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## An Examination of Career Orientation Courses and College Students' Career Decision Self-Efficacy

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**An Examination of Career Orientation Courses and College Students' Career  
Decision Self - Efficacy**

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**Thesis submitted to the College of Applied Human Sciences at West Virginia  
University**

**in partial fulfillment of the requirements for the degree of Master of Arts in  
Educational Psychology**

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ABSTRACT

**An Examination of Career Orientation Courses and College Students' Career  
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Logan Mayhew

Career development is an ongoing concern for college administrators as the modern knowledge era generates new and fluctuating jobs. College students are more anxious than in previous decades about starting their careers and making vocational decisions. Building career decision self-efficacy in students results in greater feelings of confidence and increases demonstration of career-related behaviors. Students in three online career courses at West Virginia University were assessed for gains in career decision self-efficacy in comparison with a control group after participation in the courses and compared on the basis of gender. Results of a mixed ANOVA indicated a significant increase in CDSE scores for each of the three courses, with no differences between genders.

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## **An Examination of Career Orientation Courses and College Students' Career Decision Self-Efficacy**

The job market for high school and college graduates becomes more uncertain each year, changing in response to demand, competition, market dynamics, and interplay between labor forces. College students preparing to enter this uncertain labor market are expected to choose a major area of study leading to future employment early in their college program, however, many students leave high school ill-prepared to make significant career choices. Persistent career indecision can produce lasting negative outcomes for students, including discontinuing education, financial woes, and mental health challenges (Baig, 2012; Deer et al., 2018).

In response, colleges and universities are increasing emphasis on career development services that prepare students to develop and implement career plans, including offering career preparation courses. Studies have shown career courses are successful in a variety of domains, like increasing career-related behaviors and career decision self-efficacy (CDSE) (e.g., Baig, 2012; Grier-Reed & Skaar, 2010; Johnson et al., 2002; Rowell et al., 2012; Thomas & McDaniel, 2004). Career decision self-efficacy is an individual's beliefs that they can successfully complete tasks necessary to making significant career decisions (Taylor & Betz, 1983). Benefits of increased CDSE include increased employment, job satisfaction, retention, and student well-being (Deer et al., 2018, Komarraju, 2014).

Implementation and assessment of career courses, however, have been irregular, and such courses require continuous updates to curriculum to reflect the changing labor market. Additionally, most assessments of career services effectiveness focus on employment outcomes of graduates with less assessment targeting individual services of career service centers (Dey &

Cruzvergara, 2014). For instance, courses, programming, and other services are not evaluated individually for their outcomes. Therefore, the purpose of this quantitative study was to help fill the gap in career decision research by determining the success of a career preparation course on students' career decision self-efficacy.

### **Review of Literature**

A number of factors contribute to the pressures on college students to decide upon a sustainable career. Over 95 percent of new jobs since 2007 were held by individuals with higher education credentials, heightening the pressure to pursue higher education as a pathway to career success (Carnevale et al., 2016). The Association of American Colleges and Universities (2007) reported that American adults will change jobs an average of 10 times in their life, furthering feelings of uncertainty in emerging adults. Freedman (2013) determined that between 25-50 percent of first-year students entered higher education without a declared major, and close to 75 percent of undergraduate students changed their major at least one time. Only 20.3% of students who spent at least half their time in college undeclared matriculate (Yue & Fu, 2017).

Undecidedness regarding majors is not the only source of anxiety in college students. The constant fluctuation and unpredictability of available jobs also generates feelings of uncertainty. Grier-Reed and Skaar (2010) posited that due to the uncertainty of the future labor market, young adults lack a sense of empowerment, or success and control, over their future careers, leading to adverse emotions and mental health issues. Even students who have a chosen major and career pathway delay their job search due to feelings of anxiety surrounding the job-seeking process (Deer et al., 2017).

Higher education has become the common pathway for career preparation for many young adults in the United States—approximately 66.2 percent of people ages 16-24 who

graduated high school in 2019 enrolled in higher education in October of 2019 (U.S. Bureau of Labor Statistics, 2020). Because higher education has become the dominant choice for career preparation, colleges and universities hold a greater responsibility for providing career guidance to students, as college students typically expect academic and career success from pursuing higher education but lack the skills and strategies for attaining their career and academic goals (Gore & Metz, 2008). Determining a career pathway is imperative to student success, as students who have selected a major that aligns with their career interests have higher retention rates compared to students pursuing a major incongruent with career interests (Leuwereke et al., 2004). Additionally, students who are undecided tend to have higher levels of psychological distress and lower levels of psychological well-being compared to decided students (Daniels et al., 2011).

Colleges and universities experience adverse consequences from student undecidedness as well. Undecided students are less likely to persist in their studies, leading to lowered retention and matriculation rates for colleges (Leppel, 2001). It costs colleges and universities significantly more money to recruit new students than to retain current students (Tinto, 1975). Additionally, colleges and universities are assessed based on statistics regarding student retention, graduation rates, and enrollment trends (Baig, 2012). Lower retention, matriculation, and post-graduation employment rates reflect poorly on higher education institutions, putting pressure on colleges and universities to improve career services and their outcomes.

To address the problem of undecided and anxious students within a changing workforce, colleges and universities have put more emphasis on career assistance programs. Meta-analyses of career interventions indicate that these programs are generally effective. Career courses have been placed in differing order in terms of effectiveness among group counseling, individual

counseling, career workshops, and computer assistance (Baig, 2012). Oliver and Spokane (1988) considered an intervention “any treatment or effort intended to enhance an individual’s career development or to enable the person to make better career-related decisions (as cited in Baig, 2012, p. 33).”

West Virginia University offers career interventions through its Career Services Center, including career counseling appointments, workshops, presentations, and career courses. The purpose of the study is to determine the courses’ ability to increase students’ career decision self-efficacy (Betz et al., 1996). Career decision self-efficacy has been linked to positive academic and career outcomes for students, improving outcomes for higher education institutions as well.

### **Career Related Guidance**

The necessity for career-related guidance and resources has risen for undergraduate students in the United States. In 1978, only 28 percent of jobs required an associate’s degree or more, but by 2010, the number increased to 42 percent (Carnevale et al., 2014), putting pressure on more students to select a career early and pursue a degree to be competitive in the modern labor force. The competition is far greater than the U.S. itself, as global recruitment has risen since the 1980’s due to the growth of the knowledge era and the bounds of geography lessened due to technology (Liu, 2016). Although many students are experiencing increased pressure to decide upon a career around their sophomore and junior years of high school, most do not receive adequate early assistance in assessing their interests, abilities, and skills, and subsequently make uninformed career decisions (Baig, 2012).

Most influences on a young college student’s career decision are external, including pressure from parents, limited high school classroom experiences, peers, teacher influence, and financial pressures (Baig, 2012). Some high school students engage in direct work-related



experiences, which either help clarify the student's career choice or reduce the amount of time spent reflecting on career choices (Helwig, 2004). High school job experience can also assist students in developing a sense of self-efficacy, which contributes toward career development (Baig, 2012). But often, high school students do not bring much exposure to career-related experience with them to college and struggle with knowing what would make their career fulfilling. Other factors that relate to career indecision include lack of readiness, indecisiveness, dysfunctional myths, lack of knowledge about the career process, and lack of information about self, occupations, and ways of obtaining information, (Gati et al., 1996).

### **Career Decision Uncertainty**

Poor career decision-making in college presents long-term negative effects for both students and institutions, driving colleges to provide better career services resources for students. Students who do not understand the trajectory of their studies and where their degree will take them will only work to pass the course, rather than engage with the curriculum (Nystrom et al., 2008). Students who are undecided also spend more time trying to obtain a degree, resulting in greater financial stress and higher dropout rates (Baig, 2012). Colleges and universities then experience the negative consequences of lower retention rates and lose money on students who leave their institution. Poor career-planning also affects students' employment outlook, as students who are less engaged in career-related behavior are less likely to be satisfied with their employment (Kanfer et al., 2001). Additionally, lack of early career planning affects one's salary, job satisfaction, self-esteem, and consequently, family relationships (Healy, 1982; Swain, 1984).

