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DISCOVERING CAREER SELF-EFFICACY AMONG RURAL COMMUNITY

COLLEGE STUDENTS

by

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ABSTRACT

DISCOVERING CAREER DECISION SELF-EFFICACY AMONG RURAL COMMUNITY COLLEGE STUDENTS

Tameka Mierelle Womack
Old Dominion University, 2014
Director: Dana Burnett

Many students report that their main purpose for attending a two- or four-year academic institution is to prepare for a career, and require assistance during the process of selecting a major and career that is appropriate for them. Students who struggle with career indecision often seek help through career counseling and/or computer-assisted career guidance systems. Self-efficacy plays a key role in students' self-esteem and their belief that they can not only choose a career but successfully complete the tasks associated with achieving that career. Students with low career decision self-efficacy may have a higher potential to drop out of college. Despite the growth in career planning support services, little empirical research has been conducted to determine if a link exists between a student's self-efficacy, and his/her age, gender, race and class ranking. Knowing if there is a difference in levels of career decision self-efficacy dependent upon a student's demographic profile or class ranking will assist those who provide career advising and their advisees.

One purpose of this research was to compare the levels of career decision self-efficacy of first year rural community college students to second year students. This study also sought to discover how students of different age groups, genders, majors and race compare in terms of their levels of career decision self-efficacy. Betz & Taylor's (2006) instrument, Career Decision Self-Efficacy Scale Short Form was distributed to students within the spring and summer

semester of 2014. These students were enrolled in a Student Development (SDV) orientation, English, Business, or Developmental Mathematics course at one of the two participating rural community colleges in the Mid-Atlantic region of the United States. The information produced from this study has the potential to benefit students as well as it may assist counselors with their advising services as they strive to meet these students' needs.

Keywords: choice of major, academic major, career choice, self-efficacy, community college, first-year students

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Introduction

According to the National Center for Education Statistics, of the 18.44 million students who attended college during 2012, 8.3 million attended a public two-year institution (Community College Resource Center, 2013). Of these 8.3 million, approximately one-fifth did not return to school in the 2013 academic year (Schneider, Yin, & The American Institute Research, 2011). There are many reasons why a student may decide not to re-enroll for a second-year; however, the consequences reach beyond just the student. The college, community, and state all suffer loss of resources, time and effort. Between 2004-2009, nearly four billion dollars of taxpayer money was spent on 'first time' full time community college students who failed to return to school the next year (Community College Dropouts Costs Taxpayer Nearly \$4 Billion, 2011). In the Commonwealth of Virginia, 19 million dollars in tax revenue were spent on students who began school in the fall of 2010 but dropped out by spring semester (Schneider et al., 2011). Determining a student's confidence in his/her ability to successfully complete the tasks associated with confirming their career choice can potentially increase the retention rate at the college, which could have a positive impact for both the students and the larger community.

Two factors linked to high attrition rate are the lack of motivation and lack of career direction (Visher, 2011). Lack of direction in choosing a career can result in prolonged time in college, and, hence, an increased financial burden on the student. If a student cannot successfully execute the behaviors associated with exploring and confirming their career interest, then this can also prolong their time in college. It is reasonable to understand why the most frequently identified life regret for Americans

pertains to their educational choices (Roese & Summerville, 2005). Not remaining in school was the number one regret for participants in the Roese and Summerville meta-analysis study, which was focused on discovering which domains in life people in their 20's & 40's regretted most. Their second main regret was with regard to their career choices, which were a direct result of leaving school. Choosing a major in college prepares an individual to enter the career of their choosing, and deciding which major to select is key. As St. John (2000) notes, "There is, perhaps, no college decision that is more thought-provoking, gut wrenching, and rest-of-your-life oriented-or disoriented-than the choice of a major" (p.22). Majors are decisive for an individual's career and earnings, because they are not just topics to study; they are courses that will contribute to students' career training (Carnevale & Melton, 2011). Knowledge of the students' level of career decision self-efficacy may be an aid in providing pertinent advice and direction for undecided students.

Background

Community college. The mission of one of the participating community colleges is to provide access to post-secondary education in the form of credit and noncredit courses to the people in the surrounding community (Danville Community College, www.dcc.vccs.edu). Vaughn (2006) writes that the community college creates and maintains vital social, cultural and intelligence sharing by:

- Teaching and learning
- Fostering lifelong learning
- Serving the community as a community-based institution of higher education
- Providing a comprehensive educational program

- Serving all segments of society through an open-access admissions policy that offers equal and fair treatment to all students (p.3)

Guidance & counseling services. The counselor's role in an academic institution is to provide tailored career services to diverse student populations. Community college counselors seek to match students to the programs that correspond to the students' academic goals and abilities. However, the community college counselors' role is blurred when students do not have distinct career aspirations or attainable goals that reflect feedback from the testing instruments used. Community college counselors are also challenged due to the high proportion of part-time students already involved with the workforce. These students' needs differ from those of the traditional student because these students that work part-time have a variety of schedule limitations and are often seeking to change their career goals (Cohen & Brawer, 2008). Community colleges emphasize their value as a career resource in the community. As a result, some community colleges have organized career centers to provide career guidance to local residents, businesses, as well as a marketing tool to increase enrollment at their college (Cohen & Brawer, 2008).

Definition of Key Terms

Career decision making difficulty. An issue affecting an individual's ability to make a decision or optimal decisions about their career choice (Gati, Krausz, & Osipow, 1996).

Career decision making process. Process of seeking out what is needed to compare and choose attainable career alternatives (Gati, & Asher, 2003).

College readiness. Cognitive reasoning strategies, academic knowledge and skills,

academic behavior, and contextual skills. Able to formulate and solve problems, conduct research, and interpret information (Conley, 2008a).

Declared major at four-year institution. All students at four-year institution must be in a degree-granting major and making progress towards completion of their degree by the end of the semester in which they have completed 62 credit-hours or attempted 72 hours (whichever comes first) (Declaring Majors, www.advising.vt.edu).

First-year students. First year students are students who have been enrolled in college but have completed fewer than 12 academic college credits by the time of the study.

Graduation rate. Data provide information on institutional productivity and help institutions comply with reporting requirements of the Student Right-to-Know Act (<http://nces.ed.gov/ipeds/about/>).

Lack of information. Lack of information about self, occupations available, ways to obtain information about occupations, and/or career decision making process (Osipow & Gati, 1998).

Lack of readiness. Lack of motivation, indecisiveness, or dysfunctional beliefs about the process of making career decisions (Osipow & Gati, 1998).

Major. A major is a program of study, or group of selected courses, required for an academic degree in a particular subject (Academic Advising Glossary-Virginia Tech, <http://www.advising.vt.edu>).

Minority Student. The term minority student means “a student who is an Alaska Native, American Indian, Asian-American, Black (African-American), Hispanic American, Native Hawaiian, or Pacific Islander.” Chapter VI -- Office of Postsecondary

Education, Department of Education; Part 606

Non-traditional high school student graduates. Students who have earned either a GED diploma or have been home-schooled.

Non-traditional majors for women: Examples include engineering, computer technology, construction technology, Culinary arts, electrical technology
(<http://www.fmcc.edu/academics/files/2011/08/Non-Traditional.pdf>)

Non-traditional Occupant for Women: occupation in which women comprises of less than 25 percent or less of total employment
(<http://www.dol.gov/wb/factsheets/nontra2008.htm>).

Open mindedness. “For an undecided student means they have not decided on which career direction to pursue” (Mitchell, Levin, and Krumboltz, 1999, p.117).

Regular student. The term regular student means “a person who is enrolled or accepted for enrollment at an institution for the purpose of obtaining a degree, certificate, or other recognized educational credential offered by that institution.” (According to 34 CFR 600.2 [Title 34 – Education; Subtitle B -- Regulations of the Offices of the Department of Education; Chapter VI -- Office of Postsecondary Education, Department of Education; Part 600 -- Institutional Eligibility under the Higher Education Act of 1965, as Amended; Subpart A – General]).

Rural community. “Rural” encompasses all population, housing, and territory not included within an urban area. Urbanized Areas are defined as (UAs) of 50,000 or more people; Urban Clusters (UCs) of at least 2,500 and less than 50,000 people (U.S. Census, 2013).

Self-efficacy. Expectation that one can successfully execute the behaviors

required to produce a desired outcome (Bandura, 1977).

Transfer rate. Total number of students who are known to have transferred out of the reporting institution within 150% of normal time to completion divided by the adjusted cohort.

Undecided student. A student unable or unwilling to make academic or career decisions (Gordon, 1995).

Urbanized community. Community that is inside a principle city with population greater than 100,000 (Integrated Postsecondary Education Data System [IPEDS], 2007).

Purpose of Study

This quantitative study compared the levels of career decision self-efficacy for students grouped by their current year of study. This study also compared the level of career decision self-efficacy among students of differing age, ethnicity, gender, and categorized major. Participants were enrolled in one of two different rural community colleges in the Mid-Atlantic region of the United States. Demographic characteristics such as age, gender, race and major selection were used as the determining factors used to get equivalent groups for comparison between the class status groups. Also, this study used that demographic information to group participants into age group, gender group, ethnicity groups and major groups) that were compared against each other (e.g. females' data was compared to males' data for the gender group, African-American data was compared against Caucasian data, etc.) in terms of their levels of career decision self-efficacy. Demographic information and career decision self-efficacy (CDSE) were measured using a self-report questionnaire with 25 items corresponding to the five stages an individual has to go through in their career exploration phase. The five

stages/competencies are the following:

1. Accurate self-appraisal (Accurately assess your abilities)
2. Occupational information (Find out the employment trends for an occupation over the next 10 years)
3. Goal selection (Select one occupation from a list of occupations you are considering)
4. Planning (Making plans for the future. Knowing how to implement an educational or career choice, including enrolling in an educational programs, job search, resume writing, and job interviews)
5. Problem solving (Figure out alternative plans or coping strategies when plans do not go as intended)

During the past five years (2008-2013) there has been a steady trend (9.7%) of individuals transitioning from urban centers into more rural communities (US Census Bureau, 2013). With this increase in population it may be beneficial for rural community colleges to understand which stage of career decision self-efficacy this new diverse student population is lacking to assist them in selecting their careers. For students to select majors at a community college, they must first select a career path in which they choose to follow. Understanding which stage of the five competencies, 1) self-appraisal; 2) occupational information; 3) goal selection; 4) planning and; 5) problem solving (Betz & Taylor, 2006) the students are struggling with when selecting their career path will allow community colleges to gain a sense of the students' profile. When the college understands its student population's career decision self-efficacy struggles, then the counselors can provide better career guidance to the students. Once counselors are aware

of which competencies the population seems to need the most help developing, they can then create programs and gather resources to guide and cultivate these students to increase their self-efficacy.

Research Questions

Research Question One: How do first year rural community college students compare to second year rural community college students in terms of their levels of career decision self-efficacy?

Research Question Two: How do rural community college students of different age groups, genders, majors, and races compare in terms of their levels of career decision self-efficacy?

Professional Significance

Research suggests that students often do not know which major to select when they enter college (Bosworth & Ford, 1985). How students choose their career, and if it is interdependent with discovering their level of career decision self-efficacy are unanswered questions for most higher-education administrators. As a result, many career counselors or advisors may not know how to help students make the best career choices (Bosworth & Ford, 1985; Hu, 1996). Due to ineffective help, many students may have difficulty with the career they enter after graduation because of the uncertainty about the major they chose to pursue in college (Hu, 1996). These students may question their choice of career because they were not certain that the major they selected in college was right for them.

Understanding which stage of career decision self-efficacy that students are in and if their demographic profile has an impact on their position with regard to CDSE can be

very important to the student and to the college. Determining what level of career decision self-efficacy the students struggle in would enable the college to help the students gather the information needed to move them to the next career exploration phase. This information gathering process should continue until the students reach the career confirmation phase (Hu, 1996). Understanding which stage of career decision self-efficacy students are in is also important to the college because of the potential to increase retention and academic success (Hu, 1996). When students are not confident about their career choice, it is more likely that they will not complete an academic program, which can lead to a great waste of resources for the student and institution (Hu, 1996). Aiding students with their CDSE may also reduce the amount of tax payer money considered “wasted” because it was given to students who fail to return to college the following year.

Overview of Methodology

For this preliminary, quantitative study, the Career Decision Self-Efficiency Short Form (CDSE-SF) questionnaire was distributed to a convenience sample of students. The Modified CDSE-SF questionnaire consists of 25 items which measure the extent to which an individual believes that he/she can successfully complete tasks necessary to make career decisions. The modified CDSE-SF was presented with a seven-item demographic questionnaire based on the research questions’ independent variables. Questionnaires were completed during the summer semester of 2014.

The study took place at two mid-sized, rural community colleges in the Mid-Atlantic region. The community colleges have a student enrollment of approximately 1) 6,241 [Community College One] and 2) 3190 [Community College Two]. Participants

had to be 18 years of age or older, attend one of the participating community colleges and be enrolled in one of the following courses: Freshmen Orientation, Introduction to Business, Business Mathematics, Small Business Management, Developmental Mathematics, or College Composition I & II.

Characteristics of College One are as follows (www.collegemeasures.com, 2013):

- Population of the students in the 2012-2013 school-year is 6241
- Medium size public two-year academic institution
- First year retention rate: 84.4%
- Graduation and Transfer rate
 - 31.2%

Characteristics of College Two are as follows (www.collegemeasures.com, 2013):

- Population of the students in the 2012-2013 school-year is 3190
- Medium size public two-year academic institution
- First year retention rate: 82.5%
- Graduation and Transfer rate
 - 31%

To address answering research question one, a cross-sectional design was used, which compared one group of students that are approaching graduation with students with similar demographic profiles in the freshmen class. Thus, group one is called the “freshmen group” and only included students in their first-year of coursework. The second group is called the “graduating students” group; as those students are in their final year of course work (year two). The researcher used age, gender, major selection and

race as factors to match groups and compare their results of the CDSE-SF across first and second year students. Once freshman and graduating students were matched, the matched pairs' CDSE scores were compared. For example, the results of the CDSE-SF of a freshman Caucasian male business major would be compared with a graduating student who was also Caucasian, male, and a business major.

For research question two, a Multivariate Analysis of Variance was used to compare between the level of career decision self-efficacy among students' age groups, ethnicity groups, genders, and grouping of students in categorized majors. All statistical analyses were conducted using IBM SPSS 22. Results of statistical analyses are discussed in Chapter 4.

Limitations

At the onset of the study, the research was not aware of how many of the SDV 100, English, Business and/or Developmental Mathematics courses were going to be offered nor how many students would be enrolled in the courses. Small course sizes for the summer term resulted in a relatively small sample size, which limited the generalizability of the results. Another limitation is that the institutions normally offer more online Business, Developmental Mathematics and SDV 100 courses than in a traditional teaching format. As a result of the new teaching platform, researcher was not able to distribute the paper/pencil questionnaires to students not enrolled in a traditional format class.

Delimitations

This study involved participants attending one orientation, Business, English or Developmental Mathematics course, instructed by a variety of professors within the

Virginia Community College System at two public two-year higher-education institutions. The data were collected through individual student questionnaires with community college students who may or may not be classified as undecided during the 2013-2014 academic year. The researcher only included legal adult students' data in the study; it is possible that dual enrollment students (high school students' also taking college courses) may be members of the orientation class, so any questionnaires indicating an age lower than 18 were removed from the study.

