The Impact of a Career Course on Undergraduate Students' Career Decision State as a Function of Negative Career Thoughts

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THE IMPACT OF A CAREER COURSE ON UNDERGRADUATE STUDENTS’
CAREER DECISION STATE AS A FUNCTION OF NEGATIVE CAREER THOUGHTS

By

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to all the cooks in the kitchen
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ABSTRACT

The current study examined the impact of taking a career development course on career decision making. Specifically, this study sought to determine when students are likely to see the greatest changes in career decision state, as well as how students’ negative career thinking can impact such changes. The sample consisted of 151 undergraduate students participating in a career course that was theoretically informed by cognitive information processing (CIP; Sampson, Reardon, Peterson, & Lenz, 2004). The Career State Inventory (CSI; Leierer, Peterson, Reardon, & Osborn, 2017) was used to measure students’ career decision state throughout each unit of the course, while the Career Thoughts Inventory (CTI; Sampson et al., 1996a) was used as a measure of negative career thinking. A repeated-measures ANOVA was performed to determine differences in course impact by level of negative career thinking (high, medium, low). Results of the ANOVA analysis found that students reported significantly more positive career decision states following Unit I and Unit III of the course, but not Unit II of the course. Additionally, results from that same analysis found an interaction effect between the course and negative career thinking; indicating that students with higher levels of negative career thinking started and maintained less positive career decisions states throughout the course, compared to those of medium and lower levels of negative career thinking. Finally, a second repeated-measures ANOVA found that students who saw the greatest decrease in negative career thinking throughout the course also saw the greatest changes towards a more positive career decision state. A discussion of the findings is offered, followed by the study’s limitations, and the implications for theory, research, practice, and policy.
CHAPTER 1

INTRODUCTION

The college experience for students is marked by challenges and concerns associated with making career choices (Gordon & Steele, 2015). Although many students express such concerns and need for assistance, they are often unaware of career services on college campuses (Fouad et al., 2006, NACE, 2016). Over the past 50 years, colleges around the country have initiated efforts to educate students, not only with regard to general liberal studies, but with a view towards equipping students with knowledge and skills to make career choices and solve career problems (Folsom, Peterson, Reardon, & Mann, 2004-2005). For many years, interventions specifically targeting career development in college-aged individuals have been implemented into higher education settings (Brown & Roche, 2016; Dozier, Sampson, Lenz, Peterson, & Reardon, 2015; Whiston, Lee, Mitts, & Wright, 2017).

Within higher education settings, career courses are a common intervention for helping prepare students to make career decisions (Reardon, Folsom, Lee, & Clark, 2011; Reardon & Lenz, 2018). Research indicates several positive outcomes of participating in such courses, including decreased career decision-making difficulties (Fouad, Cotter, & Kantamneni, 2009), decreased negative career thinking (Freeman, Lenz, & Reardon, 2017; Reed, Reardon, Lenz, & Leierer, 2001), increased graduation rates within a six-year period (Reardon, Melvin, McClain, Peterson, & Bowman, 2015), and an more positive career decision state (Freeman et al., 2017; Miller, Osborn, Sampson, Peterson, & Reardon, 2018; Osborn, Sides, & Brown, in press). However, course developers and other stakeholders continue to seek insight into how career courses impact sub-segments of college students differently, why, and how such interventions can lead to academic success (Reardon, Leierer, & Lee, 2014; Reardon et al., 2015).
The implementation of effective career development interventions often depends on a strong theoretical framework (Sampson, 2017). Such a framework serves both to describe and guide the career decision-making process. One theory commonly utilized and researched in the career development field is cognitive information processing (CIP) theory (Sampson, Reardon, Peterson, & Lenz, 2004). This theory aims to teach individuals skills and schemas necessary to effectively navigate current and future career problems. CIP theory informs career interventions on multiple levels, especially in relation to identifying and modifying negative career thoughts, and communicating a structure that guides the career decision-making process.

Another important area of focus within theory-based career development approaches, including CIP, is career decidedness and indecision. Leierer, Peterson, Reardon, and Osborn (2017) proposed a definition of career decidedness (which they termed career decision state, CDS) that considers the certainty, satisfaction, and clarity one possesses in making an occupational choice. Leierer et al. (2017) posited that the CDS can serve as a metric for evaluating a client’s ability, or readiness, to benefit from career services. Career decidedness, which includes one’s career goals, may be particularly relevant to college students as it may lead to greater retention and academic success (Folsom et al., 2004-2005; Reardon et al., 2015). Additionally, understanding the role career courses play in enhancing one’s career decision state, and barriers inhibiting course influence – such as negative career thinking – may be especially worthy of investigation.

The purpose of this chapter is to introduce the study, “The impact of a career course on undergraduate students’ career decision state as a function of negative career thoughts.” This study examined the impact of taking a career development course on career decision making. Specifically, this study sought to determine when students are likely to see the greatest changes
in career decision state, as well as how students’ negative career thinking can impact such changes. The sample consisted of 151 undergraduate students participating in a career course that was informed by cognitive information processing (CIP) theory (Sampson et al., 2004). The Career State Inventory (CSI; Leierer et al., 2017) was used to measure students’ career decision state throughout each course unit, while the Career Thoughts Inventory (CTI; Sampson et al., 1996b) was used as a measure of negative career thinking. The first chapter consists of an introduction stating the problem to be addressed in the study, the study’s research questions, definitions of related terms, and the social and professional significance of the topic.

**Statement of the Problem**

A review of the literature reveals a plethora of research (e.g., Fouad et al., 2009; Freeman, Lenz, & Reardon, 2017; Osborn, Howard, & Leierer, 2007; Miller et al., 2018; Osborn et al., in press) demonstrating the positive impact of career course participation on various career-related outcomes. However, the current body of research leaves several gaps and questions to address in future studies. Although prior studies (e.g., Freeman et al., 2017; Miller et al., 2018) found career courses as a whole to be helpful in making students more decided, satisfied, and confident regarding an occupational choice (i.e., career decision state), less is known about the impact of certain interventions within the course in attaining such outcomes. Additionally, research has yet to investigate how negative career thoughts influence participants as they progress through the course. Finally, no study has investigated a career course’s impact on college students’ career decision state as a function of their level of negative career thinking. From the review of the literature, the following research questions were derived for the present study:
Research Questions

1. Are there differences in career decision state levels after completion of each of the three units of an undergraduate career development course?

2. Is there a negative career thinking (high, medium, low) by occasion (pretest, Unit I, Unit II, Unit III) interaction effect on career decision state (following completion of a career development course)?

3. Are there significant negative career thinking change (most positive, moderately positive, least positive) by unit variation interaction effects (Pretest through Unit I, Pretest through Unit II, Pretest through Unit III, Unit I through Unit II, Unit I through Unit III, and Unit II through Unit III) on career decision state (derived from completing a career development course)?

Operational Definitions of Terms

The following section introduces relevant terminology and variable definitions. The terminology and variables of interest are:

Career course: “instructor guided use of career resources in a classroom setting with considerable opportunity for interaction between students and instructors” (Sampson, 2008, p. 13).

Career decision state: “a single continuum from being highly goal-directed, satisfied, and confident on the one hand to being immobile or frozen, dissatisfied, and confused on the other” (Leierer et al., 2017, p. 2).

Certainty: degree of decidedness one possesses with respect to a career choice (Leierer et al., 2015).
Clarity: “one’s vocational self-confidence in pursuing a career goal” (Leierer et al., 2017, p. 9).

Commitment anxiety: the “inability to commit to a career choice accompanied by anxiety about the outcome of the career decision” (Sampson et al., 2004, p. 92).

Decision-making confusion: the “extent to which a person’s thoughts or emotions interfere with the ability to initiate or sustain the process of career decision making and problem solving” (Sampson et al., 2004, p. 92).

External conflict: The extent to which messages from others interfere with the ability to make a career choice (Sampson et al., 1996).

Negative career thoughts: “thoughts that impair an individual’s ability to solve a career problem or make a career decision” (Sampson et al., 2004, p. 91).

Satisfaction with choice: the degree of contentment individuals possess with respect to their current occupational choice (Leierer et al., 2015).

Social Significance

Career development interventions are of specific importance in college settings, as they can assist students in making effective academic, occupational, and training-based decisions. Tailored interventions possess the potential to impact individuals in a way that helps them to make vocational choices (Sampson, 2008). Career courses are especially important career interventions at a time when colleges and universities are facing major challenges in student retention (O’Keefe, 2013). With respect to graduation rates, the National Center for Education Statistics (NCES, 2017) noted that of those entering a four-year university, only 59% were able to obtain a degree within a six-year period of time. Career courses increase the likelihood of graduating from a 4-year university within that time period (Reardon et al., 2015), and yet, with
their positive impact on graduation rates, only one-third of career centers in a sample of 842 academic institutions indicated offering for-credit career development courses (National Association of Colleges and Employers, 2016).

Increasing students’ prospects of graduating and helping them to gain a strong sense of vocational identity has implications for future economic performance. According to the Bureau of Labor Statistics (BLS, 2016), students who are able to complete a college degree have lower unemployment rates and attain higher weekly salaries (2.8% and $1,137, respectively) compared to individuals who only complete some college without obtaining a degree (5.0% and $738, respectively). Furthermore, unemployed individuals are at notably greater risk for psychological issues as opposed to their employed counterparts (Paul & Moser, 2009; Wanberg, 2012). Given the risks associated with failing to graduate, including higher rates of unemployment and related mental health issues, the gains that accompany the provision of career development courses may be substantial.

Career decision state (Leierer et al., 2017), defined as the extent of one’s certainty, satisfaction, and clarity in relation to making an occupational choice, can be used to evaluate how career courses impact college students’ career decision making. The ability to distinguish and measure college students’ state of certainty, satisfaction, and clarity, in relation to an occupational choice, may enable practitioners to better evaluate outcomes and engage in further treatment planning and interventions. Effectively intervening in areas that pose challenges for college students can positively affect their lives and potentially benefit society as a whole.

Addressing such concerns via career interventions may have broad implications for college success. Although the retention rate of first-year college students appears to be increasing, roughly one-third of college students who complete their first year at a college or university will
drop out or transfer by their second year (NCES, 2014). Helping students to better understand themselves and develop skills to engage in more effective career decision making may result in students having greater success navigating programs of study and decreased attrition rates (Reardon et al., 2015; Reed, 2001). Raisman (2013) found that the average publicly-assisted college or university lost $13,267,214 in revenue due to student attrition for the 2010-2011 academic year. From this perspective, career courses may offer a solution towards addressing dropout rates, which could have important implications for college and university administrators.

**Professional Significance**

Properly designed and implemented career interventions can make significant differences in the lives of service recipients (Whiston & James, 2013; Whiston et al., 2017). In an attempt to further the application of career interventions, multiple scholars (Sampson, 2009; Whiston & James, 2013) have called for research on services that address client needs effectively and efficiently. Whiston and James (2013) advocated for more process and outcome research to evaluate the effectiveness of career interventions. Sampson (2009) noted that the development and selection of cost-effective approaches would allow for more clients to be seen and helped. Brown (2015) noted that a major shortcoming in career intervention research is that interventions are typically only studied once. He urged that multiple studies of specific interventions be performed to properly establish efficacy of career interventions in bringing about practical positive outcomes.

With these considerations in mind, a career course may represent both an empirically supported and cost-effective intervention method (Whiston, Brecheisen, & Stephens, 2003). McIlveen (2010) suggested that current research findings on career development education may inform service provision in a way that helps students to progress through their program of study.
and transition more smoothly into the world of work. He also stated that examining the effects of specific interventions on specific populations could lead to better evidence-based policy, as opposed to making government-based decisions guided by “ideas” with no research support.

One potential way to have a stronger link between evidence-based policy and research is to have more intentionally designed studies. In a review of the 357 research studies published in 2013 from 24 career development publications, Sampson and his colleagues (2013) recommended that energy be directed towards integrating theory, practice, and research in future studies and professional papers. The current study seeks to respond to this recommendation by reviewing the literature based on theory (cognitive information processing), appraising the development and outcome research related to career courses, and presenting additional research questions intended to investigate both cognitive information processing theory and its application in real world settings.
CHAPTER 2

REVIEW OF THE LITERATURE

The need for empirically-validated services that assist people in making career decisions and solving career problems is well established (McIlveen, 2010; Sampson, 2009; Whiston, 2002; Whiston & James, 2013). The following literature review aims to describe how a specific career theory, cognitive information processing (Osborn et al., 2019; Sampson et al., 2004), aids college students in learning to accomplish these ends. First, this review will provide an overview of career courses as an intervention designed to assist college students in making career decisions. Second, cognitive information processing (CIP) theory (Sampson et al., 2004) will be discussed, including its role in shaping and guiding career interventions. Third, an overview of career decidedness will be offered, including a summary of the construct’s definitions and a treatment of the relationship between career decidedness and other important career variables, including the confidence one has in engaging in the career decision-making process, negative career thoughts, vocational identity, and mental health factors. Finally, the review will examine negative career thinking and the inhibitory role it plays in career decision making and problem solving. The literature review will conclude with a summary and critical analysis of the relevant literature and lay the foundation for the present study.

Career Courses

The following section discusses career courses and their role in college student development, and then transitions to describing some of the outcomes of participating in career courses, as identified in current and past research literature. Finally, the section will conclude with a summary and analysis regarding the career course literature.
Career Courses and College Student Development

Over the last several decades, undergraduate career courses have become more prominent in college and university curriculums; although the number of courses appears to have stabilized in recent years (NACE, 2014; NACE, 2016). The National Association of Colleges and Employers encourages institutions to incorporate career planning courses as a means of providing career services to college students (NACE, 2016). While career courses can vary in design and purpose (Folsom & Reardon, 2003; Reardon & Lenz, 2018), they may all generally be viewed as classes created to help undergraduate students explore occupations, educational and training information, develop greater self-knowledge in relation to interests, values, and skills, and develop necessary tools and strategies for making career decisions and solving career problems (Reardon et al., 2017). Career courses are generally viewed as a cost-effective method for providing comprehensive career services to undergraduate students (Folsom & Reardon, 2003; Peterson & Burck, 1982; Whiston, Brecheisen, & Stephens, 2003).

The history of career courses and career development education has been well documented (see Folsom and Reardon, 2003, for a brief overview). In a review of career courses offered over the decades, Folsom and Reardon (2003) stated that courses often varied in design, scope, and function (e.g., for-credit vs. not for-credit, number of hours offered, variable course credit, for freshman or upper division students). Falling under the umbrella of career interventions (Brown, 2015; Folsom et al., 2004-2005; Whiston, Sexton, & Lasoff, 1998), career courses tend to possess certain elements that can lead to more favorable career outcomes. Scholars have attempted to identify these elements – or "ingredients" – that make up effective career interventions. Through meta-analytic research, both Brown and Krane (2000) and Brown et al. (2003) determined that to be effective, the career intervention (i.e., career course) should include
(1) workbooks and other written exercises, (2) personalized feedback and interpretation from a career counselor, (3) opportunities to explore occupational information in-session, (4) modeling, and (5) support. Holistically, such ingredients relate to increases in career choice effect sizes (Brown & Krane, 2000). Whiston et al. (2017) emphasized the importance of counselor support in generating positive career intervention outcomes. In general, considerable efforts have been made to establish the efficacy of career interventions (Brown, 2015), but more research should be conducted to further establish the impact that such interventions can have on college students.

As previously mentioned, arguments have been made in favor of developing and utilizing empirically validated career interventions that are cost effective (Sampson, 2009; Sampson et al., 2011; Whiston & James, 2013). Career courses align with these two ideals as a service delivery model. Meta-analytic research has demonstrated that career courses are one of the more effective approaches in bringing about important career-related learning outcomes (Oliver & Spokane, 1988; Whiston, Sexton, & Lasoff, 1998). Additionally, career courses may represent one of the more cost-effective career interventions (Folsom & Reardon, 2003). In contrast to more traditional intervention models in which one career counselor meets with one client for 10 weeks, a career course can require only one or two instructors to teach dozens of students. This latter approach will ultimately utilize less resources (i.e., time per individual and personnel), while also reaching more people in need of career services.

According to a survey by the National Association of Colleges and Employers (NACE, 2016), almost 33% of the 842 university respondents indicated having career centers within the institution that offered career courses for college credit. Unfortunately, these figures have decreased compared to the findings from the same report conducted two years prior (NACE,
Continuing to establish the effectiveness of such courses may inspire more university career centers to adopt similar course offerings, and change this downward trend.

The value in creating career course interventions as a way of increasing career engagement appears to be a worthwhile task. This is especially true as research has shown that college students who engage in career exploration activities tend to be more confident about their ability to make career decisions and are more decided and comfortable with their occupational choices (Kim et al., 2014). Continuing to evaluate the impact of engaging career activities to determine more causal relationships with increased career decision-making self-efficacy seems justified; especially when research has demonstrated negative correlations between career decision self-efficacy and dysfunctional career thoughts (Kim et al., 2015, Saunders et al., 2000; Strauser, Lustig, & Cifti, 2008).

Career courses have been shown to favorably influence many important career-related variables. These variables have been historically categorized in one of two ways: as outputs or outcomes (Folsom & Reardon, 2003; Reardon & Lenz, 2018). According to Peterson and Burck (1982), outputs refer to the immediate results or effects of taking a career course (e.g., clearer knowledge of career interests, increased career-decision making self-efficacy, decreased negative career thinking). Outcomes refer to the more long-term or distal effects of taking a career course (e.g., shorter time to graduate, improved academic performance, job satisfaction, etc.). Intervention studies that examine the impact of career courses on various output and outcome variables are relatively new, dating back only to the 1970s. However, in the last several decades, emphasis has been placed on accountability and outcome measurement in career research (Brown, 2015; Peterson & Burck, 1982; Peterson, Sampson, & Reardon, 1991; Sampson et al., 2004).
Frequently studied career course outputs fall into the categories of career decision-making skills, career thoughts, vocational identity, and career decidedness. Frequently studied career course outcomes include course satisfaction, retention, job satisfaction, major selection, and cumulative GPA (Folsom & Reardon, 2003). In an attempt to better understand the outputs and outcomes of career course completion, the following sections provide an overview of the empirical research.

**Career Course Outputs**

Career courses have been a commonly used and researched intervention with college students. Reardon, Folsom, Lee, and Clark (2011) reported that 74 theoretical or empirical articles were written between 1976 and 2011 examining the effectiveness of career courses on improving career decision-making abilities in college students. These studies, and research subsequent to 2011, speak to the numerous ways that career courses can influence college student development. Specifically, empirical investigations of career courses have examined variables such as student confidence and self-beliefs towards engaging in the career development process.

Career courses have demonstrated effectiveness at increasing college student’s confidence in engaging in the decision-making process. Completion of a career course has been found to increase career decision-making self-efficacy, vocational identity, and confidence in career decision making (Cheung & Jin, 2016; Gallo, 2017; Fouad et al., 2016; Lam, 2015; Scott & Ciani, 2008; Ware, 1985). Additionally, college students who take career courses have shown significant increases in self-esteem and internal locus of control (Broley, 1986; Wachs, 1986).

For some students, career courses can augment perceptions concerning the challenges faced when making career decisions. For example, Reese and Miller (2006) investigated the impact of
a 15-week, CIP-informed career course on perceived difficulties in solving career problems, by comparing career course participants ($n = 30$) with participants in an introductory psychology course ($n = 66$). The career course group was 60% women and 40% men, with a racial/ethnic background of 86.7% Caucasian, 6.6% African American, and 6.6% Hispanic. Additionally, the career course consisted of 40.0% freshman 23.3% sophomore, 16.7% junior, and 20% senior. The introductory psychology group was 59.1% women and 40.9% men, with a racial/ethnic background of 75.8% Caucasian, 6.8% African American, 10.6% Hispanic, 1.5% Asian, 4.5% indicated international status, and 1.5% did not indicate an ethnicity. Additionally, the career course consisted of 66.7% freshman 18.2% sophomore, 9.1% junior, and 6.1% senior. The study found that undergraduate students reported lower perceived difficulties in solving career problems after taking the career course compared to those who completed an introductory psychology course ($F = 8.07$, $\eta^2 = .52$). Finally, researchers have found career course completion leads to increases in exploration of both self (i.e., interests, values, and skills) and occupational information (Cheung & Jin, 2016; Fouad et al., 2016). These findings suggest that completing career courses provide students immediately with skills, knowledge, motivation, and confidence to continue pursuing career decision-making processes.

Researchers have also investigated career courses to evaluate changes in college students’ perceptions of identifiable challenges and confidence as they relate to career decision making. Fouad et al. (2009) examined the effects of career course participation on selected career development variables for 73 undergraduate students at a large Midwestern university. The sample was 65.6% women and 34.4% men, with a racial/ethnic background of 83.6% Caucasian, 6.8% African American, 2.7% Hispanic, 2.7% Asian, and 1.4% identified as “other”. Additionally, the career course consisted of 78.0% freshman, 19.0% sophomore, and
3.0% senior. Specifically, using a pre-post quasi-experimental design, the researchers assessed for changes in career decision-making difficulties, career decision-making self-efficacy, and perceptions of career and educational barriers. The results of the repeated-measures analysis found that self-reported career decision-making difficulties significantly decreased among students after taking a career decision-making course ($F = 7.11, \eta^2 = .12$). Among career decision-making subdomains, students reported a significant decrease in lack of occupational information ($F = 13.95, \eta^2 = .18$), but not a significant decrease in endorsement of inconsistent information as a source of career indecision ($F = .02, \eta^2 < .01$). The authors also found that career decision-making self-efficacy significantly increased after the completion of a career course ($F = 17.47, \eta^2 = .24$). Specifically, Fouad et al. (2009) observed an increase in student self-appraisal, occupational information ($F = 11.21, \eta^2 = .15$), goal selection ($F = 18.42, \eta^2 = .23$), and problem solving ($F = .62, \eta^2 = .01$). However, the researchers did not find any significant change in perception of barriers after completion of the course ($F = 13.95, \eta^2 = .18$). These findings suggest that while taking the course did not decrease students’ perception of barriers, it did increase goal crystallization, decreased their needs for career information, and increased their confidence and career decision-making self-efficacy. Ultimately, it is reasonable that a career course would not be able to remove all barriers (e.g., a learning disability or financial issues). However, studies investigating career course interventions should continue to assess the course’s ability to decrease such thoughts or perceptions.

Other researchers have sought to determine if a career course can help students develop practical skills and confidence; specifically surrounding the job search process. McDow and Zabrucky (2015) evaluated the impact of a semester-long career development course on a sample of 116 college students at a large Southeastern university, while comparing differences in scores
over time to a control group of undergraduate business students enrolled in a different required course. Of the career course participants, 40 were juniors and 76 were seniors. Additionally, 52 participants were female, while 64 were male. In the control group, 47 participants were juniors and 4 were seniors; while the control also consisted of 31 females and 20 males. Students in each group were expected to submit and resubmit resumes, which were evaluated by two graduate assistants, blind to group membership, who scored the quality of the resumes using a rubric developed by one of the authors. Additionally, students in the career course group participated in an instructional mock interview with skills evaluated by two graduate assistants using a pre-created rubric. Results of an ANOVA demonstrated that students in the career course group exhibited significantly greater improvements in resume writing skills ($F_{1.165} = 74.85, p < .01$) and interview quality ($F_{1.165} = 12.81, p < .01$). However, job search self-efficacy (measured using a 6-item survey created by the researchers) did not significantly change from beginning to end of the course ($F_{1.165} = .526, p = .47$). This finding was not surprising to the authors, as initial pretest assessments of course participants showed that students were already confident about the job search process upon entering the course.