### **Assessment of Career Services**

In addition to problems generated by career indecision, institutions of higher education are held increasingly accountable for providing data on measurable outcomes such as enrollment, retention, graduation rates, and achievements and employability of graduates to establish and maintain their reputation (Baig, 2012). Career services have evolved over the past few decades to meet the needs of students and improve educational outcomes. The 1970's and 80's saw an increase in career planning and counseling centers for students and graduates to explore careers and plan their job search (Dey & Cruzvergara, 2014). Career counseling aided students and graduates with exploration of potential careers and planning their job search process.

With the increasingly globalized, competitive, and virtual labor market, the 1990's and 2000's saw a shift in career services centers toward a focus on networking and bringing hiring organizations to recruit students on campuses. Even with this shift, counseling remains an essential component offered by career service offices across the nation. Studies have found a direct link between career services and recruitment, retention, and revenue for colleges (Ceperley, 2013; Education Advisory Board, 2012). By providing students with resources to increase their self-efficacy relating to career decision-making, students are better motivated to continue their studies (Komarraju et al., 2014). Due to this increasing reliance on career centers, assessment has emerged as a critical tool, yet assessment has been limited (Dey & Cruzvergara, 2014).

### **Combating Career Indecision**

Career development experts have determined goals for combating career indecision among adolescents and college students (Ducote, 1984). The first goal for career assistance centers is to help the student gain self-knowledge to understand their values and interests. The second goal is to assist the student with acquiring information related to available careers and

career options. The third goal is to aid the student in career preparation by providing information related to the job search, constructing career-related documents, and interviewing.

A foundation for aiding students that meets the goals for reducing career indecision is provided through career development learning (CDL) (Bridgstock, 2019). Bridgstock defines CDL as “the acquisition of capabilities that are useful to the lifelong development and management of one’s career, grounded in an ongoing authentic learning-based process that builds knowledge of the world of work and oneself” (p. 57). CDL provides students with the skills to synthesize knowledge regarding careers and the ability to make effective decisions relating to career choices. CDL has a positive impact on graduate employability as measured by job satisfaction, rated employability, and income (Bridgstock, 2011). CDL in turn increases student retention by providing students with knowledge and understanding about the trajectory of their studies, making the curriculum engaging and valuable to students.

CDL is utilized by career centers through a variety of methods (Bridgstock, 2019). The curricular-subject method, utilized by West Virginia University, positions career centers into the curriculum through elective career courses offered by career centers and the opportunity for their staff to spot teach, or conduct presentations as guest speakers in courses. Many career centers have limited staff compared to large student populations, and this method of instruction allows staff to provide instruction to larger groups while individualizing the instruction for each student in the elective courses. Numerous career centers across the country have incorporated such career planning courses to provide career preparation training (Deer et al., 2018), and some degree programs have followed suit (Grier-Reed, 2010; Thomas & McDaniel, 2004). As mentioned, career interventions have been generally effective (Brown et al., 2003), including career development courses offered to students in higher education, but assessment remains

critical in the increasingly competitive knowledge era (Dey & Cruzvergara, 2014). Several examples of individual career preparation courses have been studied in recent decades to provide insight into the positive outcomes for student development that would meet the demands for assessment.

Johnson et al. (2002) assessed a holistic and trait factor approach to a career development course compared with a control group and assessed students' changes in career indecision, vocational identity, and career decision self-efficacy measures at a large university. The goals of the course were to increase self-knowledge, increase knowledge of the world of work, and integrate and make a career decision, reflecting the goals suggested by Ducote (1984) to reduce indecision. Students' scores improved significantly from pre- to post-test measures after completing the course with large effect sizes ( $d=0.99$  for vocational identity scale,  $d=0.69$  for indecision scale,  $d=1.04$  for career decision self-efficacy) in comparison with the control group (an "exploring-self" course). Additionally, women demonstrated a significantly greater increase in CDSE scores than did men ( $p = 0.1$ ).

Thomas and McDaniel (2004) assessed the effectiveness of a career planning course required for psychology majors at Northern University of Kentucky. The students from the comparison group were enrolled in a research methods course in the year before the career course became required. The study utilized the career decision self-efficacy (CDSE) short form, a self-developed measure called PMCIS, which measures self-perceived knowledge of various career opportunities for psychology majors, as well as the PMCIQ, which measures misconceptions that psychology majors hold regarding career possibilities. The outcomes of the course indicated significantly improved measures on the CDSE short-form, and the PMCIS and

PMCIQ, indicating an increase in confidence regarding career decisions, an increase in understanding of career possibilities, and a reduction in misconceptions regarding career options.

Grier-Reed and Skaar (2010) studied outcomes from students enrolled in a constructivist career course using a pretest and posttest design at a large, culturally diverse university in the Midwest. The design of the course included constructivist methods such as creating a narrative of one's story, exploring aspects of the self, constructing identity, and using the identity to help make a career decision. The purpose of the course was to empower students by increasing their career decision self-efficacy while decreasing their career indecision. Results indicated a statistically significant increase in career decision self-efficacy, although career indecision remained stable. No significant main effects for gender on CDSE score were demonstrated in the results.

Rowell et al. (2012) suggested that group models of career interventions could produce better results than individual counseling, such as in a career course. They analyzed the effects of a group counseling model at a mid-sized public university in the southeast United States in a career and life planning course. The treatment groups consisted of two groups of 10 undergraduate students enrolled in the course. Results as measured by the career decision-making difficulties questionnaire (CDDQ) indicated statistically significant increases ( $F(1, 18) = 9.83, p < .001, \eta^2 = 0.62$ ) in career decision-making abilities for students who participated in the career and life planning course in comparison to students in the control group.

Baig (2012) investigated the effectiveness of a career development course on the career decision-making self-efficacy outcomes for students enrolled in the class compared with a control group at the University of Montana. The increase in scores for career decision self-efficacy scores for students in the career development course was statistically significant

( $F(1,81) = 10.178, p = 0.018$ ). Other measures indicated effectiveness, including a significant decrease in career decision-making discomfort measured by the decisional process inventory (DPI) compared to the control group ( $F(1,76) = 13.512, p < .001$ ).

### **Theoretical Foundation**

Career decision self-efficacy is grounded in social-cognitive career theory (Lent et al., 2002), stemming from Bandura et al (1977) self-efficacy theory. Through personal performance accomplishments, vicarious learning, social persuasion, and physiological and affective states, individuals develop outcome expectations and self-efficacy beliefs. Greater feelings of self-efficacy and expectations for desired outcomes generate increased interest and persistence to formulate and achieve goals (Lueng, 2008). Alternatively, undesired outcomes, lack of preparation, and adverse physiological states (such as anxiety) would result in avoidance of behaviors, goal setting, and performance.

Betz and Vuyten (1997) refer to career decision self-efficacy as confidence in one's ability to complete career-related tasks. Career self-efficacy influences the likelihood of a person to engage in career-related behavior, since low expectations of capability result in avoidance of tasks (Betz & Luzzo, 1996). Betz and Hackett (1981) proposed career self-efficacy as a theory that would better address women's career development and also apply to men. This proposal was provided in response to previous attempts to apply male-focused career development theories to women. The career decision self-efficacy measure was selected, in part, because it equally assesses vocational outcomes for both men and women.