Groups that may benefit from this study include: students, staff, administration, faculty at both institutions. This study was not designed to generalize findings to be used at urban institutions. However, results could assist other rural public two-year higher-education institutions across the Southeastern United States that are of medium-sized and enroll undecided students.

Chapter 2

Background of Study

This literature review explores different types of influences that can affect students' choice of major. This review also establishes what self-efficacy is and how it may affect students' of career choice. Finally, this review helps to familiarize the reader with the current state of the related body of knowledge to provide context for the present study and support for the study's research questions.

Declaring a Major

Choosing an academic major and initial career path are the most challenging decisions a college student has to make (Carduner, Padak, & Reynolds, 2011). These decisions are very important because of the human capital investment that both the student and the college must make in order for the student to attain success (Hu, 1996). Students report that they need help discovering and developing their 'major certainty' in college (Orndoff & Herr, 1996). 'Major certainty' is the identification of, and commitment to, a clear career goal or major (Bean 1980).

Rural versus Urban Community Colleges

The cultural and structural differences between rural and urban communities have an impact on students' career development and major selection process (Vermeulen & Minor, 1998). Rural communities are encumbered with many more institutional funding issues. Institutions in these areas have inferior per-capita funding, as well as lower ability to adjust to the ever-changing financial environment (Copeland, Tietjen-Smith, Waller, & Waller, 2008). This can affect the amount of career guidance that rural community students receive and the way they receive career assistance (Cracken, Barcinas, 1991).

The Carnegie Foundation for the Advancement of Teachings' 2005 Basic Classifications divide associate degree-granting colleges into three major categories: publicly controlled, privately controlled, and special-use institutions. Rural community colleges are considered publicly controlled education institutions. All rural community colleges offer occupational programs and provide remedial and tutoring services, academic and career counseling services. 87 percent of all rural community colleges offer Adult Basic Education (ABE) or General Educational Development (GED) preparation. Most of them provide employment and placement services for students; 92 percent of rural community colleges offer recreational and vocational programs, which are higher than both suburban and urban community colleges. Rural community colleges are also on a promising positive trend of the amount of degrees that they awarded since they have higher percentages than both suburban and urban community colleges as referenced in Table 1.

Rural community colleges also serve as fine arts and recreational hubs for their regions (Hardy & Katsinas, 2007). They are less likely to offer work-study opportunities, distance learning courses, study abroad or teacher preparation programs for their students (Hardy & Katsinas, 2007). They also are less likely to offer needed services such as child care services (Katsinas, Alexander, and Opp, 2003).

Table 1

Proportion of associates' degrees awarded by rural, urban, and community colleges between 2000 and 2008 (Katsinas, 2010).

Awarded Associate Degrees			
<u>Year</u>	<u>Rural</u>	<u>Suburban</u>	<u>Urban</u>

2000-20001	34%	32%	34%
2007-2008	43%	29%	28%

Rural Population

The pipeline of community college students begins with both local high school graduates and nontraditional students. Poverty rates are higher in rural communities (Ley, Nelson, & Beltyukova, 1996; Lichter & Johnson, 2007; Nadel & Sagawa, 2002) and as a result rural students have limited access to career counseling, college-preparatory courses, and school-to-work programs (Provasnik, KewalRamani, Coleman, Gilbertson, Herring & Xie, 2007). Occupations that were readily available for rural youth in the service, labor, and agriculture sectors are disappearing and there is a need for this target population to become more aware of occupations destined to become the future employment of this nation (Albrecht, Albrecht, & Albrecht, 2000; Crockett, Shanahan, & Jackson-Newsome, 2000; Elder & Conger, 2000; Friedman & Lichter, 1998; Gibbs, Kusmin, & Cromartie, 2005).

According to the United States Department of Education National Center for Education Statistics (1998), rural and small-town elementary and secondary schools comprise nearly 38% of the total number of schools. More than a quarter of U.S. public school students receive their education, and many times their support system, in rural communities. During the 2000-2001 academic year, 3,213,977, students attended rural community colleges, which was a greater enrollment than either suburban community colleges (3,027,986) or urban community colleges (3,181,009). Of all community college campuses in the country, 59% are in a rural setting. At these rural institutions,

staff and faculty are likely to perform different administrative functions, and have smaller curriculum offerings (Hardy & Katsinas, 2007). Rural community colleges serve larger percentages of full-time students (41 percent) than suburban (32 percent) or urban (31 percent) community colleges (U.S. Department of Education, 2006). Of the 232 community colleges that offer on-campus housing, 90 percent are at rural institutions (Hardy & Katsinas, 2007).

Role of Community Colleges in Rural Regions

Approximately, one-third of all community colleges in America are located in a rural locality (Katsinas & Miller, 1998). The rural community college's role is to connect with their communities and to improve local residents' quality of life by providing them educational and social resources and opportunities (Miller & Tuttle, 2006). They have been known as the catalysts for obtaining and sustaining high-quality opportunities that have the potential to be life-changing by providing educational opportunities, job training, small business support, and workforce development (Miller & Tuttle, 2006). For many rural residents, they choose to attend a local college so that they can be close to relatives and feel safe and secure (Annie Casey Foundation, 2004). The transition to a larger town and large college campus can produce anxiety (Schultz, 2004). The amount of empirical research related to rural community colleges lags behind the amount of research conducted related urban institutions (Katsinas, (2010). The increasing attention to the unique characteristics of rural community colleges suggests that further inquiry is warranted (Castaneda, 2002).

Rural Community Economics

About one-fifth of the United States population lives in a rural community

(Miller& Tuttle, 2006). Rural Americans have had a higher poverty rate than their metropolitan counterparts for the past 40 years (14% of rural residents earn an income below the poverty level compared to 11% of urban residents) (Rural Policy Research Institute, www.rupri.org). Rural America lacks the forward momentum in wealth creation, business growth, and employment opportunities that suburban and urban areas have (Annie Casey Foundation, 2004). Rural residents have lower capita income (\$17,884 compared to \$24, 069 for urban residents) and median household income (\$33,601 compared to \$45, 219 for urban residents) compared to their metropolitan neighbors (Rural Policy Research Institute, www.rupri.org).

Education of Students Living in Rural Regions

First-generation, rural college students are considered to be an at-risk population (Schultz, 2004). In the past, urban residents were almost twice as likely to have a college degree as their rural counterparts (15% rural residents compared to 27% metropolitan residents) (Rural Policy Research Institute, www.rupri.org). These values were consistent even when factoring in the resident's high school educational levels (70% rural students graduated from high school compared to 82% metropolitan students graduated high school) (Rural Policy Research Institute, www.rupri.org). This statistic suggests that a relatively small percentage (15% of the 70%) of rural students that graduates high school will continue onto college (Nelson, 1971; Smith, Beaulieu, & Seraphine, 1995); however, new data suggest that rural community colleges are the highest growing post-secondary education institutions in the United States. Table two illustrates the ongoing increase in students enrolled at rural community colleges.

Table 2

Enrollment headcounts for colleges granting associate's degrees for academic years 2000-01 through 2005-06.

	Annual Unduplicated Head Count Enrollment (Number)		Change, 2000-2001 to 2005-2006	
	<u>2000-2001</u>	<u>2005-2006</u>	<u>Number</u>	<u>% of Change</u>
Rural Small	138,818	187,186	48,368	2
Rural Medium	888,176	1,427,064	538,888	25
Rural Large	1,361,244	1,780,393	419,149	19
Total Rural	2,388,238	3,394,643	1,006,405	46
Suburban Single	1,017,721	1,315,642	297,921	14
Suburban Multi-Campus	1372929	1,718,040	345,111	16
Total Suburban	2,390,650	3,033,682	643,032	29
Urban Single	199,573	413,459	213,886	10
Urban Multi-Campus	2,376,504	2,701,929	325,425	15
Total Urban	2,576,077	3,115,388	539,311	25

Rural students have additional challenges that students in suburban and/or urban areas do not, in order for them to be successful in college. One of the challenges includes the lack of access to the internet in some remote locations. Rural community colleges also have unique challenges. Some examples of these challenges include recruiting and retaining qualified faculty and staff members, telecommunication infrastructure support, and economic development (Killacky & Valadez, 1995, Miller & Tuttle, 2006, Murray, 2005). Castaneda (2002) found that rural students transferred to a four-year college at lower rates than suburban or urban community college students hence the educational wealth within the rural community can be low.

Ethnicity Impact in Rural Community at Four-Year Institutions

African-American men from rural communities trail both African-American men from urban communities and Caucasian men from rural communities in four-year college degree attainment (Lyson, 1990). Suburban African-American men and women were four times as likely to have completed a bachelor's degree as rural African-American men and women (Lyson, 1990). African-American men and women from urban areas were twice as likely to complete a bachelor's degree compared to their non-urban counterparts (Fratoe, 1980).

Minority students found that a lack of minority faculty members and the lack of influence from members in their household were the main influencers of their college experience. Ethnic minority students on campuses in rural communities have found fault with their college experience due to lack of minority faculty and staff members and the lack of support from campus leadership for events, conferences and professional development opportunities that they deemed important (Watts, 2012). In a survey conducted by Griffin, Hutchins, & Meece (2011), Caucasian students indicated that, when selecting a major and career, they were influenced more by their parents and guardians (66.5), while African-American students were more influenced by their coaches (11.7), religious leaders (28.4), and frequently college source guides, websites and publications (13.4).

The Major Selection Process

Developmental Education

College readiness is conceptualized as consisting of both academic and social dimensions. College readiness in the academic category refers to the minimum

qualification in the math, reading, and writing subjects needed for students to be successful in a college environment (College and Career Readiness, 2014). The social category includes factors like understanding the importance of attending class, the ability to be prepared for class, the ability to use course materials, and willingness to collaborate with classmates (Smith & Commander, 1999) The social category also includes study skills, emotional maturity, and knowledge of educational finance (Barnes & Slate, 2010).

The United States Department of Education (2000) named college readiness as one of the seven national education priorities that need to be addressed. Forty-one percent of freshmen community college students and 29 percent of all community college students must enroll in a developmental course in reading, writing, or math (McCabe, 2000). In 2011, between 40 percent and 60 percent of all community college students were required to be enrolled into at least one year of developmental coursework (Sherwin, 2011). Placement tests and other standardized measures are often used to predict students' readiness for college (Byrd & MacDonald, 2005). Research indicates that there is a positive relationship between standardized testing of college readiness with effectiveness of college completion (Amey & Long, 1998; Hennessey, 1990; Hoyt, 1999; Kraska, Nadelman, Maner, & McCormick, 1990; Napoli & Hiltner, 1993). These statistics also show that there is a higher enrollment of ethnic minority students than Caucasian students in developmental classes at post-secondary academic institutions (Amey & Long, 1998; Hennessey, 1990; Hoyt, 1999; Kraska, Nadelman, Maner, & McCormick, 1990; Napoli & Hiltner, 1993). Thus, rural students are much more likely to require developmental coursework, which increases the demand on both the student and the institution.

Importance of Major Choice

National surveys indicate that help with choosing an academic major is a significant need at both two and four-year academic institutions. The American Association of State Colleges and Universities reported that nearly 50% of entering freshmen expressed a need for guidance in deciding on a major (Hannah & Robinson, 1990). In a study conducted by Pennsylvania State University, senior students reported that receiving assistance in choosing a major is their second most important need following resume preparation (1994). This literature review explores factors that influence students' choice of major.

Financial aid. Community Colleges are two-year academic institutions that seek to provide an education to its population within a very limited amount of time. Students who attend these institutions and need financial support must declare a major when they are completing their financial aid application. To be eligible for financial aid a student must be enrolled as a "regular student" in an eligible degree or certificate program (Financial Aid: Basic eligibility, 2012). A regular student is considered to be a student who has declared a major in a degree seeking program or who is enrolled in a specific certificate program with major choice as a prerequisite of a certificate (According to 34 CFR 600.2). These requirements result in intense pressure for students to choose a major at the beginning of their college journey, and many students may find that a daunting challenge.

Major choice as a measure of student success. The Lumina Foundation and the National Postsecondary Education Cooperative have funded many projects associated with "student success". Researchers recognized that different constituencies define

success rates; however, student success at a community college is usually defined by graduation rate and program growth (Bers, 2005). Program growth is defined as an increase in the number of students who declared that program of their choice of major. Thus, choice of major is an important process for students in attendance and for program stability at the community college.

Accreditation. Institutional accreditation is the process by which higher-education institutions verify compliance with predetermined standards of excellence that are essential to sustaining and increasing enrollments, and obtaining federal funding (Basken, 2008, Head, 2011). One of the core components of the accreditation standards is that the organization's student learning outcomes for each educational program and the number of times students select a major in a program are clearly stated. The accreditation process ensures that colleges and universities provide prerequisite knowledge and skills for each major in a program to ensure reasonable probability of success (NWCCU.org, p.2.A.16).

Enrollment management. A student's choice of major also has a sizable impact on enrollment management and in determining which programs will be offered during the semester. A large enrollment number, for example, normally ensures continuity of the program (Hu, 1996). Institutions with programs that have low enrollments often stagger their class offerings, or raise their tuition due to the decreased number of aid-eligible students available (Curs, 2010).

Declaring a Major at a Four-Year Institution vs a Two-Year Institution

In 1978, academic advising at most four-year institutions was defined in two ways: pre-major advising, and major advising (Cook, 2009). Majors were declared at the

end of the sophomore year. Adams, Pryor and Adams (1994) indicated that according to 59% of the respondents, general interest in a subject strongly influenced their choice of major, and many of these students were exposed to their general interests through program promotion. University catalogs and departmental brochures can also provide valuable information for major choice, and for some students are more influential than career planning services (West, Newell, & Titus, 2001). The primary difference between the students enrolled at two and four year institutions who are in the process of making major decisions is that a four-year college student has more time to reach his/her decision (Becher & Trowler, 2001).

A primary goal of this study is to determine whether students' career decision self-efficacy is determined by their demographic profile as well as these established factors. This study attempts to determine what influence career decision self-efficacy plays in the major decision-making process for students enrolled at two-year, rural, public community colleges located in the Mid-Atlantic region of the United States.

Collecting Information About Majors

College students who fail to declare a major are often referred to as undecided, although many students are not actually undecided, but change their majors frequently (Gordon & Steele, 1992; Steele & McDonald, 2000). Premature commitment to a major may actually be more detrimental to a student than not declaring a major at all (Krieschok, 2001). Research suggests that students lack information in four areas at the point where they are forced to declare a major: personal information about themselves; knowledge of what particular majors mean; relationship on how majors and careers interact; and what skills they will need after graduation (Andrews, 1998, p.2).

Undecided students often lack some of the information necessary to declare a major, and these students can be referred to as having “open mindedness” (Mitchell et al, 1999, p.117; Kelly & White, 1993; Tillar & Hutchins, 1979). Mitchell et al (1999) suggest that students need to explore opportunities before taking the action of declaring a major. Many college students have low exposure to a variety of career options, and simply choose a major with which they are most familiar (Orndoff & Herr, 1996). Once students take the time to explore different opportunities, they are better prepared to take advantage of them.

Although a great deal of research has explored the importance of college students selecting a major quickly (Krieshok, 2001), other research indicates that undecided students have one desirable trait. If a student does not declare a major due to a lack of adequate information, then Gordon states that it is better for that student to remain undecided than to pick a major that he/she will most likely change after wasting his/her resources (Gordon, 1998). Krieshok (2001) also suggests that declaring a major without proper information may lead to premature commitment to a major that may bring adverse consequences. Statistically, students who have declared a major during their first year of college often change their major later (Pennsylvania State University, 1990). Over 50% of the undergraduate students who declare a major will change it during his or her college experience (Kelly and White, 1993). This statistic has not changed much over the years. Levitz and Noel in 1989 stated: “approximately, three out of four students who have chosen majors on entering college will change majors at least once before they graduate”. Therefore, undecided students represent a large portion of the college student population so it is worthwhile to examine the process by which students work toward major choice.

