2.9 in the normative sample of 445 college women. In Investigative Confidence, the change in the experimental group, from M=2.9 to M=3.26 (a net of .36) was 4 times the change of the control group (.09)." p. 44. Future research on specific and general effects of intervention based on Bandura's self-efficacy theory is needed.
Betz (2004)	Bandura (1977, 1986) Efficacy Information; performance accomplishments, vicarious learning (modeling), emotional arousal (anxiety), and social persuasion and encouragement				Graphic Depiction of Bandura's (1977, 1997) Model of Self-Efficacy Expectations Step 1: Initial Discussion and Assessment Step 2: Counseling Interventions Success Experiences, Modeling, anxiety management, cheerleading Future development of skill building of self-efficacy

Table continues

Researcher(s)	Research/ Framework/ Theory	Participants	Methodology	Analysis	Results/ Discussion
Reese & Miller (2006)	Career Development Course: Cognitive Information Processing Career Decision-Making Self-Efficacy	N=99 30 in Career Course and 66 Control group in Intro to Psychology 12 men 18 women	Pre-Post CDMSE-SF & Career Decisions Difficulties Questionnaire (CDDQ)	ANOVA between groups of change	Results showed a large gain in the career course vs. control group of total CDMSE Future research on career course theory, intervention, process, and mechanisms in class on outcome assessment.

CHAPTER 3

METHODOLOGY

The purpose of this study was to analyze the impact of *Career Cruising*© on self-efficacy of deciding majors in a university setting. The use of the self-assessment instrument, *Career Cruising*©, was used while measuring the career-decision making self-efficacy in a pre and post-test with deciding students. The independent variables of this study were the *Career Cruising*©, self-assessment instrument, gender, age, ethnic background, year in college, GPA, generation of education, and involvement. The dependent variables were the levels of self-efficacy in the five subscales of pre and post-test results. Those subscales included Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving.

This chapter will introduce the research design, participants, setting, instrumentation, procedure for data collection, and treatment of data. The research design will discuss the pre and post quantitative structure chosen to answer the research questions. The participant section will discuss the characteristics of deciding majors at the University of Northern Iowa. The setting section will describe the environment of the study and institution. The instrumentation section will address the *Career Decision Self-Efficacy- Short Form* (CDSE-SF) *Scale*, subscales, validity and reliability of the scale. Additionally, the independent self-assessment tool *Career Cruising*© will be discussed in instrumentation section. The procedure of data collection section will outline how data were obtained from the participants. The treatment of the data section will detail the various methods of analysis used on data collected.

Research Design

The research design for this study is based on the research questions:

H_0 : A college student's self-efficacy will not change as a result of using *Career Cruising*©.

H_1 : A college student's self-efficacy will change as a result of using *Career Cruising*©.

The nature to measure any empirical change in numerical data defines the research design as a quantitative study. Quantitative research aims to classify variables, calculate them, and analyze statistic models to explain what is observed in a controlled environment (Creswell, 2008); where qualitative research aims to “understand how people interpret their experience, how they construct their worlds, and what meaning they attribute to their experiences” (Merriam, 2009, p. 5). Additionally, the design is based on the “characteristics of research” question (Mitra & Lankford, 1999, p.48) and the “types of qualitative research” (Merriam, 2009, p. 38). A quantitative study is most appropriate for the research questions of investigating the possible nominal difference of self-efficacy of deciding majors.

Participants

The participants for this study were first-year deciding majors assigned to the Office of Academic Advising (www.uni.edu/advising) at the University of Northern Iowa (UNI). Students who are deciding majors are one of 120 majors, minors, and certificates offered at UNI. This study consists of a randomly selected experimental group of 125 students taking the pre-test CDSE-SF, the self- assessment, *Career Cruising*©, and meeting with their academic advisor, and then completing the post-test CDSE-SF. This study also consists of a randomly selected control group of 125 students taking the pre-test CDSE-SF, meeting with their academic advisor, and then completing the post-test CDSE-SF. The researcher

discovered that 25 deciding majors declared a new major leaving the experimental group with 115 students and the control group with 110. The following diagram illustrates the participant and quantitative study:

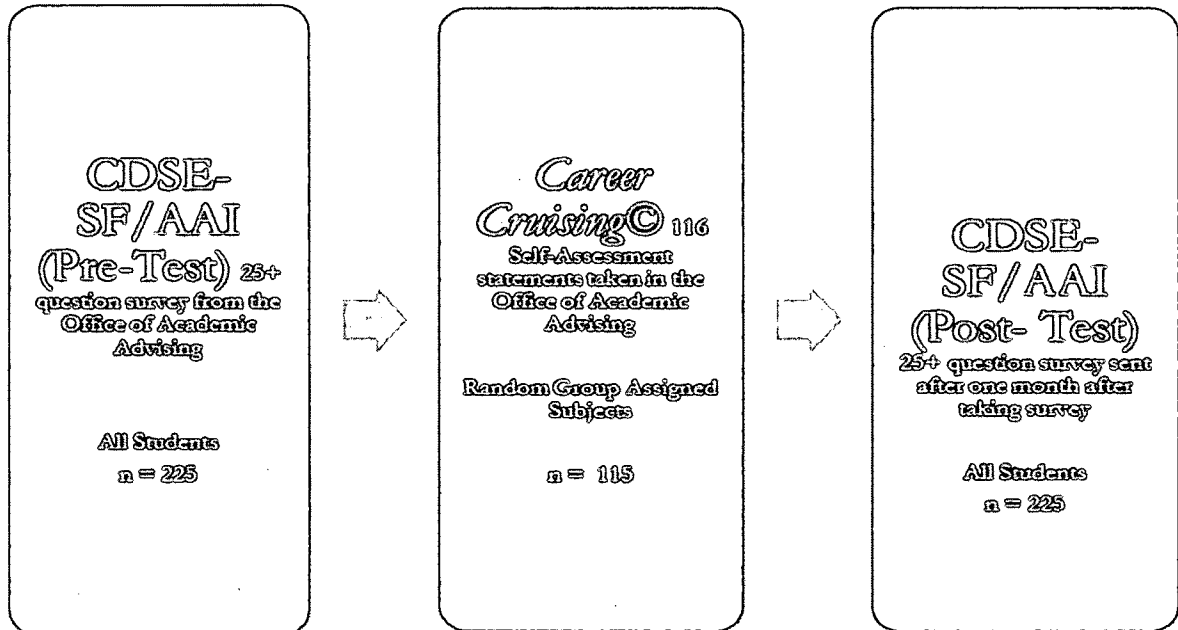


Figure 4. Process of Study: Deciding majors self-efficacy before and after using *Career Cruising©*.

The assignment to academic advisors was random during summer orientation and students will be randomly selected by computer using a random excel function multiplier and then split into two groups using an even and odd number within a modular function from the Office of Academic Advising access of deciding major student information system email.

Participants were asked to fill out an informed written consent form and the survey instrument was approved by the Institutional Research Board.

Setting

The University of Northern Iowa (UNI) is a public comprehensive university of 13,201 students (Fall, 2010) with a rich tradition of undergraduate teacher education in Cedar Falls, IA. The history of UNI began as a Normal School (1876) and continues to evolve its' service to the citizens of Iowa. The University also provides opportunities in several master's and doctorate level degrees.

Academic advising at UNI is a split model (Gordon et al., 2008; Habley, 1983) working with students who may be divided amid faculty, college advising, and a central advising office for intake and deciding/exploratory students. The College of Education and College of Business have professional advising offices for their major students. Additionally, there are professional advisors in the athletic department, biology department, industrial technology department, and the School of Health, Physical Education, and Leisure, Youth and Human Services.

The Office of Academic Advising (www.uni.edu/advising) has seven professional advisors, one graduate student, one administrative assistant, nine peer advisors in residence (PAIR Program) and four desk assistants emphasizing Appreciative Advising (Bloom et al., 2008) in an intake model working with biology, communication, criminology, deciding/exploratory, geography, history, political science, pre-nursing, and transfer deciding majors. The Intake Model represents professional advisors working with 1,188 first year majors and transitioning students to assigned faculty advisors in their second year. There are

553 deciding majors working with advisors. All professional advisors have bachelor and master's degree with a combined experience of 76 years (www.uni.edu/advising).

Instrumentation

The *Career Decision Self-Efficacy- Short Form* (CDSE-SF; Betz et al., 1996a) consists of a 25 item measure of self-efficacy building on two theories; Crites's (1978) *Career Maturity Inventory* and Bandura's (1977) self-efficacy theory. The items consist of five subscales: (a) Accurate Self-Appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, and (e) Problem Solving (Crites, 1978). The CDSE-SF consists of a five-level confidence continuum (ranging from 1 = No Confidence to 5 = Complete Confidence (See Appendix A). Extensive work with the CDSE-SF has demonstrated strong reliability and validity (Betz, Hammond, & Multon, 2005).

Analytic evidence in studies of the five subscales has demonstrated a general career decision self-efficacy dimension (Betz & Klein, 1996; Taylor & Popma, 1990). The Alpha for internal consistency for the CDSE-SF has ranged from .93 to .95 (Betz & Luzzo, 1996). Luzzo's (1996) research confirms stability in a six week test-retest study with a coefficient of .83. Comparing the original *Career Decision Self-Efficacy* scale of a 50 item form with 10 level confidence continuum with an internal consistence of reliability, the coefficient (alpha) ranged from .86 to .89 for the subscales and .97 for the total score (Taylor & Betz, 1983). In the original 50 item form with 10 level confidence continuum, the subscale coefficients were (a) Accurate Self-Appraisal .73, (b) Gathering Occupational Information .78, (c) Goal selection .83, (d) Planning for the Future .81, and (e) Problem Solving .75. The total for the original short form was alpha of .94 (Betz, Hammond, & Multon, 2005). Comparatively, Paulsen (2001) and Smith (2001) did studies with 603 and 423 participants respectively on

the five level continuum (Appendix A) resulting in the following alpha values of (a) Accurate Self-appraisal (.81 and .81), (b) Gathering Occupational Information (.82 and .82), (c) Goal Selection (.84 and .87), (d) Planning for the Future (.84 and .82), and (e) Problem Solving (.80 and .81) (Betz et al., 2005). See Table 5 for internal consistencies.