Additionally, research indicates that students with resources to improve their career decision self-efficacy exhibit higher levels of motivation to continue their college education and engage in career-related tasks (Komarraju et al., 2014). Other studies show that CDSE is

positively related to commitment to a career choice (Betz & Serling, 1995) and career exploratory behavior (Blustein, 1989). CDSE has also shown to have a positive relationship with locus of control (Taylor & Popma, 1990), which refers to the level of control one feels they have over a situation, and a systematic decision-making style (Niles et al., 1997), a decision-making process in which one weighs all the information before reaching a decision. The utility of CDSE as an assessment tool is supported by these specific and numerous positive outcomes.

When CDSE outcomes for gender are assessed in career development courses, results are inconsistent. Johnson et al. (2002) found that in their particular course, a holistic and trait factor approach, women demonstrated a greater change from pretest to posttest in CDSE scores than men ( $p = 0.1$ ). However, Grier-Reed and Skaar (2010) found no significant main effect for gender from the results of a MANOVA including race and gender's impact on CDSE scores in a constructivist career course.

Colleges and universities have increased their efforts toward building career service center influence to increase career self-efficacy and engagement in career behaviors. These centers offer career and life planning courses, including resources for self-assessment, career exploration, decision-making, and acquiring job application skills (Johnson et al., 2002). Career courses utilize career development learning (CDL) to provide students with skills and competencies to contribute to lifelong development of their career by building knowledge of the world of work and their self (Bridgstock, 2019). Career courses have shown improvements in career decision self-efficacy in the past (e.g., Baig, 2012; Grier-Reed & Skaar, 2010; Johnson et al., 2002; Rowell et al., 2012; Thomas & McDaniel, 2004), however assessment of more recent courses is necessary to influence increased support of career service centers and student career

decision self-efficacy outcomes. Additionally, gender comparisons are typically left out of assessments and warrant analysis.

### **Research Questions**

1. How does taking a career course relate to college students' career decision self-efficacy (CDSE)?
2. Are there differences in career decision self-efficacy between students who took a career orientation course and students who did not take a career orientation course?
3. What is the difference in CDSE scores between male and female students who complete a career course?
4. How do students enrolled in different career courses compare in terms of CDSE?

### **Methods**

#### **Study Design**

This study used a quasi-experimental quantitative study design. This study utilized a pre and post-test design with a treatment and comparison group, as well as a combination of within and between groups analyses to answer the research questions. To gather data, the career decision self-efficacy scale was distributed in an online survey format to accompany the online structure of the career courses being assessed. The hypothesis for this research question suggests that if students participate in a career course, their career decision self-efficacy score will increase. The study design presents some limitations, as non-random, convenience sampling was used to select participants.

#### **Participants**



This study took place at West Virginia University (WVU). WVU is a public land-grant research university located in Morgantown, West Virginia, and is considered a suburban area despite its location in a mostly rural state. In fall 2020, WVU had an enrollment of 26,269 students (National Center for Education Statistics [NCES], 2021). Demographics of the overall graduate and undergraduate student population in fall 2020 were as follows: 79.1% white, 3.76% Hispanic or Latinx, 3.73% Black or African American, 3.59% two or more races, 2.02% Asian, 0.127% American Indian or Alaska Native, and 0.078% Native Hawaiian or Other Pacific Islanders. With regard to gender, 47.9% of students were male, and 52.1% were female. Ninety six percent of undergraduate students are age 24 and younger, and 4% of students are 25 or older. Student residency shows 52% of students are residents of West Virginia, and 48% students come from all 50 states in the U.S. and 110 different countries. West Virginia University was selected as a location for data analysis due to its large diverse population, including first-generation students and students from various cultural backgrounds.

Participants in this study were all students attending WVU. The experimental group consisted of students enrolled in ORIN 152: Learning Career Skills, ORIN 251: Preparing for Success, and ORIN 252: Professional Development in spring 2022. The purpose of these career courses was to provide students with experiential learning that prepared them to successfully progress from college into the workforce. Students in ORIN 152, for example, learned about resources and extracurriculars that supported their career planning. They wrote resumes and built professional networks, explored career outcomes related to different majors, learned about career fairs and the importance of networking, and gave short persuasive speeches highlighting their experiences and credentials. ORIN 152 is geared primarily towards first year and sophomore level students.

Students in ORIN 251, who are primarily junior and senior level students, identify opportunities within leadership, professional organizations, and service learning to prepare for their job search. They research internships, write a resume, cover letter, and reference sheet, learn about professional behavior and etiquette, and engage in a mock interview.

Students in ORIN 252, who are primarily junior and senior level students, learn to utilize online resources, develop their career, create career goals, and engage in financial planning. Students write a resume and cover letter, participate in a mock interview, and write a paper containing a 5-year career and financial plan.

One hundred and thirty-three students from the career orientation courses participated in the study. Of these students, 86.1% identified as white, 8.6% black or African American, 2.9% Asian, 1.8% Hispanic or Latinx, and 0.8% Native Hawaiian or Pacific Islander. In regard to gender, students could write in their own gender identity. 33.1% identified as a male-associated identity, 65.9% identified as a female-associated identity, and 0.8% identified as “transgender male.” 92.5% of participants were traditional age, between 18-22, while 7.5% fell between the ages of 23-39. 17.1% of participants were freshmen, 18.9% sophomores, 31.8% juniors, 31.1% seniors, and 1.1% “5th year seniors.”

The courses selected for sampling participants included PR 215: Introduction to Public Relations, WGST 170: Intro to Women and Gender Studies, WDSC 100: Forest Resources in US History, PET 101: Games in American Culture, and DSGN 140: Sustainable Living. The control group was a purposive as well as convenience sample. The sample was convenience due to the researchers’ ease of access to courses, and purposive in that the courses met criteria to control for variables such as academic year and major.

Six students participated in the control group. Of these six participants, 100% were white, 100% were female-associated gender identities, 100% were traditional aged students (ages 18-22), 58.3% of participants were freshmen, and 41.7% were sophomores.

### **Materials**

Student outcomes were assessed using scores on the Career Decision Self-Efficacy Scale (CDSE) Short-Form (Betz, et al., 1996), an instrument designed to measure an individual's self-efficacy to make career decisions based on Bandura's (1977) theory of self-efficacy. The original CDSE was designed to measure student's confidence in making career decisions, and their behaviors for choosing and applying to jobs and selecting careers. The original career decision-making self-efficacy scale consisted of 50 items, the same 5 subscales as the CDSE short-form with 10 questions each, and a 10-point Likert scale for responses. Measures of internal consistency reliability are high, with a  $\alpha = .97$  overall score, and subscale scores ranging from  $\alpha = .86$  to  $\alpha = .89$  (Taylor & Betz, 1983).

The 50-item survey was considered longer than desirable for research, individual counseling assessment, and program evaluation purposes. The need for a shorter scale led to the creation of the CDSE short form (Betz et al., 1996). The short form consists of 25 items utilizing a 5-point Likert scale from 1: no confidence at all to 5: complete confidence. To achieve the shorter version, 5 of the 10 items were eliminated from each subscale. The items selected for the short form were chosen based on criteria including substantive generality, item-own correlation, and factor loading. The survey instrument instructs participants to determine the level of confidence felt in doing various statements of career-related tasks. Examples of statements include: "Use the internet to find information about an occupation that interests you," "Make a

plan of your goals for the next five years,” “Determine what your ideal job would be,” and “Prepare a good resume.”