Influences on Major Choice

A thorough review of research literature was conducted to discover the greatest influences that have determined or encouraged college student major selection. The research discovered that there are conflicting data about what the primary influence is for students' major selection.

Employment Opportunities

A primary influence on major choice is the perception of opportunity for rapid career advancement. This relationship has been consistent over the past 40 years (Newell, Titus, & West, 1996). Ginzberg (1975) concluded that the perceptions of different majors are the result of different perceptions of the labor market. Research continues to suggest that the relationship between perceived salary attainments within a major (Cebula & Lopes, 1982; Hu, 1996) is an influence on students' major choice with this generation of learners. Statistical data indicate that students who attend college can expect a significant return on their investment; however, different undergraduate majors lead to markedly different careers and significantly different earnings (Carnevale & Melton, 2011). In addition, the perceptions of opportunities within the labor market can influence a student's desire to select a particular major. Many times the labor market determines which programs will be offered which is most relevant to the current market conditions (Hu, 1996). Hence, economics can play a major factor in a student's selection of major.

Parental Influences

Research suggests parental support, careers, and advice often impact the young adult's choice of college major (Chung, Loeb, & Gonzon, 1996; Keillor, Bush, & Bush,

1995; Newell, Palladino-Schultes *et al*, 2001, Titus, & West, 1996; Vermeulen & Minor, 1998). Attitudes of the parents about the child going to college, or the parents' lack of drive to attend college were a significant influence on the child's decision to attend. As the parents' education increases so does the child's likelihood of enrolling into a post-secondary academic institution (Schultz, 2004). Research indicates that parents who have not attended college may lack information that is required to support their children's preparations for college (Saenz, Hurtado, Barrerra, Wolf, & Yeung, 2007).

Parents not only have the greatest influence on major selection, but also on a student's ability to be successful in that major (Scarpello, 2007). Adams, Pryor, and Adams (1994) report, that 4% of their participants indicated that parental pressure is important in influencing their choice of major. An additional 10% indicate that they chose a major which is closely related to their parent's occupation. Chen (2007) states that first-generation students are more likely to choose a major in a vocational or technical field, whereas students whose parents have a bachelor's, or more advanced degree, are more likely to choose a major in science, mathematics, engineering, architecture, humanities, arts, or social sciences.

In the science and engineering fields, research suggests that parents constitute a major influence on students, but especially on women (Scott, 2005). Attachment theory, posited by John Bowlby, provides the conceptual linkage between human development and emotional stability that may have a greater effect on women. According to reviews of the attachment theory in reference to the career development focus, parental response to adolescent girls is important for the girls' exploration of the full range of career options (Blustein, Prezioso, & Schultheiss, 1995). In addition, parental support may be essential

for promoting self-efficacy (Mallinckrodt, 2000). Perceived self-efficacy may in turn influence the likelihood of the development of initial interest in, and persistence in, a career area (Betz, 2001).

Peers and Counselors

Some research confirms that the learner's peers (Keillor, Bush & Bush, 1995; Newell, Titus & West, 1996) and counselors (Vermeulen & Minor, 1998) have the greatest influence on the student's decision to pick a particular major. This is not an uncontested finding, though, as a study conducted by Adams, Pryor, and Adams, (1994) states that only nine percent of respondents admit that their peers' recommendations strongly influenced their decision to select a particular major. This same study also indicates that only six percent of respondents report that the influences of counselors' recommendations were the reason for the major selection.

Gender

Research by Worthington & Higgs (2003) concludes that the decision to pick a specific major is based in part on the learner's gender. Gender role ideologies are a filter through which all occupations pass, according to a study conducted by Vermeulen & Minor (1998). In the study, 95% of the women respondents indicated that 'every' potential choice of major that they considered had to include its impact on motherhood. The drive to become a mother was more influential than a woman's role or title as an employee. Research also suggests females are discouraged from nontraditional majors such as science or engineering (Scott, 2005). Fifty-five percent of full-time students at rural community colleges are women, who also earn 63% of all associate's degrees. All community colleges in the United States are majority-female institutions (Griffin,

Hutchins & Meece, 2011). These facts place gender at the forefront of discussions regarding how students choose majors at community colleges.

Teachers, Work Experiences & Personality

Faculty can also impact a student's choice of major (Mauldin, Crain, & Mounce, 2000). The perceived intellectual challenge of a major field may also play a part in whether or not a student selects it. Everson, Tobias, Hartman, and Gourgey, (1993) suggest that students perceive specific majors as difficult because they believe the classes are designed to weed people out. This study suggests that specific majors are designed to eliminate academically weak students from the more academically sound students. Other variables involving the influence of faculty on selection of a major are noted in Keillor *et al.* (1995), including access to faculty, the faculty mentor system, faculty who are active, on-campus recruiters, and faculty with access to practitioners. Contrary to this research, some studies indicate that faculty is not a major influence in students' decision-making processes. Adams, Pryor, and Adams (1994) reported that only 7% of respondents are strongly influenced by faculty reputation.

A student's prior exposure to a particular career, (i.e. work experiences), has been identified as having an influence on the choice of major (Lowe & Simmons, 1997). Introductory courses that students are required to enroll in have also been identified as an influence on students' choice of major (Mauldin, Crain, & Mounce, 2000).

Morrow (1971) and Nafziger *et al* (1975), (cited in Hossler 1987), stated that a relationship was found between college majors and students' personality types. They believe selecting a major based on personality will lead to greater student and career satisfaction. Adams *et al.* (1994) reports that 59% of respondents indicated that their

personality and interest in the field of study were key elements in their choice of major.

Models of Career Counseling

College counselors have a variety of models from which to choose when assisting students in major selection. One such model, Parson's Trait-and-Factor Theory of Occupational Choice (Hartung & Blustein, 2002; Niles & Harris-Bowlsbey, 2005) purports that occupational choice can only occur when clients meet three conditions: (1) they accurately understand their individual traits (aptitudes, interests, and personal abilities); (2) they possess knowledge about current jobs and the labor market; and, (3) they are able to make rational decisions about the relationship between their individual traits and the current labor market.

A second model of career counseling is the Person-Environment Fit model (Hartung & Blustein, 2002; Porter & Umbach, 2006) which encourages students to select a major that is compatible with their personality, skills, and physical abilities; in summary, their identities. A third theoretical model is Holland's Theory of Vocational Choice (1985), which is very similar to the Person-Environment fit model. This model suggests that when the career environment matches the personality of the individual, there is a "fit" making that a good career choice. Clients complete an inventory that then provides them with their three-letter personality code and a list of jobs with the same three-letter code. Clients are then encouraged to learn more about each of those matches to identify which of them to pursue.

Yet another theoretical model is the Rational-Choice model that includes a process involving exploration of self, exploration of majors, making a decision, and then implementing that decision (Hartung & Blustein, 2002). Self-identity also affects a

student's occupation choice, and success in achieving that occupation (Miller & Tuttle, 2006). According to Josselson (1987), identity theory may play a large role in personality and occupational choice (Miller, & Tuttle, 2006).

The Initial versus Final Choice model includes a process in which the student perceptions and predispositions of the major are attributed to initial choice. With increased critical-thinking ability, self-fulfillment and personality development, as well as current market conditions, these influences then become the deciding factors of the student's major final choice (Hu, 1996).

Effects of Major Choice

Major-Choice Effect on Likelihood of Persistence

If a student selects the right major for him/her, it can lead to persistence and success, but selecting the wrong major can increase the college attrition rate (Hu, 1996). Sandler (2000) concluded that persistence stemmed from students' confidence in their ability to make an accurate choice of major. Kreysa (2006) reported similar findings in her study, reporting that there was a 22% increase in the likelihood of persistence due to students declaring and selecting an appropriate major. Kreysa's findings conclude that students who declared their choice of major were more likely to be retained. This conclusion supports research that suggests the uncertainty about choice of major is linked to attrition (Titley & Titley, 1980; Groccia & Harrity, 1991) and to low academic achievement (Plaud *et al.*, 1990).

These studies did not address the idea that a student's selection of the wrong major could potentially increase the institution's attrition rate. Yorke's (2000) study sampled individuals who are considered college drop-outs. This study found that most

participants stated their choice of the 'wrong field of study' as the greatest of all the factors associated with their departure from their academic institutions.

College Experience

The college years are a transition period in which an individual's shift from his or her family of origin to a new world provides an unlimited number of occupations (Vermeulen & Minor, 1998). The 2010 Standard Occupational Classification System (U.S. Department of Labor, Bureau of Labor Statistics, 2010) includes 840 occupations. Many community colleges offer a variety of majors, which can be combined with certificate programs. As a result, students have an extensive array of academic and career options, but many of these options are unfamiliar to them (Stelle & McDonald, 2000). Dating back 80 years, research has documented the efforts made to assist undecided students (Gordon, 1995, p.3). Hu (1996) suggested that a student's choice of major is simply an act of matching and combining said student's academic goals with social roles. One of the places to obtain information and guidance about academic and career goals is at a college. College experiences foster student major choice because they provide students access to necessary skills for critical thinking and analyzing problems (Andrews, 1998), skills for decision-making, and information about career choices (Hu, 1996). Student services, student living environments, institutional reputation, and acts of reaching out, play an important role in the student's decision of which major to pursue and if college experience is positive enough to persist in achieving a degree (Hu, 1996).

Effects of Not Selecting a Major

There are also emotional consequences to not selecting a major (Hagstrom, Skovholt & Rivers, 1997). Researchers discovered that students who delayed declaring a

major reported experiencing anxiety, hopelessness, and low self-esteem (Hagstrom et. al, 1997; Hartman & Fuqua, 1983). Furthermore, delay in declaring a major can result in high accumulation of unnecessary course work and expenses. Hagstrom, Skovholt & Rivers (1997) discovered that students who had taken courses and accumulated a large number of credits (60+) without declaring a major expressed, to their peers and to their academic advisers, frustration both in and out of the classroom, as well as a sense of hopelessness, anxiety, and low self-esteem. These emotional issues can lead to a fear of being judged by anyone who poses any questions pertaining to their major choice. Another adverse consequence of not declaring a major is the financial wastes associated with taking courses that are unnecessary for degree obtainment (Yin, 2011). Students who do not declare a major prior to their second year at a community college may take classes that are not required for their final major choice, and thus pay for classes that are not needed. This waste of financial resources could eventually affect the taxpayer if financial aid were awarded to support the costs of these unnecessary courses (Yin, 2011).

Another potential negative consequence of not declaring a major is the time and effort students invest in course work that will not lead them to receive their desired degree. The amount of time that is spent on taking courses that are not geared toward graduation requirements is unnecessary, but may be beneficial if students are still ambiguous about their choice of major (Carduner et. al., 2011).

Not declaring a major can potentially be a financial burden to the college as well. In the case of Compton Community College vs. United States of Department of Education (USDOE) (Docket no. 05-78-SP, PRCN: 200440923355), Compton Community College faced legal sanctions because federal financial-aid money was

distributed to students prior to their declaration of a major. Before the distribution of federal funds, a student must be considered a 'regular' student. USDOE posited that a regular student is a person who is enrolled, or accepted for enrollment, at an institution for the purpose of obtaining a degree, certificate, or other recognized educational credential offered by that institution pursuant to 34 C.F.R.600.2. The USDOE considered a declaration of a major credible evidence of obtaining 'regular' student status, while Compton Community College did not. Although the college followed its legal right to interpret 'regular' status as a student who had not declared a major, it found itself forced into legal action, which proved costly to both the college and the taxpayers. Compton's claim that it does not require students to declare a major before being considered "regular" was accepted by the courts, since Compton's requirement that students declare an educational plan before achieving regular status complies with 34 C.F.R. § 600.2. This argument proved that Compton did not violate Title IV requirements, and the claims were dropped but not before costing taxpayers.

Self-Efficacy

Self-Efficacy Theory

One of the most practical concepts formulated in modern psychology has been Albert Bandura's (1977, 1997) concept of self-efficacy. Self-efficacy is defined as an individual's belief in their capabilities to successfully perform a variety of behaviors, which are associated with behavioral choices, persistence, and encouragement. Bandura (1977) targeted four sources through which self-efficacy expectations are learned and by which they can be modified. These sources include: "1) performance accomplishments, that is, experiences of successfully performing the behaviors in question; 2) vicarious learning or modeling; 3) verbal persuasion, for example, encouragement and support

from others, and 4) emotional arousal, that is, anxiety, in connection with the behavior. Anxiety is viewed by Bandura as a “co-effect” of self-efficacy expectations thus increased anxiety should decrease self-efficacy and vice versa” (Betz & Taylor, 2007).

This concept of self-efficacy was applied initially to career psychology and counseling by Hackett and Betz (1981). Some other domains in which self-efficacy is applicable include task-specific occupational self-efficacy (TSOSS; Rooney & Osipow, 1989; Osipow, Temple, & Rooney, 1993), mathematics self-efficacy (Betz & Hackett, 1983), and self-efficacy for the Holland themes (Betz, Harmon, & Borgen, 1996; Lenox & Subich, 1994). Self-efficacy theory may be viewed as one approach to the applicability of social learning and/or social cognitive theory (e.g., Krumboltz, Mitchell, & Jones, 1976; Lent, Brown, & Hackett, in press; Mitchell & Krumboltz, 1984) to vocational behavior. Low self-efficacy expectations regarding a behavioral domain will lead to avoidance of those behaviors, and high self-efficacy will increase the frequency of that behavior. Thus understanding where an individual is within the self-efficacy development process can help to understand and predict their behavior.

The construct of self-efficacy has evolved and received a large amount of acknowledgement within the last three decades (Isik, 2010). Factors such as gender (Hackett & Betz, 1981), personality (Borgen & Betz, 2008; Hartman & Betz, 2007; Ojeda, Pina-Watson, Castillo, Castillo, Khan & Leigh, 2012), self-esteem (Betz & Klein, 1996; Creed, Patton & Bartrum, 2004), ethnicity (Hammond, Lockman & Boiling, 2010) and identity status (Nauta & Kahn, 2007) influence an individual's career decision self-efficacy.

Career Decision Self-Efficacy and Vocational Indecision

Taylor and Popma (1990) explored the relationship between career decision making self-efficacy (CDMSE) and vocational indecision. The authors examined the relationship between CDSE and the variables of vocational indecision, career salience, and locus of control. Subjects consisted of 203 female and 204 male college students. The average age of sample was 18.9 years old. The sample was predominately Caucasian (N= 354, 87%), while other participants represented the following races: Black: N=19, 4.7%; Asian: N=10, 2.5%; Middle Eastern: N=4, 0.98%; and Hispanic: N=3, 0.74%. All participants were enrolled at large Midwestern University and received a course credit for their participation. Each participant completed a demographic questionnaire, a career decision making self-efficacy questionnaire created by Taylor and Betz (1983), the Occupational Self-Efficacy Scale Questionnaire (OSES), the Rotter Internal-External Scale, the Career Salience Questionnaire and the Career Decision Scale (CDS).