Though the conclusions drawn from McDow and Zabrucky (2015) provide additional support for the utility of career development courses when working with college students, the results should be interpreted with caution when considering the sample used. A greater representation of students in the career course group were seniors required to take the course, and likely were in a position to needs such skills in preparation for graduation. Additionally, this study is limited in that it is unclear how the career development course was constructed and what specific interventions were used. A more balanced and equal numbered control group with more seniors may limit the differences in group outcomes. However, the study does speak to some of
the short-term outputs that could lead to significant long-term outcomes, which is the focus of the following section.

**Career Course Outcomes**

Career course research has also evaluated more long-term outcome variables related to academic success in college. Reardon et al. (2015) investigated the relationship between participation in a CIP-informed career development course and graduation rates for 544 college students at a southern university. The sample was 68.7% women and 31.3% men, with a racial/ethnic background of 68.6% Caucasian, 23.6% African American, 9.6% Hispanic, 2.2% Asian, and < 1.0% identified as “other”. Specifically, the study sought to determine how enrollment in a career course would affect the graduation rates of students in comparison to the general student population. Results indicated that career course participants were statistically more likely to graduate within 6 years (81.5%) than subjects in a comparison group of university students (71.3%). Other studies have likewise demonstrated that participating in a career course leads to an improved graduation rates (Folsom et al., 2005; French, 2013; Smith-Keller, 2005).

Although the results from Reardon et al. (2015) suggest potential long-term benefits to career course participation, recent research has challenged these findings. Hansen, Jackson, and Pederson (2017) investigated the impact of a career course on college students’ retention rates, graduation rates, and academic performance, by comparing undergraduate students at a large, private university who completed a career course ($n = 3,546$) with students who had not ($n = 3,510$). The treatment group was 52.5% women and 47.5% men, with a racial/ethnic background of 88.2% Caucasian, 0.8% African American, 4.5% Hispanic, 2.9% Asian, and 0.5% identified as “other”. The class levels of the course were 50.3% freshman, 34.6% sophomores, 11.0% juniors, and 4.0% seniors. The comparison group was 50.2% women and 49.8% men, with a
racial/ethnic background of 91.2% Caucasian, 0.5% African American, 3.6% Hispanic, 2.3% Asian, and 0.3% identified as “other”. The class levels represented in the course were 50.1% freshman, 34.8% sophomores, 11.1% juniors, 4.0% seniors. Specifically, the researchers investigated whether career course completion predicted graduation rates within a 6-year period of time, time to graduate (in semesters), time to graduation (in credits), number of course withdrawals, and total GPA at graduation. Results of a regression analysis found that career course participation significantly predicted the number of credits at graduation and total GPA, with career course participants graduating with more credits (4.78) and with a GPA that is .035 points higher. However, the analysis also found that career course participation did not significantly predict retention to graduation within 6 years, time to graduation in semesters, and number of course withdrawals.

These findings are consistent with Grier-Reed and Chahla (2015), which explored the impact of a constructivist career course, by comparing career course participants (n = 103) with students enrolled in an introductory social sciences and humanities course (n = 107) at an urban midwestern university. Constructivist career courses are designed to help students to explore cultural, belief, and value structures to develop a story that integrates with a meaningful work and career path (Grier-Reed & Conkel-Ziebell, 2009). The treatment group was 65.0% women and 35.0% men, with a racial/ethnic background of 56.3% Caucasian, 7.8% African American; 1.9% African; 3.9% Latino/a; 2.2% Asian, Asian American or Pacific Islander; 1.9% Native American; and 1 individual identified as a “recent immigrant”. The comparison group was 61.7% women and 38.3% men, with a racial/ethnic background of 65.4% Caucasian; 5% African American; 1.9% African; 4.7% Latino/a; 16.8% Asian, Asian American or Pacific Islander; 1.9% Native American; and 2.8% identified as a “recent immigrant”. The study found
that career course participants and students enrolled in an introductory social sciences and humanities course did not significantly differ regarding years to graduation, cumulative GPA, and credits completed at time of graduation.

The results of Hansen et al. (2017) and Grier-Reed and Chahla (2015) suggest that it is possible that career courses do not necessarily lead to the positive graduation outcomes found in Reardon et al. (2015). However, differences in outcomes may be reflective of the universities and career courses in which the changes in outcomes occur. All three studies investigated career courses at different universities and evaluated courses using different theoretical models and with varying course structures, making the conclusions of each study difficult to generalize. Therefore, it may be necessary to interpret the findings of career course studies with caution when trying to compare the results with other institutions and practice settings. Further summary and analysis of the career course literature will occur in the following section.

**Summary and Analysis of the Literature on Career Courses**

Research has shown that career courses are a powerful intervention for facilitating career exploration and decision making in college students. Studies indicate that participation in career courses generally result in students who are more confident in their choices, as well as their ability to make career decisions and solve career problems. The notion that short-term outputs lead to more long-term outcomes, including successfully navigating programs of study and graduating, is less clear. One interesting gap in the research is that, of the experimental studies conducted, all have looked at career course change from the beginning and end of course participation. Less is known as to where and when specific changes take place within the course, leaving an important question that has yet to be answered. If more were understood about which
aspects of career courses were more effective, these courses could be refined in order to be even more effective.

The career course literature to date possesses several limitations worth addressing. Some limitations include issues concerning sampling methods and research designs. One limitation of career course research is that investigators often rely on convenience sampling (e.g., Fouad et al., 2009). Therefore, individuals could be enrolling in the course for a list of reasons that could impact the study outcomes. Participants could be students who intentionally seek out a career course in hopes that it will assist them in making career decisions. Alternatively, students may be taking the course as an easy credit option, or because they are at risk of failing out. Varying motivations for taking the course, along with urgency, may influence student outcomes more so than the career course. Therefore, convenience sampling limits the ability of researchers to generalize findings to all undergraduate students and should be interpreted with caution.

Many of the studies failed to provide clearly detailed information about the career courses being evaluated. The implications of failing to provide such information is that it then becomes unclear what interventions or how many interventions are being used in the course. Additionally, it is often unclear if the courses are theory driven or atheoretical, which also could provide more information as to how the courses are designed, and how the results could be interpreted. Finally, information is often lacking regarding course length and the nature of activities and interventions used, which could help shed light as to whether students are being impacted by the course or students are merely seeing differences due to maturity or opportunities for other experiences. Due to the lack of information around the design and duration of career courses, comparing the results of these studies becomes difficult.
An additional limitation of the reviewed career course research is that relevant studies are not carried out according to true experimental design. None of the career course intervention studies reviewed in this section utilized random assignment. Additionally, several of the studies reviewed did not compare the treatment group with a control or comparison group. Although these are common criticisms of experimental and quasi-experimental research regarding career interventions (Brown, 2015), performing such experimental research in a college setting may be neither practical nor ethical. Such a design would require that students be randomly enrolled in a career course, with a number of interested students being placed in a control group that would not receive the intervention (or would need to wait to receive the intervention). Even if a study participant assigned to a control group could be offered the course after the study, this likely would not be practical, and is a common limitation to experimental designs (Creswell, 2012). In the following section, a theoretical approach to career decision making will be described.

**Cognitive Information Processing Theory**

Career theories are created as a means of achieving several ends, including describing career development behaviors, as well as identifying and prioritizing important developmental constructs (Brown, 2002; Brown & Lent, 2012). Practically, they help us to better understand how individuals make career decisions and solve career problems and provide guidance for practitioners seeking to create career interventions (Brown, 2002; Brown & Lent, 2012; Sampson, Lenz, Reardon, & Peterson, 1999). One career development theory that has been advanced and heavily researched is cognitive information processing (CIP) theory (Osborn et al., 2019; Sampson et al., 2004). CIP theory is valuable due to its demonstrated utility in collegiate career service delivery and because it has been relied upon as a structure for career course development (Reardon, et al., 2017). CIP theory’s main goal is to assist individuals in solving
current career problems and teaching the skills necessary to resolve future problems (Sampson et al., 2004). CIP theory may be especially useful when working with college students entering the beginning stages of significant career decision making (e.g., selecting a major, applying to a graduate or professional school, choosing an occupation), as the theory breaks down the process into the key content and steps required to make decisions. For individuals with less experience in the decision-making process, this may make the process easier to understand.

Several assumptions underlie CIP theory (Peterson, Sampson, Reardon & Lenz, 2002; Sampson et al., 1996; Sampson et al., 2004). First, the theory assumes that emotions, along with cognitions, are integral to the career decision process. Second, career problem solving and career decision making involve processes that rely on attained knowledge. Third, our self-knowledge and knowledge about the world of work are constantly changing. Finally, career problem solving and career decision making are developed skills. As a comprehensive theory, CIP is comprised of two overarching constructs: the pyramid of information processing and the CASVE cycle.

**Pyramid of Information Processing Domains**

The pyramid of information processing domains is a conceptual model that represents the content – or knowledge domains – involved in the career decision-making process (Sampson et al., 2004). Within the pyramid, content is divided into three domains: knowledge domains, the decision-making skills domain, and the executive processing domain (see Figure 1).

The knowledge domains consist of content related to self-knowledge and occupational knowledge. Both content areas are required to solve a career problem or make a career decision. *Self-knowledge* consists of the values, interests, skills, and employment preferences of the individual. *Occupational knowledge* consists of knowledge concerning specific occupations and how the world-of-work is organized (Sampson et al., 2004). Individuals who possess these two
types of knowledge are believed to be capable of making effective and satisfying career decisions, when combined with appropriate information processing skills.

![Figure 1. The Pyramid of Information Processing Domains](image)


CIP theory’s decision-making skills domain consists of the information processing abilities that individuals require to solve career problems and make effective career decisions. The CASVE cycle is a specific sequence of phases that individuals pass through when making career decisions (to be discussed in the following section).

Although self-knowledge, occupational option information, and decision-making skills all play an important role in the CIP model of career problem solving, CIP gives comparable weight to the role played by metacognitions in the career decision-making process. The executive processing domain consists of metacognitive skills that regulate the adaption and ordering of cognitive strategies brought to bear in career problem solving (Sampson et al., 2004). The specific metacognitive components that influence the career decision-making process include (a)
self-talk (i.e., mental self-directed commentary regarding how well one is completing a task), (b) self-awareness (i.e., the degree to which one maintains awareness of internal factors such as self-talk while navigating problem solving challenges), and (c) monitoring and control (i.e., the ability to track where one is in the process and regulate attention and information intake) (Reardon, et al., 2017; Sampson et al., 2004). One means of assessing and measuring negative career thinking is the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a), which will be discussed further in future chapters.

The CASVE Cycle

The methods by which individuals navigate the career decision-making process has been a topic of interest in career development since Frank Parson put forward the notion of “true reasoning.” According to Parson’s model, individuals draw both on self-understanding and knowledge of their opportunities to succeed in selecting a fitting occupation (Parsons, 1909). Although Parson’s contribution to career theory is still honored today, subsequent theorists have developed more complex and nuanced descriptions of the career decision-making process to supplement this original decision-making model (e.g., Brown & Lent, 2012; Super, 1953). The originators of CIP theory also developed an approach to career decision making that describes the phases individuals pass through to make effective career choices.

If CIP’s pyramid of information processing domains summarizes the content of making an effective career decision, the CASVE cycle maps out the process of career decision making (Sampson et al., 2004). The CASVE cycle can be used to educate individuals on the phases involved in career problem solving and decision making (see Figure 2). Career interventions are called for in the event that deficits or “gaps” in pyramid knowledge or content appear, or when individuals find themselves stuck in one or more of the CASVE cycle phases. For example,
individuals lacking self-knowledge may benefit from an interest inventory aimed at assisting them in clarifying interest, skills, and values.

**Figure 2. The CASVE Cycle**

The CASVE cycle can be divided into five distinct phases of the career decision making process: communication, analysis, synthesis, valuing, and execution. In the communication phase, individuals begin to become aware of a gap between where they are with respect to career development and where they would like to be. This awareness may occur due to internal cues (e.g., negative feelings or anxiety) or external cues (e.g., email from an academic advisor indicating that a major must be selected). These cues create tension in individuals that ideally motivates them to engage in the career decision-making process in hopes of resolving the gap (Peterson et al., 1991; Sampson et al., 2004).

In the analysis phase, the individual begins gathering information related to self-knowledge and options knowledge. Self-knowledge consists of consciousness about one’s interests, skills,
values, and employment preferences. Options knowledge is comprised of internalized information about occupations, programs of study, jobs, and the world-of-work. The ability to effectively gather and evaluate information about oneself allows the individual to make connections to suitable career-related options (Peterson et al., 1991; Peterson et al., 1996; Sampson et al., 2004).

In the synthesis phase, the individual works to generate potential solutions to resolve the career problem. This is done by using elaboration and crystallization. Through elaboration, the individual identifies as many options as possible, utilizing the information gathered in the analysis phase. In crystallization, individuals reduce those options by eliminating possibilities that are least consistent with their interests, values, skills, and preferences (Peterson et al., 1991; Sampson et al., 2004).

In the valuing phase, the individual evaluates a shortened list of options to prioritize which is most suitable to resolve the career problem or gap. Specifically, the individual weighs the costs and benefits of each career-related possibility. This can be achieved by considering how each potential solution may impact significant others, one’s cultural group, and society in general. After prioritizing their options, individuals select one to pursue in the execution phase (Peterson et al., 1991; Sampson et al., 2004).

In the execution phase, individuals begin engaging in behaviors to implement their primary choice. These behaviors may include selecting a program of study or applying for an employment position. The execution phase may be short, (i.e., occupying only a few days) or more extended, (i.e., stretching over a few years) (Peterson et al., 1991; Sampson et al., 2004).

After progressing through each CASVE cycle phase, individuals return to the cycle’s communication phase to determine if the original problem (or gap) has been resolved. If
resolution has been accomplished, the individual will have successfully made a career decision. If not, the process will begin again, this time with a view toward identifying and resolving what was missing or insufficient during the initial problem-solving process (Peterson et al., 1991; Sampson et al., 2004).

Cognitive information processing theory has been commonly incorporated into various forms of career interventions (Sampson et al., 2004). The theory has potential to be used in helping people to become more skilled and knowledgeable in making career decisions, as well as helping to identify factors that may be inhibiting the process. The theory developers believed that as college students become familiar with the content and processes required to navigate the career development process, they will increase their satisfaction with future career choices. However, achieving that end also requires practitioners to understand career decidedness and what specific factors are most important in understanding career indecision.

**Career Decidedness**

Considerable career development literature has focused on career decidedness and indecision, especially in college students, as it is one of the more common college experiences (Gordon & Steele, 2015). To develop a deeper understanding, the author will review career decidedness, along with the various ways the construct has been defined and conceptualized. Developing a deeper understanding of career decidedness involves understanding the factors that affect career decidedness and indecision. Next, this section will examine connections between career decidedness and other career variables to further establish the relevance in addressing career decidedness in career interventions. Finally, the review will discuss career courses and their role in increasing decidedness in college students. These sections will provide information necessary for critiquing and analyzing literature on career decidedness.
Defining Career Decidedness

Career decidedness has been a commonly used construct to determine client needs and prescribe appropriate interventions (Sampson et. al., 2004). In the literature on the career decision-making process, career decidedness and indecision have been conceptualized in different ways (Gati & Asher, 2001; Jones & Chenery, 1980; Leierer et al., 2017, Osipow, 1999; Sampson et al., 2004). Jones and Chenery (1980) defined career decidedness as a “continuous variable ranging from a self-perception of completely decided to completely undecided” (p. 470). Gati et al. (1996) suggested that the ideal career decision maker is (1) aware that a career decision needs to be made, (2) willing to reach such a decision, and (3) capable of making an appropriate decision (Gati et al., 1996).

CIP theory provided a taxonomy for classifying decision makers: decided, undecided, and indecisive (Peterson, et al., 1991; Peterson, Sampson, Reardon, & Lenz, 1996; Sampson et al., 2004). In situations where individuals are decided, they should be able to execute the career decision and engage in behaviors that reflect those decisions. Undecided individuals may either be in need of resources and information necessary to make a decision, or may not be in a situation where decidedness is required. Indecisive individuals are likely to require both access to resources and information, and help from a career practitioner to address factors that may be contributing to their indecisiveness (e.g., negative thoughts, feelings of anxiety, etc.). In contrast to career decidedness, career indecision has been defined as the difficulties that inhibit one’s ability to make career decisions (Osipow, 1999). Osipow (1999) noted that one of the initial responsibilities of a career counselor is to identify factors compounding career indecision.

Special attention has been given to identifying factors that lead to career indecision. In this effort, different taxonomies of career indecision have been proposed (Gati, Krausz, & Osipow,
Osipow and colleagues (1976) identified 4 factors that led to indecisiveness, including (a) having a need for structure, (b) experiencing perceived barriers, (c) conflict with positive choice, and (d) personal conflict. Alternatively, Jones (1989) suggested factors including self-clarity, knowledge about occupations and training, decisiveness, and career choice importance. Finally, Gati and his colleagues (1996) outlined the following factors underlying career indecision: lack of readiness, lack of information, and inconsistent information (Gati et al., 1996).

While other authors have examined factors contributing to career decidedness, Tinsely (1992) suggested that characterization of the construct could be improved through reliance on a theoretical framework. Leierer and colleagues (2017) proposed a new conceptualization of career decidedness (which they termed “career decision state”) conceptually grounded in CIP theory (Sampson et al., 2004). Leierer et al. (2017) asserted that the career decision state can be viewed as “a state of being or consciousness” in regard to three career decision-making elements: certainty, satisfaction and clarity. Certainty is defined as the degree to which individuals have chosen an occupation, satisfaction is the extent to which individuals are satisfied with their degree of decidedness, and clarity is the level of confidence individuals have while engaging in the career decision-making process. Within this conceptualization, career decision state is viewed as a “continuum from being highly goal-directed, satisfied, and confident on the one hand, to being immobilized or frozen, dissatisfied, and confused on the other” (Leierer et al., 2017, p. 2). Furthermore, one’s career decision state is expected to evolve through the lifespan. Any assessment of an individual’s career decision state will therefore merely capture a snapshot in time (Leierer et al., 2015). Career decision state is conceptually linked to CIP theory in that it is interpreted as being an essential element of the CASVE cycle’s communication phase (Leierer
et al., 2017). To better understand career decision state’s significance, the following section will discuss correlational research on career decidedness and indecision.

**Correlates of Career Decidedness**

Aside from efforts to define career decidedness/indecision, attention has also been paid to identifying variables correlated with this construct. Brown and Rector (2008) identified more than 50 variables that have been the focus of career indecision correlational research. From this accumulation of studies, they went on to identify a Four-Factor Model of Vocational Indecision. Brown and Rector (2008) suggested that variables correlated with indecision tend to fall into one of the following categories (1) indecisiveness/trait negative affect, (2) information deficits, (3) interpersonal conflicts and barriers, or (4) lack of readiness. Some examples of such research investigating indecision in college students found significant correlations between career indecision and lower career decision-making self-efficacy (Taylor & Popma, 1990), and lower subjective well-being ($r = .28$) (Uthayakumar, Schimmack, Hartung, & Rogers, 2010).

Additionally, career decidedness has been found to be corelated with vocational identity, depression, dysfunctional career thoughts ($r = .75$), state and trait anxiety, and locus of control (Bullock-Yowell et al., 2011; Bullock-Yowell, McConnell, & Schedin, 2010; Bullock-Yowell et al., 2015; Saunders et al., 2000).

The individual components of career decidedness/career decision state have also been the subject of empirical investigation. Bullock-Yowell, Peterson, Reardon, Leierer, and Reed (2011) examined a sample of college students ($n = 232$) enrolled in a CIP theory informed, career course at a public, Southeastern university. The sample was 51.3 % women and 48.7 % men, with a racial/ethnic background of 64.2 % Caucasian, 15.5 % African American, 12.1 % Hispanic American, 2.2 % Asian American, 4.7 % identified as “other”, and 1.3 chose not to respond. The
class levels of the course were 9.1% freshman, 42.2% sophomores, 22.8% juniors, 25.0% seniors, 0.4% graduate, and 0.4% “other”. Specifically, the study used structural equation modeling to determine if negative career thinking functioned as a mediator between career and life stress and career decision state (i.e., career indecision and dissatisfaction) at a time when students were asked to make a career decision. The participants completed a demographic form, the Occupational Alternatives Questionnaire (OAQ; Zener & Schnuelle, 1972 modified by Slaney, 1980), the Dissatisfaction with Career Choice (Zener & Schnuelle, 1972 modified by Holland, Gottfredson, & Nafziger, 1975), the Neuroticism scale of the NEO Five-Factor Inventory (NEO-FFI, Form S; Costa & McCrae, 1992), the subscales (i.e., decision-making confusion, commitment anxiety, external conflict) of the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a), and the Career Tension Scale (CTS; Reed, 2005).

The results of the study indicated that career indecision and dissatisfaction with choice were significantly and positively correlated with decision-making confusion ($r = .34$ and .37, respectively) and commitment anxiety ($r = .30$ and .36, respectively), while dissatisfaction with choice was significantly correlated with external conflict ($r = .15$). The study found no direct correlation between career tension and life stress and career decision state variables. However, Bullock-Yowell et al. (2011) found that when negative career thoughts were accounted for, a significant inverse relationship emerged between career/life stress and career decision state. The findings suggest that during stressful circumstances – when negative thoughts were accounted for – students endorsed greater decidedness with a career choice. Similar findings were reported in Bullock et al., (2015). In this latter study, negative career thinking mediated a positive relationship between neuroticism and career decision state, suggesting that when higher
neuroticism was present with higher negative career thinking, participants were more decided and satisfied with regard to an occupational choice. The study’s findings indicate that identifying and understanding personality structures may be equally important when identifying and addressing negative career thoughts.

Other researchers (Chason, Bullock-Yowell, Sampson, Lenz, & Reardon, 2012) examined the relationships between components of career decision state (decidedness and satisfaction) and aspects of negative career thinking. In this study, undergraduate students enrolled in an undergraduate level career course (n = 226) were recruited as subjects and completed the Occupational Alternatives Questionnaire. The sample was 49.6% women and 50.4% men, with a racial/ethnic background of 65.9% Caucasian, 20.4% African American, 6.6% Hispanic, 1.8% Asian, and 2.7% identified as “other”. Additionally, the career course consisted of 9% freshman, 23% sophomore, 15% junior, and 53% senior. Consistent with results reported by Bullock-Yowell et al. (2011), correlational analyses identified career decidedness and satisfaction with choice as significantly and inversely related to decision-making confusion (r = .302 and .307, respectively) and commitment anxiety (r = .318 and .333, respectively). The results suggest that as students become more confused about best practices for making a career decision and anxious about acting on those decisions, the more they appear to be uncertain and dissatisfied about the current state of their occupational choices. However, in contrast to findings in Bullock-Yowell et al. (2011), neither measure of career decision state correlated with external conflict. The results of these two studies suggest a complex relationship between career decision state constructs and negative career thinking, especially relative to external conflict. Individuals who may be experiencing high external conflict may still be decided and satisfied with their current
occupational choice status. On the other hand, they may have the full support of important others when making an occupational decision, and yet, they still may be undecided and unsatisfied.