The 5-subcales on the CDSE-Short Form include Occupational Information ( $\alpha=.78$ ), Goal Selection ( $\alpha=.83$ ), Problem-Solving ( $\alpha=.75$ ), Planning ( $\alpha=.81$ ), and Self-Appraisal ( $\alpha=.73$ ; Betz et al., 1996). The overall alpha for the instrument is  $\alpha=.94$ . Acceptable Cronbach's Alpha for basic research is between .70 to .80 (Kaplan & Saccuzzo, 1982). A Cronbach's Alpha of greater than .90 is considered a high level of reliability (Murphy & Davidshofer, 1988). The CDSE short form demonstrates concurrent validity, indicating negative correlations with career indecision measures, ranging from -.40 to -.62 (Taylor & Betz, 1983; Taylor & Popma, 1990; Betz et al., 1996; Betz & Sterling, 1995; Betz & Klein, 1996). This indicates that the CDSE is a valid measure of career decision, as it demonstrates a significant negative relationship with career indecision measures. The CDSE demonstrated positive correlations with vocational identity of .34 and .58 (Robbins, 1985; Betz et al., 1996) and career certainty, ranging from .34 to .56 (Robbins, 1985; Betz et al., 1996; Betz & Serling, 1995), indicating a valid measure of career identity, as CDSE scores produce a significant positive relationship with vocational identity scores. Other studies indicate evidence of multidimensionality, the scale's ability to measure multiple dimensions of the construct of career decision self-efficacy (Makransky et al., 2014).

### **Procedures**

IRB approval was obtained prior to data collection. Descriptive factors including age, gender, race/ethnicity, year in college, as well as parent education level, current major (if selected), and level of certainty regarding major were collected within the survey. Descriptive statistics using these data provided context for group samples, and mean scores and standard

deviations for pre and posttest measures described the effect of career orientation courses on career decision self-efficacy.

The experimental group consisted of 133 students enrolled in the three Career Orientation Courses offered at WVU (ORIN 152, ORIN 251, and ORIN 252) in spring 2022. Participants were conveniently sampled from these three courses due to ease of accessibility through researcher association with the career services department and purposefully sampled as the career orientation courses were the focus of analysis. Each WVU career course was offered asynchronously online in the second eight weeks of spring 2022, and course had two available sections, with each section accepting up to 50 students. Each section was taught by different instructor, resulting in six total instructors for the three courses.

Pre and post survey data were collected using Qualtrics and distributed via eCampus, the university's online course platform. Pre course data for the experimental group were collected in the first week of the orientation course before any learning tasks were completed. Posttest data were collected in the final week of the orientation course after learning was completed. Students were given bonus points for providing proof of completion of both the pretest and posttest survey. Proof of completion required student submission of screenshots of the completed surveys to course instructors. Students could alternatively submit their identification numbers to course instructors, who then confirmed with the researcher that the student completed both surveys. Names of students were not included in correspondence between instructors and the researcher to ensure anonymity. Reminder emails were sent to students during the periods of data collection, specifically the first two weeks of the course (March 7 through March 20, 2022) and the last two weeks of the course (April 25 through May 8, 2022).

Control group participants were sampled from five courses with a method of delivery similar to the career orientation courses; the courses are asynchronous online and offered only during the second half of the semester (PR 215, WGST 170, WDSC 100, PET 101, and DSGN 140). To recruit participants, sixteen course instructors were contacted via email by the researcher to request their assistance in sending the survey to their students on February 16, 2022. Of those sixteen instructors, five responded and agreed to send the survey to students enrolled in their respective courses.

The researcher sent a follow-up email on March 4, 2022, the Friday before the first day of the selected courses, with the link to the survey and a brief explanation of the research for instructors to copy and paste in an email to their students. A second follow-up email was sent to participating professors on March 9th, 2022, the Wednesday of the first week of classes, requesting that professors remind their students to complete the survey. A similar email was sent to instructors the last week of the course before finals, on April 26, 2022, and a final email requesting that instructors remind their students to participate in the post-survey was sent to instructors on May 2, 2022.

### **Data Analysis**

In total, 528 responses were received. During data cleaning, responses were eliminated for the following reasons: the survey response was incomplete, the response was submitted outside of the acceptable time frame (first two weeks and last two weeks of the course), the same participant submitted multiple responses (determined from identifiers), or the participant did not submit both a pretest and posttest measure and within the proper time frame. Additionally, all participants required a pretest and posttest response. Responses without a matched pair were removed from the dataset. After cleaning, 266 acceptable responses (133 participants) remained

for the experimental group, and 12 acceptable responses (6 participants) remained for the control group and were included in the data analysis.

Data were analyzed using the IBM SPSS Statistics Gradpack version 28.0 software for Mac. Descriptive statistical analyses were conducted to describe the characteristics of participants such as gender, ethnicity, age, academic standing, and level of certainty regarding their major. A mixed analysis of variance was used to assess whether students' CDSE scores increased after participation in a career course, and whether CDSE outcomes differed based on which course was taken. An additional mixed analysis of variance was performed to determine whether change in CDSE differed based on whether students participated in a career course through comparison with a control group. Because of the small control group, the mixed ANOVA was underpowered. Therefore, a paired samples t-test was conducted to determine whether changes in CDSE scores from pretest to posttest in the control group were statistically significant. Additionally, an independent samples t-test was performed to assess whether gender differences in CDSE outcomes occurred.

### **Results**

Table 1 provides statistics for gender, ethnicity, age, and academic standing of participants in the study.

**Table 1***Descriptive Statistics of Participants*

		N	Percent	
<b>Gender</b>	Male	45	33.1%	
	Female	89	65.9%	
	Transgender Male	1	0.4%	
<b>Ethnicity</b>	White	113	85.0%	
	Black or African American	12	9.1%	
	Asian	4	3.0%	
	Hispanic or Latinx	3	2.3%	
	Native Hawaiian or Pacific Islander	1	0.8%	
	<b>Age</b>	18-22	123	93.2%
		23-29	9	6.8%
<b>Academic Standing</b>	Freshman	20	15.0%	
	Sophomore	24	18.0%	
	Junior	46	34.6%	
	Senior	42	31.6%	
	5 <sup>th</sup> year Senior	1	0.8%	
<b>Total</b>		133		

**Research question 1:** How does taking a career course relate to college students' career decision self-efficacy (CDSE)?

Results of the mixed ANOVA indicate a significant main effect of participation in a career course on CDSE scores overall, [ $F(1, 130) = 36.57, p < .001, \text{partial } \eta^2 = 0.22$ ], with CDSE scores increasing significantly from pretest ( $M = 98.70, SD = 14.24$ ) to posttest ( $M = 109.32, SD = 16.08$ ). (Table 2). Students who participated in a career course demonstrated significant growth in CDSE scores.



**Table 2**

*Group Statistics and Within Subjects Effects for Career Courses' Effect on CDSE Scores*

	M	SD	df	MS	F	<i>p</i>	Partial Eta Squared
Pretest CDSE Score	98.70	14.24					
Posttest CDSE Score	109.32	16.08					
Pretest CDSE Score – Posttest CDSE Score			1, 130	6927.47	36.57	<.001	0.22

*Note:* M = mean; SD = standard deviation; df = degrees of freedom; MS = mean square

**Research Question 2:** Are there differences in career decision self-efficacy between students who took a career orientation course and students who did not take a career orientation course?

A mixed analysis of variance was conducted to determine the change in students' CDSE scores over time based on participation in a career course. Prior to performing the mixed ANOVA, the Shapiro-Wilk test of normality was performed. The results of the Shapiro-Wilk test for the within-groups factor were not significant for pretest scores ( $p = 0.22$ ) but were significant for posttest scores ( $p < .001$ ), indicating the normality assumption was met for pretest scores but not for posttest scores. The Shapiro-Wilk test for the between-groups factor were not significant for either the career course CDSE scores ( $p = 0.28$ ), or the control group scores ( $p = 0.46$ ).

The Box's M test indicated that the homogeneity of covariances assumption was met, ( $M = 4.40, p = .29$ ). Finally, Levene's test of equality of error variances was not statistically significant for pretest scores ( $p = 0.139$ ) or posttest scores ( $p = .097$ ) thus the equality of error variances assumption was met. Once each assumption was addressed, the results of the mixed ANOVA were interpreted.