There is extensive research supporting the validity data on subscales (Betz & Luzzo, 1996), including independent characteristics of career maturity, career exploration, career indecisions and occupational commitment. Taylor and Popma (1990) stated, “CDSE can be best characterized as a generalized career self-efficacy measure” (1990, p.28).

The CDSE-SF had one item revised in 2006. The purpose for the change was to update the “Find information in the library about occupations you are interested in” to “Use the Internet to find information about occupations that interest you” (Betz, Hammond, & Multon, 2005). A subsequent study of item correlation from new to original was .54 and .50; and Cronbach’s Alpha for the CDSE-SF for the new item was .96.

The researcher received written permission from Dr. Nancy Betz, Emeritus Professor of Psychology, The Ohio State University, to use the CDSE-SF. Clarification of “Career Decision-Making” use prior to 2005 is due to a trade mark. Therefore, this study will use Career Decision Self-Efficacy referencing materials after 2005 (Betz et al., 2005).

The data will be scored using the following instructions from the instrument:

Table 5.

Means for 5-level Likert response continuum – CDMSE-SF

Subscale	Paulsen, 2001 (N=603)		Smith (2001) N=423			Alpha
	M	SD	Alpha	M	SD	
Accurate Self-Appraisal	4.0	.64	.81	4.0	.64	.81
Gathering Organizational Information	4.1	.64	.82	4.1	.64	.82
Goal Selection	3.9	.73	.84	3.8	.77	.87
Planning for the Future	3.9	.70	.84	3.9	.70	.82
Problem Solving	3.8	.67	.80	3.8	.67	.81
Total Score (25 items)	3.9	.61	.95	3.9	.60	.95

Note. Means were calculated by totaling the five items for each subscale and then dividing by 5 to get the average response per item. The 25 item total was determined by cumulating all 25 items responses and dividing by 25.
(Source: Betz et al., 2005)

Procedure for Data Collection

The procedure for data collection explains the steps for permission and gathering data for this quantitative study. First, permission was granted for the study with deciding majors by the Director of the Office of Academic Advising. Then, permission has been granted for the use of the instrument of CDSE-SF (Betz et al., 1996a) and the treatment, *Career Cruising*©. Data collection began after having been approved by Institutional Review Board. Academic Advisors administering and explaining the study, instrument, and treatment and completed the online course through UNI in Human Subjects Protections hosted by the Collaborative Institutional Training Initiative (CITI), based at the University of Miami. Additionally, a written consent form was given to those students participating in the study. Participation was voluntary.

This study contains 125 experiment group participants and 125 control group participants declared as deciding majors in the Office of Academic Advising. Participants

were randomly selected by computer using a random excel function multiplier and then split into two groups using an even and odd number within a modular function for the experimental and control groups.

The steps to gather the data consists of the following:

1. Introductory email sent through SurveyMonkey® approved by the Institutional Research Board distribution of the CDSE-SF questionnaire.
2. Students choosing to participate will need to sign a consent form (see Appendix E).
3. Administer the pre-test: CDSE-SF (see Appendix A) through SurveyMonkey®. Estimated time is 10 minutes to complete.
4. Experimental group completes a 116 statement self-assessment from *Career Cruising*® (<http://public.careercruising.com/us/en>.)
5. Academic Advising appointment for all participants.
6. Academic Advisor clarifies and interprets results of self-assessment for experimental group.
7. Administer the post-test CDSE-SF through SurveyMonkey®.

Treatment of Data

The data will be analyzed using a paired t-test and Chi-square after using the CDSE-SF (Betz et al., 1996b) and the treatment of *Career Cruising*® to determine if there was a change in self-efficacy overall and in the subscales: (a) Accurate Self-Appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, and (e) Problem Solving. The paired t-test is performed to measure any change in a pre and post-test in comparable subscales (Huck, 2008). This is consistent with studies using the CDSE-SF as the instrument in other pre and post-test (Betz et al., 1996a; Betz & Schifano, 2000; Reese & Miller, 2006). The Chi-Square test is used to understand the demographics as measured nominally and scores on the test of participants (Mitra & Lankford, 1999).

The 25 items are distributed among five subscales, as indicated on the scoring key. Each subscale score is the sum of the responses given to the five items on that subscale; this

sum is divided by 5 to return the score to the units of the response continuum. Tables 6-10 represent the questions in each subscale of CDSE-SF for clarification of the instrument (see Appendix A).

Table 6

Accurate Self-Appraisal Subscale

Question 5	Accurately assess your abilities.
Question 9	Determine what your ideal job would be.
Question 14	Decide what you value most in an occupation.
Question 18	Figure out what you are and are not ready to sacrifice to achieve your career goals.
Question 22	Define the type of lifestyle that you would like to live.

Table 7

Gathering Occupational Information Subscale

Question 1	Use the Internet to find information about occupations that interest you.
Question 10	Find out the employment trends for an occupation over the next ten years.
Question 15	Find out about the average yearly earnings of people in an occupation.
Question 19	Talk with a person already employed in the field you are interested in.
Question 23	Find information about graduate and professional schools.

Table 8

Goal Selection Subscale

Question 2	Select one major from a list of potential majors you are considering.
Question 6	Select one occupation from a list of potential occupations you are choosing.
Question 11	Choose a career that will fit your preferred lifestyle.
Question 16	Make a career decision and then not worry about whether it was right or wrong.
Question 20	Choose a major or career that will fit your interests.

Table 9

Planning for the Future Subscale

Question 3	Make a plan of your goals for the next five years.
Question 7	Determine the steps you need to take to successfully complete your chosen major
Question 12	Prepare a good resume
Question 21	Identify employers, firms, and institutions relevant to your career possibilities.
Question 24	Successfully manage the job interview process.

Table 10

Problem Solving Subscale

Question 4	Determine the steps to take if you are having academic trouble with an aspect of your chosen major.
Question 8	Persistently work at your major career goal even when you get frustrated.
Question 13	Change majors if you did not like your first choice.
Question 17	Change occupations if you are not satisfied with the one you enter.
Question 25	Identify some reasonable major or career alternatives if you are unable to get your first choice.

Total Score = Sum of all 25 items/25.

(Source: Betz & Klein, 1996; Betz, Hammond, & Multon, 2005)

Summary

The purpose of this study was to analyze the impact of *Career Cruising*© on self-efficacy of deciding majors in a university setting. The research design was a quantitative method. The potential participants were 250 deciding majors. The setting was with the Office of Academic Advising at the University of Northern Iowa. The instrument was the CDSE-SF used in a pre and post-test methodology (Betz et al., 1996a). The procedure for data collection was through SurveyMonkey® of the CDSE-SF questionnaire with Institutional Research Board approval. The treatment of a the data was analyzed using a paired t-test to measure any differences in mean scores and a Chi-square to understand the demographics as measured nominally (Huck, 2008).

CHAPTER 4

RESULTS

The purpose of this study was to analyze the impact of *Career Cruising*© on self-efficacy of deciding students in a university setting. The use of the self-assessment instrument, *Career Cruising*©, was used in measuring the career-decision self-efficacy in a pre and post-test with deciding students. The independent variables are the *Career Cruising*©, self-assessment instrument, gender, age, ethnic background, year in college, GPA, generation of education, and involvement. The dependent variables are the levels of self-efficacy in the five subscales of pre and post-test results. Those subscales include Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving.

This chapter presents the study results of demographic variables of the sample, interpretation of the descriptive statistics gathered through the CDSE-SF, Cronbach's alpha coefficient to determine internal reliability, and interpretation of descriptive statistics of five subscales of self-efficacy: (a) Accurate Self-Appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, and (e) Problem Solving. This study reports a paired t-test on the pre and post-test of the experimental group and control group with the CDSE-SF and subscales. The results of independent t-tests are reported with the experimental group and control group efficacy findings.

Data Collection

There were 250 deciding majors assigned in the Office of Academic Advising in January 2012 of the spring semester. The experimental and control group were randomly

selected using a random excel function multiplier and then split into two groups using an even and odd number within a modular function. The selection process also provided information that 25 students had declared new majors in between January and the collection of data in March. There were 225 students identified as possible participants in the study. After distribution of the CDSE-SF and collection of questionnaires through SurveyMonkey® approved by the Institutional Research Board, 105 deciding majors completed the pre-test CDSE-SF questionnaires for a return rate of 47%. In the control group, 41 out of 110 students completed the pre-test with a return rate of 37%. The experimental group had 64 out of 115 students complete the pre-test, providing a return rate of 56%.

The post-test of the CDSE-SF was distributed one month after the pre-test to allow students in the control group to attend their advising meeting with their assigned advisor in the Office of Academic Advising and the experimental group the opportunity to take the *Career Cruising*© self-assessment and meet with their advisor. The control group had 27 out of 41 students complete the post-test for a completion rate of 66%. The experimental group had 46 out of 64 students complete the post-test for a completion rate of 72%. In all, there was a total of 73 deciding majors that completed both the pre-test and post-test, providing a return rate of 70%.