A more recent study investigated career decision state – including certainty, satisfaction, and clarity – in relation to the constructs reflecting negative career thinking. Edralin (2016) surveyed 111 undergraduate students enrolled in a career course and found increased vocational certainty to be significantly correlated with lower scores on the CTI’s decision-making confusion ($r = .517; p = .05$) and commitment anxiety ($r = .469; p = .05$) scales – with higher career decision state scores meaning lower certainty, satisfaction, and clarity. Additionally, increased satisfaction with choice was significantly correlated with both lower decision-making confusion ($r = .523; p = .05$) and commitment anxiety ($r = .508; p = .05$). Finally, increased clarity was correlated with lower decision-making confusion ($r = .648; p = .05$) and commitment anxiety ($r = .629; p = .05$).

There are also questions as to what extent career decision state variables predict negative career thinking. In the same study, Edralin (2016) conducted a regression analysis, finding increased career certainty and vocational clarity to be significant predictors of decreased decision-making confusion ($\beta = .239$ and $.506$, respectively with a combined $r = .693$), while only increased clarity predicted decreased commitment anxiety ($\beta = .495$, $r = .663$). Such findings stand to reason, as students concerned with their ability to effectively engage in the career decision process are likely to have difficulty comfortably committing to the choices they do make (Sampson et al., 2004). Therefore, practitioners should be aware of students struggling to make an occupational choice and determine if this may be due to a lack of knowledge about the career decision-making process or a lack of confidence in their ability to make a confident choice.
The current research, despite the varied results, suggests significant relationships between career decision state variables and several factors that may inhibit students as they engage in the career decision making-process. To help college students, universities must develop methods for intervening in ways that address these factors and assist students in making satisfactory career choices. One such intervention has been career courses, which have been the subject of a plethora of studies that investigated career decidedness.

**Career Courses and Career Decidedness**

The way in which career courses impact career decidedness in college students has been a common area of interest in the literature. Several studies have investigated the potential of career courses to increase career decidedness or reduce career indecision over the past several decades (Bash 1987; Cheung & Jin, 2016; Fouad et al., 2016; Lent et al., 1986; Quinn & Lewis, 1989). More recent research has also found that career course participation led to college students reporting higher levels of career decision certainty (Gallo, 2017), as well as decreased career indecision (Gallo, 2017; Lam, 2015). This section reviews career course studies investigating career decidedness, the different methods and measures used, and discusses the contradicting results that the research has found.

Research has shown the impact of career courses by comparing participants to control groups. Peng and Herr (1999) investigated the impact of a career course on career decision making by comparing a sample of Taiwanese students who completed a career education course \( (n = 258) \) to those who participated in general education courses \( (n = 237) \). The results of a three-way ANCOVA indicated that completion of the career education course had a significantly greater impact on career certainty and indecision than simply completing general education...
courses ($F = 11.71; p = 0.0001$), as measured by the Career Decision Scale (CDS; Osipow et al., 1976).

The previous study’s findings are consistent with a follow up study performed by Peng investigating freshman students completing two different types of career courses (Peng, 2001). The researcher found that participation in either course (a cognitive restructuring intervention, or a career decision-making skills training) led to significant decreases in career indecision, compared to the control group of students taking general courses (i.e., statistics, accounting, finance, and taxation) ($F = 6.61; p = 0.002$). Although these findings provided promising support for the role of career courses in increasing career decidedness in college students, it is not clear if these findings would generalize to American institutions. Additionally, although both studies found statistically significant results, the researchers failed to provide effect size information for the statistical analyses performed, making the findings’ practical importance difficult to determine.

Recently, attention has been paid to the effect of career courses on career decision state constructs (certainty, satisfaction, and clarity) (Freeman et al., 2017; Miller, et al., 2018; Osborn et al., in press). In a study by Miller et al., (2018), undergraduate students ($n = 164$) completing a career course were surveyed to determine how course participation impacted career decidedness, as measured by the Career Decision State Survey (CDSS, Peterson et al., 2015). Miller et al. (2018) tested for significant differences in career decision state before and after participation in the career course. Using a repeated measures MANOVA, the study found that students who completed the course became significantly more certain ($F = 52.508, \eta^2 = .137$), satisfied ($F = 36.247, \eta^2 = .184$), and clear ($F = 63.518, \eta^2 = .283$) in relation to their occupational choice and the decision-making process. Additionally, the study found that both upper-division students
(i.e., juniors and seniors) and lower-division students (i.e., freshman and sophomores) were significantly impacted by the career course, but lower-division students experienced the greatest change in all three career decision state constructs. These results are consistent with Freeman et al. (2017), who found that career course participation led to significant increases in both certainty and satisfaction with an expressed career choice, as well as greater goal setting, and less negative career thinking. These two studies make strong argument for using career courses as an intervention for all students regardless of their class level.

Career courses have also been found to help college students to decrease levels of career indecision, even if the course is relatively brief. Björnsdóttir (2018) found that participation in a 4-week, CIP-based career course led to college students reporting decreased career indecision, and increased career decision-making self-efficacy, compared to a control group. Specifically, Björnsdóttir noted that focusing on critical ingredients and essential elements of CIP can lead to positive outcomes.

It should be noted that not all studies relevant to career course participation have found significant increases in career decidedness or decreases in career indecision. Grier-Reed and Skarr (2010) investigated the impact of a constructivist career course on a group of undergraduate students at a large university in an urban, Midwest city. The career course group was 62% women and 38% men, with a racial/ethnic background of 47% European American, 19% African American, 18% Asian American, 6% Latino American, 4% multiracial, and 1% identified as “other”. Additionally, the career course consisted of 64% freshman, 25% sophomore, with 2% juniors and seniors, and 9% who did not provide class level demographic information. Results in the study found that participation in a constructivist career course led to students reporting significantly increased career decision-making self-efficacy with no
significant changes in career indecision. The fact that career indecision did not change significantly may reflect the nature of the course. The course, which focused on helping students build a career-based narrative informed by cultural expectations and cultural values, may have placed less emphasis on accessing and exploring occupational information that directly relates to one’s personal interest, values, and skills. Additionally, given that students in the study were largely in their first and second year, they may have been less concerned about confirming an occupational choice.

Several reasons might explain these varied results. As has been noted, career decidedness/indecision is defined and measured inconsistently across studies. Differences in results may simply reflect measurement inconsistencies, or the ways in which the construct has been defined (Brown, 2017; Whiston, 2017). Additionally, career course studies examine courses that vary in curriculum and theoretical design (e.g., cognitive information processing vs. constructivist). Discrepancies may reflect differences in the course theory base, such as implementing a course informed by career construction versus a cognitive information processing approach. Finally, career courses often expose students to information and options not seen in prior experiences. Novel career information may result in students becoming less aware and decided about their career goals and more confused (akin in some sense to the elaboration aspect of the CASVE cycle Synthesis phase). However, such outcomes could still reflect progress in information acquisition and a successful experience in the course. With such discrepancies in findings across studies, it becomes increasingly important to determine what other factors may be leading to these diverging results.
Summary and Analysis of the Literature on Career Decidedness

Research investigating relationships between career decidedness/indecision and other variables has produced results highlighting real issues students may face in the career-decision making process. Several studies informed by cognitive information processing have investigated relationships between career decidedness (especially using career decision state) and negative career thinking (e.g., Chason et al., 2012; Edralin, 2016), while Miller (2016) demonstrated how career courses can be an effective means of helping students of various stages of the college process to become more confident and decisive in making an occupational choice. However, in some research, career courses were insufficient in helping students to crystalize their options (Cheng & Arnold, 2014; Grier-Reed & Skaar, 2015). The discrepancy in research findings requires further inquiry to identify factors that may be leading to different conclusions.

Although valuable, the research on career decidedness and indecision has several limitations. One limitation is the numerous ways in which career decidedness/indecision has been defined and subsequently measured. This has been a common criticism of the literature related to career decidedness (e.g., Brown, 2017; Brown, 2015; Jones, 1989). Multiple taxonomies and measures of career decidedness have been developed and utilized in the literature. Although many of the measures mentioned have been validated and are used to measure various aspects of the career decision-making process, it can be difficult to interpret and integrate these findings. One suggestion to resolve this issue is to come together as a research community and collaborate on one conceptualization of career decidedness and indecision. Brown (2017) argued that future research should include identifying core constructs often evaluated in career intervention research with the intention of better understanding the real-life impact these interventions have on people’s lives. This could be achieved by selecting a
theoretically founded definition of career decidedness that has been empirically supported in the literature.

A possible measure used to represent career decidedness and supplemental factors that influence career decidedness is the Career State Inventory (CSI, Leierer et al., 2017). As a newly developed instrument, few studies have investigated the construct of ‘career decision state’ in its entirety, (i.e., few measures have included the recent addition of clarity and measured global career decision state). The developers designed the Career State Inventory to measure a Cognitive Information Processing-related component, and would therefore be appropriate in studies investigating negative career thinking (Leierer et al., 2017).

Also, several of the studies are limited in their generalizability due to the use of convenience sampling. Several of these studies recruited from career courses to find participants (e.g., Bullock-Yowell et al., 2015; Bullock-Yowell et al., 2011). As a result, this population may not reflect college students as a whole, and could potentially introduce confounds that may impact results. Although not ideal in quasi-experimental research (Creswell, 2012), this is often times unavoidable in research done in university settings focusing on career service provision, as is the case for the aforementioned studies and the one proposed in this paper.

Finally, with respect to career course studies investigating career decidedness, various and perhaps inconsistent measures have been used to investigate career decidedness in undergraduate students. As previously mentioned, the variability of conceptualizations and measures of career decidedness/indecision has resulted in a body of research that is difficult to integrate. Even research that has used the Career State Inventory (formerly termed the Career Decision State Inventory) has assessed the construct of career decidedness in conceptually distinct ways over the measurement’s development. No published study at this point has used the current version of
the Career State Inventory. Unfortunately, these limitations are not easily addressed, and can only be overcome gradually in so far as researchers begin collaborating and coming to an agreement about operationalizing key career constructs like career decidedness (Whiston, 2017; Whiston, 2001).

Career decidedness has been a popular topic in career course literature, with a variety of interpretations at the necessary key features comprising the construct (Brown & Rector, 2008). Although still up for debate, researchers continue to examine the factors that keep students from successful navigating career decision making. One such factor, negative career thinking, will be discussed in the following section.

**Negative Career Thoughts**

One important role of a career counselor involves evaluating negative career thoughts to assess a client’s readiness to make career decisions (Krumboltz, 1990; Sampson et al., 1996b). A readiness assessment can be valuable in clarifying the client’s ability to benefit from career interventions (Sampson, 2008, Sampson et al., 2004). Such an assessment will examine personal characteristics such as negative patterns of thinking and feeling (Osborn, Hayden, Peterson, & Sampson, 2016; Sampson, McClain, Musch, & Reardon, 2013). The following section discusses how negative career thinking has been defined according to CIP theory (Sampson et al., 2004), the major correlates of negative career thoughts, and how career courses have been able to address these maladaptive thought patterns.

**Defining Negative Career Thoughts**

Negative career thinking is of specific concern in relation to career service provision. *Career thoughts* can be defined as, “outcomes of one’s thinking about assumptions, attitudes, behaviors, feelings, plans, and/or strategies related to career problem solving and decision
making” (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b, p. 2). Clients who present with negative career thinking patterns may require greater assistance if they are to benefit from career services (Sampson et al., 1996b, p. 1).

Within CIP theory, cognitions or career thinking influence an individual’s ability to engage in the career decision process effectively and come to a satisfactory resolution (Sampson, et al., 1996; Sampson, Peterson, Lenz, Reardon, & Saunders, 1998). Where more positive career thinking can free up the individual to engage in the process effectively, negative or dysfunctional career thoughts can have the opposite result. Negative career thoughts may lead to attitudes and feelings about the decision-making process that can influence the way clients use career information or impede the decision-making process entirely (Sampson et al., 2004). From this standpoint, knowledge of the role played by career-related thinking, knowledge of factors associated with negative career thinking, and knowledge of methods to alter negative career thinking will be valuable to career practitioners and educators.

Negative career thinking can inhibit individuals from being able to focus on career decisions making and utilize career information and assessments (Sampson et al., 2013). Client readiness can be measured by means of CIP theory’s two-dimensional readiness model. This readiness model specifies the capability of an individual to make a career decision (i.e., the extent of the client’s decision-making ability), as well as the complexity of the career decision in question (i.e., consideration of external factors that complicate or impede a decision) (Sampson et al., 2004). Intersection of the two dimensions lead to three levels of readiness to benefit from career services – low, medium and high readiness. Accounting for clients’ readiness to benefit from career services can help professionals determine appropriate interventions.
If a person attempting to utilize career services is experiencing low readiness due to negative career thinking, low capability, or high complexity, several consequences may occur, including premature disengagement, premature choice foreclosure, or the development of negative perceptions concerning skills and interests (Sampson et al., 2013). In the next section, correlates of negative career thoughts will be explored.

**Correlates of Negative Career Thoughts**

The study of negative career thinking has been an area of interest for many scholars during the past several decades (Dipeolu, Reardon, Sampson, & Burkhead, 2002; Galles & Lenz, 2013; Osborn, 1999). Specifically, researchers (e.g., Andrews, Bullock-Yowell, Dahlen, & Nicholson, 2014; Bullock-Yowell et al., 2015; Walker & Peterson, 2012) have examined relationships between negative career thoughts and other salient career-related variables including self-efficacy, mental health factors, and career indecision.

For example, a recent study of 300 college students by Andrews et al. (2014) identified an inverse relationship between dysfunctional career thoughts and career decision making-self efficacy ($r = -.58$), results that are consistent with prior research examining the same relationship in college students (Bullock-Yowell, Andrews, & Buzetta, 2011; Bullock-Yowell, Andrews, McConnell, & Campbell, 2012). The sample was 84.3% women and 15.7% men, with a racial/ethnic background of 59.0% European American, 36% Black/African American, 1.3% Chicano/Latino/Hispanic, 1.7% Asian/Pacific Islander, and 2.0% identified as “other”. Additionally, the career course consisted of 26.0% freshman, 24.3% sophomore, 25.7% junior, 23.7% senior, and 0.3% identified as “other”. Specifically, Andrews and colleagues (2014) found the association between negative career thinking and career decision self-efficacy to be especially strong for college students who endorsed higher degrees of maladaptive perfectionist
tendencies. Atta et al. (2013) reported that career decision-making self-efficacy significantly predicted negative career thinking ($\beta = -0.41$) in 256 recently graduated college students, as well as specific components of dysfunctional career thinking such as decision-making confusion ($\beta = -0.37$), commitment anxiety ($\beta = -0.39$), and external conflict ($\beta = -0.24$). These results (Andrews et al., 2014; Atta et al., 2013) suggest an interaction between one’s career-related self-beliefs, and cognitions salient to the career decision making-process. Therefore, negative career thinking appears to have effects on students’ confidence to engage the decision-making process, and should be a focus of intervention.

In addition to a student self-efficacy, the study of mental health in relation to college student career decision making has become increasingly popular in the career development literature. The increase in popularity may be occurring in response to the growing trend of college students seeking services to address mental health concerns (Center for Collegiate Mental Health, 2017). As well, prevalence of mental health issues in career development may stem from a need to understand the interplay between cognition, emotion, and behavior in career decision making (Beck, 2011; Saunders, Peterson, Sampson, & Reardon, 2000). Negative or distorted thinking has the capacity to negatively impact one’s ability to behave in productive and healthy ways (Beck, 2011). It may also impact one’s ability to problem solve in effective ways (Sampson et al., 1996). However, negative thinking does not occur in a psychological vacuum, and may often be accompanied by emotional disturbances. Career thinking patterns may affect mood and vice versa, potentially leading to college students experiencing symptoms of depression (Dieringer, Lenz, Hayden, & Peterson, 2017; Saunders et al., 2000).

Depression can impact cognitive functioning including, memory, attention, and decision making (Woo & Keatinge, 2008). Depression and other mental health issues may also impact
one’s ability to make career decisions (Lenz, Peterson, Reardon, & Saunders, 2010). Although it is uncommon to assess for mental health issues while providing career services, attention has been given in career literature to discussing or researching the connection between mental health and career development (e.g., Dozier, Lenz, & Freeman, 2016; Finklea, 2016; Lenz et al., 2010, Osborn, Belle, Gonzales, & McCain, 2016). The link between mental health concerns and career development may be reflected in research linking overall psychological well-being to negative career thoughts, and life stress to career stress (Bullock-Yowell, Peterson, Reardon &, Leierer, 2011; Strauser, Lustig, & Ciftçi, 2008).

Several studies have been conducted to examine the interrelatedness of negative career thinking, depression, and career indecision (Dieringer et al., 2017; Saunders et al., 2000; Walker & Peterson, 2012). For example, Saunders and colleagues (2000) performed a hierarchical regression analysis using a sample of 215 undergraduate students enrolled in an introductory psychology course to measure the predictive power of negative career thinking and depression in relation to career indecision. Researchers found that negative career thinking was significantly related to the other variables; as negative career thinking increased, so did depression ($r = .37)$ and career indecision ($r = .78$). They also found dysfunctional career thoughts, along with vocational identity to be predictive of career indecision ($β = .50$ and -.42, respectively). Although significantly correlated, depression, as a factor, did not obtain a significant amount of variation in predicting career indecision. From these results, the researchers proposed a two-factor model of career indecision composed of vocational identity and dysfunctional career thoughts. These results also suggest the greater role negative career thoughts play in career decision-making difficulties.
Walker and Peterson (2012) studied questions similar to those addressed in Saunders et al.’s (2000) study. They examined the predictive capacity of negative career thinking subconstructs (i.e., decision making confusion, commitment anxiety, an external conflict) and career indecision in relation to depression. Using a sample of 158 college students enrolled in a career course, they discovered a number of significant relationships among the three variables. Specifically, they reported that as negative career thinking ($r = .42$) and career indecision increased ($r = .19$), symptoms of depression increased as well. Furthermore, of the three subscales of negative career thinking, decision making confusion was a significant predictor of depression symptoms ($r = .51$) for the participants in the study.

In support of the previous findings on the relationship between negative career thinking and depression, in a study of 139 clients seeking career assistance, Dieringer et al. (2017) found depression significantly correlated with decision making confusion ($r = .43$), commitment anxiety ($r = .43$), and external conflict ($r = .39$). They also found that a significant portion of depression variance was accounted for by decision making confusion and commitment anxiety. In the same vein, hopelessness was significantly correlated with decision making confusion ($r = .48$), commitment anxiety ($r = .37$), and external conflict ($r = .27$). Furthermore, a significant portion of the variance of hopelessness was predicted by decision making confusion, but not commitment anxiety. The Saunders et al. (2000), Walker and Peterson (2012), and Dieringer et al. (2017) studies suggest that negative career thinking may be a powerful tool for identifying possible mental health issues in individuals seeking career counseling. Such individuals may have more complex presentations and require greater assistance from practitioners if they are to benefit from career information (Sampson et al., 1996). These individuals may also have more difficulty making career decisions in comparison to students who do not find themselves
inhibited by dysfunctional career thinking patterns (Andrews et al., 2014; Sampson et al., 2000). As a result, students with negative career thinking may be especially aided by participating in career course interventions

**Career Courses and Negative Career Thoughts**

Negative career thoughts can play an inhibitive role in the career decision-making process for college students. Career course research has investigated the impact that career courses can have on negative career thinking (Belser, Prescod, Daire, Dagley, & Cynthia, 2018; Freeman et al., 2017; Osborn, Howard, & Leierer, 2007; Reed, Reardon, Lenz, & Leierer, 2001). Researchers have also investigated the way in which negative career thoughts might impact one’s ability to fully benefit from a career course.

Reed et al. (2001) examined undergraduate students (n=181) at a large, four-year institution enrolled in a career course. The study aimed to determine if the nature of career thoughts (i.e., level of negative career thinking) would change from the beginning to the end of a career course, and if those changes would vary depending on initial level of negative career thinking (i.e., high medium, low). Reed et al.’s (2001) study also aimed to determine whether the career course would lead to changes in each of the dysfunctional career thought constructs: decision-making confusion, commitment anxiety, and external conflict. The results of a one-group repeated measures MANOVA indicated that the career course decreased overall negative career thinking ($F = 132.70, \eta^2 = .43$), as well as DMC ($F = 122.68, \eta^2 = .41$), CA ($F = 80.40, \eta^2 = .31$) and EC ($F = 8.98, \eta^2 = .05$). They also found an interaction between levels of negative career thinking and the career course ($F = 10.57, \eta^2 = .11$). Participants with the highest levels of negative career thinking experienced a greater decrease in global negative career thinking, DMC, and EC (though not CA), followed by medium level participants, and then low-level participants. These
findings suggest that career course participation may be an effective way to help students address cognitions that can leave them feeling uncertain about the career-decision making process, hesitant to act on career decisions, and unable to balance their interests with the interest of significant others. This appears to be especially true for students coming in with high levels of negative career thinking.

Follow-up research has been conducted to address similar questions posed in Reed et al.’s (2001) study, but with greater emphasis on diverse populations. Osborn et al. (2007) examined racially and ethnically diverse college freshman (n=158) at a large, four-year institution. The sample consisted of 25.9% males and 74.1% females with the following racial and ethnic distribution: African American (38%), Latino (14.6%), Caucasian (38.6%), and Asian America (8.9%). The study sought to determine whether a career course lasting six weeks could significantly lower negative career thinking with a more diverse participant sample. The study also sought to determine whether individuals were differentially impacted according to ethnic group and according to level of pre-course negative career thinking. Students filled out a demographic form at the beginning of a 1-credit, 6-week career course, and completed the Career Thoughts Inventory before and after taking the course.

Like Reed et al.’s (2001) findings, results of a one-group repeated-measures (pretreatment-posttreatment) MANOVA indicated that overall dysfunctional career thinking was significantly lower after completion of the career course ($F = 40.94, \eta^2 = .21$). Additionally, Osborn et al. (2007) found that students with high levels of dysfunctional career thinking saw the greatest reduction in overall dysfunctional career thinking, followed by medium, then low groups. Participants’ scores on all three negative thought constructs decreased (DMC, CA, and EC) after taking the career course. However, for both DMC and CA, people with higher levels of
dysfunctional career thinking experienced the greatest reduction, followed by medium, then low groups (no significant interaction was found with regard to EC). No significant differences were observed in negative career thinking outcomes in connection with race and ethnicity. Both Reed et al. (2001) and Osborn et al. (2007) speak to how career courses, as an intervention can decrease negative career thinking in college students. However, the studies both used samples with higher numbers of females than is typically represented in a college population. Additionally, both studies acknowledged that it would be helpful to understand what specific course components may be impacting students most.