In the original study by Taylor and Betz (1983) it was found that individuals with lower levels of confidence in their capacity to accomplish specific skills necessary for career decision-making displayed higher levels of vocational indecision. However, Lent, Brown, and Larkin (1987) found contradicting data that did not support that measures of self-efficacy significantly relate to vocational indecision. Lent, Brown and Larkin measured self-efficacy perceptions of academic competence, but not the behavioral domain specific to the construct of vocational decision. Since there are conflicting findings, further research is necessary to help clarify the nature of the relationship between CDSE and major selection.

Table 3 Overview of Related Literature in Correlation to Research Questions

ZAuthor/Title	Variable	RQ	Summary
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Kelly, R.R. & Hatcher, T. Decision making self-efficacy and barriers in career decision making among community college students.	Sample of 787 Community College students with 33% men & 67% women. Ethnicities of the participants were the following: 70% Caucasian, 13.7% African American, 4.8% Hispanic, and 4.6% other.	Age & Race 2013, Vol. 37, p. 103-113 Community College Journal of Research and Practice	Multiple linear regression model was used to determine if demographics were associated with CDMSE and career barriers for both applied technology and college transfer students. A regression (ANOVA) determined whether certain variables were more significant than others, thus allowing for comparisons among the demographics within each student group. Then a t-test was used to determine where the partial slope of the demographic factors were significant. Both age (as a continuous variable) and ethnicity were found to be significant predictors of career decision self-efficacy and career barriers. Results indicate that older college transfer students had higher levels of CDMSE and fewer career barriers.
Mathieu, Peggy Smith; Soward, Claudia; Niles, Spencer G. Differences in Career decision self-efficacy Among Women	Sample of 101 female students at southeastern university in US (Virginia). This study wanted to examine current career preferences in relation to 1984 US Bureau of Census labor market information.	Gender Spring 1993, Vol 19, Issue 3, p. 187-196	This study examined career decision self-efficacy expectations among four groups of women who differ in the traditionalism of their occupational preferences (traditional, nontraditional, gender-neutral, and undecided careers). Results showed that differences in career decision self-efficacy between women with nontraditional and traditional career preferences may lessen as these women solidify their career choices. By addressing their client's level of confidence early in the career decision making process, counselors may enable women to consider a wider range of occupational options and may be instrumental in facilitating career choice across gender-neutral, nontraditional, or traditional occupations.
Luzzo, Darrell; St. Ambrose, U. Value of Career Decision-Making Self-Efficacy in Predicting Career Decision Making Attitudes and Skills	Sample includes 233 undergraduate students with 162 women and 71 men, all aged 18 and older. Questionnaires used: Demographic Questionnaire, Career Decision Making (CDM) Self-Efficacy,	Frequency of Major Change April 1993, Vol 40, Issue 2, P.194-199	This study is used to show relevance when students are more confident in her or his ability to engage in the CDM process, the more likely that person will possess mature attitudes toward continuing with their selected major. CDM measures the likelihood to complete tasks needed to successfully obtain a career. Bandura (1977) hypothesized a direct link between self-efficacy expectations and behavioral performance. Higher levels of self-efficacy are more likely to be associated with increased frequency and successful performance of a behavior than are lower levels of self-efficacy. Therefore, a person's self-efficacy expectations regarding CDM (i.e., a person's CDM self-efficacy) should predict her or his actual performance in making career decisions.

Gloria, A.M.; Hird, J.S.	Sample of 687 students (48.9% male & 51.1% female) that took place in the Rocky Mountain Region. Ethnicities that participated in this study include the following: 589 Caucasian, 30 Asian, 21 Bi-racial, 20 International, 12 Latino, 7 Pacific Islander, 4 American Indian & 4 African American	Race	The purpose of this study was to examine differences in career decision-making self-efficacy, trait anxiety, ethnic identity by race and major (declared or undeclared). The results indicated that caucasian students had lower trait anxiety and higher career decision making self-efficacy than minority students. Minority students 1) Believe that their decision making will not allow them to obtain their chosen occupation although they may have the skills and abilities to successfully compete.; 2) Have little perceived influence over their potential work environments; 3) Internalized which heighten career-related anxiety.
Influences of Ethnic and Nonethnic Variables on the Career Decision Making Self-Efficacy of College students		December 1999, Vol 48, Issue 1, p. 157-174	

Research Questions

Research Question One: How do first year rural community college students compare to second year rural community college students in terms of their levels of career decision self-efficacy?

Research Question Two: How do rural community college students of different age groups, genders, majors, and races compare in terms of their levels of career decision self-efficacy?

Problem Statement

Research suggests that there are a variety of factors that influence a student's choice of major and their career decision self-efficacy. Factors include gender (Mathieu, Sowar & Niles, 1993; Vermeulen & Minor, 1998; Worthington & Higgs, 2003), parental influence (Adams, Pryor & Adams, 1994, Chueng, Loeb, & Gonzon, 1996; Keillor, Bush & Bush, 1995; Newell, Titus, & West, 1996; Vermeulen & Minor, 1998;), family background and influence (Keillor, Bush & Bush, 1995; Newell, Titus, & West,

1996), teachers (Adams et al., 1994, Everson et al., 1993; Mauldin, Crain & Mounce, 2000;), peers (Adams et al., 1994; Keillor, Bush & Bush, 1995), counselors (Vermeulen & Minor, 1998), past, present and future employment opportunities (Ginzberg, 1975; Lowe & Simmons, 1997; Newell, Titus, & West, 1996), ethnicity (Kelly & Hatcher, 2013; Gloria & Hird, 1999), age (Kelly & Hatcher, 2013) and personality factors (Adams et. al, 1994, Nafziger et al, 1975).

While there have been many who have conducted research using the CDSE-SF questionnaire, these were largely accomplished at four-year institutions located in diverse communities. There is limited research that has studied the community college student population's career decision self-efficacy and even less that has studied the community college population career decision self-efficacy in rural settings. There is a need to assist these rural students in selecting their careers, and understanding this population's career decision self-efficacy is the foundation upon which to build a better support system for these students. Researchers (Gloria & Hird, 1999; Kelly & Hatcher, 2013; Luzzo & St.Ambrose, 1993; Mathieu, Sowar, & Niles, 1993) suggest that there is a need to discover if factors including age, ethnicity, gender and major selection are related to differences in career decision self-efficacy among college students. This study addresses this void in the research literature .

This study compared the levels of career decision self-efficacy of first year students with the levels of career decision self-efficacy of second year students enrolled in rural community colleges in the Mid-Atlantic region of the US. The researcher used the students' demographic characteristics such as, a) students age; b) major selection; c) gender; and d) race to match first year students to second year students and then

compared these two matched groups according to their career decision self-efficacy. This study also examined how these students of different age groups, gender, majors and races compare in terms of their level of career decision self-efficacy using multivariate analysis of variance (MANOVA). Chapter three provides detailed information about the methodology of the study.

Chapter 3

Methodology

This quantitative study sought to compare the levels of career decision self-efficacy between first and second year rural community college students. Students approaching graduation (referred to as the sophomore group) were compared with students with similar demographic profiles in their first year of study (referred to as the freshmen group). Students were also compared across demographic groups (age, gender, race, and major choice). This type of matching was used in this study because random assignment to groups was impossible and score matching helps to ensure that the two groups being compared are close to equivalent.

The Career Decision Self-Efficacy Scale Short Form (CDSE-SF) questionnaire was the primary instrument, with a demographic questionnaire as an additional tool. The CDSE-SF instrument assesses the attainment of five competencies of career decision making abilities. The five competencies are as follows: 1) accurate self-appraisal; 2) gathering occupational information; 3) goal selection; 4) making plans for the future; and 5) problem solving. The demographic questionnaire asked about participants' age, gender, ethnicity, choice of major, and class rank, generated and provided a profile of the participating individual. .

Data were collected, and arrays of statistical procedures were employed to analyze the data. A cross-sectional research design was selected for this study. Since career decision self-efficacy is not appropriate for random assignment to groups, a non-experimental research design was used to compare CDSE between specific target groups. A 2 x5 MANOVA Test was used to compare the means of the two sub-samples which are subsets of the target populations.

Procedure. Pencil and paper questionnaires were distributed to respondents and then collected after students had adequate time to complete the instrument (Check, 2012). Questionnaires are efficient, because they allow many variables to be measured without substantially increasing either time or cost. Questionnaires also encourage sample generalizability because of the ability to sample a large segment of a population. Weaknesses of utilizing questionnaires are that they are standardized so it limits the possibility to fully explain answers to questions (Check, 2012). Also, like many evaluation methods, questionnaires ask respondents to recall events from the past, so it is possible that students may have forgotten what happened at the specified point. If a questionnaire is long, participants may superficially answer questions just to complete the survey. Another weakness of questionnaire distribution is the error of non-observation; where there is an omission in sampling (an important group is not sampled). This term principally refers to sampling error, coverage error, and nonresponse error. This type of error means that a potential participant cannot respond because they are unable, unavailable, or unwilling to do so due to the researcher's failure to include them in the sample (Check, 2012). For example, the respondent may be on vacation for the duration of the data collection period, or in a web-based questionnaire, the questionnaire link may be incompatible with a respondent's browser, leaving the respondent unable to complete the questionnaire.

Research Questions

A questionnaire was distributed to a convenience sample of freshman and sophomore students during summer semester 2014. Participants were contacted in their Freshmen Orientation, Business, English or Developmental Mathematics courses at two

rural community colleges in the Mid-Atlantic region of the United States. This study was designed to address the following research questions:

Research Question One: How do first year rural community college students compare to second year rural community college students in terms of their levels of career decision self-efficacy?

H₁: Students in the first-year of college will have lower level of career decision self-efficacy than second-year students.

Research Question Two: How do rural community college students of different age groups, gender, major and race compare in terms of their levels of career decision self-efficacy?

Age: H₁: The students age 21 and older will have higher career decision making self-efficacy compared to students age 18-20 (Isik, 2010; Betz et al, 1996; Betz & Voyten 1997; Creed, Patton & Watson, 2002; Luzzo, 1993; Luzzo & Ward, 1995, Taylor & Betz 1983; Kelly and Hatcher, 2013).

Gender: H₁: There will not be any difference between the level of career decision self-efficacy between men or women. This finding is consistent with previous research using college samples (Betz et al., 1996; Betz & Voyten, 1997; Taylor and Betz, 1983; Taylor & Popma, 1990; Isik, 2010; Choi, Park, Yang, Lee, Lee & Lee, 2012).

Race H₁: higher career decision-making self-efficacy is hypothesized for White students as compared with minority students based on previous research (Gloria & Hird, 1999; Kelly & Hatcher, 2013; Parham & Austin, 1994).

Major H_0 : There will not be any difference between the level of career decision self-efficacy between students with different majors

The independent variables were the participants' age, major selection, gender, and race, and class standing. The dependent variable in this study was the level of career decision self-efficacy for all five independent variables.

Participants

Context

The study took place at two mid-sized, rural, multi-campus community colleges located in the Mid-Atlantic region. Both colleges offer freshman and sophomore level transfer courses, Associate's degrees, and certificates to their students. The demographic profile for both colleges is found in Table 3 listed below. The first college provides their students with more updated technology on their main and largest campus (Patriot Avenue Campus), such as renovated computer labs, two new buildings built within the last five years that are equipped with touch screen guidance, while the other college has not built a new facility since 1971 but has renovated computer labs. The first college had a student population of 6241 full-time equivalent (FTE) students in the 2012-2013 school year. The first year retention rate is 84.4%, while the graduation and transfer rate is 31.2%. These data state that, although 84.4% return to school for their second year in their designated program, only 31.2% graduates on a yearly basis. This suggests that students return back to school their second year but will need to either complete a third or fourth year prior to graduating or after their second year they do not return at all. The second college had an enrollment of 3190 FTE students in the 2012-2013 school year. Their first

year retention rate is slightly lower than that of the other college with a rate of 82.5% and a graduation and transfer rate of 31% (www.Collegemeasures.com, Enrollment Report, 2013; DCC Fact Book, Institution Profile from 2008 through 2013; www.ph.vccs.edu, Report, 2013).

Table 4

Demographic Profile for College 1 & College 2 – Ethnicity, Gender, & Age Percentages

		College 1	College 2
Ethnicity	Asian	.84%	.52%
	Native American/Alaskan	.27%	.19%
	Hispanic	1%	1.08%
	African-American	37%	23%
	Caucasian	60%	74.9%
	Other	.89%	.31%
Gender	Female	57%	61%
	Male	43%	39%
Age	18-21	30%	27%
	>21	60%	73%

Sample

Paper and pencil questionnaires were given to a nonprobability (convenience)

sample of students aged 18 years and older, who were attending one of the two participating community colleges. Participants were first or second year undergraduate students attending a Freshman orientation (SDV 100), Business, English or Developmental Mathematics course. These individuals were asked to participate in the study during the Summer semester of 2014. Students had the option to decline participation after a presentation about the study was conducted in the classroom.

To determine the correct sample size the researcher calculated that the average populations from both schools are 5,215 students [(School 1: 6241 + School 2: 3190)/2]. Next the researcher determined the margin of error (confidence interval) desired for this study is +/- 8% and specified the confidence level at 90%. Due to the lack of predictable knowledge regarding the amount of variance to expect in the responses, an estimate of 0.5 was used as the standard of deviation for purposes of sample size calculations. The confidence value of 90% corresponds to a Z-score of 1.645 (Z-score for slightly higher confidence levels; 95%= 1.96 & 99% = 2.326). Sample size calculations were completed as follows:

$$\text{Necessary sample size} = (z\text{-score})^2 \times \text{StdDev} (1\text{-StdDev}) / (\text{margin of error})^2$$

$$(1.645)^2 \times (0.5)(0.5) / (0.08)^2 = 104 \text{ respondents needed for study.}$$

The sampling goal was to capture students with various demographic profiles that mirror the demographic profile of the general student population of the colleges. Based on the Survey system, the ideal sample would contain at least 19 participants in each subgroup, which would produce a 97% confidence level with a 4.2 confidence interval.

Binary Logistic Regression

“Logistic regression allows categorically and continuously scaled variables to

predict any categorical scaled criterion” (Osbourne & King, 2008, p 358). Thus, in this study, Binary logistic regression will combine both the freshmen and sophomore students into match pairs by their predicted scores. The researcher would like to use the student demographic profiles (1. gender, 2. race, and 3. major selection) as the baseline characteristics and the level of career decidedness for the outcome. The researcher will use the predictability scores as the comparison tool between the two class ranking groups to match them. Thus, the career decision self-efficacy results of an African-American freshman ranked female whose major is English will be compared with an African American female that will be graduating shortly with an English major. This type of regression is commonly used in the academic community when comparing match groups as demonstrated in the Community College Journal of Research & Practice (Newell, M., 2014), Journal of Advanced Academics (Almarode, J. Subotnik, R., Crowe, E., Tai, R., Lee, G., & Nowlin, F., 2014), Journal of College Student Retention: Research, Theory & Practice (Johnson, J., Wessel, R., Pierce, D., 2014; Schreiner, L., Nelson, D., 2014; Chloe, B. & Morris, O., 2011) and many more publications.

Instrumentation

Career Decision Self-Efficacy Short Form Questionnaire

The original career decision self-efficacy scale questionnaire (Taylor & Betz, 1983) measures an individual's belief that he or she can successfully complete tasks necessary to making career decisions. One of the more important aspects of developing a measure or scale of self-efficacy is determining the behavioral domain of interests (Crites, 1978). Five Career Choice Competencies (Crites, 1978) subscales were created to reflect the behavioral domain of interest (career choice): 1) accurate self-appraisal; 2)

gathering occupational information; 3) goal selection; 4) making plans for the future; and 5) problem solving. Ten items were written to reflect each competency area. The 50 items are contained in the questionnaire itself, and the scoring key indicates their subscale placement. Participants indicate their perceived ability to successfully complete each task on a 10-point scale ranging from Complete Confidence (9) to No Confidence (0).