Descriptive Statistics

There were 50 female (68%) and 23 male (32%) students that completed the CDSE-SF questionnaires. The ethnicity of the respondents was 68 Caucasian (93%), one African-American (1%), two Hispanic (3%), and two Asian, Pacific Island (3%). The sample is representative of the ethnicity of the University of Northern Iowa. The sample population

were new students to the university coming from high school who had declared a deciding major. However, 22% of the participants earned sophomore standing with greater than 30 credits. Participants reported grade point average; the results indicated that 65% were above a 3.0 GPA; 29% (4.00-3.50), 36% (3.49-3.00), 26% (2.99-2.50), 3% (2.49-2.00), and 6% (below 2.0). Twenty-four students (33%) reported that they were first-generation students (parent never attended college); 49 students (67%) reported having parents that attended college.

Forty-three students (59%) reported not working (i.e. employment) during the semester. Students who reported hours worked per week may be found in Table 11. Forty-eight students (66%) indicated not volunteering during the semester. Student who reported hours per week volunteering may be found in Table 12. Forty-eight students (66%) reported participating in extracurricular activities (i.e., intramural sports, clubs, and groups); 25 students (34%) reported that they did not participate in extracurricular activities.

Table 11

Hours worked a week

Hours	Number of Students	Percent of Sample
None	43	59%
1-5	2	3%
6-10	14	19%
11-15	6	8%
16-20	7	10%
31+	1	1%

Table 12

Volunteer Hours

Hours	Number of Students	Percent of Sample
None	48	66%
1-5	21	29%
6-10	3	4%
11-15	1	1%

Paired t-test on Experimental Group Pre-Test and Post-Test of CDSE-SF

A paired-samples t-test was calculated to compare the experimental group mean pre-test score to the post-test mean score. The purpose of the paired t-test was to compare the experimental group pre-test and post-test means for any statistical difference (Huck, 2008). Table 13 represents the interpretation of statistics from the CDSE-SF questionnaire for the experimental group completing *Career Cruising*©.

A paired samples t-test was calculated for the experimental group to compare the pre-test mean to the post-test mean. The mean on the pre-test of the question “Determine the steps to take if you are having academic trouble with an aspect of your chosen major” was ($M = 3.33, SD = .73$) and the post-test mean was ($M = 3.80, SD = .69$). A significant difference from the pre-test to the post-test results was found ($t(45) = -3.55, p < .05$). The results indicated an increase in perceived self-efficacy.

The mean on the pre-test of the question “Determine what your ideal job would be” was ($M = 3.22, SD = 1.01$) and the post-test mean was ($M = 3.57, SD = 1.11$). A significant

difference from the pre-test to the post-test results was found ($t(45) = -2.036, p < .05$). The results indicated an increase in perceived self-efficacy.

The mean on the pre-test of the question “Prepare a good resume” was ($M = 2.96, SD = .82$) and the post-test mean was ($M = 3.33, SD = .80$). A significant difference from the pre-test to the post-test results was found ($t(45) = -2.95, p < .05$). The results indicated an increase in perceived self-efficacy.

The mean of the pre-test of the question “Make a career decision and then not worry about whether it was right or wrong” was ($M = 2.89, SD = .80$) and the post-test mean was ($M = 3.24, SD = .93$). A significant difference from the pre-test to the post-test results was found ($t(45) = -2.63, p < .05$). The results indicated an increase in perceived self-efficacy.

The mean of the pre-test of the question “Select one major from a list of potential majors you are considering” was ($M = 3.5, SD = .76$) and the post-test mean was ($M = 3.74, SD = .74$). A difference from the pre-test to the post-test results was found ($t(45) = -1.76, p < .10$). The results indicated an increase in perceived self-efficacy.

The mean of the pre-test of the question “Select one occupation from a list of potential occupations you are choosing” was ($M = 3.39, SD = .95$) and the post-test mean was ($M = 3.63, SD = .90$). A difference from the pre-test to the post-test results was found ($t(45) = -1.71, p < .10$). The results indicated an increase in perceived self-efficacy.

In addition, the experimental group results with 18 of the 25 questions had positive differences, as shown in Table 13. There were two questions in which no change occurred: (a) “Decide what you value most in an occupation” and (b) “Talk with a person already employed in the field you are interested in.

Table 13

Paired t-test on Experimental Group Pre-Test and Post-Test of CDSE-SF

Question	n	Pre-Test CDSE-SF		Post-Test CDSE-SF		t-value	df	p
		M	SD	M	SD			
1. Internet Info	46	4.00	.76	3.83	.80	1.942	45	.058
2. One Major	46	3.50	.86	3.74	1.04	-1.756	45	.086
3. Plan goals	46	3.26	.93	3.46	.94	-1.459	45	.152
4. Determine steps	46	3.33	.73	3.80	.69	-3.554	45	.001*
5. Assess Abilities	46	3.65	.77	3.76	.79	-.927	45	.359
6. One occupation	46	3.39	.95	3.63	.90	-1.712	45	.094
7. Steps major	46	3.65	.82	3.76	.87	-.842	45	.404
8. Work goal	46	4.07	.74	4.02	.80	.286	45	.776
9. Ideal Job	46	3.22	1.01	3.57	1.11	-2.036	45	.048*
10. Ten years	44	3.16	.81	3.30	.88	-1.000	43	.323
11. Lifestyle career	46	3.57	.98	3.54	1.05	.147	45	.883
12. Resume prep	45	2.96	.82	3.33	.80	-2.945	44	.005*
13. Change majors	46	3.50	.81	3.61	1.00	-.726	45	.472
14. Decide value	46	3.67	.76	3.67	.90	.000	45	1.000
15. Earnings yearly	45	3.78	.88	3.82	.81	-.340	44	.736
16. Career Decision	45	2.89	.80	3.24	.93	-2.626	44	.012*
17. Change occupations	46	3.20	.81	3.41	.81	-1.430	45	.160
18. Figure what	46	3.37	.68	3.50	.78	-1.030	45	.309
19. Talk field	46	3.83	.85	3.83	.85	.000	45	1.000
20. Choose a major	46	3.70	.99	3.76	.90	-.503	45	.617
21. Identify employ	46	3.41	.81	3.57	.81	-1.155	45	.254
22. Define lifestyle	46	4.00	.84	3.78	.96	1.430	45	.160
23. Grad schools	45	3.44	.87	3.53	.89	-.662	45	.511
24. Interview process	46	3.33	.99	3.37	.83	-.265	45	.793
25. Identify second	46	3.48	.84	3.43	.78	.321	45	.749

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Paired t-test on Control Group Pre-Test and Post-Test CDSE-SF

A paired-samples t-test was calculated to compare the control group mean pre-test score to the post-test mean score. The purpose of the paired t-test was to compare the control group pre-test and post-test means for any difference (Huck, 2008). Table 14 represents the interpretation of statistics by CDSE-SF questionnaire for the control group completing academic advising, but without *Career Cruising*©.

A paired samples t-test was calculated for the control group to compare the pre-test mean to the post-test mean. The mean on the pre-test of the question “Select on major from a list of potential majors you are considering” was ($M = 3.19, SD = .92$) and the post-test mean was ($M = 3.56, SD = .97$). A significant difference from the pre-test to the post-test results was found ($t(26) = -2.08, p < .05$). The results indicated an increase in perceived self-efficacy.

The mean on the pre-test of the question “Identify some reasonable major or career alternatives if you are unable to get your first choice” was ($M = 3.37, SD = .93$) and the post-test mean was ($M = 3.70, SD = .95$). A significant difference from the pre-test to the post-test results was found ($t(26) = -2.08, p < .05$). The results indicated an increase in perceived self-efficacy.

Table 14

Paired t-test on Control Group Pre-Test and Post-Test CDSE-SF

Question	n	Pre-Test CDSE-SF		Post-Test CDSE-SF		t-value	df	p
		M	SD	M	SD			
1. Internet Info	27	4.00	.78	3.67	.88	1.975	26	.059
2. One Major	27	3.19	.92	3.56	.97	-2.078	26	.048*
3. Plan goals	27	3.22	.93	3.41	.84	-.895	26	.379
4. Determine steps	27	3.48	.75	3.41	.84	.465	26	.646
5. Assess Abilities	27	3.89	.75	3.81	.88	.465	26	.646
6. One occupation	27	3.37	.88	3.44	.80	-.527	26	.602
7. Steps major	27	3.81	.92	3.78	.93	.205	26	.839
8. Work goal	27	3.78	1.09	4.07	.78	-1.442	26	.161
9. Ideal Job	27	3.56	1.05	3.63	1.08	-.328	26	.746
10. Ten years	27	3.04	1.13	3.41	1.15	-1.586	26	.125
11. Lifestyle career	27	3.74	.94	3.81	.92	-.420	26	.678
12. Resume prep	27	2.85	.99	3.15	1.06	-1.494	26	.147
13. Change majors	27	3.59	.80	3.85	.99	-1.568	26	.129
14. Decide value	27	3.93	.73	3.93	.87	.000	26	1.000
15. Earnings yearly	27	3.85	.77	3.67	.88	1.308	26	.202
16. Career Decision	27	2.85	.91	3.26	.86	-1.893	26	.070
17. Change occupations	27	3.41	.93	3.59	.97	-.926	26	.363
18. Figure what	27	3.48	.75	3.56	.97	-.440	26	.663
19. Talk field	27	3.67	.88	3.81	.96	-.779	26	.443
20. Choose a major	27	3.89	.85	3.89	.93	.000	26	1.000
21. Identify employ	27	3.33	.88	3.56	.85	-1.140	26	.265
22. Define lifestyle	27	4.33	.68	4.04	.76	2.126	26	.043*
23. Grad schools	27	3.44	.89	3.44	1.09	.000	26	1.000
24. Interview process	27	3.48	.85	3.41	1.05	.465	26	.646
25. Identify second	27	3.37	.93	3.70	.95	-2.082	26	.047*

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

CDSE-SF Subscales

The results of the paired t-test of the experimental group were then calculated with the five subscales of the CDSE-SF. Tables 15-19 include the following subscales: (a) Accurate Self-Appraisal, (b) Gathering Occupational Information, (c) Goal Selection, (d) Planning for the Future, and (e) Problem Solving. This is consistent with studies using the CDSE-SF as the instrument in other pre/post-test studies (Betz et al., 1996b, Betz & Schifano, 2000).