Results of the mixed ANOVA indicated no significant interaction between course type and time,  $[F(1, 137) = 1.63, p = .20, \text{partial } n^2 = .01]$ , a small effect size. There was a significant main effect for course type,  $[F(1, 137) = 14.07, p < .001, \text{partial } n^2 = .09]$ . There was no significance for change across time,  $[F(1, 137) = 1.05, p = .31, \text{partial } n^2 = .01]$ .

**Table 3**

*Mixed ANOVA Summary Table for the Effect of Time and Course on CDSE Scores*

Source	df	MS	F	p	Effect Size
Time*Course Type	1, 137	395.51	1.63	.20	.01
Time (Within Groups)	1, 137	253.90	1.05	.31	.01
Course (between Groups)	1, 137	2903.36	14.07	<.001	.09

*Note:* df = degrees of freedom; MS = mean square

A paired samples t-test was performed on the control group to determine change in the scores from the start of the semester to the end of the semester. On average, the scores marginally decreased from the beginning of the semester ( $M = 88.67, SD = 7.99$ ) to the end of the semester ( $M = 87.50, SD = 9.63$ ). The difference from the start of the semester to the end was not statistically significant  $[t(5) = 0.25, p = .81]$ , with a very small effect size,  $d = 0.1$ .

**Table 4**

*Group Statistics and Paired-Samples T-test of Pretest and Posttest CDSE Scores for Control Group*

Pair 2	M	SD	SEM	95% CI of the difference	t	df	Sig (2-tailed)	Cohen's d
Pretest CDSE Score (Control Group)	88.67	7.99	3.26					
Posttest CDSE Score (Control Group)	87.50	9.63	3.93					
Pretest CDSE Score – Posttest CDSE Score (Control Group)	-1.17	11.3	4.61	10.70, 13.03	.253	5	.810	.10

*Note:* M = mean; SD = standard deviation; SEM = standard error mean; df = degrees of freedom.

Estimated Marginal Means allowed further comparison between the two groups. On average, students who participated in the career courses demonstrated greater CDSE on pretest measures (M = 98.70, SD = 14.24) than students in the control group (M = 88.67, SD = 7.99). Additionally, as determined by results of research question 1, students in the career courses demonstrated a significant increase in CDSE scores (10.57). However, estimated marginal means show that students in the control group demonstrated little change overall, and decreased in CDSE scores (-1.17).

**Table 5**

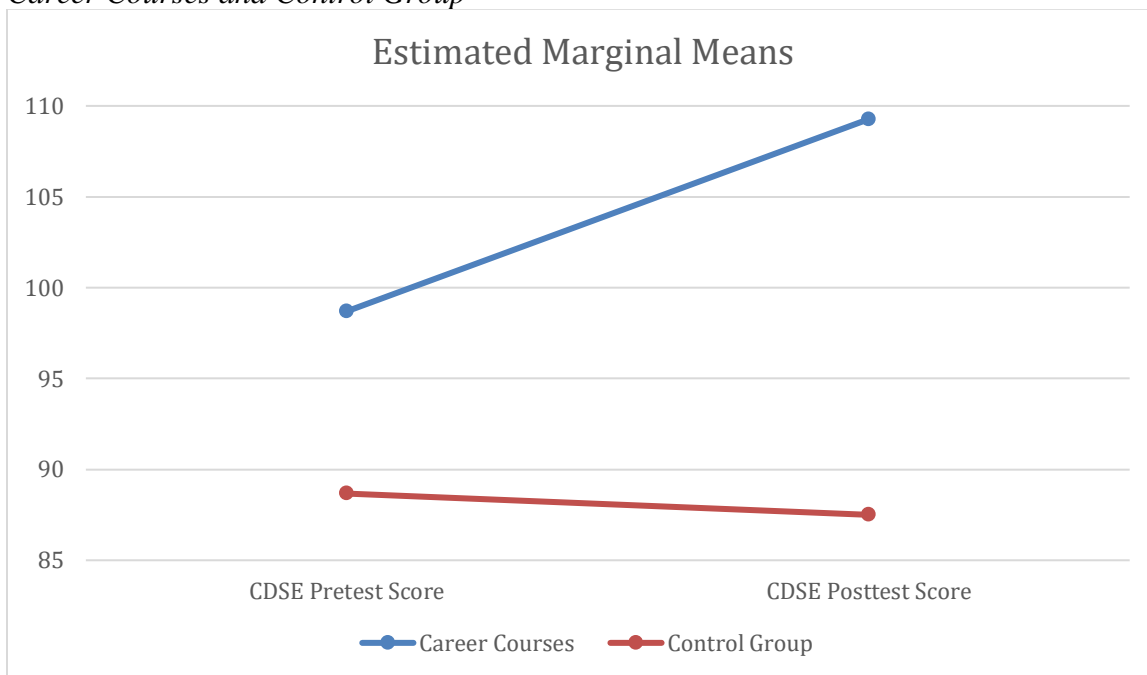
*Descriptive Statistics for Mixed ANOVA for the Effect of Time and Career Course Participation on CDSE Scores*

		M	SD	N
Career Courses	Pretest CDSE Score	98.70	14.24	133
	Posttest CDSE Score	109.27	16.05	
Control	Pretest CDSE Score	88.67	7.99	6
	Posttest CDSE Score	87.50	9.63	

*Note:* M = mean, SD = standard deviation

**Figure 1**

*Estimated Marginal Means for Mixed ANOVA Output of Pretest and Posttest CDSE Scores for Career Courses and Control Group*



**Research Question 3:** What is the difference in CDSE scores between male and female students who complete a career course?

Results of an independent samples T-test indicated no significant difference in CDSE scores between male ( $M = 109.20$ ,  $SD = 15.12$ ) and female ( $M = 109.43$ ,  $SD = 16.56$ ) students; [ $t(132) = .079$ ,  $p = 0.94$ ], with a small effect size,  $d = .014$ .

**Table 6**

*Group Statistics and Independent Samples T-test of Posttest Scores for Male and Female Students*

	N	M	SD	SEM	95% CI of the Difference	t	df	Sig. (2-tailed)	Cohen's d
Males	49	109.20	15.12	2.16					
Females	86	109.43	16.56	1.79					
Males – Females Scores		-0.23			-5.91, 5.46	0.079	132	0.937	0.014

*Note:* M = mean; SD = standard deviation; SEM = standard error mean; df = degrees of freedom.

**Research Question 4:** How do students enrolled in different career courses compare in terms of CDSE?

A mixed analysis of variance was performed to determine whether change in CDSE score differed based on which course students participated in—ORIN 152, ORIN 251, or ORIN 252. Prior to performing the two-way mixed ANOVA, the Shapiro-Wilk test of normality was performed. The results of the Shapiro-Wilk test for within-groups factors were not significant for pretest scores ( $p = 0.24$ ) but were significant for posttest scores ( $p < .001$ ), indicating the normality assumption was met for pretest scores but not for posttest scores. Results of the Shapiro-Wilk test for between-groups factors were not significant for CDSE scores for ORIN

251 ( $p = 0.30$ ) or ORIN 252 ( $p = 0.13$ ) but were significant for ORIN 152 ( $p = 0.03$ ), indicating the normality assumption was met for ORIN 251 and 252, but not for ORIN 152. However, the sample size for analysis was robust—45, 54, and 34—resulting in more precise means, more recognizable outliers, and greater statistical power.

A Box's test was performed to assess the equality of covariance matrices between the groups. The results were not significant, ( $p = 0.10$ ), thus the assumption was met. Levene's test of equality of error variances was not statistically significant for pretest scores ( $p = .50$ ) but was statistically significant for posttest scores ( $p = 0.048$ ), indicating that the assumption of equality of error variances was met for pretest scores, but was not met for posttest scores. To address the inequality of error variances, a Games-Howell post-hoc analysis was used as it does not rely on equal variances. The Games-Howell test for multiple comparisons found no significant differences in CDSE based on course: ORIN 152 and 251 ( $p = 0.31$ ), ORIN 152 and 252 ( $p = 0.98$ ), or ORIN 251 and 252 ( $p = 0.23$ ). After testing and addressing each assumption, results of the mixed ANOVA were interpreted.