More recently, Freeman, Lenz, and Reardon (2017) investigated a career course and its ability to impact multiple outcomes for a group of college student participants. One question inquired about the course’s ability to decrease negative career thinking. The sample consisted of 108 undergraduate students that were 61.1% male and 38.9% female, with class levels being seniors (30.6%), juniors (16.7%), sophomores (29.6%), and freshmen (23.1%). Participants’ racial/ethnic composition was as follows: 50.9% Caucasian, 29.6% African American, 9.3% Hispanic/Latino, 2.8% Asian, 2.8%, and 1.8% Native America/Alaskan/Hawaiian. By conducting a one-way ANOVA, the researchers found that the intervention significantly decreased scores related to decision-making confusion ($F = 10.968$), commitment anxiety ($F = 17.012$), but not external conflict ($F = 2.553$). Failure of career course completion to result in lower external conflict scores may be due to the nature of the career course and steps necessary to address external conflict. External conflict involves a difficulty balancing the needs of the self with the needs of others (Sampson et al., 1996). Although the course may work with students to address the thoughts surrounding external conflict, it may not be addressing the real life factors that lead to higher scores in this domain.
Additionally, some research has sought to determine if career courses can be helpful in decreasing negative career thinking with more specified populations. Belser et al. (2018), investigated the impact of a STEM-focused career planning course on 214 undecided STEM-interested students and compared those changes to a sample of 118 students with declared STEM majors enrolled in a seminar engaging students in a major-focused topic. Specific demographic information was not provided in the study, although the authors did state that amongst both groups, 53% of participants were male and 57% were non-Hispanic White. Results of a one-way ANCOVA showed that CTI scores were significantly different between the two groups ($F_{1,325} = 7.27, p = .007, \eta^2 = .02$) when controlling for gender, and the four CTI scores at pretest (CTI Total, decision-making confusion, commitment anxiety, and external conflict). These findings suggest that undeclared students in the STEM-focused career planning course experienced significantly greater decreases in negative career thinking during the same time period compared to the declared STEM majors. These findings provide further support for the efficacy of career courses as a specific tool for building confidence around the career decision process, as opposed to exposing students to major-related courses that could help students to confirm or disconfirm their choices.

Finally, in addition to producing findings on how career courses can impact negative career thinking, career course research has shown how negative career thinking can be related to academic performance in a career course. Bertoch, Reardon, Peterson, and Lenz (2014) found that overall degree of negative career thoughts and decision-making confusion exhibited significant, but weak, inverse correlations with final grade/total points earned in a career course, suggesting that students with higher levels of negative career thinking – especially decision-making confusion – could be an influential force on how students perform in a career course.
This finding highlights the importance of not only working to address negative career thinking in career course interventions, but also of considering the role that negative career thinking can have in impeding a client’s ability to benefit from career interventions. Identifying negative career thinking early in career course interventions may be important to ensure that cognitive barriers are removed so that the full benefit of the career course intervention can be derived.

**Summary and Analysis of Negative Career Thoughts**

Considerable scholarship has gone into the development of CIP theory as a means of identifying and addressing problems that may necessitate career interventions. In the pursuit of developing the theory, negative career thinking has been subject to both correlative research and intervention studies. Correlational findings indicate how negative career thinking is connected to confidence in making career decisions (Andrews et al., 2014), as well as mental health factors (Finklea, 2016; Saunders et al., 2000; Walker & Peterson, 2012). These findings provide additional considerations for career practitioners to be aware of during the screening and intervention process. Negative career thinking was also found to be associated with poorer performance when participating in a career course (Bertoch et al., 2014), raising the question if level of negative career thinking influences the impact of career courses on certain important developmental outcomes. However significant and informative the research may be, several limitations and gaps must be discussed.

As has been discussed in evaluating previous career course research, the studies examining course influence and negative career thinking often failed to give a detailed description of the course and the specific activities included in the course. Oliver and Spokane (1983) pointed out that this is often a significant limitation in career course research. Failing to provide such detail could be explained by the limited space researchers are allotted in journal publications, which
require authors to summarize their interventions at the cost of providing important details for the reader. Although understandable, a lack of information about the course tends to make comparing other career course studies a more difficult task.

Finally, almost all the studies reviewed regarding career course efficacy provided valuable information about the size and demographic characteristics of their samples. This information makes it possible to determine if respective study results are generalizable to specific populations of interest. For example, the studies investigating the impact of career course participation on negative career thinking (Freeman et al., 2017; Osborn et al., 2007; Reed et al., 2001) were both done using samples that disproportionately included women compared to undergraduate college populations identified by the authors at the time of the study. Although one study reviewed found that there were no significant differences between male and female participants in relation to negative career thinking (Reed et al., 2001), unequal gender distributions nonetheless make it difficult to generalize results to broader college groups.

**Summary and Analysis of the Literature**

The preceding sections reviewed selected literature and research studies related to various career constructs, and the way in which those constructs can be addressed through career course interventions. The following section provides a summary of the critical analyses regarding the research and literature focusing on career decidedness (i.e., career decision state), negative career thinking, and how career courses have been effective, especially in relation to these variables. From this summary, possible directions for future research will be described, including a rationale for the current proposal.

A review of the literature has demonstrated the various ways in which career decidedness and indecision has been defined and examined in relation to college students. Individuals in a
state of indecision express more negative career thinking, present with lower subjective well-being, and exhibit more depressive symptoms (Dierenger et al., 2017; Saunders et al., 2000; Uthayakumar et al., 2010; Walker & Peterson, 2012). More needs to be known, not only about how mental health variables relate to college students’ career decision state, but about how they impact one’s ability to make satisfactory occupational choices.

Brown and Roche (2016) suggested that future research projects focus on improving diagnostic systems in identifying career problems, which should include career decidedness and indecision. One step in the process of identifying such problems is developing a screening tool that can quickly link presenting career states with appropriate resources, interventions, or further evaluation. Additionally, these screening tools could also be developed and utilized as a means of assessing readiness to engage in the career decision-making process, which could then inform service delivery. The Career State Inventory serves as a screening tool that could potentially meet these needs and lead to more effective career service delivery (Leierer et al., 2017). Though research has been conducted looking at the impact of career courses on career decision state, no research has been carried out using the most recent version of the CSI (Leierer et al., 2017). Intervention studies should be conducted to see if this measure produces similar or different results compared to prior studies, and if the measure is more sensitive to students’ experiences, such as the experience of specific interventions that occur during a career course.

One way to continue developing this practically useful assessment is to see how it separates individuals differing in levels of negative career thinking (Edralin, 2017). Cognitive information processing theory suggests that negative career thinking is worthy of the attention of career practitioners hoping to address the needs of individuals making a career decision or solving a career problem (Sampson et al., 1996b; Sampson et al., 2004). Students who express higher
degrees of negative thinking are also likely to report lower career decision-making self-efficacy (Andrews et al., 2014; Atta et al., 2013), higher depressive symptoms (Saunders et al., 2000; Walker & Peterson, 2012), and greater identification of characteristics consistent with perfectionism and ruminating tendencies (Andrews et al., 2014). The findings suggest students presenting with negative career thinking may need additional help navigating the career decision-making process (Sampson et al., 1996). One means for doing this is through career interventions with pre-established effectiveness in addressing such concerns.

Prior studies have investigated the impact that career courses may have on career decidedness and negative career thinking. These studies have suggested that career courses can decrease college students’ negative career thinking (Freeman et al., 2017; Osborn et al., 2007; Reed et al., 2001), while also helping them become more confident about career decision making (Cheung & Jin, 2016; Fouad et al., 2016; Scott & Ciani, 2008). Additionally, in some cases, but not all, the courses assisted students in becoming more decided in their career choices (Freeman et al., 2017; Miller et al., 2018). However, prior research has been limited due to exclusive use of pre-post designs which only measured the effect of career courses as a whole. This approach, while valuable, does not measure the impact of specific content or activities within the course. Although it may not be practical to study each intervention included in a career course, it would be practical and informative to evaluate how different experiences within a career course impact students (e.g., lessen their degree of negative career thinking). Career course research could be furthered by an investigation of the impact that specific content sections have on student outcomes, such as negative career thinking and career decidedness. Additionally, Bullock-Yowell et al. (2011) suggested that future studies investigate causal relationships between variables, including negative career thinking and career decidedness.
Furthermore, many of the studies reviewed failed to provide detailed information about the career courses being evaluated. The implications of failing to provide such information is that it then becomes unclear what interventions, or how many interventions, are being used in the course, whether the course is theoretical or atheoretical, and how long the course lasts. The present study intends to more clearly provide this information, in order for future researchers to readily identify and compare the elements that may or may not bring about desired outcomes.

An interesting area of research has investigated negative career thoughts levels upon entering a career course intervention (e.g., Osborn et al., 2007, Reed et al., 2001). As a debilitating factor, negative career thinking is believed to mask one’s ability to benefit from career interventions (Sampson et al., 2001). Although this makes logical sense, there is opportunity to explore this assumption empirically. For example, although research shows that students become more occupationally decided after completing a career course, it is unknown if those benefits are affected by the level of negative career thinking one possesses upon entering the course. Opportunities exist to clarify and better understand this gap in knowledge.

The review above critically analyzed the literature related to career decidedness, a cognitive information processing construct (i.e., negative career thoughts), and career courses. Although the relationship between career decidedness and negative career thinking has been established in prior studies, opportunities exist to further understand and clarify this relationship through intervention research. Career courses appear to play a significant role in bringing about salient career-related outcomes, especially in relation to decreasing negative career thinking and increasing decidedness with an occupational choice. However, the nature of these studies looked at courses holistically, and little is known about how specific content sections within career courses influence the aforementioned constructs.
The aim of this proposed study is to examine the impact of a career course intervention on undergraduate students’ career decision state, and how that impact may be inhibited by negative career thinking. The following chapter proposes a study that further examines relationships among negative career thoughts, and career decidedness, as well as how these variables are influenced by specific content sections of a career course.
CHAPTER 3

METHODOLOGY

The following study aimed to examine the impact of a career course intervention on undergraduate students’ career decision state as a function of negative career thoughts. The study investigated a sample of 151 undergraduate students participating in 10 sections of an undergraduate career course over two semesters at a large, southeastern university in the United States. This chapter begins by identifying the specific research questions examined in the present study, along with hypotheses for each question. Next, the study’s research design is presented, followed by identification of the specific instruments used in measuring the variables of interest. Finally, the chapter will conclude with a discussion of the participants, data analysis, procedures, and delimitations of the present study.

Research Questions

1. Are there differences in career decision state levels after completion of each of the three units of an undergraduate career development course?

2. Is there a negative career thinking (high, medium, low) by occasion (pretest, Unit I, Unit II, Unit III) interaction effect on career decision state (following completion of a career development course)?

3. Are there significant negative career thinking change (most positive, moderately positive, least positive) by unit variation interaction effects (Pretest through Unit I, Pretest through Unit II, Pretest through Unit III, Unit I through Unit II, Unit I through Unit III, and Unit II through Unit III) on career decision state (derived from completing a career development course)?
Hypotheses

Hypothesis 1

Two studies (Freeman et al., 2017; Miller et al., 2018) found that participants expressed significant increases in career decision state upon completion of a career course; becoming more certain, satisfied about their occupational choice and greater vocational clarity. Osborn, Hayden, Peterson, and Sampson (2015) found that CIP-based brief-staff assisted services led to several immediate positive outcomes, including significantly increased perceived levels of knowledge regarding next steps, confidence in taking next steps, and decreased feelings of anxiety about their career concerns. The services provided in that brief-staff assisted model often involve critical ingredients described by Brown and Ryan Krane (2000), including written exercises, individualized discussions, social supports, providing occupational information, and models of effective decision making. Additionally, the career course in this study incorporates each of these critical ingredients during the course’s first unit. With these considerations in mind, it was hypothesized that a) increases in career decision state will occur at the end of each course unit, and b) the largest changes in career decision state will be observed at the end of the first course unit.

Hypotheses 2 and 3

No research was found that examined the interaction effect of negative career thoughts and career course participation on students’ career decision state at different points during course delivery. However, studies have shown that career development course participation has led to a more positive career decision state (Freeman et al., 2017; Miller et al., 2018), while decreasing negative career thoughts (Osborn et al., 2007; Reed et al., 2001). Additionally, studies by Bullock-Yowell et al. (2011), Chason et al. (2012), and Edralin (2016) have shown correlations
between negative career thoughts and career decision state. Given that the hypotheses for the first research question were that career decision state would increase after each course unit, with the greatest change occurring after the first unit, and that career decision state is correlated with negative career thoughts, it was expected that negative career thoughts would significantly decrease after each course unit; especially following the first unit. Therefore, the second hypothesis was that participants with higher negative career thought levels at pre-test would have significantly higher career decision state mean scores following each course unit than those with moderate or low CTI scores at pre-test. This outcome would confirm a negative career thoughts by time (career course participation) interaction effect. Finally, with the largest change in CTI and CSI scores expected to take place after completion of Unit 1, the third hypothesis was that the time at which individuals experience the greatest changes in CSI scores for each CTI group would be at the end of Unit 1.

**Research Design**

The following study utilized a quasi-experimental design (Creswell, 2012; Shadish, Cook, & Campbell, 2002) to investigate career course impact on overall career decision state and constructs (i.e., certainty, satisfaction, and clarity) as a function of negative career thoughts. The study used a sample of 151 undergraduate students participating in a career course during the Fall 2017 and Spring 2018 semesters at a large, public, Southeastern university.

To address the research questions, the present study employed four data collection points, including a pretest, and data collection following the three units – to be explained later – within the career course. In addressing these questions, students were grouped according to quartiles in relation to the level of negative career thoughts (low, medium, high) as has been used in prior studies (Osborn et al., 2007; Reed et al., 2001), and as recommended by Kronholz (2016). A
repeated-measures ANOVA was used to determine the impact of career course participation on career decision state. The same statistical analysis was used to assess the level of negative career thoughts by career course participation interaction effect on career decision state. Although quasi-experimental, the study did not use a control or comparison group, due to limited access to comparison sample participants.

Treatment

The treatment used in the present study was a career course informed by cognitive information processing theory (CIP; Sampson et al., 2004). The course was designed to meet students at different phases in the career decision-making process in order to assist them in gathering and interpreting career information, as well as developing skills for career planning and management (Reardon et al., 2017). The next section describes the organization of the course’s specific resources and interventions, including the three units to be evaluated in the present study.

Every Fall and Spring semester, five career course sections are taught at a large, southeastern university in which the study was conducted. Each section is taught by one lead instructor with the help of three co-instructors. Each instructor is responsible for a small group of students (typically about eight) enrolled in the section. Responsibilities of the small group instructor include being the students’ main point of contact, and grading student assignments and papers. Responsibilities also include processing assignments, assessments and activities with the students at various moments throughout the semester. Such responsibilities reflect the essential conditions of impactful career interventions identified by Brown et al. (2003). Class presentations and lectures, along with activities are included in an instructor manual, to enhance course content uniformity across course sections.
To assist students in obtaining information and developing career decision-making skills, several key experiences occur throughout the course. Participants in the present study completed three different units that comprise the career course (Reardon et al., 2017), with each centered around three different themes: Career Concepts and Applications, Social Conditions Affecting Career Development, and Implementing a Strategic Career Plan. In Unit I (Career Concepts and Applications; Weeks 1-7), students participated in lectures, activities and assignments related to core career development concepts, and learned how those concepts can be applied to making career decisions and solving career problems. During Unit I, students completed several learning exercises, including (a) writing an autobiography describing their family, occupational, and educational background, and future goals, (b) completing the Self-Directed Search (SDS; Holland & Messer, 2017) and Career Thoughts Inventory (CTI; Sampson et al., 1996a), and (c) preparing an Individual Action plan (IAP) to identify a career decision goal and specific steps to meet that goal. They also completed two computer-assisted career guidance systems (CACGs) and created a career portfolio. These activities and assignments reflect each element of cognitive information processing theory’s pyramid of information processing domains, with an emphasis on developing self and options knowledge, an understanding of the decision-making process, and an awareness of metacognitions affecting individual career development. Additionally, in accordance with the theory, the course provided an opportunity for students to work through their current CASVE Cycle phase, and any other phase relevant to them. Towards the end of the unit, students engaged in a conference with their small group instructor. During the conference, the small group instructor processed the various activities, assignments, and overall experiences with the student. Processing these assignments with the instructor is intended to help students
conceptualize and integrate the different exercises and to relate the knowledge gained to career goals and decision making.

In Unit II (Social Conditions Affecting Career Development; Weeks 8-10), students learned about the social conditions affecting one’s career development. During this unit, students specifically learned about a) the changing nature of work and careers in today’s economic and global climate, b) shifts occurring in today’s work cultures, c) alternative ways in which people can work, and d) the process of balancing career and family roles. These topics are intended to help students further reflect upon self and options knowledge. Additionally, at the end of Unit II, students were required to submit their Career Field Analysis (CFA) papers. The CFA is a research paper intended to help students evaluate different occupations, and synthesize options knowledge developed thus far in the course, as is typically done during the CASVE cycle’s Synthesis phase. This assignment may also be a catalyst for students to begin considering what options may be best to pursue and begin prioritizing their choices, as is typically done in the CASVE cycle’s Valuing phase. The paper required students to integrate various informational resources as a means of exploring future career options. Such informational resources can include books, databases containing occupational descriptions, educational and training opportunities, and labor market trends. Students had the option to research one or three occupations. Students are often encouraged by course instructors to research one occupation if they generally have a sense of what occupation they may want to pursue and are looking to confirm that choice. Choosing to research three occupations may be better for students who are less sure of an occupational direction and to explore multiple options.

In Unit III (Implementing a Strategic Career Plan; Weeks 11-15), students learned the practical skills of creating and executing a strategic career plan. Assignments and exercises in
this unit include exploring conducting two informational interviews, and creating and editing a resume and cover letter. The assignments and exercises are intended to further develop the options knowledge component within the CIP pyramid of information processing, and to learn helpful skills to be used during the Execution phase of CASVE cycle. Students also learned about job search strategies, interpersonal communications used during the job search, interviewing and negotiation skills, and aspects of starting a new job. At the end of the course, students complete their Strategic Academic Career Planning paper. This reflection paper requires students to integrate the various experiences and assignments completed throughout the course, and to process this information using the CASVE Cycle (Sampson et al., 2004). In the paper, students reflect on goals and reasons for taking the course, and to what extent they had met their goals or resolved their concerns. The final paper also requires students to reflect upon how they utilized the CASVE Cycle phases within the context of their own decision making and problem solving. The Strategic Academic Career Planning paper was due on the final day class. In assessing the efficacy of the career development course, the following variables were evaluated.

**Variables**

*Negative career thoughts:* “thoughts that impair an individual’s ability to solve a career problem or make a career decision” (Sampson et al., 2004, p. 91), operationalized in this study by the CTI Total Score (Sampson et al., 1996b).

*Career decision state:* “a single continuum from being highly goal-directed, satisfied, and confident on the one hand to being immobilized or frozen, dissatisfied, and confused on the other” (Leierer et al., 2017, p. 2), operationalized in this study by the CSI Total score (Leierer et al., 2017).
Certainty: degree of decidedness one possesses with respect to a career choice (Leierer et al., 2015), operationalized in this study by the CSI – Occupational Alternatives Questionnaire (OAQ) (Leierer et al., 2017).

Satisfaction: the degree of satisfaction individuals possess with respect to their current occupational choice (Leierer et al., 2015), operationalized in this study by the CSI – Satisfaction with choice item (Leierer et al., 2017).

Vocational Clarity: “one’s vocational self-confidence in pursuing a career goal” (Leierer et al., 2017, p. 9), operationalized in this study by the CSI – Clarity Items (Leierer et al., 2017).

Measures

The following section describes the instruments used to measure the present study’s variables of interests. The instruments described include a course data sheet containing the Career State Inventory and the Career Thoughts Inventory.

Course Data Sheet

A data sheet (see Appendix A) developed for the career course was administered to collect participant information, including selected major (i.e., field of study), academic advisor, contact information, campus organizational involvement, reasons for taking the course, and class hours enrolled in for the semester. The data sheet also collects demographic data, including age, sex, ethnic group, and year in school. Finally, within the data sheet are items comprising the Career State Inventory.

Career state inventory. The Career State Inventory (CSI; Leierer et al., 2017) was used to measure career decision state. The CSI is comprised of the subscales Occupational Alternative Questionnaire (OAQ), Satisfaction with Choice Question (Satisfaction Item), and Vocational
Clarity. Each subscale produces a score, which added together creates a total score representing career decision state.

The occupational alternatives questionnaire (OAQ). The Occupational Alternatives Questionnaire (OAQ; Zener & Schnuelle, 1972; modified by Slaney, 1980) is a measure of the number of occupations one is considering and the extent to which an individual has identified a primary occupational choice. The OAQ is comprised of two open-ended items: “List all occupations you are considering right now”; and, “Which occupation is your first choice? If undecided, write ‘undecided.’” The OAQ is scored on a scale from 1-4, where 1 = “first choice, no alternatives”, 2 = “first choice, with alternatives”, 3 = “no first choice, with alternatives,” and 4 = “no first choice, no alternatives.” An individual who expresses having an occupational first choice with no alternatives can be viewed as being completely decided and certain of a career choice, while an individual who expresses having no first-choice occupation and no alternatives can be seen as being completely undecided and uncertain. The OAQ results may serve as one component of a needs assessment in determining appropriate career services and interventions (Leierer et al., 2017).

Steps have been taken to establish the OAQ’s reliability and validity. Slaney (1978) reported the test-retest reliability of the OAQ to be .93. The OAQ has exhibited concurrent validity with other scales measuring career indecision including the Career Decision Scale, the Vocational Decision-Making Difficulties Scale, and the Satisfaction with Career Scale (Slaney, 1980; Slaney, Stafford, & Russell, 1981). More recently, the measure has been found to correlate significantly with subscales of the Career Thoughts Inventory, including decision-making confusion and commitment anxiety (Bullock-Yowell et al., 2015; Bullock-Yowell et al., 2011). OAQ scores have also been found to be positively correlated with satisfaction with career choice.
(r = .72; Bullock-Yowell et al., 2015), meaning that as individuals became more decided with an occupational choice, they became more satisfied with their current decision state.

**Satisfaction with choice question (satisfaction item).** The Satisfaction with Choice Question (Satisfaction Item; Zener & Schnuelle, 1972; modified by Holland, Gottfredson, & Nafziger, 1975) measures and is defined as the degree of satisfaction individuals possess with respect to their current occupational choice (as measured by the OAQ). Using a single item to measure satisfaction, the item asks, “How well satisfied are you with your responses to No. 1 [the OAQ items] above? Place a check next to the appropriate statement below” The available responses are 1) Very satisfied, 2) Satisfied, 3) Not sure, 4) Dissatisfied, and 5) Very dissatisfied. Originally, the satisfaction with choice question, used by Holland and Holland (1977), was a categorical item that differentiated individuals as being either satisfied, certain or decided with their present job or occupational choice. However, more recently, this item has been used as a continuous variable in research (e.g., Leierer et al., 2015). Lower scores indicate a greater degree of satisfaction with one’s current career choice. According to Slaney et al. (1981), satisfaction item scores were found to be significantly correlated with the Occupational Alternatives Questionnaire (r = .43), the Career Decision Scale (r = .44), and the Vocational Decision Making Scale (r = .53), in a sample of adult women (n = 198). Additionally, satisfaction with choice was found to be positively correlated (where higher scores meant less satisfaction) with negative career thinking constructs – specifically, decision-making confusion (r = .37) and commitment anxiety (r = .36), as well as career decidedness (r = .72; Bullock-Yowell et al., 2015).

**Vocational clarity.** Vocational clarity was measured using three items from the My Vocational Situation inventory (MVS; Holland, Daiger, & Power, 1980) and is defined as the level of confidence individuals possess with respect to their ability to make career decisions. The
three items drawn from the MVS include: (1) “If I had to make an occupational choice right now, I’m afraid I would make a bad choice,” (2) “Making up my mind about a career has been a long and difficult problem for me,” and (3) “I am confused about the whole problem of deciding on a career.” Clarity is scored using a range from 0 (all true) to 3 (all false). Lower scores indicate a greater degree of clarity related to one’s career goals. Clarity, as measured by the three MVS items, was the most powerful of the CDS subscales (total modal r = .59) in predicting negative career thinking ($\beta = - .48$) in undergraduate rehabilitation students (Leierer et al., 2015).