Table 15

Accurate Self-Appraisal Subscale- Paired t-test Results on Experimental Group Pre-Test and Post-Test of CDSE-SF

		<i>n</i>	Pre-Test		Post-Test		<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Question 5	Accurately assess your abilities.	46	3.65	.77	3.76	.79	.359
Question 9	Determine what your ideal job would be.	46	3.22	1.01	3.57	1.11	.048*
Question 14	Decide what you value most in an occupation.	46	3.67	.76	3.67	.90	1.000
Question 18	Figure out what you are and are not ready to sacrifice to achieve your career goals.	46	3.37	.68	3.50	.78	.309
Question 22	Define the type of lifestyle that you would like to live.	46	4.00	.84	3.78	.96	.160

*Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.*

Table 16

Gathering Occupational Information Subscale- Paired t-test Results on Experimental Group Pre-Test and Post-Test of CDSE-SF

		<i>n</i>	Pre-Test		Post-Test		<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Question 1	Use the Internet to find information about occupations that interest you.	46	4.00	.76	3.83	.80	.058
Question 10	Find out the employment trends for an occupation over the next ten years.	46	3.16	.81	3.30	.88	.323
Question 15	Find out about the average yearly earnings of people in an occupation.	45	3.78	.88	3.82	.81	.736
Question 19	Talk with a person already employed in the field you are interested in.	46	3.83	.85	3.83	.85	1.000
Question 23	Find information about graduate and professional schools.	45	3.44	.87	3.53	.89	.511

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Table 17

Goal Selection Subscale- Paired t-test Results on Experimental Group Pre-Test and Post-Test of CDSE-SF

		<i>n</i>	Pre-Test		Post-Test		<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Question 2	Select one major from a list of potential majors you are considering.	46	3.50	.86	3.74	1.04	.086
Question 6	Select one occupation from a list of potential occupations you are choosing.	46	3.39	.95	3.63	.90	.094
Question 11	Choose a career that will fit your preferred lifestyle.	46	3.57	.98	3.54	1.05	.883
Question 16	Make a career decision and then not worry about whether it was right or wrong.	45	2.89	.80	3.24	.93	.012*
Question 20	Choose a major or career that will fit your interests.	46	3.70	.99	3.76	.90	.617

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Table 18

Planning for the Future Subscale- Paired t-test Results on Experimental Group Pre-Test and Post-Test of CDSE-SF

		<i>n</i>	Pre-Test		Post-Test		<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Question 3	Make a plan of your goals for the next five years.	46	3.26	.93	3.46	.94	.152
Question 7	Determine the steps you need to take to successfully complete your chosen major	46	3.65	.82	3.76	.87	.404
Question 12	Prepare a good resume	45	2.96	.82	3.33	.80	.005*
Question 21	Identify employers, firms, and institutions relevant to your career possibilities.	46	3.41	.81	3.57	.81	.254
Question 24	Successfully manage the job interview process.	46	3.33	.99	3.37	.83	.793

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Table 19.

Problem Solving Subscale- Paired t-test Results on Experimental Group Pre-Test and Post-Test of CDSE-SF

		<i>n</i>	Pre-Test		Post-Test		<i>p</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Question 4	Determine the steps to take if you are having academic trouble with an aspect of your chosen major.	46	3.33	.73	3.80	.69	.001*
Question 8	Persistently work at your major career goal even when you get frustrated.	46	4.07	.74	4.02	.80	.776
Question 13	Change majors if you did not like your first choice.	46	3.50	.81	3.61	1.00	.472
Question 17	Change occupations if you are not satisfied with the one you enter.	46	3.20	.81	3.41	.81	.160
Question 25	Identify some reasonable major or career alternatives if you are unable to get your first choice.	46	3.48	.84	3.43	.78	.749

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Experimental Group Paired t-test Results Associated with CDSE-SF Subscales

A paired t-test comparing the mean scores of the experimental groups pre-test and post-test subscales found a significant difference between the means of the pre and post-test in the Goal Selection subscale ($t(45) = -2.24, p < .05$). The mean of the post-test score in the Goal Selection subscale was significantly higher ($M = 3.58, SD = .85$) than the pre-test mean score ($M = 3.35, SD = .74$). Additionally, the paired t-test comparing the mean score results of the pre and post-test in Planning for the Future subscale found a difference between the means $t(45) = -1.94, p < .10$. The mean of the post-test score in the Planning for the Future was higher ($M = 3.50, SD = .61$) than the pre-test mean score ($M = 3.32, SD = .62$). Table 20 outlines the self-efficacy results for all the subscales from pre to post-test of the CDSE-SF.

Table 20

Experimental Group Paired t-test Results Associated with CDSE-SF Subscales

Index	n	Pre-Test CDSE-SF		Post-Test CDSE-SF		t-value	df	p
		M	SD	M	SD			
Accurate Self-Appraisal	46	3.58	.60	3.66	.81	-.692	45	.493
Gathering Occupational Information	46	3.64	.60	3.67	.68	-.327	45	.746
Goal Selection	46	3.35	.74	3.58	.85	-2.244	45	.030*
Planning for the Future	46	3.32	.62	3.50	.61	-1.939	45	.059
Problem Solving	46	3.51	.50	3.66	.65	-1.441	45	.157

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Independent t-test Results of Experimental and Control Groups Post-Test Associated with the CDSE-SF

An independent t-test was performed with the experimental and control group for the post-tests mean scores with the CDSE-SF questionnaire. In addition, a difference variable was constructed between the pre and post-test variables. The purpose of the difference variable was to examine and interpret the statistics with minimal bias of the sample. Those who received *Career Cruising*© ($M = 3.80, SD = .69$) had a significant increase in self-efficacy with “Determining the steps to take if having academic trouble with an aspect of their chosen major”, compared to those who did not receive *Career Cruising*© ($M = 3.41, SD = .84$), $t(71) = 2.19, p < .05, d = .52$. This finding was supported by an independent t-test on the difference variable taking *Career Cruising*© ($M = .48, SD = .91$) and those participants in the control group post-test ($M = -.07, SD = .83$), $t(71) = 2.58, p < .05, d = .63$.

The results of the independent t-test comparing the experimental and control group associated with CDSE-SF indicates minor increases in 10 out of 25 questions (Table 21). The independent t-test comparing the difference variable with the experimental and control group associated with CDSE-SF indicates minor increase in 16 out of the 25 questions (Table 22). Overall, there was only one significant increase with one question in the independent t-test with mean scores in this study. Mean scores for both pre and post tests were in the moderate confidence level as interpreted by the self-efficacy scale.

Table 21

Independent t-test Results of Experimental and Control Groups Post-Test Associated with the CDSE-SF

Question	Experimental Group			Control Group			t-value	df	p
	n	M	SD	n	M	SD			
1. Internet info	46	3.83	.80	27	3.67	.88	.795	71	.429
2. One Major	46	3.74	1.04	27	3.56	.97	.744	71	.459
3. Plan goals	46	3.46	.94	27	3.41	.84	.224	71	.823
4. Determine steps	46	3.80	.69	27	3.41	.84	2.188	71	.032*
5. Assess Abilities	46	3.76	.79	27	3.81	.88	-.269	71	.788
6. One occupation	46	3.63	.90	27	3.44	.80	.855	71	.379
7. Steps major	46	3.76	.87	27	3.78	.93	-.078	71	-.017
8. Work goal	46	4.02	.80	27	4.07	.78	-.272	71	.787
9. Ideal Job	46	3.57	1.11	27	3.63	1.08	-.242	71	.810
10. Ten years	46	3.30	.92	27	3.41	1.15	-.421	71	.675
11. Lifestyle career	46	3.54	1.05	27	3.81	.92	-1.115	71	.268
12. Resume prep	46	3.33	.79	27	3.15	1.06	.815	71	.418
13. Change majors	46	3.61	1.00	27	3.85	.99	-1.007	71	.317
14. Decide value	46	3.67	.90	27	3.93	.87	-1.171	71	.246
15. Earnings yearly	46	3.85	.82	27	3.67	.88	.891	71	.376
16. Career Decision	46	3.26	.93	27	3.26	.86	.007	71	.994
17. Change occupations	46	3.41	.81	27	3.59	.97	-.852	71	.397
18. Figure what	46	3.50	.78	27	3.56	.97	-.267	71	.790
19. Talk field	46	3.83	.85	27	3.81	.96	.052	71	.959
20. Choose a major	46	3.76	.90	27	3.89	.93	-.579	71	.564
21. Identify employ	46	3.57	.81	27	3.56	.85	.048	71	.961
22. Define lifestyle	46	3.78	.96	27	4.04	.76	-1.173	71	.245
23. Grad schools	45	3.53	.89	27	3.44	1.09	.376	70	.708
24. Interview process	46	3.37	.83	27	3.41	1.05	-.171	71	.866
25. Identify second	46	3.43	.78	27	3.70	.95	-1.310	71	.195

Note: * $p < .05$; Scale: No confidence = 1, Very little confidence = 2, Moderate confidence = 3, Much confidence = 4, Complete Confidence = 5.