Results of the mixed ANOVA indicated no significant interaction between participation in a career course and course type in terms of CDSE scores [ $F(1,130) = 0.73, p = 0.48$  partial  $n^2 = 0.01$ ], with similar gains in CDSE scores overall for ORIN 152 (13.04), ORIN 251 (10.42) and ORIN 252 (10.97). Results also indicated no significant main effect for course type on CDSE scores overall [ $F(2, 130) = 1.68, p = 0.19$ , partial  $n^2 = 0.03$ ].

**Table 7***Mixed ANOVA Summary Table for the Effect of Time and Course on CDSE Scores*

Source	df	MS	F	p	Partial Eta Squared
Time*Course	1, 130	138.82	0.73	0.48	0.01
Course (Between Groups)	2, 130	454.38	1.68	0.19	0.03

*Note:* df = degrees of freedom; MS = mean square

Estimated Marginal Means allowed further comparisons between the courses. On average, students in ORIN 251 demonstrated greater CDSE on pretest measures ( $M = 101.02$ ,  $SD = 13.69$ ) compared to ORIN 152 ( $M = 96.18$ ,  $SD = 14.89$ ) and ORIN 252 ( $M = 98.35$ ,  $SD = 14.01$ ) as well on posttest CDSE measures ( $M = 111.44$ ,  $SD = 13.41$ ) compared to ORIN 152 ( $M = 109.22$ ,  $SD = 16.85$ ) and ORIN 252 ( $M = 106.06$ ,  $SD = 18.67$ ). Students in ORIN 152 demonstrated the most growth in CDSE scores on average (13.04) compared to ORIN 251 (10.42) and ORIN 252 (7.71) (Table 5 and Figure 1).

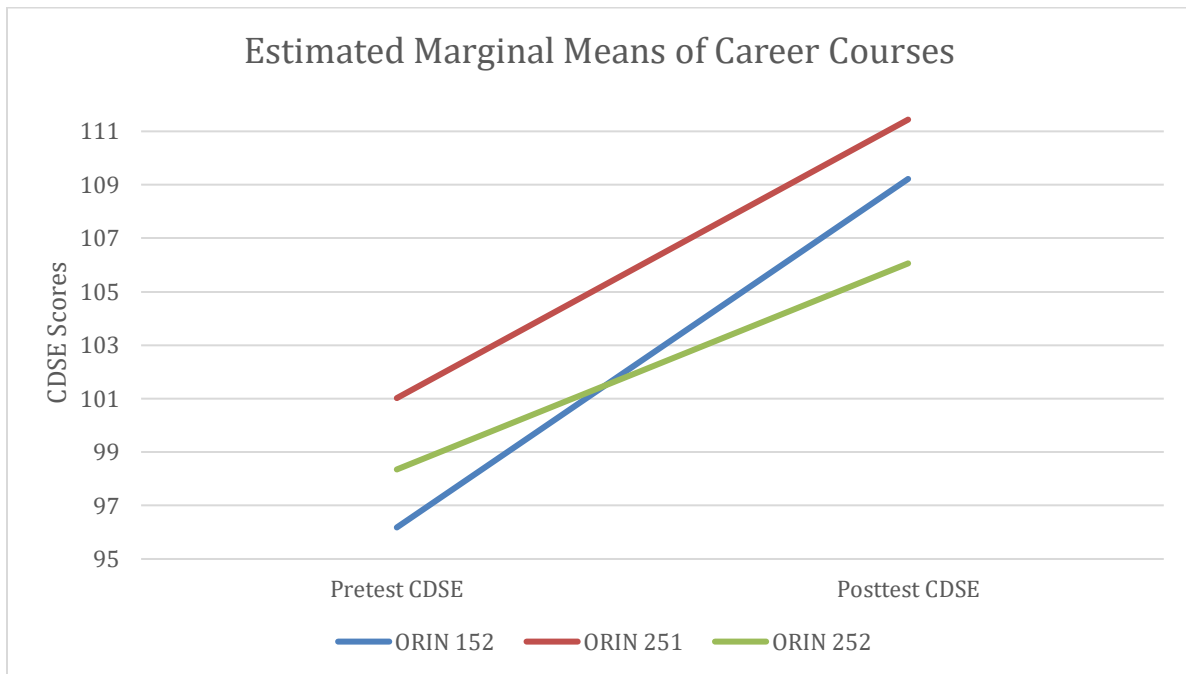
**Table 8**

*Descriptive Statistics for Mixed ANOVA for the Effect of Time and Course on CDSE Scores*

	Course	M	SD	N
Pretest Score	ORIN 152	96.18	14.89	45
	ORIN 251	101.02	13.69	54
	ORIN 252	98.35	14.01	34
	Total	98.70	14.24	133
Posttest Score	ORIN 152	109.22	16.85	45
	ORIN 251	111.44	13.41	54
	ORIN 252	106.06	18.67	34
	Total	109.32	16.08	133

*Note:* M = mean; SD = standard deviation

**Figure 2**





### **Additional Analyses**

Given the discussion regarding undecided students in career development research, the level of certainty was assessed regarding participants' academic majors. Students in the career courses demonstrated a high level of certainty regarding their selected majors,  $M = 4.39$  on a scale of 1 (not at all certain) to 5 (completely certain). Students in the control group also demonstrated a high level of certainty regarding their major,  $M = 4.17$ .

### **Discussion**

The first research question sought to determine whether students who participated in the career orientation courses showed substantial improvement in their career decision self-efficacy scores. The prediction that students would exhibit increases in CDSE scores was supported by the results. The main effect for the within-subjects factor (participation in a career course) was statistically significant, concluding that students' CDSE scores increased significantly after participation in any of the three career courses. This result is consistent with prior studies that find career courses successful in increasing college students' career decision self-efficacy (e.g., Baig, 2012; Grier-Reed & Skaar, 2010; Johnson et al., 2002; Rowell et al., 2012; Thomas & McDaniel, 2004).

The second research question determined whether a difference in CDSE occurred between students who took a career course and students who did not take a career course. To address this question, a paired samples t-test was conducted to analyze changes in the pretest and posttest CDSE scores for the control group, and the results were not statistically significant. Because students in the comparison group did not exhibit increases in their CDSE scores, it is more likely that the increase in CDSE was due to the career courses rather than maturation effects.

The mixed model ANOVA for research question 2 investigated the interaction between the participation in the career course and change in CDSE scores. There was no significant interaction between time and course type and no significant main effect for pretest to posttest, however there was a significant main effect for group, or participation in the career course. Therefore, there was a significant difference between the average of the pretest and posttest means for the career course group compared to the control group.

Consideration of the estimated marginal means indicated students who participated in the career courses demonstrated a higher initial CDSE score at the start of the courses than students in the control group. A potential explanation for this contrast in initial mean scores suggests that students who elect to participate in career orientation courses are more interested in growing their career and therefore demonstrate greater CDSE than students who do not elect to take the course. Additionally, juniors and seniors make up a combined 62.9% of the career courses and are likely to exhibit greater CDSE as they are closer to pursuing their career than freshmen and sophomore students who made up the entirety of the control group.

Analyses of the third research question assessed whether career decision self-efficacy outcomes of the career orientation courses differed based on gender. The results were consistent with a prior study (Grier-Reed & Skaar, 2010) that found no significant main effect for gender on CDSE scores in a mixed ANOVA with ethnicity through participation in a Constructivist career course. These results, however, were inconsistent with analysis of another type of career course grounded in a holistic trait and factor approach that demonstrated greater increases in CDSE for women (Johnson et al., 2002).