**Career thoughts inventory (CTI).** The Career Thoughts Inventory (CTI; Sampson et al., 1996a) is a measure informed by cognitive information processing theory (CIP; Sampson et al., 2004). The 48-item measure assesses overall negative career thinking that may inhibit career decision making and problem solving. The measure provides a total score, along with three scale scores.

The scale scores are designed to assess three constructs representing components of negative career thinking: decision-making confusion, commitment anxiety, and external conflict. The Decision-making Confusion (DMC) scale is comprised of 14 items and assesses an individual’s inability to begin or continue in the career decision-making process due to negative emotions or a lack of understanding about the process. An example item for decision making confusion is “The more I try to understand myself and find out about occupations, the more confused and discouraged I get.” The commitment anxiety (CA) scale is comprised of 10 items and assesses how individuals feel about committing to a career choice. An example item for commitment anxiety is “The hardest thing is settling on just one field of study or occupation.” High CA scores typically reflect strong feelings of anxiety related to career choice commitment and may manifest as career indecision. Finally, the external conflict (EC) scale assesses one’s
ability to balance the expectations of others with one’s own needs and desires when making a
career decision. An example item for external conflict is “I need to choose a field of study or
occupation that will please the important people in my life.” High EC scores may reflect a
reluctance to take ownership of the career decision-making process. Elevations on this scale may
also signify difficulty balancing individual needs with the needs of others (Sampson et al.,
1996b).

The CTI is self-administered using paper and pencil and is scored on a 4-point numerical
scale from 1 to 4 (1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree). CTI raw
scores range from 0 – 144, and are converted to T-scores based on norm groups (i.e., college
student, high school student, or adult; Sampson et al., 1996b). The CTI is scored by a practitioner
to obtain the total score and three subscale scores.

Normative data for the CTI was collected for college students (n = 595), adults (n = 571),
and high school students (n = 396). All groups were found by the CTI authors to be generally
representative of the general population regarding, ethnicity, gender, geographic distribution, and
age. Authors found significant differences in CTI Total scores between college students, adults,
and high school students, which they believed to be reflective of differences in maturity and
developmental processes amongst the norm groups (Sampson et al., 1996b).

The CTI has been evaluated to establish its reliability and validity as a measure (Sampson
et al., 1996b). The internal consistency of the CTI Total scores and subscale scores are as
follows: CTI Total (α=.93-.97) Decision Making Confusion (α=.90-.94), Commitment
Anxiety (α=.79-.91), and External Conflict (α=.74-.81). Internal consistency coefficient alphas
were high for CTI Total and Decision Making Confusion, while scores for Commitment Anxiety
and External Conflict were adequate. Additionally, four-week test-retest reliability specifically
for college students (n = 595) were found to have appropriate levels of stability with coefficients of CTI Total (r = .86), Decision Making Confusion (r = .82) Commitment Anxiety (r = .79), and External Conflict (r = .74).

According to Sampson et al. (1996b), the CTI demonstrated convergent validity based on correlations with the Occupational Information and Barriers items and the Identity Scales on the My Vocational Situation (MVS; Holland, Daiger, & Power, 1980), the Neuroticism domain on the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992), the Career Decision Scale (CDS; Osipow, Carney, Winer, Yanicko, & Koschier, 1987), the Career Decision Profile (CDP; Jones, 1989). Additionally, convergent validity was demonstrated among all three norm groups, with CTI Total scores and all three subscale scores, found to be negatively correlated, as expected, with certainty, decidedness, and comfort with choice, while being positively correlated with constructs such as indecision, anxiety, and depression (Sampson et al., 1996b).

Content validity was established for the CTI during the development of the measure via multiple factor analyses (Sampson et al., 1996b). The CTI’s 48 items are reflective of 8 dimensions of CIP theory, including self-knowledge, options knowledge, communication, analysis, synthesis, valuing, execution, and executive processing. Results of the factor analyses revealed the presence of the three constructs (i.e., decision-making confusion, commitment anxiety, and external conflict). CTI Total scores were also found to be most highly correlated with decision-making confusion (r = .89 to r = .94) for all three normative groups. The present study used CTI Total scores as an overall measure of negative career thinking. This measure was administered at the beginning and end of the course, which was then used to group participants.
by levels of career thinking at the beginning of course, and degree of change in negative career
thinking before and after taking the course.

**Participants**

The following section describes the participants used in the current study. The section
discusses the sampling procedures employed in obtaining participants for the study, as well as a
description of participant characteristics.

**Sampling**

Participants for the present study were comprised of 151 undergraduate students
completing a career course at a large, public, southeastern university. Students at the university
may enroll in the course after speaking with a career or academic advisor, participating in
various services or workshops at the university’s career center, or may come across the course
spontaneously. The career course is an elective at the university, and there is no program of study
that requires the career course. Being that students generally sign up for the course by choice, the
technique used to create the sample was one of convenience. Data from the sample were
collected in the classroom where the career course takes place. Data were collected during the
first three classes of the semester, in order to include students enrolling in the course during each
semester’s drop/add period. The sample’s demographic information, compared to the
undergraduate university population, is provided in Table 1. The sample’s mean age was 21
years old and ranged between 17 and 48 years of age ($SD = 3.53$). The majority of participants
(86.2%) were between the ages of 18 to 22.
Table 1

Demographic Information for Sample and Undergraduate University Population

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sample (n = 151)</th>
<th>Population (N = 31,914)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>52.3% (67)</td>
<td>55.8% (17,807)</td>
</tr>
<tr>
<td>Male</td>
<td>47.7% (61)</td>
<td>44.2% (14,107)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>1.6% (2)</td>
<td>0.2% (62)</td>
</tr>
<tr>
<td>Asian</td>
<td>1.6% (2)</td>
<td>2.3% (748)</td>
</tr>
<tr>
<td>Black/African American</td>
<td>14.1% (18)</td>
<td>8.2% (2,613)</td>
</tr>
<tr>
<td>Hawaiian Native or Pacific Islander</td>
<td>0.8% (1)</td>
<td>0.1% (39)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10.9% (14)</td>
<td>20.6% (6,563)</td>
</tr>
<tr>
<td>White</td>
<td>61.7% (79)</td>
<td>61.8% (19,732)</td>
</tr>
<tr>
<td>Other</td>
<td>7.0% (9)</td>
<td>5.3% (1,675)</td>
</tr>
<tr>
<td>Not Reported</td>
<td>2.3% (3)</td>
<td>1.5% (482)</td>
</tr>
<tr>
<td>Class Standing</td>
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<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>14.6% (22)</td>
<td>17.6% (5,604)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>13.9% (21)</td>
<td>21.8% (6,967)</td>
</tr>
<tr>
<td>Junior</td>
<td>12.6% (19)</td>
<td>27.8% (8,877)</td>
</tr>
<tr>
<td>Senior</td>
<td>58.3% (88)</td>
<td>32.8% (10,466)</td>
</tr>
<tr>
<td>Other</td>
<td>.7% (1)</td>
<td></td>
</tr>
<tr>
<td>Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2017</td>
<td>51.0% (77)</td>
<td>50.4% (31,914)</td>
</tr>
<tr>
<td>Spring 2018</td>
<td>49.0% (74)</td>
<td>49.6% (31,413)</td>
</tr>
</tbody>
</table>

* Data from FSU Fall 2017 Undergraduate Enrollment. Retrieved from http://www.ir.fsu.edu/enrollment.aspx
Data Analysis

Conducting the present study required multiple analyses to answer each research question. Once the data for both semesters was collected, an initial statistical analysis was performed to determine if there were significant differences in scores between genders (i.e., men and women) and between semesters in which the data were collected. Performing these analyses limited potential confounds from compromising the study’s results. Once it was determined whether the data did not possess significant confounds and those confounds were addressed, two main statistical analyses were conducted: one analysis for questions 1 and 2, and one for question 3.

For questions 1 and 2, to determine if there was a statistically significant difference in career course participants’ scores on the Career State Inventory before the career course and after each of the three units, the data was analyzed using a repeated-measures ANOVA. Categorizing participants by level of negative career thoughts was done using a sample breakdown method. The sample was categorized by high, medium, and low third CTI scores based on the sample distribution, as suggested by Kronholz (2016). Participants completed the CTI on the first day of class. Once all scores were collected, participants were evenly distributed into high, medium, and low CTI Total score groups. In some cases, multiple participants possessed the cutoff CTI score between groups. In those cases, all participants with the same scores were maintained in the same group, creating slightly unequal group sizes.

In order to address question 3, which evaluated the changes in CTI scores across the changes in CSI scores during the career course, a separate repeated-measures ANOVA was conducted. For this statistical evaluation, participants were distributed into least positive, moderately positive, and most positive CTI change score groups. Those groups were created by subtracting CTI scores at pretest from CTI scores at posttest. Students in the most positive
change group were students who saw CTI scores decrease the most from the beginning to end of the course, followed by the moderately positive group, and finally the least positive group. In the case of the least positive change group, the group contained participants who both experienced the smallest decrease in CTI and participants who saw increases in CTI scores following participation in the course.

An *a priori* power analysis, using G*Power 3.1.9.2 (Faul, Erdfelder, Buchner, & Lang, 2009), was conducted to determine the appropriate sample size for the proposed research questions. For the statistical analysis addressing questions 1 and 2, an a priori power analysis suggested using a sample size of 78, in order to have statistical power of .80 with an effect size of .15 at *p* = .05. For the statistical analysis addressing question 3, an a priori analysis suggested using a sample size of 63, in order to have statistical power of .80 with an effect size of .15 at *p* = .05.

**Procedures**

The researcher for the present study gained approval from the university’s Institutional Review Board to conduct the research. At the completion of the first day of class, research assistants from The Career Center invited students enrolled in the course to participate in the research study. They provided a detailed explanation of how data being collected could possibly be used. The assistant communicated that participation in this study was voluntary. This information was reiterated in a consent form (see Appendix B) that participants were required to sign before completing any assessments. Those individuals who did not consent to participate were not allowed to complete assessment questions and were offered alternative extra-credit options. For those who consented to participate, the research assistant provided students with a folder containing a research consent form, the course data sheet (containing the Career State
Inventory), and the Career Thoughts Inventory, and the Revised NEO Personality Inventory (collected for a different study). Students were given time to complete the forms, and then returned the folder back to the research assistant. The research assistant checked each folder to confirm that all items and forms were completed in full. Students who enrolled in the course during the drop/add period (i.e., the first week of the semester) were allowed to participate.

Students then participated in a sixteen-week career development course informed by cognitive information processing theory (CIP; Sampson et al., 2004). At the end of Units I and II, students participating in the study filled out a follow-up Career State Inventory (see Appendix C). On the final day of Unit III (i.e., the final day of the course), students participating in the study completed a follow-up Career Thoughts Inventory and Career State Inventory.

**Delimitations**

When conducting research in a university setting, especially research that is quasi-experimental in nature, certain delimitations are expected due to structural limitations. The first delimitation is that the study did not utilize either a control or a comparison group. Conducting a study that does not incorporate a control or comparison group creates potential threats to external validity (Creswell, 2012). It is difficult to determine if the changes in scores were due to a cause-and-effect relationship. Therefore, the findings cannot be easily generalized beyond the persons, settings, treatment variable and measures involved in the study.

The second delimitation involves common threats reflective of experimental designs that lead to questions regarding the internal validity. These delimitations include maturation of the undergraduate students over the course of the semester that could be responsible for the change in assessment scores, selection of the participants (individuals who chose to enroll in the class), and mortality (people who dropped out, or those who chose not to take all three units).
Finally, a third procedural delimitation exists regarding the order in which the assignments were given. In an ideal experimental design, multiple groups would be given the assignments in varying order (Creswell, 2012). That way it would be clear what assignment was responsible for changes in scores. However, that is not realistic, as it would require significant changes to the course’s structure. Additionally, it is difficult to state if significant changes occurred due to completing specific units, irrespective of the prior units. Therefore, it may be difficult to argue that assignments in later units are the cause of significant score changes versus the result of all assignments that were completed up to the point.
CHAPTER 4

RESULTS

The following chapter presents the findings from two, two-way repeated-measures ANOVAs and two, one-way repeated-measures ANCOVAs that evaluated the impact of participating in a career development course. These statistical analyses included evaluating the varying impact of the course on participating students’ career decision state as a function of one’s level of negative career thinking upon entering the course. The analyses also evaluated if greater changes in negative career thinking led to greater changes career decision and, if so, during which course units. The analyses were performed by looking at the responses of a sample of 151 undergraduate college students who completed all three career development course units and all necessary assessment materials. The Statistical Package for the Social Sciences (SPSS) version 25.0.0.0 was utilized to conduct the statistical analyses. The following chapter describes the results of the two overall analyses: the first answering the aforementioned first and second research question, and the second answering the third research question.

Analysis 1

The following section reviewing the first analysis begins with several necessary preliminary analytical evaluations of the data. Following the preliminary analyses, the section presents descriptive statistics for the variables of interest, followed by an overview of the data analysis. Finally, the section discusses the two research questions examined, along with the hypotheses and related statistical findings.

Preliminary Analyses

Prior to performing the analyses for the study, preliminary examinations of the data were performed to determine if any significant confounds must be accounted for in order to not
significantly impact the interpretation of the results. Specifically, based on findings from Miller et al. (2018), the investigator evaluated if any significant differences existed in CSI total scores between male and female participants, as well as between students who took the course in the Fall versus the Spring semester.

To determine the existence of any confounding differences, simple independent t-tests were conducted. With respect to gender, t-test analyses found statistically significant differences between male and female participants on Pre-test CSI scores \( t(149) = -2.04, p = .04 \). Female participants were found to have higher CSI scores on average \( (M = 6.44, SD = 2.51) \) compared to their male counterparts \( (M = 5.64, SD = 2.28) \). However, the same t-tests found no statistically significant differences between CSI following Unit I \( t(149) = -1.77, p = .08 \), Unit II \( t(149) = -1.27, p = .21 \), and Unit III \( t(149) = -1.26, p = .21 \). Due to concerns that gender could serve as a confound, consideration of including gender as a covariate was explored. One significant assumption required to include a covariate is that the controlled variable must be significantly correlated with the dependent variable at each time point (Abu-Bader, 2011; Laerd Statistics, 2019). Results of a Pearson’s correlation analysis showed a statistically significant, weak positive correlation between gender and CSI scores at pretest \( r_{151} = .17, p = .04 \), and no statistically significant correlation between gender and scores after Unit I \( r_{151} = .14, p = .08 \), Unit II \( r_{151} = .10, p = .21 \), or Unit III \( r_{151} = .09, p = .27 \). Therefore, it was decided not to include gender as a covariate in this study.

Potential differences were also evaluated between course participants during the Fall 2017 and Spring 2018 semesters. The results of t-test analyses found that there were no statistically significant differences between semester groups in CSI scores at Pre-test \( t(149) = -.24, p = .81 \), following Unit I \( t(149) = .08, p = .94 \), following Unit II \( t(149) = -.89, p = .35 \), and Unit III
\[ t(149) = -1.77, \ p = .08 \]. Therefore, semester participated was not added as a covariate to the present study’s analyses.

**Descriptive Statistics of the Variables**

The following table presents descriptive statistics for the results of the first two-way repeated measures ANOVA. The mean and standard deviation values related to question 1 and question 2 can be found in Table 2. Specifically, the table includes mean CSI Total scores and standard deviation values at each data collection point for each CTI level group. Overall, mean CSI scores decreased from pre-test \((M = 6.07, SD = 2.43)\) to completion of Unit I \((M = 5.04, SD = 2.02)\) to completion of Unit II \((M = 4.83, SD = 1.96)\) to completion of Unit III \((M = 4.21, SD = 1.58)\).

Table 2  
*Descriptive Statistics for Variables of Interest (Questions 1 and 2)*

<table>
<thead>
<tr>
<th>CTI Level</th>
<th>Pre-test*</th>
<th>Unit I*</th>
<th>Unit II*</th>
<th>Unit III*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M (SD))</td>
<td>(M (SD))</td>
<td>(M (SD))</td>
<td>(M (SD))</td>
</tr>
<tr>
<td>Low ((n=51))</td>
<td>4.24 (1.73)</td>
<td>3.63 (1.11)</td>
<td>3.51 (1.12)</td>
<td>3.24 (0.86)</td>
</tr>
<tr>
<td>Medium ((n=48))</td>
<td>6.19 (2.18)</td>
<td>4.60 (1.48)</td>
<td>4.52 (1.52)</td>
<td>3.94 (1.30)</td>
</tr>
<tr>
<td>High ((n=52))</td>
<td>7.77 (1.95)</td>
<td>6.83 (1.82)</td>
<td>6.40 (1.88)</td>
<td>5.40 (1.60)</td>
</tr>
<tr>
<td>Total ((N=151))</td>
<td>6.07 (2.43)</td>
<td>5.04 (2.02)</td>
<td>4.83 (1.96)</td>
<td>4.21 (1.58)</td>
</tr>
<tr>
<td>Skewness</td>
<td>.215</td>
<td>.664</td>
<td>.722</td>
<td>.898</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-1.005</td>
<td>-.349</td>
<td>-.227</td>
<td>.772</td>
</tr>
</tbody>
</table>

*CSI Total scores

Scale reliability coefficients were analyzed for the CTI and CSI at each relative time point. Cronbach’s alpha revealed the CTI internal consistency for the current investigation to be .96 at pretest and .97 following Unit III. Also, Cronbach’s alpha revealed the internal consistency for
CSI to be .77 at pretest, .76 following Unit I, .75 following Unit II, and .64 following Unit III. Correlations for the variables of interest can be found in Table 3.

Table 3

Correlations Among Variables of Interest

<table>
<thead>
<tr>
<th></th>
<th>CTI Total (Pretest)</th>
<th>CSI Total (Pretest)</th>
<th>CSI Total (Unit I)</th>
<th>CSI Total (Unit II)</th>
<th>CSI Total (Unit III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTI Total (Pretest)</td>
<td>1</td>
<td>.624**</td>
<td>.651**</td>
<td>.609**</td>
<td>.571**</td>
</tr>
<tr>
<td>CSI Total (Pretest)</td>
<td>1</td>
<td>.763**</td>
<td>.728**</td>
<td>.617**</td>
<td></td>
</tr>
<tr>
<td>CSI Total (Unit I)</td>
<td>1</td>
<td>.790**</td>
<td>.728**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI Total (Unit II)</td>
<td>1</td>
<td>758**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSI Total (Unit III)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**p<.01, one-tailed

Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 25.0.0.0 was utilized for the study’s statistical analyses of the data. In order to evaluate certain assumptions for running the two-way repeated-measures ANOVA, several ancillary analyses were conducted, which included assessing for the assumption of normality and sphericity (Hedeker & Gibbons, 2006). CSI Total observed scores were normally distributed at pretest as assessed by reviewing skewness and kurtosis, as well as histogram plots. However, after completion of Unit I, Unit II, and Unit III, distribution of CSI Total scores were found to be increasingly positively skewed. Attempts were
made to transform the data but this did not result in normally distributed values. Therefore, the assumption of normally distributed data could not be met. With this in mind, it a decision was made to continue with the current analysis as many in the field believe that the ANOVA is fairly robust and resistant to normality violations (Laerd Statistics, 2019). The violation of this assumption is considered a limitation of this study and will be discussed in greater detail in the following chapter.

To evaluate the assumption of sphericity, Mauchly’s $W$ test of sphericity was used. The results of the analysis found statistically significant differences between the variances of the different collection points for each CTI Level group (Mauchly’s $W = .78$, $X^2_{(df=5)} = 36.384$, $p < .001$). In cases where the sphericity assumption is violated, it is appropriate to interpret the results of a more robust multivariate analysis (Abu-Bader, 2011; Hedeker & Gibbons, 2006). In this case, analysis for this study was evaluated using the Wilks Lambda, rather than the traditional omnibus tests derived from an ANOVA.

When interpreting the results, one noteworthy concern emerged. After running the repeated-measures ANOVA, it was determined that CSI scores and CTI scores correlated to the extent that each CTI level group began the course with statistically significantly different average CSI scores. According to statistics professor, B. J. Becker (personal communication, March 6, 2019), it is generally not recommended to use a continuous variable broken into separate groups as an independent factor; also known as split means groups. This is especially true when the independent factor correlates with the dependent variable, as this can limit interpretability. In cases where a dependent variable is being evaluated in the context of a continuous independent variable that is linearly related to the dependent variable, it is more appropriate to set that variable as a covariate, as opposed to setting it as its own factor (Abu-
Bader, 2011; Laerd Statistics, 2019). Therefore, in addition to the original research question and related analysis, the current study also included an additional one-way repeated-measures ANCOVA for research question two that addresses the following research question:

Controlling for negative career thinking, are there significant differences in career decision state levels after completion of each of the three units of an undergraduate career development course?

**Research Questions, Hypotheses, and Findings**

The following section presents each research question, the original hypotheses for each question, and the results of the statistical analyses.

**Research question 1.** A two-way repeated-measures ANOVA was utilized to examine the differences in college students’ career decision state levels following each unit of a career development course. Specifically, the first research question asked was: Are there differences in career decision state levels after completion of each of the three units of an undergraduate career development course? From this question and following a review of relevant literature, the following hypotheses were proposed:

*Hypothesis 1a:* Increases in career decision state will occur at the end of each unit of the course.

*Hypothesis 1b:* The largest changes in career decision state will be observed at the end of the first unit of the course.
Results of a two-way repeated-measures ANOVA test of main effects found that there was statistically significant difference between mean CSI scores at each time point when evaluating multivariate tests (Wilks’ Lambda = .486, $F_{(3, 146)} = 51.404, p < .001, \eta^2 = .514$).

The results of Bonferroni pairwise comparisons showed that there were statistically significant differences in mean CSI scores at different stages of the course. Specifically, there was a significant decrease ($p < .001$) in mean CSI scores between the Pre-test ($M = 6.07, SD = 2.43$) and the end of Unit I ($M = 5.04, SD = 1.82$). There was no significant decrease ($p = .30$) in CSI scores from the end of Unit I to the end of Unit II ($M = 4.83, SD = 1.96$). Finally, there was a significant decrease ($p < .001$) in CSI scores from the end of Unit II and the end of Unit III ($M = 4.21, SD = 1.57$). Overall, there was a significant change in CSI scores from Pre-test scores and mean scores at the conclusion of Unit III, with the greatest change occurring between Pre-test and Unit I.

**Research question 2.** The second research question asked was: Is there a negative career thinking (high, medium, low) by occasion (pretest, Unit I, Unit II, Unit III) interaction effect on career decision state (following completion of a career development course)? From this question and after reviewing relevant literature, the following hypothesis was proposed:

*Hypothesis 2a:* Participants with higher negative career thought levels at pre-test will have significantly higher career decision state mean scores following each unit of the course than those with moderate or low CTI scores at pre-test; which would confirm a negative career thought by career course participation interaction effect.

A two-way repeated-measures ANOVA was conducted to determine the interaction effect of CTI levels upon course entry on CSI scores for undergraduate students participating in a career development course. Results of the ANOVA, which can be seen in Table 4, found that
there was a statistically significant interaction between CTI Levels and the career course on CSI scores as interpreted by the multivariate statistic (Wilks’ Lambda = .838 \( F(6,292) = 4.485, p < .001, \eta^2 = .084 \)), meaning that the impact of the course on student’s career decision state was dependent on level of negative career thinking. Due to the presence of a significant interaction effect, simple main effects were run.