Table 22

Independent t-test Results of Experimental and Control Groups Post-Test Mean Difference Scores Associated with the CDSE-SF

Question	Experimental Group			Control Group			t-value	df	p
	n	M	SD	n	M	SD			
1. Internet info	46	-.17	.61	27	-.33	.88	.916	71	.363
2. One Major	46	.24	.92	27	.37	.93	-.586	71	.560
3. Plan goals	46	.20	.91	27	.19	1.08	.044	71	.965
4. Determine steps	46	.48	.91	27	-.07	.83	2.581	71	.012*
5. Assess Abilities	46	.11	.80	27	-.07	.83	.933	71	.354
6. One occupation	46	.24	.95	27	.07	.73	.779	71	.439
7. Steps major	46	.11	.88	27	-.04	.94	.668	71	.506
8. Work goal	46	-.04	1.03	27	.30	1.09	-1.341	71	.184
9. Ideal Job	46	.35	1.16	27	.07	1.17	.970	71	.336
10. Ten years	46	.28	1.17	27	.37	1.21	-.306	71	.761
11. Lifestyle career	46	-.02	1.00	27	.07	.92	-.407	71	.685
12. Resume prep	46	.43	.94	27	.30	1.03	.588	71	.558
13. Change majors	46	.11	1.02	27	.26	.86	-.646	71	.520
14. Decide value	46	.00	.87	27	.00	.73	.000	71	1.000
15. Earnings yearly	46	.15	1.14	27	-.19	.74	1.382	71	.128
16. Career Decision	46	.43	1.05	27	.41	1.12	.105	71	.917
17. Change occupations	46	.22	1.03	27	.19	1.04	.128	71	.898
18. Figure what	46	.13	.86	27	.07	.87	.269	71	.789
19. Talk field	46	.00	1.03	27	.15	.99	.601	71	.550
20. Choose a major	46	.07	.88	27	.00	.96	.296	71	.768
21. Identify employ	46	.15	.89	27	.22	1.01	-.308	71	.759
22. Define lifestyle	46	-.22	1.03	27	-.30	.72	.350	71	.728
23. Grad schools	46	.02	1.00	27	.00	.88	.094	71	.926
24. Interview process	46	.04	1.12	27	-.07	.83	.476	71	.636
25. Identify second	46	-.04	.92	27	.33	.83	-1.751	71	.084

Note: * $p < .05$; Difference score between pre and post-test of groups

Reliability Statistics

The Cronbach's alpha level was calculated to determine the internal reliability of each index of questions. The Cronbach's alpha level for Accurate Self-Appraisal was .93 on a five-item scale post-test, indicating a high level of internal consistency. The means of the individual items range from 3.52 to 3.88, with a mean on the total scale of 18.53 ($SD= 4.04$). The Cronbach's alpha level for Gathering Occupational Information was .87 on a five-item scale of the post-test, indicating a high level of internal consistency. The means of the individual items range from 3.32 to 3.82, with a mean on the total scale of 18.15 ($SD = 3.65$). The Cronbach's alpha level for Goal Selection was .92 on a five-item scale of the post-test, indicating a high level of internal consistency. The means of the individual items range from 3.26 to 3.81, with a mean on the total scale of 17.95 ($SD= 4.08$). The Cronbach's alpha level for Planning for the Future was .79 on a five-item scale of the post-test, indicating a high level of internal consistency. The means of the individual items range from 3.26 to 3.77, with a mean on the total scale of 17.41 ($SD = 3.25$). The Cronbach's alpha level for Problem Solving was .86 on a five-item scale of the post-test, indicating a high level of internal consistency. The means of the individual items range from 3.48 to 4.04, with a mean on the total scale of 18.41 ($SD = 3.45$). Table 21 displays student responses on the scale indicating that the items on the CDSE-SF indices are internally reliable.

Table 23

Reliability Statistics

Index	n	Pre-Test CDSE-SF			Post-Test CDSE-SF		
		α	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>
Accurate Self-Appraisal	5	.80	18.38	3.05	.93	18.53	4.04
Gathering Occupational Information	5	.80	18.13	3.20	.87	18.15	3.65
Goal Selection	5	.85	17.01	3.63	.92	17.95	4.08
Planning for the Future	5	.76	16.71	3.15	.79	17.41	3.25
Problem Solving	5	.71	17.59	2.82	.86	18.41	3.45

Summary of Findings

This study sought to determine the impact of *Career Cruising*© on self-efficacy of students who are deciding majors at a university. The following are the research questions that framed this study: (a) Does perceived self-efficacy increase after deciding majors take *Career Cruising*©?; (b) Is there an increase in self-efficacy scores on the subscale, Accurate Self-Appraisal?; (c) Is there an increase in self-efficacy scores on the subscale, Gathering Occupational Information?; (d) Is there an increase in self-efficacy scores on the subscale, Goal Selection?; (e) Is there an increase in self-efficacy scores on the subscale, Planning for the Future?; and (f) Is there an increase in self-efficacy scores on the subscale, Problem Solving?

Research Question 1: Does perceived self-efficacy increase after deciding majors take *Career Cruising*©?

A paired t-test of the pre and post-test usage of CDSE-SF questionnaire taking *Career Cruising*© indicated significant increases in mean scores ($p < .05$) with four questions:

- “Determine the steps to take if you are having academic trouble with an aspect of your chosen major”
- “Determine what your ideal job would be”
- “Prepare a good resume”
- “Make a career decision and then not worry about whether it was right or wrong”

An independent t-test of the experimental and control group post-test mean scores associated with CDSE-SF was calculated. Those who received *Career Cruising*© had a significant increase ($p < .05$) in self-efficacy with “Determining the steps to take if having academic trouble with an aspect of their chosen major” when compared to those who did not receive *Career Cruising*©. This finding was supported by an independent t-test on the difference variable taking *Career Cruising*© and those participants in the control group ($t(71) = 2.58, p < .05, d = .63$). In addition, the experimental group increased in perceived self-efficacy in 18 of the 25 questions, as shown in Table 13 and Figure 3. However, the independent t-test comparing the experimental and control group mean scores indicated minor increases with 10 out of 25 questions associated with CDSE-SF (see Table 21). The independent t-test comparing difference mean scores of the experimental and control groups indicated minor increases with 16 out of 25 questions associated with CDSE-SF (see Table 22).

Overall, the paired t-test indicated increase in perceived self-efficacy *Career Cruising*© on four questions of CDSE-SF and one subscale, Goal Selection. However, the results of the independent t-test comparing the post-test of the experimental and control group mean scores may caution academic advisors of the impact of *Career Cruising*© with deciding majors.

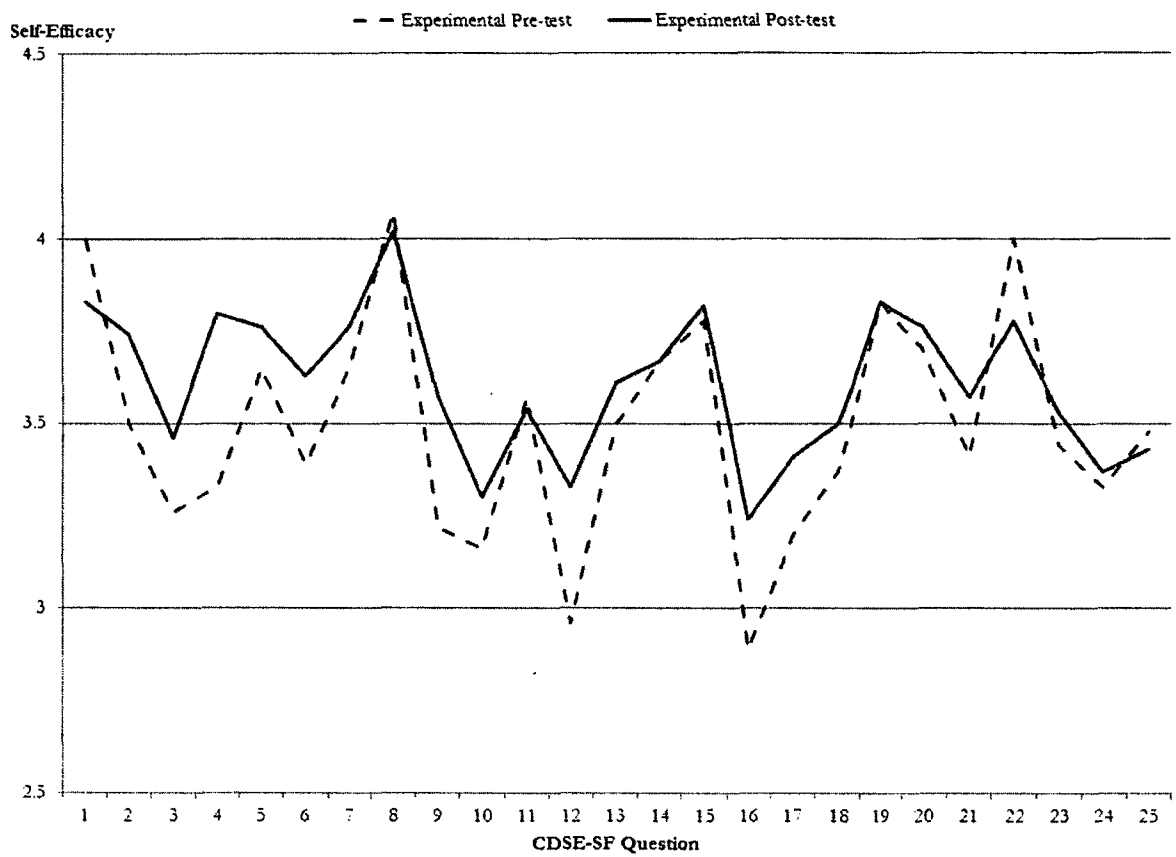


Figure 5. Experimental Group Results Pre-Test and Post-Test of CDSE-SF

Research Question 2: Is there an increase in self-efficacy scores on the subscale, Accurate Self-Appraisal?