Although the reliability of the 10 point continuum on the instrument was found to be fairly high (0.93 in the Luzzo (1993) study and 0.97 in the Taylor & Betz (1983) study) an alternate, shorter scale was suggested. The shorter version consists of five, 5-item scales for a total of 25 items, and is commonly used in counseling assessments, and as a pre-post measure for the evaluation of career interventions (Betz, Klein & Taylor, 1996). For the short form, a five level confidence continuum was used , ranging from No Confidence at all (1) to Complete Confidence (5) .The five subscales remain the same, and include the following: 1) accurate self-appraisal; 2) gathering occupational information; 3) goal selection; 4) making plans for the future; and, 5) problem solving. The scale scores are computed by summing the responses to each item with scores ranging from 25 to 125, with higher scores reflecting greater career-related confidence. The short form retains an excellent reliability score (0.95), comparable to the .93 in the Betz, Hammond, & Multon (2005) study.

Reliability/Validity of the CDSE-SF

The CDSE was initially validated within a sample of 346 college students: 156 students (68 males and 88 females) attending a private liberal arts college, and 193 students (60 males and 130 females) were attending a large state university. Both schools were located in the Midwest. Data regarding reliability, validity, factor structure, and

gender differences were collected and categorized (Taylor & Betz, 1983).

The original and short form version of the CDSE has been reported to be highly reliable. In the original sample of 346 students internal consistency reliability coefficients (alpha) ranged from .86 to .89 for the subscales and .97 for the total score (Taylor & Betz, 1983). Luzzo (1993) have reported comparable levels of internal consistency with a total scale alpha of 0.93.

The internal consistency reliability of the CDSE-short form ranged from .73 (Self-Appraisal) to .83 (Goal Selection) for the 5-item subscales and .94 for the 25-item total score (Betz et al., 1996). In another study, short form reliabilities ranged from .69 (PS) to .83 (GS) for the subscales and .93 for the total score (Betz & KleinVoyten, 1997). There is also evidence that the five-level response continuum used in the short form provides comparably reliable assessment in comparison to the 10-level continuum (Betz & Taylor, 2006). Values of alpha in two studies which used the five point continuum (Paulsen, 2001; Smith, 2001) were: Self-Appraisal (.81, .81) compared to the 10-level continuum value of 0.73 (Betz & Klein, 1996), Occupational Information (.82, .82) compared to the 10-level continuum value of 0.78 (Betz & Klein, 1996), Goal Selection (.84 and .87) compared to the 10-level continuum value of 0.83 (Betz & Klein, 1996), Planning (.84 and .82) compared to the 10-level continuum value of 0.81 (Betz & Klein, 1996), and Problem Solving (.80, .81) compared to the 10-level continuum value of 0.75 (Betz & Klein, 1996). The total 25-item alpha was .95 in both cases.

Demographic Questionnaire

Students completed a seven-item demographic questionnaire that asked for their gender, age, race/ethnicity, category of major, class rank, and projected graduation date.

The demographic questionnaire was given first, followed by the CDSE-SF during the distribution process. This questionnaire was similar to the questionnaire found in Gloria & Hird's (1999) study due to the similar interest in the demographic profile of their participating students. Validity and reliability information for the demographic questionnaire was not reported in the Gloria & Hird (1999) study, as is generally the case with demographic items. The items listed on the demographic questionnaire directly pertain to the focus of this study and were used to characterize the sample and to create comparison groups for analysis.

Research Procedure

Data collection took place during summer semester of 2014. Prior to the distribution of questionnaires to students, approval was obtained from the VCCS using established VCCS procedures which were fundamentally based on the approval from both rural community college Presidents. Additionally, the instructors of the Business classes, Freshmen Orientation Courses (SDV 100), Developmental Mathematics and English courses at both colleges were contacted via email and postal mail and informed of the purpose and design of the study. The letter to the instructor(s) is found in Appendix G. The researcher personally scheduled a meeting with both colleges' Academic Affairs leaders to obtain the instructors' contact information and to make them aware of the study. Instructors were asked to take 20-30 minutes out of their lecture times to allow for distribution of the questionnaires. Only instructors who allowed this interruption were included in this study.

Completed questionnaires were collected and placed in a secure, locked drawer until all data were collected and ready to be analyzed. To limit the possibility of students

completing the study multiple times in multiple classes, the researcher asked students if they had already participated in the study and advised that there was no need to fill out the two questionnaires again. The researcher also asked each participating student to be as honest as they could while completing the questionnaire and to raise their hand if they had any questions or concerns.

Each participant signed a consent form This consent form is included in the Appendix section (Appendix C) of this proposal. This study involved human participation, so approval was sought and received from the Institutional Review Board at Old Dominion University. Participants' names were changed to numbers on the questionnaires themselves in order to protect participant anonymity.

Data Analysis

For research question one, freshmen and sophomores were compared with regard to their career decision self-efficacy. Group one consisted of participants that are considered at a freshmen ranking. These freshman ranked students were in the process of completing their first-year studies. Three independent variables (1. gender, 2. race, and 3. major selection) were used as factors to match and compare results from the Freshman group results to the second group, the graduating, "sophomore" group. Hence, the results of the CDSE-SF of a Caucasian man, enrolled with a freshman standing that has selected a Business major had his career decision self-efficacy results compared with a Caucasian man that considered a sophomore majoring in Business. The dependent variable for this analysis was the level of career decision self-efficacy. The researcher used the Multivariate Analysis of Variances (MANOVA) test to answer research question two and the binary logistic regression model in combination with the paired sample t-test to

answer question one. The MANOVA test verifies whether the means of two groups are statistically significantly different from each other. This analysis is appropriate whenever you have two or more vectors of mean and need to determine if the two groups are from the same sample distribution. The researcher used the MANOVA test to compare the different independent variables, which were coded, to test the hypotheses about how they predict the dependent variable. To answer the second question, once the students' predictability scores were matched using binary logistic regression, the researcher used the paired samples t-test. Paired t-test is used when participants in one group are matched with participants in a second group with a common element. In this study the students' age, race and major were the common elements used to match participants.

Internal/External Validity

Internal Validity

Threats to internal validity compromise our confidence in stating that a relationship exists between the independent and dependent variables. Some threats to internal validity are 1) Maturation, 2) Statistical Regression, 3) Selection, 4) Design Contamination, 5) Experimental Morality, 6) Resentful demoralization, and the last two threats of 7) History and 8) Instrumentation, which do not pose a large threat in a two group design. Threats to internal validity that apply in this study include life experiences, statistical regression, and selection.

Life experiences. The group age 21 and over may have been more mature than students age 18-20. While there is no conclusive evidence of this, data has shown that age correlates with the acceptance of responsibility which many translate into becoming

more mature (Johnson, Blum, & Giedd, 2009; Marsh, Herbert, Nagengast, & Morin, 2013).

Selection. 1) The use of a convenience sample in this study made it more difficult to create groups of an equal number of participants.. Also, the size of both groups were limited to students attended the Business, Developmental Mathematics, and SDV-100 classes. 2) Also, since there are more students entering college than graduating (only 30% graduate), there may have been important but undetectable differences between the two groups.

Type of student. Research has shown that different types of students take summer course than fall and spring courses. Students that appear to be more motivated register for summer courses. Students who take summer classes take courses at a faster pace than normal academic year courses, so they must be highly motivated in order to be successful. These students are aware that there will be a lot of material to master, some material will be considered difficult to master, and the professor has the same expectations that professors have during the fall and spring semester (Dahleh and Beltz, 2004). Motivated students are also noted as being more likely to agree to participate in research studies compared to their peers (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008).

External Validity

Threats to external validity compromise our confidence in stating whether the study's results are applicable to other groups. The primary threat to external validity in this study is population validity, which is how representative a sample is of the population. The more representative, the more confident we can be in generalizing from the sample to the population.

This threat is present due to the fact that a convenience sample was used for this study. Thus, we must exercise caution in attempting to generalize beyond this sample.

Summary

This study was quantitative, non-experimental, and comparative. The population sampled was made of students age 18 and over attending one of two community colleges located in the Mid-Atlantic region. All respondents were enrolled in either a freshmen orientation class (SDV 100) or an English, Business or Developmental Mathematics course at one of the colleges. The Career Decision Self-Efficacy Scale Short Form (CDSE-SF) (Betz & Taylor, 2006) was the primary measurement tool chosen for this study. The Statistical Package for the Social Sciences (SPSS) software was used to analyze the data resulting from the questionnaires. Data analysis is discussed in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this quantitative comparative study was to compare the level of career decision self-efficacy of rural community college students according to their current year of study, age, major, gender, and race. This study was driven by two research questions, presented here with their attendant hypotheses:

RQ1: How do first-year rural community college students compare to second-year community college students in terms of their levels of career decision self-efficacy?

- 1) Higher career decision self-efficacy is hypothesized for the students that are graduating

RQ2: How do rural community college students of different age groups, genders, majors and races compare in terms of their levels of career decision self-efficacy?

- 1) The students age 21 and older will have higher career decision self-efficacy compared to students age 18-20;
- 2) There will not be any difference between the level of career decision self-efficacy for men or women;
- 3) Higher career decision self-efficacy is hypothesized for Caucasian students as compared with minority students and;
- 4) There will be no significant difference in career decision self-efficacy according to major.

To address research question one, the data were analyzed by matching students via binary logistic regression and then analyzed through paired T-Tests. To address

research question two, one-way and multivariate analysis of variance (ANOVA) were used.

Data were analyzed using SPSS Grad Pack version 22. This chapter describes the participants, as well as the analyses conducted and their results.

Overview of Designs, Data Collection Instruments, and Procedures

Career Decision Self-Efficacy Short Form (CDSE-SF)

The level of career decision self-efficacy was assessed for each participant. Participants completed one survey instrument and one demographic questionnaire. The survey instrument was the Career Decision Self-Efficacy- Short Form questionnaire which measures the level of career decision self-efficacy. The questionnaire was composed of the following five subscales: Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving. Five questions were answered in each category to provide a synopsis of their level of career decision self-efficacy. Level of career decision self-efficacy ranges from 1-5 in each category.

Demographic Questionnaire

The demographic questionnaire contained six questions which determined the participants' age, gender, major, year of study, ethnicity, and graduation date. These questions were included in order to group participants for purposes of addressing the research questions.

Demographic Characteristics of the Sample

Participants completed a paper and pencil questionnaire consisting of the CDSE measure and a demographic measure (detailed in Chapter 3). A total of 184 participants were invited, and 122 students responded. Of those who responded, 118 participants

provided complete data and were included in the analysis for this study.

Participants ranged in age from 18 to more than 50 years old, with most participants in the 18-20 age group (30 participants) and the 21-24 age group (31 participants). Age group 25-35 was the third largest, with 26 participants, followed by 36-50, with 21 respondents. Finally, there were 10 participants in the 51 and over group. The largest number of participants (N = 53) reported their major as Health/Medical/Physical Therapy, followed by Arts/Social Sciences (N=20), Science/Technology (N=20), Business/Marketing (N=14), and "Other" (N=11).

Forty participants were male, and 78 were female. The majority of participants were African American (58 participants) or Caucasian (48 participants). Other racial categories included Asian (2 participants), Hispanic (4 participants) and 6 participants that were considered 'other.' Of those seven responses in the 'Other' category, two indicated that they were Native American and Caucasian mixed race. Since they wrote in the 'other' box as a mixed race, their response stayed in the 'other' category not in the Native American category. Because of the small number of participants in the Asian and Hispanic categories, those respondents were included in the 'other' group for purposes of analysis.

Table 5 lists the demographic profiles of the two participating colleges, and Table 6 lists the demographic characteristics of participants in this study.

Table 5

Demographic Profile for College 1 & College 2 – Ethnicity, Gender, & Age Percentages

		College 1	College 2
Ethnicity	Asian	.84%	.52%

	Native American/Alaskan	.27%	.19%
	Hispanic	1%	1.08%
	African-American	37%	23%
	Caucasian	60%	74.9%
	Other	.89%	.31%
Gender	Female	57%	61%
	Male	43%	39%
Age	18-21	30%	27%
	>21	60%	73%

Table 6

Demographic Profile for Participants in Study – Ethnicity, Gender, & Age (N = 118)

		%	n
Ethnicity	Asian	1.7%	2
	Native American/Alaskan	.0%	0
	Hispanic	3.4%	4
	African-American	49.2%	58
	Caucasian	40.7%	48
	Other	5.1%	6
Gender	Female	66.1%	78
	Male	33.9%	40
Age	18-20	25.4%	30
	>21	74.6%	88

As Table 6 indicates, the demographic profile of the sample for the study is reasonably close to the demographic profiles of the colleges, in general. One exception to this general comparability is with regard to race. For both colleges, the largest ethnic group is Caucasian. However, African-Americans were the largest ethnic group to participate in the study. The proportion of males and females and the approximate distribution of ages are similar to those of the two colleges.

Data Screening

Prior to analysis, the data were screened to ensure that all participants completed the survey measures and were eligible to participate in the study. Three participants were omitted from the study because they were transfer students from a four-year institution and were taking a class at the community college for the summer. One student was omitted because she/he did not place numerical values on any of the indicated areas but instead circled the number 4 at the top of the instruction box and placed check marks in all of the areas designated. These students are the ones referred to earlier in the chapter, and represent the decrease in N from 122 to 118.

In addition, four respondents placed text responses instead of numerical responses in one or more areas of the instrument (Participant 23 Q2: welding; Participant 36 Q4: research; Participant 89 Q2: arts; Participant 106 Q2 and Q4: Radiology, radiology tech, Questionnaire found in Appendix F). For those participants, the researcher removed their text responses and allowed the other questions they completed correctly to be a part of the study.

Summary of Modifications Made to Data Prior to Analysis

Modification 1

There was a need to convert all variable types to “scale” for Q1-Q25 to facilitate creation of composites. Five subscale composites and one overall composite were calculated for the CDSE subscales, with alpha reliabilities as reported in the table below.

Table 7

Composite and Alpha Reliabilities

Scale	Items	Alpha Reliability
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Self-Appraisal	Q5 Q9 Q14 Q18 Q22	.74
Occupational Information	Q1 Q10 Q15 Q19 Q2	.80
Goal Selection	Q2 Q6 Q11 Q16 Q20	.79
Planning	Q3 Q7 Q12 Q21 Q24	.83
Problem Solving	Q4 Q8 Q13 Q17 Q25	.75
Total Self Efficacy	All	.94

Modification 2

Recoded Asian and Hispanic to join the “other” group for race since there were only 2 (R44 and R85) and 4 (Rs 19, 20, 84, and 58) cases respectively. Since MANOVA requires that each group/category have at least as many cases as there are Dependent Variables (total of 5 variables), this was necessary to run the analysis.

Findings

The two research questions addressed in this study and their attendant hypotheses were:

Research Question 1: How do first year rural community college students compare to second year rural community college students in terms of their levels of career decision self-efficacy?

Hypothesis-RQ1:

H₁: Students in the first-year of college will have lower level of career decision self-efficacy than second-year students.