Table 4

Results of Two-Way Repeated-Measures ANOVA (Summary Table)

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>\eta^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>274.30</td>
<td>3</td>
<td>104.70</td>
<td>82.03</td>
<td>.000</td>
<td>.36</td>
</tr>
<tr>
<td>CTI Level</td>
<td>227.45</td>
<td>2</td>
<td>113.72</td>
<td>67.10</td>
<td>.000</td>
<td>.48</td>
</tr>
<tr>
<td>Interaction</td>
<td>38.03</td>
<td>6</td>
<td>7.26</td>
<td>4.49</td>
<td>.000</td>
<td>.08</td>
</tr>
<tr>
<td>Subjects</td>
<td>250.86</td>
<td>148</td>
<td>1.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residuals</td>
<td>494.90</td>
<td>444</td>
<td>1.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1285.54</td>
<td>603</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of a univariate analysis found that mean CSI scores were statistically significantly different for each of the three CTI Level groups at Pre-test \( F(2,147) = 42.18, p < .001, \eta^2 = .36 \). Specifically, Bonferroni pairwise comparisons found that mean CSI levels were significantly greater for the High CTI group \( M = 7.77, SD = 1.95 \), followed by the Medium CTI group \( M = 6.19, SD = 2.18 \), then the Low CTI group \( M = 4.24, SD = 1.73 \), with all comparisons being significant at \( p < .001 \). These results suggest that the three groups started the course with considerably different career decision states.

Results of the univariate analysis also found that mean CSI scores were significantly different for each of the three CTI Level groups following the completion of Unit I \( F(2,147) = \).
61.20, $p < .001$, $\eta^2 = .45$). Specifically, Bonferroni pairwise comparisons found that mean CSI levels were significantly greater for the High CTI group ($M = 6.83, SD = 1.82$), followed by the Medium CTI group ($M = 4.60, SD = 1.48$), then the Low CTI group ($M = 3.63, SD = 1.11$). All comparisons were found to be statistically significant at $p < .001$, except for the comparison between the Low and Medium CTI group, which was significant at $p = .007$.

Results of the univariate analysis also found that mean CSI scores were significantly different for each of the three CTI Level groups following the completion of Unit II ($F(2,147) = 46.83, p < .001$, $\eta^2 = .38$). Specifically, Bonferroni pairwise comparison mean CSI levels were significantly greater for the High CTI group ($M = 6.40, SD = 1.88$), followed by the Medium CTI group ($M = 4.52, SD = 1.52$), then the Low CTI group ($M = 3.51, SD = 1.12$). All comparisons were found to be statistically significant at $p < .001$, except for the comparison between the Low and Medium CTI group, which was significant at $p = .006$.

Finally, results of the univariate analysis also found that mean CSI scores were significantly different for each of the three CTI Level groups following the completion of Unit III ($F(2,147) = 37.86, p < .001$, $\eta^2 = .34$). Specifically, Bonferroni pairwise comparison mean CSI levels were significantly greater for the High CTI group ($M = 5.40, SD = 1.60$), followed by the Medium CTI group ($M = 3.94, SD = 1.30$), then the Low CTI group ($M = 3.24, SD = .86$). All comparisons were found to be statistically significant at $p < .001$, except for the comparison between the Low and Medium CTI group which was significant at $p = .03$.

**Additional analysis.** An additional one-way repeated-measures ANCOVA was conducted to determine whether there was a statistically significant decrease in career decision state (CSI mean scores) between pretest, Unit I, Unit II, and Unit III of a career development course when controlling for negative career thinking. Assumptions evaluated for this analysis included
normality, linearity, and sphericity. The assumption requiring normal distributions of the dependent variable was evaluated and was found to be normally distributed at pretest but was positively skewed at each subsequent time point. As with the original analysis, it was determined that analysis should continue as ANOVAs tend to be fairly robust to normality assumption violations (Abu-Bader, 2011; Laerd Statistics, 2019).

The linearity assumption posits that a linear relationship must exist between the covariate (i.e., CTI scores) and dependent variable at each time point (Abu-Bader, 2011; Laerd Statistics, 2019). The linearity assumption was met, as assessed by reviewing a Pearson Correlation matrix. The Pearson’s correlation analysis showed a statistically significant, moderate positive correlation between gender and CSI scores at pretest ($r_{151} = .62, p < .001$), Unit I ($r_{151} = .65, p < .001$), Unit II ($r_{151} = .61, p < .001$), or Unit III ($r_{151} = .59, p < .001$).

Finally, the assumption of sphericity was not met, as assessed by the Mauchly’s test of sphericity (Mauchly’s $W = .78, X^2_{(df=5)} = 37.34, p < .001$). Therefore, as was decided in the original analysis, results were interpreted by evaluating the multivariate statistic, Wilks Lambda (Hedeker & Gibbons, 2006).

Results of a one-way repeated measures ANCOVA showed that the career development course led to statistically significant changes in mean CSI scores over time when controlling for negative career thinking (Wilks’ Lambda = .881, $F_{(3, 147)} = 6.627, p < .001, \eta^2 = .119$). Consistent with the original analysis, the results of Bonferroni pairwise comparisons showed that there were statistically significant differences in mean CSI scores at different stages of the course when controlling for negative career thinking. Specifically, there was a significant decrease ($p < .001$) in mean CSI scores between the Pre-test ($M = 6.07, SD = 2.43$) and the end of Unit I ($M = 5.04, SD = 1.82$). There was no statistically significant decrease ($p = .269$) in CSI scores from the end
of Unit I to the end of Unit II ($M = 4.83$, $SD = 1.96$). Finally, there was a significant decrease ($p < .001$) in CSI scores from the end of Unit II and the end of Unit III ($M = 4.21$, $SD = 1.57$).

Overall, while controlling for CTI scores, there was a significant change in CSI scores from Pre-test scores and mean scores at the conclusion of Unit III, with the greatest change occurring between Pre-test and Unit I.

Analysis 2

The following section discussing the second analysis begins with several necessary preliminary evaluations of the data. Following the preliminary analyses, the section presents descriptive statistics for the variables of interest, followed by an overview of the data analysis. Finally, the section discusses the third research question examined, along with related statistical findings.

Preliminary Analyses

Prior to performing the analyses for the study, preliminary examinations of the data were performed to determine if any significant confounds must be accounted for in order not to significantly influence results. Specifically, based on findings from Miller et al. (2018), the investigator evaluated if any significant differences existed in CSI total change scores between male and female participants, as well as between students who took the course in the Fall versus the Spring semester.

To determine the existence of any confounding differences, simple independent t-tests were conducted. With respect to gender, t-test analyses found no statistically significant differences between male and female participants on any of the CSI change permutations. Therefore, gender was not be added as a covariate in the overall study. Additionally, results of t-test analyses found that there were no statistically significant differences in CSI change permutations between
students participating in the course during Fall 2017 and Spring 2018 semesters. Therefore, semester participating in the course was not added as a covariate to the current studies analyses.

**Descriptive Statistics of the Variables**

The following table presents descriptive statistics for the results of the second two-way repeated-measures ANOVA. The mean and standard deviation values related to question 3 can be found in Table 5. Specifically, the table includes mean Total CSI change values, comparing the combination of different stages of the course, along with each comparison mean’s standard deviations. These mean values are broken down between the different CTI Change levels (i.e., least positive, moderately positive, most positive).

<table>
<thead>
<tr>
<th>CTI Change Level</th>
<th>Pretest-Unit I (M (SD))</th>
<th>Pretest-Unit II (M (SD))</th>
<th>Pretest-Unit III (M (SD))</th>
<th>Unit I-Unit II (M (SD))</th>
<th>Unit I-Unit III (M (SD))</th>
<th>Unit II-Unit III (M (SD))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Least Positive (n=48)</td>
<td>.75 (1.42)</td>
<td>.77 (1.37)</td>
<td>1.19 (1.87)</td>
<td>.02 (1.25)</td>
<td>.44 (1.18)</td>
<td>.42 (1.32)</td>
</tr>
<tr>
<td>Moderately Positive (n=52)</td>
<td>1.27 (1.78)</td>
<td>1.42 (1.88)</td>
<td>2.04 (1.87)</td>
<td>.15 (1.21)</td>
<td>.77 (1.52)</td>
<td>.62 (1.16)</td>
</tr>
<tr>
<td>Most Positive (n=51)</td>
<td>1.06 (1.49)</td>
<td>1.51 (1.65)</td>
<td>2.33 (1.86)</td>
<td>.45 (1.39)</td>
<td>1.27 (1.33)</td>
<td>.82 (1.35)</td>
</tr>
<tr>
<td>Total (N=151)</td>
<td>1.03 (1.58)</td>
<td>1.24 (1.68)</td>
<td>1.87 (1.91)</td>
<td>.21 (1.29)</td>
<td>.83 (1.39)</td>
<td>.62 (1.28)</td>
</tr>
</tbody>
</table>
Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 25.0.0.0 was utilized for the study’s statistical data analysis. In order to evaluate certain assumptions for running the two-way repeated measures ANOVA, several ancillary analyses were conducted, which included assessing for the assumptions of normality and sphericity (Hedeker & Gibbons, 2006). Through evaluation of histograms, as well as skewness and kurtosis values, the distribution of CSI change scores was found to be positively skewed at various points for all groups (e.g., Change values between Unit I and Unit III). As in the first analysis, attempts were made to transform the data but did not result in distributions of normally distributed values. Therefore, the assumption of normally distributed data could not be fully met. As in the first analysis, a decision was made to continue with the current analysis given that the ANOVA is fairly robust to the violation of normality (Laerd Statistics, 2019).

To evaluate the assumption of sphericity, Mauchly’s W test of sphericity was used. However, attempts to run the test were not successful, because there were fewer than two nonsingular cell covariance matrices. Because attempts to assess for sphericity were unsuccessful, it was determined that the assumption would be considered violated and addressed by using a more robust multivariate analysis (Abu-Bader, 2011; Hedeker & Gibbons, 2006). As a result, analysis for this aspect of the study was evaluated using the Wilks Lambda.

As discussed in the first analysis, in addition to the original research question and related analysis, the current study also included an additional one-way repeated-measures ANCOVA for research question three that addressed the following research question:
Controlling for negative career thinking, are there significant differences in career decision state levels after completion of each of the three units of an undergraduate career development course?

Research Question, Hypothesis, and Findings

The following section presents the third research question, the question’s hypothesis and the results of the statistical analyses.

Research question 3. The third research question asked was: Are there significant negative career thinking change (most positive, moderately positive, least positive) by unit variation interaction effects (Pretest through Unit I, Pretest through Unit II, Pretest through Unit III, Unit I through Unit II, Unit I through Unit III, and Unit II through Unit III) on career decision state (derived from completing a career development course)? From this question and following a review of the literature, the following hypothesis was proposed:

Hypothesis 3: The time at which individuals experience the greatest changes in CSI scores for each CTI change group would be at the end of Unit 1.

A two-way repeated-measures ANOVA was conducted to determine the effect of changes in CTI levels on different CSI score variations for undergraduate students participating in a career development course. Results of a repeated-measures ANOVA, which can be seen in Table 6, found an overall statistically significant interaction effect between CTI Change Levels and CSI score permutation when evaluating multivariate tests (Wilks’ Lambda = .91, $F_{(10, 142)} = 2.29$, $p = .035$, $\eta^2 = .04$). Due to the presence of a significant interaction effect, simple main effects were run.
Table 6

Results of Two-Way Repeated-Measures ANOVA (Summary Table)

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>(\eta^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI Change</td>
<td>237.75</td>
<td>5</td>
<td>92.72</td>
<td>29.37</td>
<td>.000</td>
<td>.17</td>
</tr>
<tr>
<td>CTI Level Change</td>
<td>64.38</td>
<td>2</td>
<td>32.19</td>
<td>5.61</td>
<td>.004</td>
<td>.07</td>
</tr>
<tr>
<td>Interaction</td>
<td>19.80</td>
<td>10</td>
<td>3.86</td>
<td>2.29</td>
<td>.035</td>
<td>.04</td>
</tr>
<tr>
<td>Subjects</td>
<td>1198.08</td>
<td>740</td>
<td>1.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residuals</td>
<td>141.57</td>
<td>148</td>
<td>.957</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1661.58</td>
<td>905</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results of the univariate analysis found that mean CSI change scores were statistically significantly different in two cases. First, comparing Pretest and end of Unit III \((F_{(2,148)} = 4.98, p = .008, \eta^2 = .06)\), Bonferroni pairwise comparison mean CSI Total change scores were significantly greater for the most positive CTI Change group \((M = 2.33, SD = 1.86)\) and least positive CTI Change group \((M = 1.19, SD = 1.86)\) at \(p = .006\). All other pairwise comparisons were not statistically significant.

Results of the univariate analysis also found that mean CSI change scores were significantly different comparing scores at the completion end of Unit I and end of Unit III \((F_{(2,148)} = 4.82, p = .009, \eta^2 = .06)\). Specifically, Bonferroni pairwise comparison mean CSI change scores were significantly greater for the most positive CTI Change group \((M = 1.27, SD = 1.33)\) compared to least Positive CTI change group \((M = .44, SD = 1.18)\) at \(p = .008\). All other pairwise comparisons were not statistically significant.

Results of a univariate analysis found that mean CSI change scores were not significantly different comparing Pretest and end of Unit I \((F_{(2,148)} = 1.36, p = .259, \eta^2 = .02)\). Results of the
univariate analysis also found that mean CSI change scores were not significantly different comparing Pretest and end of Unit II ($F(2,148) = 2.92, p = .057, \eta^2 = .04$). Results of the univariate analysis also found that mean CSI change scores were not significantly different comparing scores at the end Unit I and end of Unit II ($F(2,148) = 1.466, p = .234, \eta^2 = .02$). Finally, results of the univariate analysis also found that mean CSI change scores were not significantly different comparing scores at the end of Unit II and end of Unit III ($F(2,148) = 4.82, p = .009, \eta^2 = .06$).

**Additional analysis.** An additional one-way repeated-measures ANCOVA was conducted to determine whether there were significant differences in average CSI permutations (Pretest through Unit I, Pretest through Unit II, Pretest through Unit III, Unit I through Unit II, Unit I through Unit III, and Unit II through Unit III) when controlling for changes in negative career thinking from Pretest to the completion of the course (i.e., most positive, moderately positive, least positive). The assumption of normal distributions was violated and could not be corrected. The assumption of linearity was not met, as assessed by reviewing a Parson Correlation matrix, which showed no statistically significant correlations between CTI change scores and CSI Total score variations and is considered a limitation in interpreting the results of the analysis. As with the original analysis of the research question, sphericity could not be evaluated using Mauchly’s W test of sphericity and was assumed to be violated. Therefore, results were interpreted by evaluating the multivariate statistic, Wilks lambda (Hedeker & Gibbons, 2006).

Results of the one-way repeated measures ANCOVA showed that the career course intervention did not lead to significant differences in mean CSI score permutations over time (Wilks’ Lambda = .953, $F(3, 147) = 2.418, p = .069, \eta^2 = .047$) when controlling for changes in negative career thinking.
CHAPTER 5

DISCUSSION

The purpose of the present study was to examine the impact of a career development course on career decision making. Specifically, the present study illuminated where students are likely to see the greatest changes in their career decision state, as well as the mediating role that that negative career thinking can have on such changes. The Career State Inventory (CSI; Leierer et al., 2017) was used to measure students’ career decision state throughout the different units of the course, which is the aggregate of career certainty, satisfaction with choice, and vocational clarity. The Career Thoughts Inventory (CTI; Sampson et al., 1996a) was used to measure negative career thinking, which was then used to group participants by level of negative career thinking upon entering the course and degree of change throughout the course. The theoretical foundation for the course and measures used was cognitive information processing theory (CIP) (Sampson et al., 2004).

The present study’s sample population consisted of 151 undergraduate students who participated in a career development course at a large, public, Southeastern university. The following sections provide a discussion summarizing the results of the study conducted, limitations to the present study, and implications for the future.

Summary of Results

The following section provides a summary of the results for the three research questions and their analytical findings. In the current study, a repeated-measures ANOVA was performed to determine differences in course impact by level of negative career thinking (high, medium, low). Results of the analysis found that students reported significantly more positive career decision states following Unit I and Unit III of the course, but not Unit II of the course.
Additionally, results from that same analysis found an interaction effect between the course and negative career thinking; indicating that students with higher levels of negative career thinking also started with and maintained less positive career decisions states throughout the course, compared to those with medium and lower levels of negative career thinking. Finally, a second repeated-measures ANOVA found that students who experienced the greatest decrease in negative career thinking throughout the course also saw the greatest changes towards a more positive career decision state. This section continues with a detailed summary of the findings for each research question and a brief discussion interpreting the results.

**Research Question 1**

The first research question sought to determine if there were significant differences in undergraduate students’ career decision state scores after completing each of the three units of a career development course. It was hypothesized that increases in career decision state would occur at the end of each unit, and that the largest change in career decision state would be observed upon completion of the course’s first unit. The first hypothesis was partially supported by the results of a repeated-measures ANOVA, which found that students reported significantly more positive career decision states following Unit I and Unit III, but not following Unit II of the course.

Thus, the results fully support the hypothesis that the greatest change in average CSI Total scores would occur after the completion of Unit I compared to completing other course units. Specifically, average CSI Total scores decreased from 6.07 at pretest to 5.04 upon completion of Unit I, for a net decrease of 1.03. This net decrease in CSI scores was greater than the net decrease found between the completion of Unit I and Unit II (.21), as well as between the completion of Unit II and Unit III (.62).
Results of the analysis established the efficacy of specific career development course units in helping students to develop a more positive career decision state. Career decision state is reflective of “a single continuum from being highly goal-directed, satisfied, and confident on the one hand to being immobilized or frozen, dissatisfied, and confused on the other” (Leierer et al., 2017, p. 2). Though not looking at CSI Total scores, previous studies evaluating CSI constructs have found lower scores (i.e., a more positive career decision state) to be correlated with less commitment anxiety and decision-making confusion (Bullock-Yowell et al., 2011; Chason et al., 2012, Edralin, 2016). These studies suggest that undecided and unconfident students in the early stages of the CASVE Cycle may be overwhelmed with initiating that career decision-making process. Thus, students starting the course with lower decision states have opportunities for sizable gains during that first unit, which provides a step-by-step process that may reduce that confusion dramatically.

The present study suggests that specific course units may be more relevant than others in assisting students to develop a more positive career decision state. Participating students saw the greatest improvements in career decision state following the first and third unit of the course, but did not see significant changes following completion of the second unit. These results could be interpreted in a number of ways, including evaluating the topics discussed during each unit, as well as the experiential activities and assignments that occurred during each unit.

Each career development course unit offers career information, discussion topics, and in-class experiential activities that may have a differential impact on career decision state. According to the course developers, Unit I focused on general concepts used in career decision making and the application of those concepts (Reardon et al., 2017). Unit II focused on the social and environmental factors and the role of those factors in career development and decision
making. Finally, Unit III transitions to topics focused primarily on aspects involved in identifying career objectives and implementing a strategic career plan. The content of each unit may help explain why students experienced different changes at different times.

Results of the analysis demonstrated that student participants saw the greatest improvement in career decision state after completing the first course unit. During this unit, students learned about the concepts and process involved in career decision making and problem solving as seen through the lens of cognitive information processing theory (Sampson et al., 2004). Specifically, students had opportunities to learn about the importance of and methods for identifying one’s values, interests, and skills when making occupational choices. Furthermore, this unit was when students were first introduced to interactive career information resources, such as the Occupational Information Network (O*NET) and Focus2, that assisted students in connecting self-knowledge with relevant occupational options that could then be further explored. These resources not only assist students in making these connections via the use of brief assessments, but they provide additional up-to-date information about occupations and data about the outlook of occupations within the job market. Additionally, during Unit I, students learned about effective methods and processes for making career decisions, as well as how metacognitions help or hinder the career decision-making process. Metacognitions are beliefs, attitudes, and thoughts about the career decision making process (Reardon et al., 2017; Sampson et al., 2004).

Interventions focusing on these areas may have helped students to evaluate and improve upon how they have historically approached the career decision-making process. Furthermore, reducing negative metacognitions (or negative career thoughts) may help students to more effectively think about career decision making in creative, reality-based ways (Sampson et al., 1996). Several studies have identified connections between career decision state and negative
career thoughts (Bullock et al., 2011; Edralin, 2016), suggesting that interventions meant to address negative career thinking could also lead to changes in career decision state. Overall, an improved career decision state appears to be the result of being exposed to opportunities to clarify one’s self-knowledge, gaining access to career information, learning more about the career decision-making process, and addressing negative career thinking.

While student career decision state appeared to be greatly impacted by participating in Unit I of the career course, changes in scores appeared to level off between the completion of Unit I and Unit II. Notably, Unit II focused more on social and work environment conditions impacting the career decision-making process (Reardon et al., 2017). Some of the specific topics discussed included globalization and the changing world of work, evaluation and selection of preferable work cultures, alternative ways of working, and the intersection of family and work roles. Although these topics may be useful for students to learn about, they did not appear to have a direct and immediate influence on career decision state. This may be reflective of students’ level of readiness and perhaps speaks to the complexity of these topics in how they inform career decision making. Contextual factors that originate in the family, society, economy, or employing organization may make the career decision-making process more difficult (Sampson et al., 2012; Sampson et al., 2004).

It is possible that for college students these topics may represent complex factors that are either too abstract at the current time to immediately inform career decision making or are connected to concerns that can only be effectively addressed outside of the course by processing with significant others or engaging in individual counseling. Another possibility is that Unit I is heavily loaded with experiential activities and assignments in ways that Unit II is not, and a leveling off in career decision state may be reflective of the intervention dosage which has been
administered (Whiston & James, 2013). It may also be that Unit II is comprised of topics that are not relevant to one’s career decision state and with increasing students’ level of certainty, satisfaction, and clarity around a career goal.

It is noteworthy that after CSI Total scores plateaued following Unit II, career decision state scores increased once again following the completion of the course’s final unit. Unit III focuses on helping students, through lectures and experiential activities, to begin understanding and navigating the concrete steps involved in the job search process. Course developers not only intended that students develop cumulative knowledge of the career decision-making process, but also to learn strategies for solving specific career problems (Reardon et al., 2017). Topics in the unit included developing a strategic campaign for finding and applying to open jobs, internships, or graduate programs; written and interpersonal communication skills when job hunting; and negotiating and evaluating job offers. The unit ends by helping students reflect on changes that are likely to occur as they transition from a college environment to work environments.

Changes in CSI scores during the course’s final unit could be occurring for several reasons. According to Reardon et al. (2017) elements of a job campaign can include performing a personal assessment, identifying goals and job objectives, considering alternative work settings and ways of working, as well as targeting employers and engaging in the application process (i.e., preparing a resume and cover letter, contacting and interviewing with employers, and evaluating offers). Sampson et al. (2004) stated that some students may be solidified in their career decision, but may need services helping them to transition towards implementing their choices. By engaging in activities that either simulate or actively engage in the process of beginning a strategic job campaign, students may become more certain and satisfied in their occupational choices by engaging in behaviors consistent with those decisions.
Additionally, although the topics in the final unit may be beneficial, content and experiences from previous units of the course may still be having beneficial influences. This may be especially true in regards to the course’s role in decreasing negative career thinking. Previous research has demonstrated that participating fully in a career course leads to students reporting significantly less negative career thinking (Freeman et al., 2107; Osborn et al., 2007; Reed et al., 2001). Students with lower levels of negative career thinking may be more freed up to use cognitive resources to effectively solve career problems (Sampson et al., 1996). In this case, as the semester continued, students may have experienced decreased cognitive confusion and anxiety around career decision making that allowed them to narrow their career choices satisfactorily and develop greater self-confidence in their own abilities.