A paired t-test of the pre and post-test use of CDSE-SF questionnaire taking *Career Cruising*© indicated significant increase in perceived self-efficacy ($p < .05$) with “Determine what your ideal job would be.” A paired t-test indicates an increase in Accurate Self-Appraisal subscale from the pre-test ($M = 3.58, SD = .60$) to the post-test ($M = 3.66, SD = .81$), however not a significant increase in perceived self-efficacy as indicated in Table 20.

Research Question 3: Is there an increase in self-efficacy scores on the subscale, Gathering Occupational Information?

A paired t-test of the pre and post-test use of CDSE-SF questionnaire taking *Career Cruising*© indicated a moderate increase ($p < .10$) in perceived self-efficacy in “Select one occupation from a list of potential occupations you are choosing.” There was no statistically significant increase in the Gathering Occupational Information subscale in an independent t-test with perceived self-efficacy as shown in Table 20.

Research Question 4: Is there an increase in self-efficacy scores on the subscale, Goal Selection?

Table 20 identifies a paired t-test on the pre and post-test of CDSE-SF indicated a significant increase ($p < .05$) in perceived self-efficacy in the Goal Selection subscale. A paired t-test on the pre/post-test of CDSE-SF indicated a significant increase ($p < .05$) in perceived self-efficacy with “Make a career decision and then not worry about whether it was right or wrong.” Additionally, there is moderate increase ($p < .10$) with “Select one major from a list of potential majors you are considering” and “Select one occupation from a list of potential occupations you are choosing” as indicated in Table 20.

Research Question 5: Is there an increase in self-efficacy scores on the subscale, Planning for the Future?

Table 13 indicates a significant increase ($p < .05$) in perceived self-efficacy with a paired t-test with “Prepare a good resume.” An independent t-test of Planning for the Future subscale from the pre and post-test of CDSE-SF points to a moderate increase ($p < .10$) in perceived self-efficacy.

Research Question 6: Is there an increase in self-efficacy scores on the subscale, Problem Solving?

A paired t-test with the experimental CDSE-SF in a pre and post-test with *Career Cruising*© “Determine the steps to take if you are having academic trouble with an aspect of your chosen major” showed a significant increase ($p < .001$) in perceived self-efficacy. In an independent t-test with the experimental and control group post-test mean scores, those who received *Career Cruising*© had a significant increase in self-efficacy ($p < .05$) with “Determining the steps to take if having academic trouble with an aspect of their chosen major.” An independent t-test on the difference variable taking *Career Cruising*© had a significant increase ($p < .05$) in perceived self-efficacy with “Determining the steps to take if having academic trouble with an aspect of their chosen major.”

CHAPTER 5

SUMMARY AND DISCUSSION

The purpose of this study was to analyze the impact of *Career Cruising*© on self-efficacy of deciding majors in a university setting. The use of the self-assessment instrument, *Career Cruising*©, was used in measuring the career-decision self-efficacy in a pre and post-test with deciding students. The independent variables are the *Career Cruising*©, self-assessment instrument, gender, age, ethnic background, year in college, GPA, generation of education, and involvement. The dependent variables are the levels of self-efficacy in the five subscales of pre and post-test results. Those subscales include Accurate Self-Appraisal, Gathering Occupational Information, Goal Selection, Planning for the Future, and Problem Solving.

This chapter presents the study summary of findings, discussion and implications, recommendations of further study, and summary of study. The results of this study carry important findings that may be used to effectively advise students academically, professionally, and personally.

Summary of Findings

This quantitative study had the potential of 250 deciding majors in the Office of Academic Advising at the University of Northern Iowa. The instrument used to measure perceived self-efficacy was the CDSE-SF in a pre and post-test methodology. After twenty-five students declared a new major, 225 possible participants were randomly selected using a random excel function multiplier into an experimental and control group. After distribution of the CDSE-SF, 105 deciding majors completed the pre-test for a return rate of 47%. The

post-test of the CDSE-SF was distributed one month after the pre-test to allow students in the control group to attend their advising meeting and the experimental group the opportunity to take the *Career Cruising*© and meet with their advisor. The control group had 27 out of 41 students complete the post-test for a completion rate of 66%. The experimental group had 46 out of 64 students complete the post-test for a completion rate of 72%. In all, there were a total of 73 deciding majors that completed both the pre-test and post-test, providing a return rate of 70%.

This study hypothesized that *Career Cruising*© would increase a student's perceived self-efficacy. The following are the research questions that framed this study: (a) Does perceived self-efficacy increase after deciding majors take *Career Cruising*©?; (b) Is there an increase in self-efficacy scores on the subscale, Accurate Self-Appraisal?; (c) Is there an increase in self-efficacy scores on the subscale, Gathering Occupational Information?; (d) Is there an increase in self-efficacy scores on the subscale, Goal Selection?; (e) Is there an increase in self-efficacy scores on the subscale, Planning for the Future?; (f) Is there an increase in self-efficacy scores on the subscale, Problem Solving?

A paired t-test was calculated to measure any statistical difference from the pre to post-test mean score results of the experimental group and control group with the CDSE-SF and subscales (Huck, 2008). The independent t-test results are reported with the experimental group and control group mean scores.

A paired t-test was used to analyze the results of the pre and post-testing associated with the usage of *Career Cruising*© and the CDSE-SF questionnaire. These results indicated significant increases ($p < .05$) with four questions:

- “Determine the steps to take if you are having academic trouble with an aspect of your chosen major”
- “Determine what your ideal job would be”
- “Prepare a good resume”
- “Make a career decision and then not worry about whether it was right or wrong”

An independent t-test of the experimental and control group post-test mean scores associated with the CDSE-SF was calculated. Those who received *Career Cruising*© had a significant increase in self-efficacy with the question “Determine the steps to take if having academic trouble with an aspect of your chosen major” when compared to those who did not receive *Career Cruising*©. This finding was supported by an independent t-test analyzing the difference between experimental group who took *Career Cruising*© and the control group who did not. In addition, comparing the experimental group mean scores to the control group mean scores, there were minor increases and only one statistically significant question. A Pearson Chi-Square test was calculated with gender, age, ethnic background, year in college, GPA, generation of education, and involvement. There were no significant associations.

Paired t-test results inclusive of the pre and post-testing of CDSE-SF illustrated two findings. First, a significant increase occurred with perceived self-efficacy related to the Goal Selection subscale. Second, a moderate, but not statistically significant, increase occurred with the perceived self-efficacy and the Planning for the Future subscale.

Discussion and Implications

The results of this study carry findings that may be used to effectively advise students academically, professionally, and personally. *Career Cruising*© and academic advising may

benefit deciding majors, the academic advising profession, and the university community as described in the following points of discussion.

Students who are deciding majors or major-changers struggle with the decision-making process and lack of information (Kramer et al., 1994). The results of this study provide insight that *Career Cruising*© and academic advising, when combined provide the framework for the decision-making process as well as valuable information on over 14,000 vocational and professional employment traits. The process of choosing career preferences begins the decision-making process. The student may not be aware of the step by step process without a qualified academic advisor's guidance of the use and interpretation of the results of *Career Cruising*©. For example, students may identify a career preference, but need information on a job description, the level of education, what major to declare, salary potential, and additional advice on experiences to compete in the job market (i.e. internships, research, and cooperative education). It was calculated that those who received *Career Cruising*© had a significant increase in self-efficacy with "Determining the steps to take if having academic trouble with an aspect of their chosen major" question. However, the results of the independent t-test resulted in minor increases in mean scores lacking significance while comparing the experimental group and control group. The benefit for the student may be increased self-efficacy in the decision-making process, gathering information, researching resources and new knowledge of their purpose in college. Deciding majors completing *Career Cruising*© and academic advising may also find not only increased self-efficacy, but long term benefits such as engagement in the university community, on-time graduation, meaningful career, and life-long skills in decision-making due to this new knowledge and participation in the decision-making process.

Academic advisors assist students in their academic and career decisions. Advisors use student development theory, advising best practices, and self-assessments tools to assist deciding majors in the decision-making process. Academic advisors at the University of Northern Iowa have only had anecdotal information on *Career Cruising*© and the profession of academic advising identifies gaps in the literature on self-assessment effectiveness in student self-efficacy of the decision-making process. The results of this study illustrates that *Career Cruising*© combined with academic advising may increase students' self-efficacy in the decision-making process with some areas of questions and Goal Selection subscale.

The independent t-test results reminds academic advisors that caution with self-assessment tools may be necessary when considering the impact with students' perceptions of the interpretation of the information. The study indicated minor increases with only one significant increase with one question. Mean scores for both pre and post tests were within the range of "moderate confidence" level as interpreted by the self-efficacy scale.

Academic advisors may use the results of this study as part of their understanding with deciding majors and major-changers. The benefit of using a self-assessment may assist in the effectiveness of advising and efficiency of time. For example, in the past, advisors may have met with students several times to identify interest in majors and careers. This process often led to identifying many possible opportunities to research and perhaps used a more complicated trial and error process. Academic advisors use of theory and practice of Appreciative Advising is a holistic advising approach (Bloom et al., 2008). However, the discovery phase may be aided with *Career Cruising*© to guide an advisor and student in the decision-making process because it pares down the number of questions an advisor may

need to ask to effectively guide the student, instead of using generalized questions of “what areas you are interested in” and “what kinds of things do you like.”