Research Question 2: How do rural community college students of different age groups, gender, major and race compare in terms of their levels of career decision self-efficacy?

Hypotheses-RQ2:

a) Age

H₁: The students age 21 and older will have higher career decision self-efficacy compared to students age 18-20.

b) Gender

H₁: There will not be any difference between the level of career decision self-efficacy for men or women.

c) Race

H₁: Higher career decision self-efficacy is hypothesized for Caucasian students than for minority students.

d) Major

H₁: There will be no significant difference in career decision self-efficacy according to major.

When one is performing multiple regression analysis, it is important to reduce the risks of Type I or Type II errors (Cohen et al., 2003). The Type I error (p-level = 5%), which is when a researcher finds an effect that really is not there in the population, can be affected by sampling error, sample size, and power (Field, 2009). Type I error was controlled in this study by running MANOVA instead of several one-way ANOVAs, and by only interpreting post-hoc tests for significant variables. The post-hoc tests themselves adjust the alpha levels for individual comparisons to avoid incorrectly declaring comparisons significant. Type II error can occur when a researcher fails to find an effect in their sample that is really there in the population. This study is vulnerable to Type II errors because of the small sample size, particularly in the analysis for question 1, where there were only 23 pairs (n = 46). There is a possibility that there may be a small effect, but due to the small sample size it may go undetected.

Research Question I – Analysis

Binary Logistic Regression

In order to match freshman and sophomore participants on demographic variables, binary logistic regression was used. This process, known as binary logistic regression, is used when a researcher wishes to compare participants across dichotomous groups using predictability scores (Binary Logistic Regression, 2008). An example would be wishing to compare the survival rate at two hospitals (Controlling for Damn Near Everything, 2011). Binary Logistic Regression allows one to control for the things that predict admission to each of the two hospitals (e.g., geographic area, insurance type, injury severity, income, etc.) so that the comparison is most directly between the two hospitals and not connected to any of these other factors. In this study, if students in the two classes were already different on age, race, or major, that could create the appearance of a difference in CDSE according to year of study when there was really not one. In order to avoid this problem, participants were matched using predictability score that reflects the likelihood (based on the demographic variables) that they were a freshman versus a sophomore. Students were then paired based on this predictability score, and the analysis to detect differences in CDSE carried on.

In order to match participants, a binary logistic regression was computed with the grouping variable (in this case, year in school) as the outcome and the potential covariates/confounds (in this case, gender, age, major, and race) as the predictors. Predicted probabilities are saved as a variable, which were then used to match participants. In this study, the above procedure was conducted, and freshman participants were matched with sophomore participants of similar predictability score. This matching

process yielded 23 matching pairs (total N=46). Table 8 shows all of the matched pairs along with the participants' predictability scores.

Table 8

Matched pairs and predictability scores for freshman/sophomore matching

Matched pair number	Sophomore participant #	Sophomore predictability score	Freshman participant #	Freshman predictability score
1	53	0.07384	63	0.07384
2	66	0.15084	15	0.15084
3	91	0.18883	90	0.18883
4	32	0.20131	61	0.20131
5	37	0.21828	56	0.21828
6	121	0.24608	62	0.24608
7	64	0.25241	14	0.25241
8	68	0.25241	55	0.25241
9	106	0.25241	78	0.25241
10	111	0.25241	119	0.25241
11	39	0.26558	49	0.26558
12	110	0.26558	72	0.26558
13	97	0.2941	11	0.2941
14	102	0.2941	25	0.2941
15	116	0.2941	70	0.2941
16	6	0.31352	3	0.31352
17	42	0.31366	34	0.31366
18	33	0.32084	2	0.32084
19	88	0.33144	13	0.33144
20	114	0.38287	104	0.38287
21	65	0.39917	30	0.39917
22	23	0.43948	109	0.43299
23	43	0.57492	96	0.57492

Paired Sample T-Test

Paired sample T-Tests were used to compare the mean scores associated with two related groups (Check, 2012). In this study, since freshmen and sophomores were matched according to demographic variables, they were considered to be related groups,

and a paired samples t-test was used to compare their levels of CDSE. Results indicated that, after controlling for the demographic variables via pairing, there were no statistically significant differences between freshmen and sophomores on CDSE for any of the five subscales, nor for the overall CDSE measure (see Table 9 for means, standard deviations, t-scores, and *p*-values).

Table 9

Paired Sample Statistics

Subscale		Mean	SD	t	p
Self-Appraisal	Sophomore	4.23	.50	-.49	.63
	Freshman	4.30	.43		
Occupational Information	Sophomore	4.29	.66	.58	.57
	Freshman	4.18	.56		
Goal Selection	Sophomore	4.14	.62	.00	1.00
	Freshman	4.14	.73		
Planning Subscale	Sophomore	4.10	.79	-.04	.97
	Freshman	4.11	.70		
Problem Solving	Sophomore	3.79	.69	-1.22	.24
	Freshman	4.04	.71		
Overall CDSE	Sophomore	4.11	.58	-.28	.78
	Freshman	4.15	.53		

P-values for these t-tests ranged from .24 to 1.00, indicating that there is a high possibility of obtaining these results in a population where there is no true effect. The highest t-score was found for the problem solving scale, where Freshman students scored an average of 4.04 (SD=.71) and Sophomores scored an average of 3.79 (SD=.69). The lowest t-score was for goal selection, where both classes had the same average score (M=4.14). The negative t-scores for the Self-Appraisal, Planning and Problem Solving subscales indicates that the freshmen sample mean results were greater than sophomore mean results.

Research Question II- Analysis

One-Way Manova

A one-way analysis of variance was run to determine whether there were differences in CDSE according to demographic variables (i.e. age, gender, race, major). For purposes of this analysis, age was recoded to combine the upper age categories into a single “over 21” category. Results indicated that the overall model was significant ($F(10,107) = 2.72, p < .01$, A partial $\eta^2 = .20$). Age was the only variable to have a significant main effect, ($F(1,107) = 7.30, p < .01$, partial $\eta^2 = .06$). Tukey’s post-hoc test revealed that younger students had a significantly higher level of overall CDSE (M=4.15, SD=.64) than older students (M=3.98, SD=.58).

In order to investigate the relationship between the same demographic variables and the five CDSE subscales, a one-way multivariate analysis of variance was run. Box’s M test showed that the assumption of equality of covariance was met ($p = .097$). Levene’s Test of Homogeneity of Variance indicated that the homogeneity of variances assumption was met for all of the five dependent variables. Pillai’s Trace was interpreted

due to the unequal sample sizes present for some of the variables. Values for Pillai's Trace are reported in Table 10. There was a statistically significant difference between racial groups on the combined dependent variables, $F(20, 424) = 2.38, p=.001$, Pillai's Trace = .40, partial $\eta^2=.10$. There was also a statistically significant difference in the combined dependent variables according to age, $F(5, 103)=3.06, p=.01$, Pillai's Trace = .13, partial $\eta^2=.13, p=.010$.

Table 10

Results for One-Way MANOVA

Effect	Pillai's Trace	F	Sig	Partial eta squared
Age	.129	3.06	.01	.129
Gender	.078	1.75	.129	.078
Race	.403	2.38	.001	.101
Major	.185	1.03	.428	.046

Subscales Evaluated

After the overall MANOVA was interpreted, individual variables and their relationships to the individual subscales were examined.

Age and CDSE

Self-appraisal. Self-appraisal scores did not differ statistically significantly according to age, $F(1, 107)=.037, p=.847$, partial $\eta^2=.000$.

Occupational information. Occupational information scores did not differ statistically significantly according to age, $F(1, 107)=1.801, p=.182$, partial $\eta^2=.017$.

Goal selection. Goal selection scores did not differ statistically significantly according to age, $F(1, 107)=.169, p=.681$, partial $\eta^2=.002$.

Planning. Planning scores did not differ statistically significantly according to

age, $F(1, 107)=.893, p=.347$, partial $\eta^2=.008$.

Problem solving. Problem solving scores did differ significantly according to age, $F(1, 107)=7.302, p=.008$, partial $\eta^2=.064$. Younger students ($M=4.09$, $SD = .68$) had a statistically significantly higher score on the problem solving subscale than older students ($M=3.72$, $SD=.71$).

Gender and CDSE

Self-appraisal. Self-appraisal scores did not differ statistically significantly according to gender, $F(1, 107)=2.576, p=.111$, partial $\eta^2=.024$.

Occupational information. Occupational information scores did not differ statistically significantly according to gender, $F(1, 107)=.025, p=.875$, partial $\eta^2=.000$.

Goal selection. Goal selection scores did not differ statistically significantly according to gender, $F(1, 107)=1.096, p=.298$, partial $\eta^2=.010$.

Planning. Planning scores did not differ statistically significantly according to gender, $F(1, 107)=2.263, p=.135$, partial $\eta^2=.021$.

Problem solving. Problem solving scores did not differ statistically significantly according to gender, $F(1, 107)=1.971, p=.163$, partial $\eta^2=.018$.

Race and CDSE

Self-appraisal. Self-appraisal scores did not differ statistically significantly according to race, $F(4, 107)=.198, p=.939$, partial $\eta^2=.007$.

Occupational information. Occupational information scores did differ statistically significantly according to race, $F(4, 107)=3.114, p=.018$, partial $\eta^2=.104$. Tukey post-hoc tests showed that both Caucasian students ($M=4.12$, $SD=.66$) and African-American students ($M=4.19$, $SD=.62$) scored statistically significantly higher

than students identified as “other race” ($M=3.49$, $SD=.93$).

Goal selection. Goal selection scores did not differ statistically significantly according to race, $F(4, 107)=.377$, $p=.377$, partial $\eta^2=.014$.

Planning. Planning scores did not differ statistically significantly according to race, $F(4, 107)=.652$, $p=.627$, partial $\eta^2=.024$.

Problem solving. Problem solving scores did not differ statistically significantly according to race, $F(4, 107)=1.918$, $p=.113$, partial $\eta^2=.067$.

Major and CDSE

Self-appraisal. Self-appraisal scores did not differ statistically significantly according to major, $F(4, 107)=1.655$, $p=.166$, partial $\eta^2=.058$.

Occupational information. Occupational information scores did not differ statistically significantly according to major, $F(4, 107)=.901$, $p=.466$, partial $\eta^2=.033$.

Goal selection. Goal selection scores did not differ statistically significantly according to major, $F(4, 107)=1.378$, $p=.246$, partial $\eta^2=.049$.

Planning. Planning scores did not differ statistically significantly according to major, $F(4, 107)=.813$, $p=.520$, partial $\eta^2=.029$.

Problem solving. Problem solving scores did not differ statistically significantly according to major, $F(4, 107)=2.187$, $p=.075$, partial $\eta^2=.076$.

Conclusion

In sum, the hypothesis related to research question one was not supported. There were no significant differences in career decision self-efficacy according to year of study. Some hypotheses related to research question 2 were partially supported. Namely, there were significant differences according to race and age for some subscales. In Chapter 5,

these findings are discussed and directions for future research are suggested.

Chapter 5

Discussion

The purpose of this study was to examine the levels of career decision self-efficacy (CDSE) for rural community college students located in the Mid-Atlantic region based on their current year of study, age, ethnicity, gender, and major. Career decision self-efficacy was measured using The Career Decision Self-Efficacy - Short Form. Two research questions guided this study. First, how do first year rural community college students compare to second year rural community college students in terms of their levels of career decision self-efficacy? It was hypothesized that students in their first year of college would have a lower level of career decision self-efficacy than those in their second year. The second research question asked how rural community college students of different age groups, genders, majors, and races compare in terms of their levels of career decision self-efficacy. For this question, the hypotheses were that older students (21 and over) would have higher levels of career decision self-efficacy than younger students (under 21), that there would not be differences in CDSE according to gender, and that Caucasian students would have higher CDSE than minority students.

To answer research question one, binary logistic regression was used to obtain matching predictability scores for students from each class ranking. Students were matched into pairs according to their predictability scores, and then a paired sample T-Test was used to analyse the data. Question two was answered using a one-way ANOVA and a multivariate analysis of variance (MANOVA).

Summary of Findings

Research Question One

Hypothesis one was not supported. Students' current year of study was unrelated to their level of CDSE. The range of scores and average scores on the CDSE subscales were approximately equal across the two groups.

One possible explanation for the lack of significant difference is the small sample size for this analysis. Although there were 118 participants in the study overall, only 46 participants were included in the analysis for this question. The decision to pair students in order to control for demographic differences meant that only students who had a match were included in the analysis.

Research Question Two

Hypothesis two was partially supported. Results of the MANOVA indicated that gender and major were both unrelated to Career Decision Self-Efficacy (CDSE). However, race and age did have significant relationships with CDSE. Minority students, which included the Asian, Native American, and Hispanic students, had a lower CDSE score on the Occupational Information CDSE subscale. Caucasian and African American students both reported higher career decision self-efficacy than the 'other' group, which consisted of Hispanic, Native American and mixed-race students. Caucasian and African American students did not differ significantly from each other in terms of their CDSE. Also, age had a significant relationship with CDSE. Results showed that students age 18-20 had significant higher self-efficacy in terms of their score on the Problem Solving subscale than students age 21 and older.

Interpretation of Findings

Implications: Race and Career Decision Self-Efficacy

The finding that minority students had lower career decision self-efficacy is

worthy of further exploration. Differences in CDSE may help explain why minority students are less likely to complete their degrees and more likely to withdraw from school after the first year (Watts, 2012). As noted in the introduction, minority students may lack faculty and staff role models, and may feel that they lack support from campus leaders for important professional development opportunities (Watts, 2012). Self-efficacy is learned in four ways: 1) performance accomplishment, 2) modeling, 3) verbal persuasion and 4) emotional arousal, i.e. anxiety (Bandura, 1977). While any or all of these four learning modalities can be applied to CDSE, the lack of minority role models could be an issue that is particularly relevant to consider as a reason for the lower CDSE for minority students.

It is possible that minority students lack confidence in their ability to reach a goal (performance accomplishment). Though this study did not explicitly study this modality, it is a logical assumption based on what we know about minority students. Students who do not have any prior experience in their career choice rely on past experience in other areas as their point of reference for the level of performance accomplishment. If in the past he/she has failed pursuing a goal similar to their potential career goal, then a student may not be as confident in her/his ability to complete the necessary steps. This can apply to creation of a career plan and completing coursework in the major leading to desired career choice.

The second learning modality is vicarious learning or modeling behavior. If students have the ability to emulate ideal career professions it is more likely that students will progress in the direction of their projected career goal. Some of the known cognitive conditions of modeling behavior includes, self-observation of reproduction, as well as,

having incentives to imitate behavior.

The third learning modality is the need for verbal persuasion of a person's ability to complete a variety of challenging tasks. If students are not verbally encouraged, confirming that they have the abilities to pursue a particular goal, then a lack of confidence may occur and affect other areas such as selecting a career. Since minority students often lack minority mentors or role models, it is very possible that they do not have the same sources of verbal encouragement as non-minority students.

The last modality is a student's ability to deal with difficult situations. When someone is not confident in her/his abilities, the resultant emotional state is peaked and the reaction can become detrimental to their confidence. A peaked arousal example Bandura refers to is anxiety. Students who suffer from anxiety are less confident in their ability to complete difficult tasks.