In addition to the different themes and topics of the career course, students completed and participated in different assignments during the class. Specifically, three major papers are due during the course; two reflection papers in the form of an Autobiography and Strategic Academic Career Plan, and one research paper in the form of a Career Field Analysis (CFA). It is interesting that Unit II does not lead to significant decreases in CSI Total scores, given that the Career Field Analysis paper is due during that unit. However, significant changes in career decision state did occur during the units in which the two reflection papers were due. In the case of the CFA paper, the assignment attempts to integrate occupational information accessed during Unit I. Perhaps, students were more impacted by the information when they initially gained access to the information than when required to integrate that information for the paper. Also, students may have benefited from that information when they were asked to reflect upon the information and integrate it into their strategic career plan at the end of the course.
The varying impact of the career course may also be explained by the reasons students took the course. While filling out demographic information, students were asked to identify their three most relevant reasons for taking the course. Overwhelmingly, most students identified hoping to increase self-knowledge involved in career decision making, followed closely by gaining access to educational and occupational information and developing career decision-making skills; all of which are topics addressed in Unit I. A sizable, although much smaller number of students reported wanting to improve job hunting skills, which is addressed in Unit III. Finally, very few students indicated that understanding how the global economy, spouse/partner relationships, and balancing work and family life were primary motivators for taking the course, which comprise the major topics in Unit II. This information detailing students’ interest in the course may also explain why Unit I and Unit III led to larger changes in career decision state in ways that Unit II did not.

Several other practical considerations should be taken into account when interpreting these results. First, order effects may help explain some of the data. Specifically, the fact that students complete Unit I first may explain why students see greatest changes in CSI scores during that unit compared to the subsequent units. Also, because there is a specific order to the course, it becomes difficult to evaluate Units II and III independently without considering the cumulative effects that the previous units have on subsequent units. Second, simply being enrolled in a career development course may cause students to reflect on the state of their current occupational choices, regardless of their experience with course activities. Consequently, students may simply be thinking more about career decision making without taking into account information gained from the course. Finally, the impact of each unit may be more reflective of the length of each unit, and limited decreases in CSI scores during Unit II may be more a function of time than the
influential nature of the course, as this unit is only three weeks while Unit I and III are 7 and 5 weeks, respectively.

The relationship between career decision state and negative career thinking, as well the current study’s findings, suggests that students who experience more positive career decision states as a result of taking a career development course are likely to be able to confidently make or narrow their occupational choices. The current findings are not surprising and speaks to the importance of incorporating the critical ingredients for effective career interventions identified by Brown and Krane (2000). The importance is especially noticeable in Unit I, which emphasizes written exercises, activities, and discussions focusing on models of effective career decision making and exploring occupational information, under the guidance of small group instructors who provide additional supports to the student. Furthermore, with greater confidence in the decision-making process, along with decreased commitment anxiety, students in the course may be more likely to act in a more goal-directed manner. Overall, students taking a career development course may be better equipped to navigate the career decision-making process with less confusion and difficulties (Bullock-Yowell, McConnell, & Schedin, 2014).

The findings from the first research question are consistent with previous career course research (Freeman et al., 2017; Miller et al., 2018), which also found that course participation led to students becoming more certain in their occupational choices, satisfied with those choices, and confident about the career decision-making process. Miller et al. (2018) found that students who completed the course became significantly more certain \( (F = 52.508, \eta^2 = .137) \), satisfied \( (F = 36.247, \eta^2 = .184) \), and clear \( (F = 63.518, \eta^2 = .283) \) in relation to their occupational choice and the decision-making process. Comparatively, the effect size demonstrating the overall impact of course participation on career decision state was more elevated \( (\eta^2 = .514) \) than the Miller et al.
The difference in variance could be explained by the methodological difference of using CSI Total scores versus sub-scores. It may be that cumulatively, the total score captures more of the variance than simply looking at the subscale scores for career certainty, satisfaction, and vocational clarity alone.

Along with research examining the impact of career courses on career decision state, this study can be added to numerous others that promote career courses as an effective intervention for promoting certain career outcomes and outputs in college students (Freeman et al., 2017; Miller et al., 2018; Osborn et al., in press). These outcomes and outputs include increased career self-efficacy (Grier-Reed & Skaar, 2010) decreased negative career thinking (Osborn et al., 2007), decreased career indecision (Peng, 2001); and improved graduation rates (Folsom et al., 2005; French, 2013; Smith-Keller, 2005; Reardon et al., 2015).

This study also came to a different conclusion than the intervention study conducted by Grier-Reed and Skaar (2010), which saw no significant changes in career indecision. Dissimilar results could be explained in multiple ways. One, the course intervention used in the current study was designed to help students to identify and make connections between self-knowledge (i.e., interests, values, and skills) and occupational information that can then be further explored. Alternatively, the constructivist course focused more on helping students to construct a personal narrative that helped build self-efficacy around developing a career plan, but not necessarily giving them access to information to increase one’s occupational decidedness. Additionally, junior and senior participants in the current study represented 71% of the sample, compared to 9% who participated in the constructivist course. Although it has been found that career courses were equally helpful in increasing career certainty regardless of year in school (Miller et al., 2018) study.
2018), developmental differences in each study participants may explain differences in outcomes.

Overall, the course was found to bring about significant changes to career decision state. Students especially appeared to be most influenced during Unit I and Unit III, with Unit I being most impactful. However, this study also seeks to learn more about how negative career thinking can influence the effectiveness of a career development course, which will be discussed in the following section.

Research Question 2

The second research question sought to determine if there were significant negative career thinking (high, medium, low) by occasion (pretest, Unit I, Unit II, Unit III) interaction effects on career decision state following completion of a career development course. It was hypothesized that participants with higher CTI Total scores at pre-test would have significantly higher CSI Total scores (i.e., a more negative career decision state) following each course unit than those with moderate or low CTI scores at pre-test. Results of the analysis supported the hypothesis that those with higher CTI scores would have higher CSI scores. Specifically, those in the High CTI group reported average CSI Total scores of 7.77 at pretest, 6.83 following Unit I, 6.40 following Unit II, and 5.40 following Unit III. Comparatively, members of the Medium CTI group reported significantly lower average CSI Total scores across each time point (6.19, 4.60, 4.52, and 3.94, respectively), as did the members of the Low CTI group (4.24, 3.63, 3.51, and 3.24, respectively). These results suggest that students with the highest levels of negative career thinking, on average, had higher levels of uncertainty, dissatisfaction, and confusion around a career goal compared to those with medium and lower levels of negative career thinking throughout the career course.
As a review of relevant terminology, negative career thinking is defined as the cumulative thoughts individuals experience that may inhibit their ability to solve career problems or make career decisions (Sampson et al., 2004). For the present study, negative career thoughts were operationalized using Career Thoughts Inventory (CTI; Sampson et al., 1996b) total scores. Past research has established a relationship between higher levels of negative career thinking and symptoms of depression (Dieringer et al., 2017; Saunders et al., 2000), decreased overall psychological well-being (Strauser et al., 2008), and lower levels of career decision-making self-efficacy (Bullock-Yowell et al., 2012). Due to these relationships, it is believed that negative career thinking can adversely impact one’s ability to utilize career information in order to effectively make career decisions (Sampson et al., 2013). Therefore, one would expect that students with higher levels of negative career thinking would have a markedly different experience in the career course than those with lower levels.

Although results of the analysis found statistically significant interaction effects between the three CTI groups while taking the career course, limitations exist as to how much differential changes in career decision state can be attributed to course participation. Specifically, although it was found that High CTI group members had significantly higher CSI Total scores after each course unit, it is unlikely that this discrepancy can be attributed solely to course participation considering that the three CTI groups began the course with statistically significantly different average CSI total scores. The fact that each group had significantly different CSI scores at pretest could likely be explained by the strong links between the two constructs. Previous research has found that several of the constructs associated with negative career thinking were significantly correlated with career decision state constructs (Bullock-Yowell, et al., 2011, Chason et al.,
Therefore, students with varying levels of negative career thinking may also exhibit a similar pattern on the career decision state continuum.

With this limitation in mind, there are still some interesting and notable patterns in the data. For example, the gap in CSI scores for the Medium and High CTI groups increased between pretest and the completion of Unit I; increasing from a 1.58-point difference at pretest to a 2.22 point difference following the completion of Unit I. Further exploration of the data found that participants in the medium CTI group reported a greater decrease in CSI scores following Unit I compared to the high CTI group; a decrease of 1.58 and .942, respectively. Though both groups experienced statistically significant shifts in reported career decision state following Unit I of the course, this data suggests that those in the Medium CTI group were perhaps more greatly impacted than the High CTI group. In this case, lower levels of negative career thinking may allow students to benefit from the activities and exercises during earlier units of the course. These results further support the belief that negative career thinking can affect one’s ability to effectively utilize career information (Sampson et al., 2013) and solidify one’s occupation choices (Sampson et al., 2004, Sampson et al., 1996).

Additionally, all three groups saw significant decreases in CSI scores between pretest and the completion of Unit I, as well as between the completion of Unit II and the completion of Unit III. They saw no significant changes in CSI scores between the completion of Unit I and Unit II. These findings are consistent with the findings of research question 1, and suggest that significant changes occur uniformly across the three CTI groups. These findings were also consistent with previous research exploring the differential impact of the course depending on one’s level of negative career thinking (Freeman et al., 2017; Osborn et al., 2007; Osborn et al., in press; Reed et al., 2001).
Finally, in an attempt to further understand the data, results of the additional repeated-measures ANCOVA indicated that, while controlling for negative career thinking, course participation led to students reporting significantly decreased CSI scores. The results of the additional analysis suggest that students are likely to benefit from the course regardless of their level of negative career thinking. The findings of this analysis drew similar conclusions as those seen in the analysis of question 1. Specifically, completing Units I and III led to significantly decreased CSI Total scores, and scores did not decrease significantly after completing Unit II. The findings are also consistent with the original analysis that saw scores decrease significantly for each of the three CTI groups, further suggesting that the course is helpful for students with different levels of negative career thinking. However, the study also sought to determine how changing levels of negative career thinking would mediate the impact of the course, which is further discussed in the following section.

**Research Question 3**

The third research question sought to determine if there were significant changes in negative career thinking (most positive, moderately positive, least positive) by unit variation interaction effects on career decision state. It was hypothesized that the time at which individuals experience the greatest changes in CSI scores for each CTI change group would be at the end of Unit I. Results indicated that there was a statistically significant interaction effect between CSI Change scores and CTI Change scores. However, the hypothesis was not supported by the results, which indicated that there were no statically significant differences in CSI change scores amongst the three CTI Change groups when evaluating CSI Total change scores between pretest and the completion of Unit I.
The results of this study showed that students participating in the course experienced similar changes in career decision state after completing the first unit, and that greater changes in CTI score did not necessarily mean greater initial changes in CSI. These results were somewhat surprising given what research has shown about the relationship between negative career thinking and career decision state. As previously noted, several research studies have demonstrated statistically significant correlations between constructs measured by the CTI and CSI (Bullock-Yowell, et al., 2011, Chason et al., 2012; Edralin, 2016). These relationships suggest that students with higher levels of decision-making confusion and commitment anxiety also tend to be less certain and satisfied with their current occupational choices. In Unit I, students learn to identify, challenge and alter their negative career thoughts while also engaging in activities designed to directly address their career decision state, such as completing self-assessments and exploring career information. Although it was hypothesized that students who were more successful at addressing their negative thoughts would also benefit most from exploring career information during the first unit, this did not appear to be the case.

However, the analysis did show that, throughout the course as a whole, those who reported the greatest decreases in negative career thinking also experienced a greater shift towards a more positive career decision state. Specifically, students in the most positive CTI change group saw significantly greater changes in CSI Total scores from pre-test to the end of Unit III, compared to the least positive CTI change group. The same significant difference was seen when comparing changes from the end of Unit I to the end of Unit III. One interpretation of this result is that students who experience the most significant changes in CTI scores during the course will experience a greater shift towards a more positive career decision state; just not immediately. More time may be needed for the full impact of the course to be seen.
Additionally, these findings could be interpreted in relation to how the groups were created. Conceptually, groups were organized by the extent to students’ level of negative career thinking decreased over the career development course. Individuals allocated to the most positive CTI Total change group were students who would likely need relatively higher CTI scores in order to be in a position to see significant decreases. On the other hand, students in the least positive CTI Change group consisted of students who did not see significant changes at all or experienced an increase in negative career thinking from the beginning to the end of the course. These could be students who had high CTI scores that only decreased marginally, or students with low CTI scores who remained low throughout the course. Sampson et al. (2004), viewed individuals with low and high CTI scores differently. Students with lower levels of negative career thinking were thought to be more likely to have greater capability in making career decisions than those with higher levels. Given that the CSI authors believe that the assessment is meant to measure one’s capability to make a career decision (Leierer et al., 2017), some of the Low CTI change group members may have already been certain and satisfied in regards to their occupational choice upon entry in the course. Therefore, the Low CTI group may contain subgroups with practical differences that the CSI would be sensitive to and may explain the lack of significant differences following the first Unit.

It should be noted that 24.5% of reported an increase in negative career thinking from beginning to end of the course. In such cases, students participating in a career development course may actually become more questioning of themselves within the career decision-making process than they were upon entering the course. Exposure to career assessments and information can cause some students to second-guess plans that they originally were happy with (Osborn et al., 2016). Although, the course may often be looked at as a success when students
are able to effectively identify and prioritize career options, the course could also be considered effective when students abandon poorly informed and thought through prior alternatives.

In addition to the original analysis just discussed, an additional analysis was conducted to determine if, when controlling for change in negative career thinking, there were significant differences in career decision state levels after completion of each of the three units of an undergraduate career development course. These results were found to be significant. However, these findings could be explained by limitations in the analysis and how the data was constructed. One of the important assumptions for running an ANCOVA is that there is a statistically significant correlation between the construct serving as the covariate and the dependent variable. In this case, change in negative career thinking was not significantly correlated with change in career decision state at any CTI change combinations during the course. Failing to have correlating variables may make it difficult to ascertain meaningful results and serves as a significant limitation. The current research questions and their findings speak to some of the limitations that occurred throughout the course of study. The following section discusses the limitations found during the process of obtaining, analyzing, and interpreting the data.

**Limitations**

The following section provides a discussion of several limitations found during the course of the present study, including limitations associated with the sampling of career course participants, limitations based on measures used in the study, and limitations related to the statistical analysis.
Limitations in Sampling

It is important to consider limitations relating to sampling and the study’s participants when assessing the generalizability of the results. First, participants were not recruited for this course using random sampling. Instead, the current study relied on a sample of convenience. Because of the sampling method chosen, participants were required to seek out the course and could have enrolled for various personal reasons. For example, some may have sought out the course on their own, while others may have been encouraged to take the course after seeking services at the university’s career center or via academic advising. Individuals seeking out services may have a higher level of readiness and motivation to benefit from career services compared to the general population (Sampson et al., 2000). Although not necessarily the case in all circumstances, students in the sample may be better prepared to benefit from the interventions in the course compared to other students unaware of the course or uninterested in participating. Also, of those who chose to take the course, 58.2% of course participants were seniors, which almost doubles senior representation in the university, at large (Florida State University Office of Institutional Research, 2017). Therefore, generalizing the study’s findings based on class standing should be done so with caution.

It is also worth noting that not all students who participated in the course met the criterion of taking all three units. Because some students only requested to participate in specific units, it is unclear if those individuals saw significant changes in career decision state levels reflective of the unit and topic areas deemed most important to their development needs. For example, students believing that they had already learned enough about occupational options and decision making and only felt it necessary to learn about job searching strategies may choose to only take
Unit III of the course. Had these students taken all three course units, they may have influenced the average change in CSI scores in statistically meaningful ways.

**Limitations in Measures**

During the course of the analysis, several concerns were identified related to using the Career State Inventory (CSI; Leierer et al., 2017). Specifically, the normality assumption required for the study was initially violated to a slight positive degree and grew increasingly skewed as the course continued. Failing the normality assumption has been reported in other career course intervention studies evaluating the CSI (e.g., Miller et al., 2018), but not in similar intervention studies or studies involving the measure (e.g., Bullock-Yowell et al., 2011; Edralin, 2016; Freeman et al., 2017). It may be worth noting why this assumption appears to be violated with some regularity.

When looking at pretest data, many students appear to be entering the course with at least some sense of an occupational choice, or at least some options with a first choice. Fewer students appeared to begin the course with little to no sense of their preferred occupational choice. As the course continued, students appeared to be quickly impacted and CSI scores decreased. Because a large number of students already had low CSI scores with little opportunity to decrease scores further, the sample began to accumulate at the lower end of the career decision state continuum; creating a bottoming out effect. The course’s effectiveness in decreasing CSI scores appeared to generate a distribution of scores that were increasingly positively skewed. Therefore, although the measure may be practical in identifying where course participants fall along the career decision state continuum, for statistical evaluation the measure may be significantly limited. In addition to issues that arose while using the CSI in the current study, additional limitations emerged when conducting the data analysis, which will be discussed in the following section.
Limitations in Data Analyses

Several limitations can be identified when looking at the nature of the data and the analysis as a whole. Most notably, organizing groups by a continuum of CTI Total scores had unintended consequences and led to issues interpreting the results. We know from previous research that there is a statistically significant correlation between negative career thinking and career decision state. The Low, Medium, and High CTI groups began the course at statistically different CSI scores, on average. As a result, it is difficult to determine if the varying scores between groups throughout the course are reflective of course impact or could be better explained by pretest group differences. For future intervention studies, researchers should refrain from creating split means groups that correlate with the independent variable in question.

Additional concerns arose during the data evaluation and analysis that should be taken into account when interpreting the results. Several assumptions were violated in the initial analysis of the data. As previously mentioned, evaluation of the normality of CSI distributions were found to be slightly positively skewed. Attempts were made to transform the data, which ultimately did not correct the issue. Even though transforming did not change the statistical significance of the results, this may be a predictable issue that should be considered in future research using the measure. Additionally, although Cronbach’s alphas for the CSI subscales were in the “Acceptable” range for Pretest, Unit I, and Unit II, the Unit III alpha score was determined to be in the “Questionable” range and should be considered a limitation in the analysis of the data. Finally, when running the assumptions for the second analysis, SPSS stated that Mauchly’s Box (for the Sphericity assumption) could not be calculated because there were fewer than two nonsingular cell covariance matrices. With these concerns in mind, caution should be used when
interpreting results and future studies should be conducted to validate and confirm the present study’s findings.

**Implications of the Study**

The following section discusses the implications derived from the findings of the present study. Specifically, the following section provides a discussion of implications for theory development, future research, practice, education and training, and public policy.

**Implications for Theory Development**

Cognitive information processing (CIP; Sampson et al., 2004) served as the theoretical foundation for the present study. Namely, the theory served as the foundational structure for both the career course intervention (Reardon et al., 2017) and the Career Thoughts Inventory (Sampson et al., 1996a). Furthermore, the Career State Inventory (Leierer et al., 2017) was developed to complement CIP theory. The current study may provide additional insights that help strengthen our understanding of a CIP-based approach as it is used to assist college students in making career decisions and solving career problems.

Sampson (2017) noted that CIP theory was created as a means of both explaining vocational behavior and guiding career intervention development. With its findings, the current study supports the utility of CIP as a theoretical underpinning that informs how we understand the means in which people make effective career decisions and how interventions can be developed to work towards those ends. This makes sense as the theory developers believed that a theory’s constructs should be translated into ways that the average person can understand and benefit from (Sampson et al., 2004). The theory’s impact as a foundational tool for practice could be especially seen in Unit I of the course, when students learned the content and processes of CIP theory and engaged in experiential activities to apply those theoretical principles to their own
career situation. The theory-based course was shown to effective despite the course having multiple sections and instructors, suggesting that CIP theory may be a practical way of explaining vocational behaviors to college students and that the impact of an intervention guided by CIP can be almost immediate, regardless of level of negative career thinking.

Results from the study also inform how theory developers can understand the Pyramid of Information Processing domains and CASVE Cycle. The study supports previous research suggesting that the career decision-making process is not necessarily a steady and forward progression. Osborn et al. (in press) observed that it was not uncommon for students to travel back and forth between phases of the CASVE cycle. Consistent with the Osborn et al. study, a quarter of the students who participated reported increases in negative career thinking at course completion. The growing body of recent career intervention study indicates that future discussion of CIP theory should continue to highlight the bi-directional nature of the career decision-making process.

That same research study by Osborn et al. (in press) also found that students at the beginning of a career course are often in the communication, synthesis, and analysis phases of the CASVE Cycle. Students who struggle to identify occupational options when filling out the CSI may be especially stuck in the cycle’s Communications or Synthesis phases. Combined with the current study’s results showing that students with higher CTI scores appear to have less positive career decision states, the findings further support the belief that students with higher CTI scores may have greater difficulties exploring and integrating career information in order to satisfactorily and confidently identify and prioritize occupational choices; making it difficult for students to progress through CASVE Cycle’s Execution phase (Sampson et al., 2004).
Additionally, the present study identified several patterns that further our understanding of negative career thinking in relation to the career decision-making process, as well as its receptibility to career intervention. Theory and previous research suggest that students with higher levels of negative career thinking may be unable to process career activities in ways that lead to greater self-efficacy (Kim et al., 2015) or the capability to effectively navigate the career decision-making process (Sampson et al., 1996b). Although students with higher levels of negative career thinking in the study reported significantly decreased CSI scores throughout the course, the findings showed that the students entering the course with lower levels of negative career thinking were more immediately ready to benefit from the course in its initial unit. The linkages between negative career thinking and career decision state have also become more understood, as the study demonstrated that addressing negative career thinking can also lead to greater shifts towards being able to confidently and satisfactorily narrow one’s occupational choices. Ultimately, the findings of this study might help refine how the theory conceptualizes students with varying levels of negative career thinking.

Finally, in reviewing the current study’s findings, it seems that career decision state may be a useful construct to help researchers, theorists, and practitioners to understand and identify where students might be in the career decision-making process. As a measurable construct, it also proved to be quite sensitive to changes related to career course interventions. Specifically, career decision state appeared most impacted during experiential activities that one might expect, as well as some that one might not expect, such as activities found in Unit III. It was theoretically expected that students exposed to career resources, such as interest inventories connected to occupational information, would be better able to confidently and satisfactorily narrow one’s career choices (Leierer et al., 2017). However, career decision state was seemingly sensitive to
being exposed to strategies for identifying, applying for and obtaining jobs, internships or other types of positions, as well as the experience of creating a strategic academic career plan. It could be that students actively pursuing positions in their chosen field may increase in confidence that they have chosen the right occupation, or that they are working towards an optimal career goal. This interesting finding may help the developers of the CSI to further understand the mechanisms that affect career decision state.

The following section discusses the results of the study and their implications for future researchers in the areas of career development and vocational psychology.