The results of the mixed ANOVA for research question 4 concluded that there was no significant difference in CDSE outcomes based on which course was taken. Students in each of

the three courses demonstrated statistically significant gains in CDSE scores. When looking at mean scores for each course, students in ORIN 251 demonstrated the highest initial CDSE scores at the start of the courses. Because the intent of the courses is to be sequential, this finding is surprising as ORIN 251 is meant to be taken prior to, although is not a prerequisite for, ORIN 252. Subsequently, ORIN 252 was the course expected to demonstrate the highest initial CDSE scores on average. Potentially, the names of the courses (ORIN 251: Preparing for Success; ORIN 252: Professional Development) provide different expectations by the students that might influence students to choose one course over the other, depending on their career self-efficacy.

Additionally, although not significantly different from the other courses, students in ORIN 152 demonstrated the greatest increase in CDSE scores. This finding is not surprising because the course is intended for freshmen and sophomore students, though juniors may take the course as well, and the course is intended to be taken first in the sequence. It is likely students in ORIN 152 would have experienced most career-related information for the first time, and therefore would exhibit the greatest gains. Alternatively, students who participate in ORIN 251 or 252 are more likely to have taken a prior course or received some career assistance or experience prior to the course.

The high level of certainty regarding majors is encouraging, given the detrimental effects of indecision on students and universities. This information suggests that students feel more confident regarding their ability to select a major, but further research should determine where students feel anxiety regarding specific career decisions after choosing a major.

### **Limitations**

Some limitations are presented by this study. For instance, the small sample size of the control group reduces the statistical power of the analyses and increases the likelihood of a type

II error, or a false negative. A larger sample size might have yielded a statistically significant interaction between time and course from the mixed ANOVA output. Due to the small sample size, the control group was not representative of the larger population and did not match the experimental group well. The control group was all female, all traditional age students, and did not include any juniors or seniors. With groups that are not well-matched in terms of demographics, there is concern for individual variance as a confounding variable. Recruitment for participation was made difficult by departmental policies regarding offering extra credit for participation in research across the university.

Although West Virginia University has a diverse student population, nevertheless conducting this study at a single institution is a limitation for generalizability to the population. Using larger and more diverse samples would improve generalizability. The sampling method used was non-random and not ideal for quantitative research. Non-random sampling increases the likelihood of bias in samples. Additionally, because the survey consisted of a Likert scale survey and students in the study were offered extra credit for completing the survey, it is possible that students rushed through the survey without much consideration of each question in order to receive extra credit points. Lastly, many responses were not used because they were incomplete or did not have a corresponding pre or post response. Only participations who completed both the pretest and posttest could be included in the data analysis.

### **Future Studies**

There are a number of future directions for further research and analysis. A repeated measures multivariate analysis of variance could be utilized to assess the amount of growth in the five subscales of the CDSE short-form and determine where the career courses are lacking and where they are providing adequate content for students. For instance, Reese and Miller

(2006) found that students who completed the career course from their study demonstrated the greatest improvement in the domains of Gathering Occupational Information, Setting Career Goals, and Career Planning. Multiple linear regression analyses could assess how other demographic variables such as ethnicity, socioeconomic status, and parent education might predict CDSE scores.

Collection of qualitative data from students in the career courses would be beneficial for more in-depth investigation. Questions regarding students' perception of their own self-efficacy and confidence would provide further examination of the courses' utility. Due to the limitation of conducting this research at a singular institution, a repetition of this study with larger and more diverse samples would provide better statistical power to support the results. Including other instruments such as the Decisional Process Inventory (Baig, 2012) or the Career Indecision Scale (Grier- Reed & Skaar, 2010) could provide more context regarding the effectiveness of course content in different domains of career development. Repetition of the study could determine whether ORIN 251 continues to demonstrate greater CDSE scores on pretest and posttest measures, and whether ORIN 152 continues to demonstrate the greatest growth in CDSE scores.

### **Implications for Practice**

Because of the importance of career decision self-efficacy on student outcomes, institutions of higher education should, at minimum, offer similar courses to students. To engage wider audiences of students, higher education institutions should seek ways to incorporate career development learning into the curriculum of all programs of study to ensure all students experience positive outcomes associated with increased CDSE, including employment, job satisfaction, and academic persistence. Secondly, because freshman and sophomore level students in ORIN 152 demonstrated the greatest gains in CDSE on average, early intervention is

suggested for students to provide the most effective support and increase vocational behavior early in their college career. However, early career support should also be followed by continue support, as ORIN 251 and 252 also significantly increased students' CDSE.

It is also important to note that the courses assessed in this study were delivered online, implicating that online courses show promise as a viable option for career service centers or for online programs of study considering career support options. In a post Covid-19 era, online options are more prevalent, creating an opportune time to implement online career courses. An online format may reduce cost and labor for faculty and staff while still providing valuable benefit to students. Lastly, considering students who participated in the career courses were very confident in their major selection, the results of this study indicate that institutions of higher education should implement career development learning to students who are considered "decided" in their major or field of study.

### **Conclusions**

The career orientation courses offered by West Virginia University were successful in increasing students' career decision self-efficacy overall. No gender differences were found for CDSE outcomes. Career decision self-efficacy is a critical foundation for increasing vocational behavior, interest, skills, and performance of tasks, leading to lasting positive outcomes for students and institutions of higher education. Although not statistically significant, some interesting differences between the courses occurred in terms of students' career decision self-efficacy and provided considerations about the process of developing CDSE over time. Results of the study generate potential avenues for further evaluation of the specific courses assessed, as well as career courses offered at other institutions and provide evidence for supporting increased career course offerings at institutions of higher education.

## References

- Allen, M. (2017). *The sage encyclopedia of communication research methods* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc doi: 10.4135/9781483381411
- Association of American Colleges and Universities, (2007). *College learning for the new global century: A report from the National Leadership Council for Liberal Education & America's Promise*. Washington, DC.
- Baig, Sidra Tabassum Ashraf (2012). *The effects of a career development course on career and college major decision-making in college students*. Graduate Student Theses, Dissertations, & Professional Papers. 997.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191-215.
- Betz, N. E., & Hackett, G. (1986). Applications of self-efficacy theory to understanding career choice behavior. *Journal of Social and Clinical Psychology*, 4, 279-289.
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the Career Decision-Making Self Efficacy Scale. *Journal of Career Assessment*, 4, 47-57.
- Betz, N. E., & Luzzo, D. A. (1996). Career assessment and the career decision-making self- efficacy scale. *Journal of Career Assessment*, 4(4), 413-428.
- Betz, N. E., & Serling, D. (1995). *Fear of commitment and career decision-making self-efficacy*. Unpublished manuscript, Department of Psychology, Ohio State University.
- Betz, N, E., & Voyten, K, K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *The Career Development Quarterly*, 46, 179-189.
- Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. *Journal of Vocational Behavior*, 35, 194-203.

- Bridgstock, R. (2011). Skills for creative industries graduate success. *Education & Training*, 53(1), 9-26.
- Bridgstock, R., Grant-Iramu, M. & McAlpine, A. (2019). Integration career development learning into the curriculum: Collaboration with the careers service for employability. *Journal of Teaching and Learning for Graduate Employability*, 10(1), 56-72.
- Brown, S. D., Krane, R., Brecheisen, J., Castelino, P., Budisin, I., Miller, M., & Edens, L. (2003). Critical ingredients of career choice interventions: More analyses and new hypotheses. *Journal of Vocational Behavior*, 62, 411-428.
- Carnevale, A.P., Smith, N. and Strohl, J. (2014). "Report: recovery 2020 – job growth and education requirements through 2020", available at: [https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES\\_.Web\\_.pdf](https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES_.Web_.pdf) (accessed October 20, 2020).
- Carnevale, A.P., Jayasundera, T. and Gulish, A. (2016), "America's divided recovery: college haves and have-nots", available at: <https://cew-7632.kxcdn.com/wp-content/uploads/Americas-DividedRecovery-web.pdf> (accessed April 27, 2017).
- Ceperley, A. (2013). Changing times for career services. *Leadership Exchange*, 11(3), 24–29.
- Daniels, L.M., Stewart, T. L., Stupnisky, R. H., Perry, R.P. & LoVerso, T. (2011). Relieving career anxiety and indecision: the role of undergraduate students' perceived control and faculty affiliations. *Social Psychology of Education*, 14. 409-426.
- Deer, L.K., Gohn, K., & Tomoe, K. (2018). Anxiety and self-efficacy as sequential mediators in US college students' career preparation. *Education & Training*, 60(2). 185-197.
- Dey, F. & Cruzvergara, C. Y. (2014). Evolution of Career Services in Higher Education. *New Directions for Student Services*, 148, 5-18.
- Dimitrov, D. M., & Rumrill, P.D. (2003). Pretest-posttest designs and measurement of change. *Speaking of Research*, 159-165.