Academic advisors search not only for understanding of their deciding majors, but also practical tools that aid in the effectiveness of advising. Professional advisors know the importance of the college experience and expanding research in advising. This study may contribute to the literature in advising, student development theory, and career decision self-efficacy.

Studies associated with the CDSE-SF subscales have been presented in the literature review with traditional occupations (Betz & Hackett, 1981), validity of CDSE-SF (Luzzo, 1993; 1996), short-form (Betz et al., 1996a, 1996b), *Strong Interest Inventory* (Luzzo & Day, 1999), college women (Betz & Schifano, 2000), and a career development course (Reece & Miller, 2006). This study contributes to the literature because it is the only study working with deciding majors and academic advising using *Career Cruising*©. Additionally, this study contributes mean scores per question of the CDSE-SF in a pre and post-test methodology and subscale results for examination. Previous studies with the CDSE-SF and subscales by Crites' (1978) Career Maturity Inventory only examined the mean scores of the subscales and not each question.

Career Cruising© and academic advising may affect college and university communities. Colleges and universities are under tremendous financial pressure to make sure the college experience is cost effective, efficient, and that students successfully matriculate. The cost of tuition rising and the economic struggle in the United States is increasing the pressure for students to find sustainable careers (CollegeBoard, 2011). The results of this study may lead institutions to understanding the importance of having

students find their passion in academics and employment. For example, students are required to take a math placement exam called *ALEX* at UNI. Perhaps, further review of this study would show the importance of students understanding of *self*. The orientation program may consider having students take *Career Cruising*© (<http://public.careercruising.com/us/en>) before the registration process for classes begin similar to the math placement process to gain further information.

Recommendations

The recommendations that follow in this section are associated with the procedures, instrumentation, research process, and findings of this study. To date, no other studies on *Career Cruising*© impact on self-efficacy of deciding majors have been identified in the literature.

1. The voluntary participation rate and subsequent data collection may be increased if the study was conducted at the beginning of the academic year when a larger population was deciding on majors. The beginning of the academic year had 553 deciding majors at UNI instead of 250 at the beginning of spring semester.
2. Replication of the study should be considered as a longitudinal study. Additionally, diversity in institution populations, such as liberal arts colleges, research institutions, and specialized and professional colleges to gain a different perspective.
3. Enhancing the survey instrument to include qualitative opportunities for written responses to provide a different perspective of *Career Cruising*©, instrument, and advising. Additionally, a qualitative research study may gain insight into student and academic advisors perspectives of their experience.

4. Investigation should be considered for a third variable group of students who take *Career Cruising*©, but does not receive academic advising. This study contained an experimental group of 125 students to complete *Career Cruising*© and academic advising and a control group of 125 students who received academic advising.
5. Future research should consider an examination of the academic advising interactions between the student and the advisor. It is unclear as to how this interaction contributes to self-efficacy.

Summary of Study

The purpose of this study was to analyze the impact of *Career Cruising*© on self-efficacy of deciding majors in a university setting. The research design was a quantitative method based on the following research questions:

1. Does perceived self-efficacy increase after deciding majors take *Career Cruising*©?
2. Is there an increase in self-efficacy scores on the subscale, Accurate Self-Appraisal?
3. Is there an increase in self-efficacy scores on the subscale, Gathering Occupational Information?
4. Is there an increase in self-efficacy scores on the subscale, Goal Selection?
5. Is there an increase in self-efficacy scores on the subscale, Planning for the Future?
6. Is there an increase in self-efficacy scores on the subscale, Problem Solving?

The theoretical framework used was academic advising, student development theory, self-efficacy (Bandura, 1977, 1994, 1997; Maddux, 1995) and career decision making self-efficacy (Betz et al., 1996a). The potential participants were 250 deciding majors. The setting was with the Office of Academic Advising at the University of Northern Iowa. The instrument was the CDSE-SF used in a pre and post-test methodology (Betz et al., 1996a). The procedure for data collection was through SurveyMonkey® of the CDSE-SF questionnaire with Institutional Research Board approval. The treatment of data was analyzed using a paired t-test to measure any differences in mean scores and a Chi-square to understand the demographics as measured nominally (Huck, 2008).

The results of the study indicated an increase in self-efficacy for student who took *Career Cruising*® combined with academic advising in the paired t-test results, however lacks impact with regards to the independent t-test comparing the experimental group and the control group. Academic advisors including *discovery* majors like Leisure, Youth, and Human Services may consider using *Career Cruising*® when advising. The results of this study have continued to build on the body of knowledge associated with deciding majors, *Career Cruising*® (<http://public.careercruising.com/us/en>), and career decision self-efficacy. Further research is paramount to expanding the understanding of deciding majors and academic advising.

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APPENDIX A

CAREER DECISION SELF EFFICACY- SHORT FORM

Instructions to participants: For each statement listed below, indicate your degree of confidence in your ability to accomplish each task or activity. Use the following scale to indicate your confidence:

Statement	No Confidence At all	Very Little Confidence	Moderate Confidence	Much Confidence	Complete Confidence
1. Use the Internet to find information about occupations that interest you.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Select one major from a list of potential majors you are considering.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Make a plan of your goals for the next five years.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Accurately assess your abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Select one occupation from a list of potential occupations you are choosing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Determine the steps you need to take to successfully complete your chosen major.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Persistently work at your major career goal even when you get frustrated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Determine what your ideal job would be.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Find out the employment trends for an occupation over the next ten years.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Choose a career that will fit your preferred lifestyle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Statement	No Confidence At all	Very Little Confidence	Moderate Confidence	Much Confidence	Complete Confidence
12. Prepare a good resume.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Change majors if you did not like your first choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Decide what you value most in an occupation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Find out about the average yearly earnings of people in an occupation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Make a career decision and then not worry about whether it was right or wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Change occupations if you are not satisfied with the one you enter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Figure out what you are and are not ready to sacrifice to achieve your career goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Talk with a person already employed in the field you are interested in.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Choose a major or career that will fit your interests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Identify employers, firms, and institutions relevant to your career possibilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Define the type of lifestyle that you would like to live.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Find information about graduate and professional schools.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Successfully manage the job interview process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. Identify some reasonable major or career alternatives if you are unable to get your first choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Questions about you:

What is your gender? Male Female

What is your age? _____

What is your ethnic background?

- Black (not Hispanic) Hispanic
 Native American Asian, Pacific Island
 White Prefer not to respond
 Other _____

What is your year in school?

- Freshman (0 – 29 credits/ units) Sophomore (30 – 59 credits/units)
 Junior (60 – 89 credits/units) Senior (90 + credits/units)

What is your GPA?

- 2.00 – 2.49 2.50 – 2.99 3.00 – 3.49 3.50 – 4.00

Are you a first generation student?

- Yes
 No, my parents attended college

How many hours a week do you work?

- None 1-5 hours 6-10 hours 11-15 hours
 16-20 hours 20-25 hours 26-30 hours 31 + hours

How many hours a week do you volunteer?

- None 1-5 hours 6-10 hours 11-15 hours
 16-20 hours 20-25 hours 26-30 hours 31 + hours

Do you participate in extracurricular activities (e.g. intramural sports, clubs, groups, etc...)?