Community college counseling departments can potentially use the results from this study to provide more guidance to Hispanic, Native American, Asian, African American and students of other minority racial groups. These racial groups had comparable levels of CDSE on every subscale, but occupational information obtainment. The occupational information subscale encompasses a student's confidence about their major choice as well as their knowledge regarding the steps needed to obtain information about their major or other potential majors. This difference provides a clear opportunity to positively impact the career trajectories of minority students. As stated in the literature review, a student's inability to obtain information about a major or their lack of information required to select a major is normally due to "1) the lack of personal information, 2) lack of knowledge of what particular majors mean, 3) lack of knowledge

about how majors and careers interact and 4) lack of understanding about what skills they will need after graduation” (Andrews, 1998, p.2). It will be interesting if further research can distinguish which of these four attributes are particularly relevant to minority students who struggle with occupational information obtainment. Are they struggling trying to determine which skills they will need after graduation, or how their potential career choice will interact with the U.S or International job market? Counselors can also benefit from knowing this information because they can organize their workshops to specifically address students’ gaps in skills and knowledge.

Parents are often the main influence on students’ major and career selection (Scarpello, 2007). Another fruitful area for future research would be an investigation of which of these four modalities parents can effectively influence. It is possible that parents have better knowledge of topics like the interaction between majors and careers or what the job markets look like for a given career choice. Examining parental input and involvement could also provide another avenue for helping students make up for informational deficits.

Implications: Year in School and Career Decision Self-Efficacy

Though there were no significant differences between first and second year students with regard to CDSE, the lack of difference is itself is interesting. Since demographics were controlled for in this study, the implication of this finding is that participants’ CDSE does not develop over their time. This may mean that they enter school already sure of what they want to do or that they leave school still feeling uncertain. The short time frame for this study (two years) also means that there may have been a restriction of range such that there simply was not enough time to see CDSE

develop in students. It would be worthwhile to continue to examine CDSE for some time after a student's second year at community college to see if, perhaps, time at community college is the beginning of a longer career trajectory that is characterized by improvement in CDSE.

Implications: Gender and Career Decision Self-Efficacy

Although there were no statistically significant differences found between female and male CDSE, and it was hypothesized that there would not be, the responses are still worth considering. Vermeulen and Minor (1998) reported that women lacked confidence that they could accomplish all of the necessary steps to complete a non-traditional major, because non-traditional careers are likely to conflict with their timeline of raising children. Vermeulen & Minor stated that 95% of the women who participated in their study indicated that 'every' potential choice of major that they considered had to include its impact on motherhood. Hence, the drive to be a mother was more influential than a woman's role or title as an employee. As a result, research suggests that females are discouraged from pursuing non-traditional majors (Scott, 2005). Taking these prior research findings into consideration, it was interesting to see that women who participated in this study seem not to have a lack of confidence in their abilities to pursue which ever career goal they seek. Eleven of the 78 women participants (14%) selected a non-traditional major.

The fact that there were no significant differences with regard to gender and CDSE is important because most community colleges in the United States are majority female institutions (Griffin, Hutchins, & Meece, 2011). Understanding your majority population should be important to every college in the United States. If the views of

women are changing with regard to their career choices and possibilities, then community colleges can use this information to better serve their student populations.

Implications: For Faculty & Staff at Community Colleges

Faculty and staff at community colleges are tasked with advising students. This study allows faculty and staff members to identify which subscales students attending rural community colleges struggle with so that they can then tailor their advising to address those needs. Understanding that students struggle with regard to specific subscales can also reduce the amount of time advisors waste trying to identify the needs and struggles of the student. Understanding which subscale their students struggle with also encourages a better relationship with an advisee because he/she may be more confident in the faculty or staff member abilities to guide him/her toward obtaining all of the necessary requirements to select and complete a major.

Implications: Administration at Community Colleges

As those responsible for creating, interpreting and enforcing policy for a community college, administrators are empowered to create the change that they envision. Administrators who to review this study can ensure that their faculty and staff are providing the level of care that their student population needs. Administrators for the college can create policies and procedures relevant to a variety of ways in which to approach students of different age ranges problem-solving issues.

Administration can also work with the counseling department to focus their efforts on providing purposeful workshops to address the needs of the racial groups that need help discovering information about majors that are available, deciphering how their passion fits in with the majors that are available, and find out employment trends of a

particular major.

Implications: For Students at Community Colleges

Students who are aware of which CDSE subscales they struggle with can be more confident in their ability to address the specific issues included in the subscale(s), and achieve their desired goal or major. Students can review this study and become aware of the five subscales in which their career decision self-efficacy is based. They can then complete the questionnaire and pinpoint where their career decision challenges are located and either address those needs or seek help needed to address them. When a student understands that he/she may only be struggling in one particular subscale and may not have any issues in the other subscales he/she may be more confident in his/her ability to obtain the help they need to successfully address issues associated with that subscale, and in turn increase their own self-efficacy.

Recommendations for Practice

Based on this study, minority students may need more information regarding what steps to take to obtain information about potential career choices. Career counselors should place more emphasis on the steps needed to obtain information about a career choice when communicating with these racial groups, and could increase their focus on ensuring students' knowledge of requirements for specific majors based on the student's interests.

Also, career counselors may want to tailor their communication or future workshops directed toward students age 21 and over to include career problem solving skills and affirmation of their abilities to solve different career problems. Community

colleges may also consider making a deliberate effort to provide minority mentors and examples of individuals of minority racial groups who have achieved success in different career fields.

Limitations and Directions for Further Study

Sample Size Considerations

The sample sizes in this study, and the use of convenience samples, limit generalizability. In particular, for research question 1, the small number of matched pairs is limiting. As noted above, 23 matched pairs were included in the analysis. With graduation rates at less than 30% (Rath, Rock, Laferriere, 2013) for community colleges within the United States it was hoped to have at least 30% second-year students participate in the study; but only 19% did so.

Internal Validity Threats

Instrumentation-multiple choice tests. When collecting data using multiple choice tests there can be internal threats due to regression to the mean (Internal Validity, n.d.). In this study the researcher is not sure whether any differences in the scores on the CDSE are due to the independent variables (gender, major, age, or race) or the unstable factors that are characteristic of participants who provided extreme scores.

Self-report bias. Due to students' personal perceptions of their inadequacies, they may have placed a higher number in the response box than their actual stage of level of career decision self-efficacy. A desire to appear more confident or more accomplished than they actually feel could have biased the results. Students' moral compass can be questionable for many different reasons and as a result, any time respondents are asked to self-report their feelings, behaviours, or abilities, this internal threat can be found.

Extraneous variables.

History of prior work experience. If students have prior work experience in their field of choice, they may have higher self-efficacy about their career choice. This higher self-efficacy would be independent of their gender, race, or age but can still impact the conclusions drawn in the study.

Emotional state of individual. If a student is tired or anxious when completing the instrument their results may pose a threat to validity. If students did not put much forethought into the response due to being tired or to apprehensive, then the student could have higher career decision self-efficacy than they originally indicated.

Career counseling satisfaction. If students are satisfied with services through their career counseling department, they might have higher career decision self-efficacy than someone who is not satisfied with the service. Students who are satisfied with the services rendered would be confident in the ability of Career Services to guide them toward obtaining all of the necessary requirements to select and complete a major.

Personal bias. It is possible that certain personal biases could have entered the research process at the hypothesis creation stage. Because of the researcher's knowledge in the subject area, and her personal experience, the choice of and conceptualization of hypotheses could have been affected. While the researcher took every measure to minimize the impact of bias, it is still important to consider it as a possibility.

Subject effects. Since the students knew their responses were being used for research, they may have answered questions in ways consistent with their perceptions of what the researcher wanted to find. This pattern of responding can threaten the internal validity of the study because respondents may have provided information on the CDSE

that had nothing to do with their age, gender, race or major selection (Internal Validity, n.d.).

Directions for Further Study

Age and Career Decision Self-Efficacy

Discovering that students' CDSE was statistically significantly different as mediated by age in the Problem Solving subscale creates opportunities for future research. Students age 18-20 reported a higher belief in his or her ability to successfully perform tasks associated with problem solving skills in relation to their career decision than students over the age of 21. It is possible that students who begin their studies after being away from school for a time, return with less confidence in their abilities than recent high school graduates. There is a need to expand on these results with students from a variety of age ranges to further investigate factors such as age, that influence their CDSE.

Larger Sample Size

It would be beneficial to see whether the same pattern of results were present in a larger, similarly-constructed study. Sample size is again a matter for concern when discussing the findings with regard to race. The "other" racial group was very small compared to the Caucasian racial group. This means that any outlying scores in the "other" group would have a disproportionately large impact on the results. It would be useful to take a stratified random sample of students for a future study to better ensure that the racial make-up of the campus was accurately reflected. As stated above, it would also be beneficial to obtain a larger and more varied sample for future research.

CDSE Learning/Nurture

Many researchers have correlated Bandura's four modalities to the career selection field; however, it would be useful to know whether there are ways to nurture CDSE so that students feel confident in their career choices.

The literature reviewed implied that external elements such as one's ethnicity, age, parental as well as peer opinions, gender, market stability, academic guidance, class ranking and major selection process influence career choices. This study evaluates five of the potential influences—age, gender, ethnicity, class ranking and choice of major. Researchers could expand on this research in the future by replicating this study with a wider array of independent variables that include other influences as outlined in the literature.

Summary and Conclusion

This quantitative study explored the relationships between rural community college students' level of career decision self-efficacy and their age, gender, ethnicity, and class ranking. The theoretical framework proposed that students need help discovering and cultivating their 'major certainty' in college (Orndoff & Herr, 1996). The literature reviewed implied that external situations such as one's ethnicity, age, parental as well as peer opinions, gender, market stability, academic guidance, class ranking, and major selection can influence career choices. This study provided a focused examination of the role of some of these variables in students' CDSE. Directions for future research and implications for higher education professionals were discussed. Future research in this area has the potential to benefit students as they begin their higher educations, as having a clear picture of one's goal can result in a positive college experience.

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APPENDIX A
Permission to use CDSE-SF Questionnaire



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December 29, 2013

Dear Ms. Spencer:

You have my permission to use the Career Decision Self-efficacy Scale-Short Form in your dissertation.

Best wishes on your research and your future endeavors.

Most Sincerely,

A handwritten signature in black ink, appearing to read "Nancy E. Betz", followed by a large, stylized flourish.

Nancy E. Betz, Professor

Betz, N.E. @osu.edu

614 579 2453

APPENDIX B
Invitation to Participate

Dear President _____,

My name is Tameka Spencer, and I am an adjunct Business and Developmental Mathematics Instructor at Patrick Henry Community College. I am also the former Regional Career Coach Leader for Danville, Patrick Henry and Southside Community Colleges. Currently, I am seeking my PhD from Old Dominion University with a focus on Community College Leadership and in particular, determining if there is a relationship between the levels of career decision self-efficacy for students age 18-20 and students age 21 and older who are enrolled in rural community colleges in the southeastern region of Virginia. I would like your approval to distribute a 'Career Decision Self-Efficacy Scale Short Form' questionnaire that has a high degree of reliability and validity in the academe community, to students at Patrick Henry/Danville Community College. This questionnaire was approved by the Human Subjects Review Board at Old Dominion University and I will include their approval letter in this email. I would like to distribute the questionnaire to as many students in your Developmental Mathematics, Business, and SDV-100 and English classes as possible with approval given from the instructor. The questionnaire will not seek, list or disclose any information that can be used to identify the participant which includes student's name, student identification number or any other identifying information. All data will be kept in a secure location in an office that requires a key access at Patrick Henry Community College and at the completion of the study all data will be destroyed.

Little empirical research has been conducted on discovering the levels of career decision self-efficacy that students in rural regions of the United States are currently in that prohibits their progress in moving forward with their career planning. The number of students from rural regions is steadily increasing, and understanding this new student population can help advisors at the colleges address these students' distinct needs.

Enclosed is a copy of the questionnaire. Please let me know if you have any questions or concerns or would like me to come to your office to discuss. Thank you.

Sincerely,

Tameka Spencer

APPENDIX C

Consent form for participants to be interviewed as part of the research project titled:

Discovering the Level of Career decision self-efficacy Among Rural Community College Students

The aim of this research is to gain a better understanding of discovering how students demographic profile interplays with the level of career decision self-efficacy of students in rural regions of the United States to support their selection of career choice. The number of students from rural regions is steadily increasing, and understanding this new student population can help advisors at the colleges address these students' distinct needs.

I agree to take part in the above research project. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that I am willing to:

- Complete a pen/paper questionnaire and all data on the questionnaire will be statistically recorded
- I understand that my name and identifying details will be changed, and restricted to the researcher and supervisor to protect my identity from being made public.
- I also understand that my participation is voluntary, and I can choose not to participate in part or all of the projects. I am also aware that I can withdraw at any stage of the project without being penalized or disadvantaged in any way.

Please tick the appropriate box.

- ☐ The information I provide can be used in further research projects, which have ethics approval as long as my name and contact information is removed before it is given to them.
- ☐ The information I provide cannot be used by other researchers without asking me first.
- ☐ The information I provide cannot be used except for this project.

Name:

Signature

APPENDIX D

Demographic Questionnaire

Instructions: Read each question and circle the answer that best applies you. In question 4, please circle the answer that closely resembles your major or the department your major is categorized under.

Demographic Questionnaire

- 1) What is your age (please circle)? 18-20 21-24 25-35 36-50 51-older

- 2) What is your gender (please circle)? Female Male

- 3) What is your race (please circle) Caucasian Asian
 African American Hispanic
 Native American/Alaskan
 Other _____

- 4) What is your Major (please circle)? Arts/Social Sciences
 Business/Marketing
 Science/Technology
 Health/Medical/Physical Education
 Culinary/Hospitality/ Motorsports
 Other _____ (describe)

- 5) What is your class ranking? (please circle)
 Freshmen Sophomore

- 6) When is your projected Graduation Date? (please circle)
 May 2014 May 2015 May 2016

APPENDIX E

Variables

Gender: Gender will be determined by respondent circled answer. Male will be coded 1 and Female will be coded 2.

Race: Race will be determined by respondent circled answer. Caucasian will be coded 1, African American will be coded 2, other will be coded 3

Major Selection: Major selection will be determined by respondent, circled answer. Arts/Social Sciences will be coded 1, Business/Marketing will be coded 2, Science/Technology will be coded 3, Health/Medical/Physical Education will be coded 4, Culinary/Hospitality/Motorsports will be coded 5 and Other will be coded 6.

Class Ranking: Class Ranking will be determined by respondent circled answer. Freshmen will be coded 1, Sophomore will be coded 2.

Projected Graduation: Projected graduation will be determined by respondent circled answer. May 2014 will be coded 1, May 2015 will be coded 2, and May 2016 will be coded by 3.

APPENDIX F

CDSE-SF Questionnaire

CDSE–Short Form

INSTRUCTIONS: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the key, Mark your answer by filling in the correct circle on the answer sheet.

NO CONFIDENCE	VERY LITTLE	MODERATE	MUCH	
AT ALL	CONFIDENCE	COMPLETE CONFIDENCE	CONFIDENCE	CONFIDENCE
1	2	3	4	5

Example: How much confidence do you have that you could:

- a. Summarize the skills you have developed in the jobs you have held?

If your response was "Moderate Confidence," you would fill out the number 3 on the answer sheet.

HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

1. Use the internet to find information about occupations that interest you.
2. Select one major from a list of potential majors you are considering.
3. Make a plan of your goals for the next five years.
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major.
5. Accurately assess your abilities.
6. Select one occupation from a list of potential occupations you are considering.
7. Determine the steps you need to take to successfully complete your chosen major.
8. Persistently work at your major or career goal even when you get frustrated.
9. Determine what your ideal job would be.
10. Find out the employment trends for an occupation over the next ten years.
11. Choose a career that will fit your preferred lifestyle.
12. Prepare a good resume.
13. Change majors if you did not like your first choice.
14. Decide what you value most in an occupation.
15. Find out about the average yearly earnings of people in an occupation.
16. Make a career decision and then not worry whether it was right or wrong.
17. Change occupations if you are not satisfied with the one you enter.

18. Figure out what you are and are not ready to sacrifice to achieve your career goals.
19. Talk with a person already employed in a field you are interested in.
20. Choose a major or career that will fit your interests.
21. Identify employers, firms, and institutions relevant to your career possibilities.
22. Define the type of lifestyle you would like to live.
23. Find information about graduate or professional schools.
24. Successfully manage the job interview process.
25. Identify some reasonable major or career alternatives if you are unable to get your first choice.

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APPENDIX G

Email Letter to Instructor(s)

Dear [Course] Instructor,

My name is Tameka Spencer, and I am an adjunct Business and Developmental Mathematics Instructor at Patrick Henry Community College. I am also the former Regional Career Coach Leader for Danville, Patrick Henry and Southside Community Colleges. Currently, I am seeking my PhD from Old Dominion University with a focus on Community College Leadership and in particular, determining if there is a relationship between the levels of career decision self-efficacy for students who are enrolled in rural community colleges in the southeastern region of Virginia. I would like your approval to distribute a 'Career Decision Self-Efficacy Scale Short Form' questionnaire that has a high degree of reliability and validity in the academe community, to your students in your classroom. The questionnaire consists of 25 items that pertain directly to career decision self-efficacy and a 7 item demographic questionnaire. It should take no more than 7 minutes to complete this questionnaire and approximately 3 minutes for instructions to be given to the students, hence in total approximately 10 minutes of total class time.

The questionnaire will not seek, list or disclose any information that can be used to identify the participant which includes student's name, student identification number or any other identifying information. All data will be kept in a secure location in an office that requires a key access at Patrick Henry Community College and at the completion of the study all data will be destroyed.

Little empirical research has been conducted on discovering the levels of career decision self-efficacy that students in rural regions of the United States are currently in that prohibits their progress in moving forward with their career planning. The number of students from rural regions is steadily increasing, and understanding this new student population can help advisors at the colleges address these students' distinct needs.

Enclosed is a copy of the questionnaire. Please let me know if you have any questions or concerns or would like me to come to your office to discuss. Thank you.

Sincerely,

Tameka Spencer

Vita

Tameka Mierelle Womack
218 Education Building
Norfolk, VA 23529

Education, Honors, and Certifications

Nominated as United States Professor of the Year (2013)
Carnegie Foundation & The Council for Advancement and Support of Education

PhD Education Leadership
Old Dominion University, Norfolk VA. 2014
Virginia Community College Association, 2009
International Society for the Social Studies, 2011

M.S. Logistics & Transportation
North Carolina Agricultural & Technical State University, Greensboro, NC. 2008
Beta Gamma Sigma Honor Society Member
Magna Cum Laude Honor Society Member
Shell Lubricants North America Supply Chain Competition, 1st Place Winner, 2007

Master in Business Administration
Delaware State University, Dover, DE. 2004
Golden Key Honor Society Member

Bachelors in Chemical Engineering
Rutgers University, New Brunswick, NJ 2002
Study Abroad-Barcelona Spain

Bachelors in Packaging Engineering
Rutgers University, New Brunswick, NJ 2002
Phi Kappa Gamma, 2001

Provisional Certifications
Certification in Transportation and Logistics, CTL 2008
Certified in Continuing Education, 2003

Education Philosophy

My passion in life is to encourage learning. I believe that education is the springboard to bettering ourselves and community. I am fascinated when I stimulate student engagement and watch them embrace the variety of learning opportunities around them, knowing that my teaching contributed to the betterment of their lives.

I have been an effective leader in the corporate world as well as an effective teacher in

the academic field. I feel confident that experiences from both worlds have afforded me the knowledge, world experience, and confidence to be a tool which sparks life- long learning to students, which is vital for continuous growth and success.

Teaching Experience

Rutgers University
New Brunswick, NJ

Courses:

MTH 102 Pre-Calculus Mathematics

Patrick Henry Community College
Martinsville, VA

Courses:

BUS 100-01 Introduction to Business

BUS 200-39 Principles of Management

BUS 280-49 Introduction to International Business

MKT 260-W1 Customer Service Management

AST 141-1 Word Processing

AST 260-W1 Presentation Software

MTE 1-29 Developmental Mathematics-Operations: Positive Fractions

MTE 2-29 Developmental Mathematics-Operations: Positive decimals &

Percents

MTE 3-01 Developmental Mathematics- Algebra Basics

Roc Mondriaan College
Leeghwaterplein, The Hague, Netherlands

Taught Classes within the Course:

International Business

Central Virginia Community College
Lynchburg, VA

Courses:

Test 1032 Preparation for Employment

Test 1034 Preparation for Employment

Employment Experience- Academic

CENTRAL VIRIGINA COMMUNITY COLLEGE, 2014-Present
INTERNSHIP COORDINATOR

Internship Coordinator

Developed a college-wide internship program that provided internship experiences for all students enrolled at CVCC. Expanded connections with the region's businesses and industries. Created and facilitated 15 contact-hours required courses, and authored the

118 page text book that is used not only in the internship course but is also used in other college-ready programs at CVCC. Designed all business brochures, and webpages for the program.

VIRGINIA COMMUNITY COLLEGE SYSTEM, Spring 2014
FACULTY EXCHANGE/BUSINESS INSTRUCTOR

Faculty Exchange Business Instructor

Participated in the statewide exchange program (VACIE) for only faculty members and Community College Leadership. Was enabled to get teaching abroad experience by teaching three business classes at ROC Mondriaan College in Leeghwaterplein, Netherlands that was a part of the main academic course titled International Business while in the Netherlands.

RUTGERS UNIVERSITY, Summer 2012, 2013
MATHEMATICS INSTRUCTOR

Pre-Calculus Mathematics Instructor

Visiting Mathematics professor for the College of Engineering at Rutgers University. This class covers the fundamentals to Calculus I. In gest the material covered in this class includes quadratic equations, transformations of functions, modeling using variation, logarithmic functions, polynomial functions, and other various theories and applications.

PATRICK HENRY COMMUNITY COLLEGE, 2012-2014

BUSINESS INSTRUCTOR, DEVELOPMENTAL MATHEMATICS INSTRUCTOR

Business Instructor

These courses introduce business terminology, theories and real world examples to prospective business students that are enrolled in their second year in the business program. These classes encompass general business practices commonly used in corporate America. The sister business tools such as marketing, accounting and entrepreneurship will be heavily discussed and implemented through projects at school.

Developmental Mathematics Instructor

This course encompasses three courses of mathematical instruction into one semester. This class covers basic arithmetic and algebraic calculations. This class is offered in a traditional format along with allowing students at the off-campus to enroll and participate in this course via online in live format.

PATRICK HENRY COMMUNITY COLLEGE, 2012-2014

DEVELOPMENTAL MATHEMATICS ASSESSMENT CENTER TUTOR

DMAC Tutor

Provide mathematical guidance to students participating in all levels of developmental mathematics courses. Requires one-to-one approach and provides encouragement to students and their mathematical abilities.

DANVILLE COMMUNITY COLLEGE, 2009-2012
MATHEMATICS INSTRUCTOR

Mathematics Instructor

Adjunct Mathematics Instructor for developmental mathematics. These classes covers arithmetic principles and computations including whole numbers, fractions, decimals, percent's, measurements, graph interpretation, geometric forms and applications. It develops the mathematical proficiency necessary for selected curriculum entrance.

- ✓ Guide and facilitate basic computer skills to all students to ensure they acquire the technical knowledge needed to utilize the Hawkes and MyMathLab Mathematical Computer Program.
- ✓ Taught BSK Series1, 2, 3, 4 as well as Math 1 and Math 2.

DANVILLE COMMUNITY COLLEGE, 2009-2011
MANUFACTURING, ENGINEERING, & TECHNICAL CAREER COACH

MET Career Coach

Professional counselor working closely with high school and community college stakeholders to help identify and work with students interested in a manufacturing, engineering, or technology career field. Act as a liaison with high schools, students & parents regarding admission requirements and financial aid. Currently servicing Chatham, George Washington and Tunstall High Schools, Danville Adult Education Center.

- ✓ Serve as the front line of employee recruitment and professional development for tomorrow's manufacturing, engineering, and technology workforce.
- ✓ Conduct Financial Aid Workshops bi-annually for parents and students
- ✓ Provide students, parents, secondary/post-secondary staff and faculty, community leaders, and regional employers with community college and transitional program information.
- ✓ Develop a network of high school and community college practitioners, workforce development representatives, community leaders, and regional employers.
- ✓ Analyze prior recruitment activities to determine goals for future years.
- ✓ Create Career Assessments for all students to help facilitate a smoother transition into college and to reach educational goal.

DANVILLE COMMUNITY COLLEGE, 2010-2011
SOUTHSIDE REGIONAL CAREER COACH LEADER

Southside Regional Career Coach Leader

Discover opportunities within the region and facilitate the training needs associated with those opportunities. Work directly with Career Coach Coordinator in Virginia Community College System to ensure all administrative changes are updated at the regional level. Give guidance to new and veteran career coaches at Patrick Henry, Danville, and Southside Community Colleges.

- ✓ Conducted hands-on training with Wizard web-based applications, ensuring all career coaches in the region now have a log-in ID and password as well as the knowledge to easily seek pertinent information within the site.
- ✓ Provided encouragement to new career coaches within the Southside Region

***ACADEMICS PLUS*, 2008 –March 2009**

TUTOR – Greensboro, North Carolina

Tutor

Tutor elementary and middle school students from grade level kindergarten to 8th grade in Math and English in the Greensboro and High Point North Carolina public school system. Goal was set and achieved to increase student's knowledge base and to have their skills parallel to their current grade level.

Corporate Experience

***MILLER COORS*, 2006 – August 2008**

GROUP MANAGER – Eden, North Carolina

Work Group Manager

Responsible for maintenance of equipment and managing union personnel including line operators, electricians and mechanics. Utilized various modes of learning devices to facilitate weekly training on equipment, budget, and/or product knowledge. Planned and executed weekly requests that will take place within 24 hours of shutdown on North Bottles Unit. Proven to demonstrate continuous improvement and efficient production of the desired quantities of product, met logistic schedule on a daily basis.

- ✓ Established new goals and procedures via the implementation of skill-base system
- ✓ Minimized changeovers, created staffing reports on a daily basis and forecast line production on a weekly basis.

***FRITO LAY*, 2004 – 2006**

UTC DEPARTMENT MAINTENANCE RESOURCE -Modesto, California

PROJECT ENGINEER – Honolulu, Hawaii & Modesto, California

Maintenance Resource

Managed all maintenance teams in the UTC department for all shifts. Executed daily deep dive meetings to determine the root cause of equipment failure or potential equipment failure. Reached goal of reducing excess amount of inventory. Standardized different pieces of equipment in the Hawaii and Modesto facilities.

Project Engineer

Responsible for projects at the Modesto and Hawaii sites. Worked with internal groups, including Safety, Environmental departments to insure compliance within federal regulations.

Selected Contributions as Maintenance Supervisor:

- ✓ Created detail matrix that monitored equipment downtime, labor efficiency and overall downtime for the UTC department.
- ✓ Managed UTC mechanic's work assignments on a daily basis.

Selected Contributions as Project Engineer:

- ✓ Responsible for projects from scope development to close out phase.
- ✓ Worked closely with Vendors and Contractors to secure the best price for a quality product/service
- ✓ Certified Confined Space Entry Supervisor
- ✓ Conduct and organized annual GMP, Environmental and Security Protocol Training with 70+ contractors
- ✓ Achieved 100% rating on External Safety Audit (Contractors/Engineering Section)
- ✓ Chairman of Fixed Assets Team
- ✓ Created a detail catalog listing all pieces of equipment on site that is now used as a "Best Practice" manual for other sites.

KRAFT FOODS, 2002–2004

CORPORATE ENGINEER – Dover, Delaware

Corporate Engineer

Manage all capital projects for Dover plant. Assisted in the development and design to improve quality of products and procedures.

- ✓ Responsible for design, implementation & analysis of all plant projects.
- ✓ Responsible for supervising 5-50+ employees during installation phases.
- ✓ Conducted GMP training to the engineering organization.
- ✓ Created a web tool to link quality resources to the local engineering website
- ✓ Ergonomic representative for the engineering organization

Troubleshoot technical difficulties in the manufacturing of various Kraft products

Internships**Virginia Community College System**

Richmond, VA (2011-2012)

- ✓ Worked under the Assistant Vice Chancellor Wendy Kang on research and evaluation of workforce issues related to the High School Career Coach Program.
- ✓ A member on the Career Coach Evaluation Design Team
- ✓ Conducted qualitative and quantitative interviews with career coaches, supervisors and administrators from 18 community colleges located in Virginia to complete study issued by the VCCS.

Danville Community College

Danville, VA (2011)

Met with grant finding officials from the state of Virginia with a purpose of researching grants.

Wrote one national grant that have project-based learning as the objective.

Wrote one state grant that have project-based learning as the objective.

Department of Defense

Picatinny Arsenal, Summer 2001

Worked with engineers on classified projects regarding bomb explosion

Calculated risks and created various possibility charts for rocket implosions (Friendly Fire)

U.S. Department of Energy: Hanford Site, Richland Operations Office

Associate Western Universities Intern, Summer 1998

Performed calculations of radioactive waste for spent fuel facilities (K-Basin)

Assisted senior scientists/engineers for the deactivation of a nuclear facility (B-Plant)

Participated in DOE and Contractor meeting concerning site work/projects

Research Manuscripts

Spencer, T.M., Halford, J.C., Williams, M. (Published). Changing needs of the community college profile: Improvements for administration, faculty and students. Published in *Journal of Emerging Trends In Educational Research and Policy Studies*.

Halford, J.C., Spencer, T.M. (Published). Beyond the Basic Classroom: Create a Virtual Learning Environment by Incorporating Multi-User Virtual Environments Into History Classes. Published in *International Society of Social Studies Annual Conference Proceedings*.

Invited Presentations and Speaking Request

Spencer, T (2010, September). Manufacturing, Engineering, Technology Career Coaches: Who Are We & What Do We Do. Presented at Virginia Community College Academy (VCCA). September 2010. Roanoke, VA.

Spencer, T.M., Halford, J.C. (2012, March). Beyond the Basic Classroom: Create a Virtual Learning Environment by Incorporating Multi-User Virtual Environments Into History Classes. Present at Annual International Society of Social Studies Conference. March 2012. Orlando, FL.

Spencer, T.M., Wang, Y. (2012, March). Building a System-Wide Comprehensive Transfer Engineering Program through Online Course Offering and Sharing. Present at

New Horizons Conference. March 2012. Roanoke, VA.

Spencer, T.M., Wang, Y. (2013, April). Using Technology Including Social Media in the Classroom. Presented at New Horizons Conference. April 2013. Roanoke, VA.

Volunteer Experience

- ✓ Institute for Advance Learning and Research. Engineering Week at Danville Science Museum. 2011
- ✓ Big Brother/Big Sister Program. Dover, Delaware. 2002-2004
- ✓ Polar Bear Plunge. Donations to Special Olympics. 2003.