- Ducote, J.M. (1984). Career indecision among adolescent/college students: a literature review and suggested interventions. The Annual Meeting of the Mid-South Educational Research Association, New Orleans, LA.
- Education Advisory Board. (2012). Next-generation advising: Elevating practice for degree completion and career success. Washington, DC: Author
- Freedman, L. (2013). The developmental disconnect in choosing a major: Why institutions should prohibit choice until second year. *The Mentor: Innovative Scholarship on Academic Advising*, 15. doi:10.26209/mj1561278
- Gati, I., Krausz, G., & Osipow, S.H. (1996). A taxonomy of difficulties in career decision- making. *Journal of Counseling Psychology*, 43(4). 510-526.
- Goodson, W. D. (1981). Do career development needs exist for all students entering colleges or just the undecided major students? *Journal of College Student Personnel*, 22, 413-417.
- Gordon, V. N. (1984). The undecided college student: An academic and career advising challenge. Springfield, IL: Charles C. Thomas.
- Gore, P.A., & Metz, A.J. (2008). Foundations: Advising for career and life planning. In V. Gordon, W. Habley, & T. Crites (Eds.), *Academic advising: A comprehensive handbook* (2nd ed., pp. 103-118). New York: Jossey-Bass. Published, 2008.
- Grier-Reed, T.L. & Skaar, N.L. (2010), An outcome study of career decision self-efficacy and indecision in an undergraduate constructivist career course. *The Career Development Quarterly*, 59, 42-53.
- Hart Research Associates. (2013). It takes more than a major: Employer priorities for college learning and student success. *Liberal Education*, 99(2).

- Helwig, A. (2004). A ten-year longitudinal study of the career development of students: Summary findings. *Journal of Counseling & Development, 82*, 49-57.
- Johnson, P., Nichols, C.N., Buboltz Jr., W. C., Riedesel, B. (2002). Assessing a holistic and trait factor approach to career development of college students. *Journal of College Counseling, 5*, 4-14.
- Kanfer, R., Wanberg, C.R. and Kantrowitz, T.M. (2001). Job search and employment: a personality motivational analysis and meta-analytic review. *Journal of Applied Psychology, 86*(1), 837-855.
- Kaplan, Robert W. and Dennis P. Saccuzzo (1982). *Psychological Testing. Principles, Applications, and Issues*. Monterey, CA: Brooks/Cole.
- Komaraju, M., Swanson, J. and Nadler, D. (2014). Increased career self-efficacy predicts college students' motivation, and course and major satisfaction. *Journal of Career Assessment, 22*(1), 420-432.
- Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social cognitive career theory. In D. Brown & Associate (Eds.), *Career choice and development* (4th ed., pp. 255–311). San Francisco, CA: Jossey-Bass.
- Leppel, K. (2001). The impact of major on college persistence among freshmen. *Higher Education, 41*(3), 327-342.
- Leung, S.A. (2008). The Big Five Career Theories. In: Athanasou, J.A., Van Esbroeck, R. (eds) *International Handbook of Career Guidance*. Springer, Dordrecht. [https://doi.org/10.1007/978-1-4020-6230-8\\_6](https://doi.org/10.1007/978-1-4020-6230-8_6)
- Leuwerke, W. C., Robbins, S. B., Sawyer, R., & Hovland, M. (2004). Predicting engineering major status from mathematics achievement and interest congruence. *Journal of Career Assessment, 12*, 135-149.

- Liu, Y., Green, A., Pensiero, N. (2016). Expansion of higher education and inequality of opportunities: a cross-national analysis. *Journal of Higher Education and Policy Management*, 38(3), 242-263.
- Makransky, G., Rogers, M. E., & Creed, P. A. (2015). Analysis of the Construct Validity and Measurement Invariance of the Career Decision Self-Efficacy Scale: A Rasch Model Approach. *Journal of Career Assessment*, 23(4), 645–660. <https://doi.org/10.1177/1069072714553555>
- Murphy, K.R. & Davidshofer, C. O. (1988). *Psychological Testing: Principles and Applications*, Englewood Cliffs, NJ: Prentice-Hall
- Nyström, S., Dahlgren, M., & Dahlgren, L. (2008). A winding road—professional trajectories from higher education to working life: A case study of political science and psychology graduates. *Studies in Continuing Education*, 30(3), 215–229.
- Oliver, L., & Spokane, A. (1988). Career-intervention outcome: What contributed to client gain? *Journal of Counseling Psychology*, 35(4), 447-462.
- National Center for Education Statistics. (2021) *The Integrated Postsecondary Education Data System*. Retrieved October 12, 2021, from <https://nces.ed.gov/ipeds/datacenter/InstitutionProfile.aspx>.
- Niles, S. G., Erford, B. T., Hunt, B., & Watts, R. H. (1997). Decision-making styles and career development in college students. *Journal of College Student Development*, 38(5), 479-488.
- Reese, R. J., & Miller, C. D. (2006). Effects of a university career development course on career decision-making self-efficacy. *Journal of Career Assessment*, 14, 252-266.
- Robbins, S. B. (1985). Validity estimates for the Career Decision-Making Self-Efficacy Scale. *Measurement and Evaluation in Counseling and Development*, 18(2), 64-71.
- Rowell, C. R., Mobley, A. K. Kemer, G. & Giordano, A. (2012). Examination of a group counseling model of career decision making with college students. *Journal of College Counseling*, 17, 163-174.

- Taylor, K. M., & Betz, N. E. (1983) Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63-81.
- Taylor, K. M., & Popma, J. (1990). Construct validity of the Career Decision-Making Self- Efficacy Scale and the relationship of CDMSE to vocational indecision. *Journal of Vocational Behavior*, 37, 17-31.
- Thomas, J.H. & McDaniel, C. R. (2004). Effectiveness of a required course in career planning for psychology majors. *Teaching of Psychology*, 31(1), 22-27.
- Tinto, V. (1975) "Dropout from higher education: A theoretical synthesis of recent research". *Review of Educational Research*, 45, 89-125.
- The Economics Daily (2020, May 22). 66.2% of 2019 high school graduates enrolled in college in October 2019. U.S. Bureau of Labor Statistics. <https://www.bls.gov/opub/ted/2020/66-point-2-percent-of-2019-high-school-graduates-enrolled-in-college-in-october-2019.htm>
- US Bureau of Labor Statistics. (2020). U.S. Census Bureau quickfacts: West Virginia; United States. Retrieved October 13, 2021, from <https://www.census.gov/quickfacts/fact/table/WV,US/INC110219>
- Watson, C.E. & McConnell, K.D. (2018). What really matters for employment? *Liberal Education*, 104(4).
- Yue, H., & Fu, X. (2017). Rethinking graduation and time to degree: A fresh perspective. *Research in Higher Education*, 58(2), 184–213. <http://doi.org/10.1007/s11162-016-9420-4>.