- Yes
 No

APPENDIX B
APPRECIATIVE ADVISING INVENTORY

Appreciative Advising Inventory

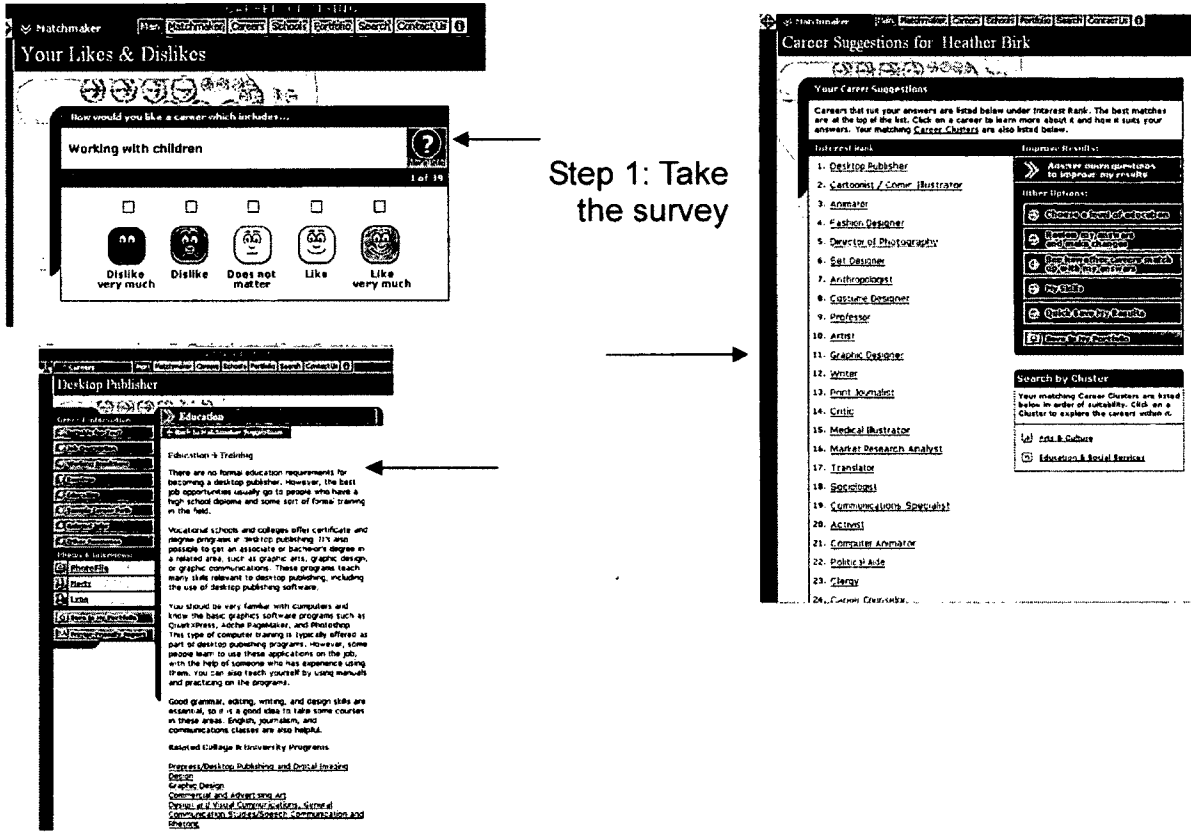
	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
1. I am committed to being a life-long learner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am committed to earning a degree.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I attend all my classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. College is preparing me for a better job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I have a commitment to self-development and personal growth.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I have a strong desire to get good grades.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. At the present time, I am actively pursuing my academic goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. It is important to help others and I do so on a regular basis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. When challenged, I stand up for my beliefs and convictions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I take personal responsibility for my actions and decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I have a strong desire to make something of my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I'm good at planning ahead and making decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I know and feel comfortable around people of different cultural, racial, and/or ethnic backgrounds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I believe in myself and my abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I have built positive relationships with my friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I feel that I have control over many things that happen to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I feel good about being a college student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I feel positive about my future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Right now I see myself as being pretty successful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. At this time, I am meeting the goals I have set for myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. If I should find myself in a difficult situation, I could think of many ways to get out of it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I can think of many ways to reach my current goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
23. I feel that my family supports my educational pursuits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I feel loved by my family.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I value my parents' advice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. I know at least 3 people who work at my university that I can go to for advice and support.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. It is important that I not let my professors or teachers down.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I participate in community activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Someone outside my family supports my educational pursuits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. My parents support my educational pursuits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. My close friends support my educational pursuits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. My university is a caring, encouraging place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I feel valued and appreciated by my fellow students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I have at least 2 adults in my life that model positive, responsible behavior.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. My best friends model responsible behavior. They are a good influence on me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I participate in activities on campus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. It is important for me to consider social expectations while making decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. I seek the opinions of my family when faced with major decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. I seek the opinions of my friends when faced with major decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. The values of my institution are consistent with my own.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I am working hard to be successful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I have good time management skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. I turn in all my assignments on time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. I successfully balance my academic pursuits with my personal life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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APPENDIX C
 CAREER CRUISING®



Step 1: Take the survey

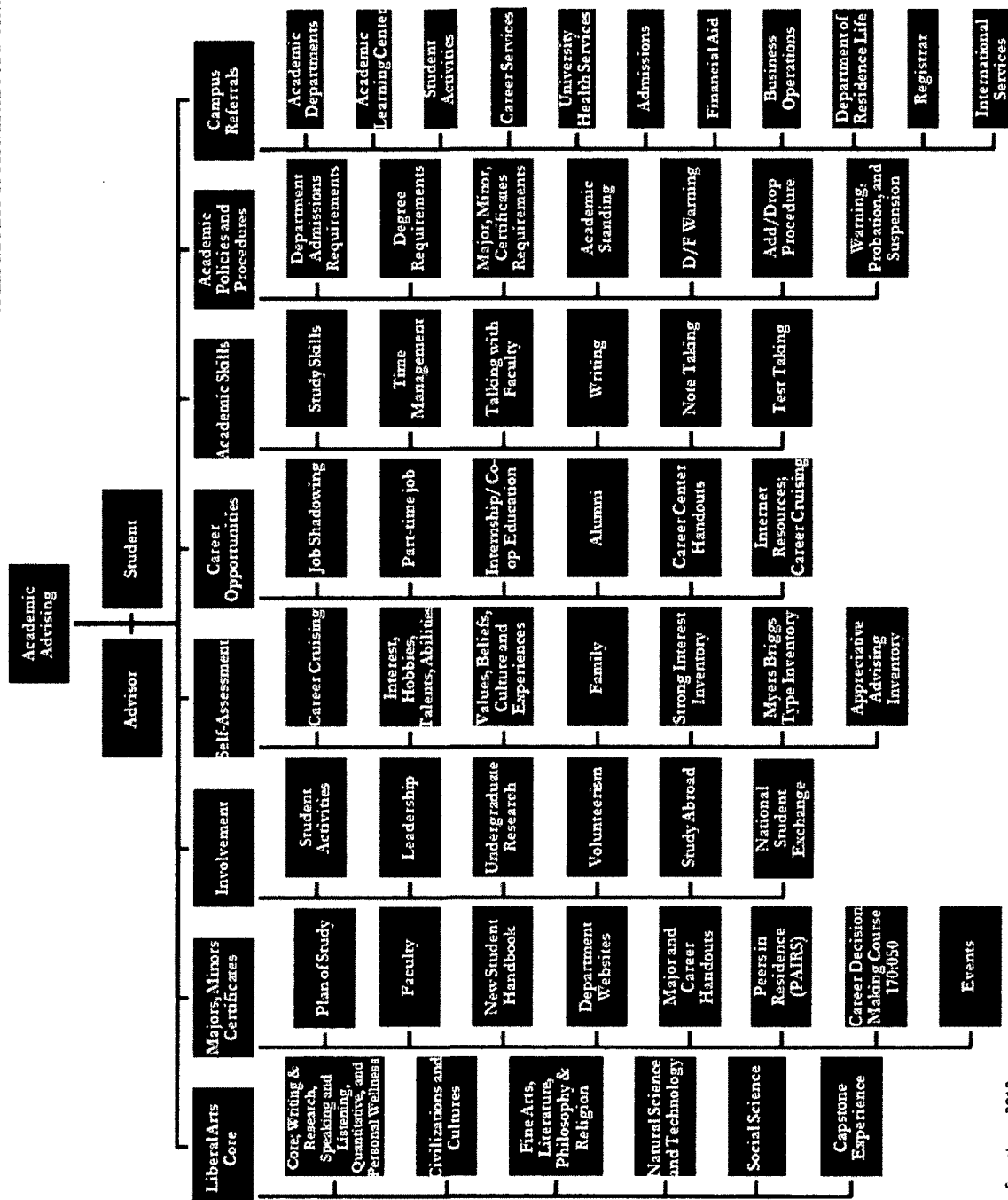
Career Cruising® originally developed in 1969 by a small group of career advisors in England. Career Cruising® has over 14,000 vocational and professional employment traits that are used to identify the Holland Codes that closely match a person. Career Cruising ask participants to answer 116 questions on preferences.

The self-assessment has vocational likes/dislikes, skills assessment, level of education and career opportunities. Career Cruising allows a person to see occupations that are similar to their preferences, and information on job descriptions, testimonials, advice from professionals, employment outlooks, pay ranges regionally and information on educational paths they should consider if interested in a particular area.

APPENDIX D

VISUAL MODEL OF ACADEMIC ADVISING

Visual Model of Academic Advising



Source: Smothers, 2012

APPENDIX E

UNIVERSITY OF NORTHERN IOWA
INFORMED CONSENT**Project Title**

Career Cruising Impact on the Self Efficacy of Deciding Majors

Name of Investigator

Anthony Smothers

Invitation to Participate:

You are invited to participate in a research project conducted through the University of Northern Iowa. The University requires that you give your signed agreement to participate in this project. The following information is provided to help you made an informed decision about whether or not to participate.

Nature and Purpose:

The purpose of this is to analyze information on self-efficacy of Deciding Majors use of *Career Cruising @*, a self-assessment tool. This study will examine data collected on subscales: accurate self-appraisal, gathering occupational information, goal selection, planning for the future, and problem solving. The Office of Academic Advising advisors regularly use *Career Cruising @* with deciding students.

Explanation of Procedures:

Involvement in this study includes a 25-item questionnaire, *Career Cruising @*, and 25-item questionnaire. The estimated time is 10 minutes for each component. Additionally, a section on demographic information asking your age, gender, generation in college, and year will be requested.

Discomfort and Risks:

There are no foreseeable risks to participation in this research study.

Benefits and Compensation:

There may be a benefit of identifying educational or career areas of interest. Your decision to participate or not has no bearing on your relationship with the Office of Academic Advising.

Confidentiality:

Information obtained during this study which could identify you will be kept confidential. The summarized findings with no identifying information may be published in an academic journal or presented at a scholarly conference.

Right to Refuse or Withdraw:

Your participation is completely voluntary. You are free to withdraw from participation at any time or to choose not to participate at all, and by doing so, you will not be penalized or lose benefits to which you are otherwise entitled.

Questions:

If you have questions about the study you may contact or desire information in the future regarding your participation or the study generally, you can contact Anthony Smothers at 319-273-7748 or the project investigator's faculty advisor Dr. Sam Lankford or Dr. Chris Kowalski at the School of Health, Physical Education, and Leisure Services, University of Northern Iowa 319-273-6840 or 319-273-3528. You can also contact the office of the IRB Administrator, University of Northern Iowa, at 319-273-6148, for answers to questions about rights of research participants and the participant review process."

Agreement:

I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I acknowledge that I have received a copy of this consent statement. I am 18 years of age or older.

 (Signature of participant)

 (Date)

 (Printed name of participant)

 (Signature of investigator)

 (Date)