**Implications for Research**

One goal for conducting the current study was to help shape and inform future directions for scientific inquiry based on the study’s findings and limitations. First, future researchers should consider evaluating the impact of a career development course by comparing course participants to a comparison group. Often encouraged as a next step in evaluating the career course curriculum used in the current study (Freeman et al., 2017; Miller et al., 2018; Osborn et al., 2007; Osborn et al., in press), utilizing a comparison group would further help evaluate if the course is, in fact, responsible for shifts occurring to career decision states in students across time. One specific recommendation is to compare full course participants to students who only completed specific units of the course. Exploring differences between students who only took one course unit versus all three may help us better understand the degree to which there is a cumulative impact of the course units. Using a true experimental design by incorporating a comparison group would assist in determining if the change is attributable to the career course or peripheral factors.
Along similar themes, future studies could be created to evaluate the impact of specific experiential activities and assignments utilized in the course. Future research may examine what specific interventions lead to more positive career decision states for course participants. This study looked at the overall impact of a career development course on career decision state. However, the course is made up of many small interventions that could have impacted students differently in relation to the various career decision state elements. For example, students saw the greatest changes in scores following Unit I. Several of the activities in the first unit, such as the values auction or Self-Directed Search (Holland & Messer, 2017), could be selected to determine which activities and assignments are more or less impactful on career decision state. Additionally, students saw significant changes in career decision state after completing Unit III, which was intriguing considering no changes were seen after completing Unit II. It would be interesting to determine which aspects of the job search campaign curriculum and activities explain the significant changes in career decision state during the course’s third unit.

To further explore the impact of the specific course units, future research could employ a mixed-methods design to gather qualitative data from students in the course. For example, focus groups could be created with course participants. Instructors could be tracking changes – positive, negative, or none – in CSI scores following each unit. Evaluating the CSI data, instructors may be able to generate theories and hypotheses as to what might be explaining various changes in scores. These hypotheses could be used to generate questions that gather information from students as to what they found helpful, less helpful, and to generally understand how students conceptualize their career decision state in relation to the course. A potential positive outcome of this type of study is that students may help researchers and
instructors to identify new factors and inputs that may influence the effectiveness of the course, which could then generate additional directions for further research.

Researchers should consider evaluating changes in CTI subscale scores. Although it would be useful to see how CTI scale scores change throughout the course, it would be especially valuable to evaluate change in external conflict following Unit II. The external conflict subscale score assesses individuals perceived ability to balance their needs with the needs of other outside forces and important people (Sampson et al., 1996b). Considering Unit II focuses primarily on social and environment forces and the influence of those forces in career decision making, evaluating how the external conflict subscale score might change may be worthy of additional exploration.

Another recommendation for future research would be to determine if the current career course curriculum could be generalized to more settings and populations. Research regarding the impact of this course has largely been conducted at the same institution, with comparable student population of similar backgrounds. Future research should be conducted in order to determine if such results translates to other institutions and career services settings. It would also be valuable to determine if the course is still impactful in the same manner with more diverse age ranges, racial and ethnic backgrounds, and with people of varying socio-economic backgrounds. The final group may be especially worthy of evaluation, as individuals of lower socioeconomic may have specific needs in the career decision-making process that deviate from what might be taught in a college career development course (Blustein, 2006; Blustein, 2008). Researchers could also explore whether a shorter version of the course is helpful across diverse samples, given the relative effectiveness of Unit I. Research on the subject would greater clarify if that assertion is
true, or if a career course covering generally important aspects of career decision making and problem solving is more universally effective.

Findings from the present study also showed significant degrees of variability in changes to career decision state within the career course, even within groups of students with similar levels of negative career thinking. Bullock-Yowell et al. (2011) suggested that future studies investigate causal relationships between variables such as negative career thinking and career decidedness. Although this study sought to learn more about this relationship, future research should consider continuing to explore factors that may serve as mediators in order to understand the relationship further. For example, Kim et al. (2015) found that negative correlations between dysfunctional career thinking and career decision self-efficacy can be mediated by happenstance skills, or the ability to notice, accept, and take advantage of chance career opportunities. This is especially salient as the overall course impact on career decision state possessed an effect size of $\eta^2 = .514$ for the course in total. Thus, there still remains variance in the dependent variable that is currently unexplained.

The primary focus of the current study was to evaluate student career decision state and determine when in the career course changes occur. Future researchers should consider evaluating changes in career decision state, while explicitly looking at changes in certainty, satisfaction, and vocational clarity. Previous studies have already demonstrated that each subconstruct is positively impacted by completing the career development course (Freeman et al., 2017; Miller et al., 2018). However, less is known about which constructs may be especially influenced by the different units.

Finally, the current study joins other researchers who have called for the evaluation of longitudinal career variables by exploring over three or more time points (Kim et al., 2015).
Future research could further examine this by asking follow-up questions at six month and one-year intervals. It may be that it takes some time for the full impact of a career course to be achieved. This recommendation seems especially relevant, as the findings of this study suggest that students may take longer periods of time to be impacted by content learned in the course. Conversely, there is reason to question whether the positive impacts of the course hold up over time (Björnsdóttir, 2018), which could also be evaluated in longitudinal research.

The following section discusses the results of the study and their implications for practitioners in the field of career development and vocational psychology.

**Implications for Practice, Education, and Training**

The results of the current study have several implications for practitioners and educators hoping to help college students to make satisfying occupational choices. Specifically, implications focus on the use of a career development course as a means of improving students’ career decision state, and how negative career thinking may or may not influence the impact of the course. The following practical and educational implications will be discussed through the lens of cognitive information processing (CIP, Sampson et al., 2004) theory.

Findings from this study suggest that career counselors and educators should consider developing career development interventions, programs, and courses consistent with the theoretical underpinnings of CIP (Sampson et al., 2004). When discussing the development of career interventions, several have called for interventions that maximize institutional resources, while also trying to bring about the most effective outcomes (Sampson 2009; Whiston & James, 2013). Comprehensive interventions, such as the CIP theory-based career development course used in the current study, could be an effective and efficient means for assisting college students in becoming more decided in an occupational choice, comfortable with that choice, and clear
about their role and ability to engage in the career decision-making process. The study also suggests that shorter versions of the course focusing on the critical ingredients of career interventions, as seen in Unit I, can still have a positive effect on students who participate. The potential benefits of shortened career courses have also been suggested in other research (Björnsdóttir, 2018), and can serve as additional means of developing cost-effective services.

The current study tentatively suggests that learning both the fundamentals of career decision making and important aspects of the job search campaign can help students to work towards a stronger career decision state. Significant changes in CSI scores suggest that students become more certain, satisfied, and confident about a career goal after completing activities designed to increase one’s self-knowledge (i.e., interest, values, and skills), and options knowledge (i.e., occupational information, effective career decision making processes, and engaging cognitive restructuring). In Unit III, students complete the Strategic Academic Career Plan, in which they track their progression through all phases of the CASVE Cycle, which involves identifying their specific career problem (Communication), exploring career information to identify options (Analysis) and then generating and narrowing one’s most preferable options (Synthesis).

Lectures from the final unit, as well as the Strategic Academic Career Plan, also help students to begin considering the Valuing and Execution phases of the CASVE cycle. With increased capability and lowered CSI scores, students may be better prepared to transition towards interventions geared towards prioritizing and executing their career goals. Similarly, Leierer et al. (2017) posited that individuals with lower CSI scores may be at the Valuing and Execution phase of the CASVE Cycle and looking to explore and confirm their occupational preferences (Sampson et al., 2004). Participating in Unit III, which emphasizes aspects of the
Valuing and Execution phase, appears to lead to further positive and solidified career decision states and can be considered an additional point of emphasis when working with college students.

CSI scores will likely be important for instructors and students to be aware of during the course as they have several implications for students attempting to progress through the CASVE Cycle. For example, students who struggle to identify occupational options when filling out the CSI may be stuck in the cycle’s Communications or Synthesis phases. Instructors may then choose to process with students any problems they may be experiencing. They can also refer to the student’s CTI results, which have specific items reflecting negative thoughts associated with specific phases of the Cycle. Instructors can then work with students to challenge and alter the negative thoughts serving as barriers to identifying occupational options. They can also provide any additional resources that they believe could be helpful. Integrating information obtained from students’ scores on the CSI and CTI, while interpreting results through a CIP lens, could help course developers and instructors to better identify students’ needs and inform the selection of appropriate additional interventions.

Results from the current study have additional implications for how course developers and instructors could approach constructing and teaching the course in the future. First, it may be useful to identify and address students’ negative career thinking sooner; especially those with elevated CTI levels. This may require students to complete the CTI at the beginning of the course, in order to identify students who may be especially susceptible to the effects of negative career thinking. Earlier intervention, including providing students with the CTI Workbook and engaging in more individualized teaching and practice of cognitive restructuring could help students with higher CTI levels to gain greater benefit from Unit I. Course developers may also
consider asking instructors to gather feedback from students to determine if course participation has led them to seek out additional help or services from career advisors, academic advisors, professional counselors, or family.

Results also suggest that it is common for negative career thoughts to increase as the course progresses. Considering that increased CTI scores are associated with impacts to mood and career decision-making self-efficacy (Bullock-Yowell et al., 2011; Bullock-Yowell et al., 2010; Bullock-Yowell et. al., 2015; Dierenger et al., 2017; Saunders et al., 2000), it may be important for instructors to communicate that increases in negative career thinking can occur and that students should be encouraged to talk more about their concerns with their small group instructor. A discussion could also take place at the end of lectures, in which that day’s topic is related back to the CIP constructs. Students may benefit further from summarizing the lectures’ content by filling out a blank pyramid (representing the pyramid of information processing domains) with content from the days lecture, as well as details from the class that directly relate to their specific career problem.

The findings of the current study can inform practitioners and educators about the types of students they are likely to see in a college career development course and how they might be most helpful. Leierer et al. (2017) conceptualized that students with high CSI scores may be in a lower state of readiness for effective career decision making. Similarly, Sampson et al. (1996b) postulated that a higher CTI score indicates that an individual may struggle with career decision making and problem solving. CTI. However, students with high CSI and accompanying higher than average CTI scores appear to be able to participate in and benefit from career course interventions. Ultimately, this study suggests that career counselors and educators should consider that students with higher CTI scores may not report confidence and clarity about their
decisions until later in the course compared to students with moderate to low levels of negative career thinking. Students with higher levels of negative career thinking and an accompanying less positive career decision state may also benefit from focused attention from instructors and perhaps individual career counseling (Leierer et al., 2017; Sampson et al., 2004).

**Implications for Public Policy**

It has been emphasized by scholars within career counseling and services to discuss policy implications derived from practical research (Blustein, 2008; Sampson et al., 2004; Whiston, 2009). Several implications can be inferred from the current study; especially regarding the services provided at public universities. Not only should colleges and universities consider at the institutional level incorporating these courses into the academic curriculum, but stakeholders and representatives at statewide and national levels should consider providing funding for the inclusion of career development education in state colleges and universities. A large number of colleges and universities still do not have for-credit career development courses (NACE, 2016). These findings suggest that a large portion of college students nationwide are likely still limited in their access to comprehensive career education designed to effectively and efficiently assist students in solidifying career choices. Additionally, those preparing funding proposals for the incorporation of career development courses at their respective institutions can point to this study as further evidence of the potential benefits of allowing college students access to similar experiential learning activities.

**Conclusion**

Those in the profession of developing and implementing career services have called for more effective and efficient interventions designed to help individuals to make career decisions and solve career problems (Sampson, 2009; Whiston & James, 2013). Also, researchers have
pointed out that causal relationships need to be further studied between negative career thinking and career decision state (Bullock-Yowell et al., 2012). The aim of the present study was to investigate the effectiveness of taking a career development course designed to assist a classroom of undergraduate students, while also looking to determine if level of negative career thinking upon entering the course would mediate the impact of the course on career decision state. The findings of this intervention study have added to the current literature by continuing to inform and understand causal relationships between negative career thinking and career decision state, as well as further bolstering the role of career development courses as an effective means of providing career services to college students. The present study also serves as a means of further informing the development and practical application of cognitive information processing theory in assessing and providing group level career counseling services in college settings. This study was intended to provide universities, educators, and career counselors more information on how career development courses can serve as a potential building block for college students towards taking their degree and effectively navigating the next chapters of their careers.
APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE AND CAREER STATE INVENTORY

SDS 3340 STUDENT DATA SHEET
(Please Print)

Name __________________________ Date ___________ Expected Grad Date ___________

FOR ITEM 13 BELOW AND ITEMS 14-15, AND 18 ON THE BACK, WRITE THE NUMBER OF YOUR RESPONSE IN THE SPACE IN THE RIGHT MARGIN WHERE INDICATED.
FOR ITEMS 19-21, CIRCLE THE LETTER AND ITEMS 22-24, CIRCLE THE NUMBER TO RESPOND.

1. Major (list major or "undecided"/exploratory): ______________________________________

2. Academic Advisor (Name): ______________________________________________________

3. Local or Mobile Telephone: _____________________________________________________

4. E-mail Address: _______________________________________________________________

5. Permanent Address: ____________________________________________________________

6. Are you active in campus organizations/activities? Which? __________________________________

7. Outline your previous employment or work experience. __________________________________

8. _____________________________________________________________________________

9. How did you learn of this course? ________________________________________________

10. Reasons for taking this course—check (√) 3 from the list below

    __ Increase self-knowledge
    __ Obtain educational and occupational information
    __ Gain career planning information
    __ Improve job hunting skills
    __ Learn how spouse/partner relationships affect career
    __ Improve career decision-making skills
    __ Understand how the global economy affects careers
    __ Balance work and family life
    __ Other ________________________________________________

11. Number of Class Hours This Semester..............................................................11. ___________

12. Age (in years).................................................................................................12. ___________

13. Sex (1=Male 2=Female)................................................................................13. ___________

(Continue over ⇒)
14. Ethnic Group (write in number)

1. American Indian or Alaska Native
2. Asian
3. Black/African-American
4. Hawaiian Native or Other Pacific Islander
5. Hispanic/Latino
6. White
7. Other
8. Prefer Not to Respond

15. Year in school (write in number)

1. Freshman
2. Sophomore
3. Junior
4. Senior
5. Graduate Student
6. Other

16. List all the occupations you are considering right now.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Which occupation is your first choice? If undecided, write "undecided."

________________________________________________________________________

17. How well satisfied are you with your responses to No. 16 above? Place a check next to the appropriate statement below:

____ Very satisfied
____ Satisfied
____ Not sure
____ Dissatisfied
____ Very dissatisfied

18. Please circle (T) or False (F) to the statements below

a) If I had to make an occupational choice right now, I’m afraid I would make a bad choice...... T  F

b) Making up my mind about a career has been a long and difficult problem for me............. T  F

c) I am confused about the whole problem of deciding on a career................................. T  F

For the statements below, please circle a number using the scale below:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

19. I feel anxious about my career concerns

   Strongly Disagree 1 2 3 4 5

20. I feel I know the next steps needed to attain my career goals

   Strongly Disagree 1 2 3 4 5

21. I feel confident that I can make the next steps to attain my career goals

   Strongly Disagree 1 2 3 4 5
APPENDIX B

INFORMED CONSENT

ID No: ____________

INFORMED CONSENT FORM

I freely and voluntarily and without element of force or coercion, consent for my answers to selected career assessments and demographic questions to be archived and used in the research project entitled "Archival research in the SDS 3340 Introduction to Career Development Class."

This research is being conducted by Janet Lenz, Ph.D. Associate-In faculty member in the Department of Educational Psychology and Learning Systems at Florida State University. I understand that the purpose of this research project is to use data from past and present SDS 3340 students to research questions about topics such as career decision making, goal setting, personal factors that affect career choice, and career readiness. I understand that data used from my questionnaires will be kept confidential, that is separated from identifying information, including my name, address, email, phone number, and any other personal identifier.

I understand that participation in the project only involves usual course assessment activities, which includes the completion of questionnaires. Usual procedures involve signing this informed consent form, completing a demographic form, filling out questionnaires about career variables (e.g., decision making, career thoughts, goal setting, interests, career concerns), and receiving feedback on career assessments. At the end of class, students who volunteer to participate in the research will be asked to remain to complete the research packet. Participation in the research requires approximately 15-20 minutes. I understand I will receive 5 points extra credit for completing all pre-test forms.

I understand my participation is totally voluntary and I may stop participation at any time. I can choose an alternate 5 point extra credit activity if I choose not to participate in the research or if I withdraw from the research. Consenting or not consenting to participating in research that will contribute to archived course data will have no consequences for my experience as a student in SDS 3340. All my answers to the questions will be kept confidential. Once entered into the archival database, all identifying information will be removed from the data; my name will not appear on any of the research results. No individual responses will be reported in research publications. Only group findings will be reported. My confidentiality will be protected to the full extent allowed by law.

I understand there is a possibility of a minimal level of risk involved if I agree to use of my archived data. The usual course procedures involve questionnaires on career concerns, career decision making, and I might experience distress or anxiety while being asked about my career situation. Career course instructors and career counseling staff members are available to talk with me about any emotional discomfort I may experience while answering these questions. I understand that Career Center, Danlap Success Center and the University Counseling Center resources are available to me in the event that I experience any anxiety or emotional discomfort. I understand that I am able to stop my participation at any time I wish.

I understand that I will receive no personal benefits from participation in this research, but that there may be societal benefits for participating, in that our understanding of factors and personal characteristics that affect career decision making may be enhanced.

I affirm that I am 18 years of age, or older.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Dr. Janet Lenz, Florida State University, Department of Educational Psychology and Learning Systems, Mail Code 4162, (850) 644-9547, jlenz@fsu.edu, for answers to questions about this research or my rights. Group results will be sent to me upon my request.

I understand that if I have any questions about my rights as a participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

I have read and understand this consent form.

__________________________________________ (Signature)

__________________________________________ (Date)

FSU Human Subjects Committee approved on 09/18/2017. Void after 09/17/2018. HSC # 2017-21658
APPENDIX C

CAREER STATE INVENTORY (FOLLOW-UP FORM)

Career State Inventory (CSI)*
Research Version 7.0
Florida State University

Stephen J. Leierer, PhD; Gary W. Peterson, PhD; Robert C. Reardon, PhD; Debra S. Osborn, PhD

Name __________________________________________ Date ____________

1. List all occupations you are considering right now.

________________________________________________________________

________________________________________________________________

________________________________________________________________

Which occupation is your first choice? If undecided, write “undecided.”

________________________________________________________________

CER (1 – 4)

2. How well satisfied are you with your responses to No. 1 above? Place a check next to the appropriate statement below:

_____ Very satisfied
_____ Satisfied
_____ Not sure
_____ Dissatisfied
_____ Very dissatisfied

SAT (1 – 5)

3. Please circle True (T) or False (F) to the statements below

a. T F If I had to make an occupational choice right now, I’m afraid I would make a bad choice.

b. T F Making up my mind about a career has been a long and difficult problem for me.

c. T F I am confused about the whole problem of deciding on a career.

CLA (0 – 3)

TOT (2 – 12)

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APPENDIX D

IRB APPROVAL NOTIFICATION

The Florida State University
Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 9/19/2017

To: Adam Miller

Address: 100 S. Woodward Avenue, Tallahassee, FL 32304
Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
THE IMPACT OF A CAREER COURSE ON UNDERGRADUATE STUDENTS’ CAREER DECISION STATE AS A FUNCTION OF NEGATIVE CAREER THOUGHTS

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and one member of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 9/17/2018 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol
change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is FWA00000168/IRB number IRB00000446.

Cc: Debra Osborn, Advisor
HSC No. 2017.21658
REFERENCES


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BIOGRAPHICAL SKETCH
ADAM K. MILLER

EDUCATION
Florida State University (FSU), Tallahassee, FL Anticipated August 2019
Doctor of Philosophy in Counseling Psychology and Human Systems
Combined Doctoral Program in Counseling Psychology and School Psychology
Concentration in Counseling Psychology (APA-Accredited)
Overall GPA: 3.952
Major Professors: James P. Sampson, Ph.D. and Debra Osborn, Ph.D.
Legacy Fellowship (2014-2019)
Dissertation Title: The Impact of a Career Course on Undergraduate Students’ Career Decision State as a Function of Negative Career Thoughts

Boston College, Chestnut Hill, MA May 2014
Master of Arts in Mental Health Counseling
Overall GPA: 3.91

Indiana University, Bloomington, IN May 2011
Bachelor of Science in Psychology
Minor in Biology
Overall GPA: 3.73 (Graduated with Distinction)

CERTIFICATIONS
Social Justice Ally Training (SJAT), Florida State University December 2016

CLINICAL PRACTICUM EXPERIENCE
University of South Florida Counseling Center, Tampa, FL August 2018-Present
Doctoral Intern
Supervisor: Nick Joyce, Ph.D., Lashley Marks, Psy.D.
- Deliver individual, theory-driven and evidence-based counseling services to college students in a brief therapeutic model of counseling for a wide variety of issues including stress management, identity development, adjustment, interpersonal relationships, conflict management, anxiety, and depression
- Provide weekly individual counseling services to a diverse case-load of 20-30 clients
- Co-facilitated a weekly “Understanding Self and Others” graduate student group, and will co-facilitate a men’s processing group during the spring semester
- Conduct regular intake assessments with clients to inform comprehensive treatment planning
- Provide on-call services to assess student risk and recommend appropriate services and resources
- Develop individualized treatment plans for clients based on presenting concerns, background information, and multicultural considerations with a focus on short-term and long-term goals
- Incorporate psychological assessments to inform treatment, such as the MMPI-2, TSI-2, WASI, and other projective and objective assessments
- Consult and collaborate with Campus Recreation to organize initiative to assess and address psychological factors impacting the use of recreational services in first-year college students
- Led an outreach presentation to educate members of a Campus Recreation leadership team on ways of identifying and addressing procrastination behaviors
- Receive weekly individual and group supervision, as well as attend weekly seminars in assessment, consultation, diversity, supervision of supervision, and evidence-based treatment

**FSU University Counseling Center**, Tallahassee, FL  
*Doctoral Practicum Counselor*  
Supervisor: Annette Peters, Ph.D.
- Provided weekly counseling services to a case-load of 12 clients
- Delivered individual, theory-driven and evidence-based counseling services to college students
- Conducted regular intake assessments with clients to inform more holistic treatment plan development
- Developed individualized treatment plans for clients based on presenting concerns and background information, with a focus on short-term goals and long-term goals
- Conducted triage and observed crisis counseling sessions
- Wrote case notes using the SOAP note format
- Incorporated psychological assessments to inform treatment, such as the MMPI-2, RISB, and EDI
- Received weekly individual and group supervision, involving review of recorded counseling sessions and case notes
- Participated in large campus-wide outreach events such as Stress Buster, as well as presentations to various student groups on topics such as stress management

**Adult Learning and Evaluation Center**, Tallahassee, FL  
*ADHD Coach*  
Supervisor: Nicki Taylor, Ph.D.
- Provided weekly coaching services to 3-5 undergraduate and graduate students with Attention Deficit/Hyperactivity Disorder and other presenting problems (general anxiety, test anxiety, depression)
- Worked with clients to improve executive functioning skills (e.g., time management, organization, academic performance) while also processing the role of negative thinking in creating barriers to addressing such concerns
- Assisted clients to develop and monitor personal goals and weekly objectives
- Collaborated with clients to develop strategies to overcome any obstacles or barriers to achieving goals
Group Counseling: Theory and Practice (*MHS 5511*), Tallahassee, FL  May 2016-June 2016  
**Group Leader**  
Supervisor: Martin Swanbrow-Becker, Ph.D.  
- Facilitated 10 Weekly, 1.5-hour long laboratory sessions for 5 masters-level graduate students in school psychology, and sports psychology  
- Led members in group counseling skill building, and group counseling theory development  
- Attended weekly supervision sessions and completed weekly progress notes  

Human Services Center, Tallahassee, FL  January 2015-May 2015  
**Practicum Trainee**  
Supervisor: Martin Swanbrow-Becker, Ph.D.  
- Conducted outpatient psychotherapy with adults, college students, and adolescents from the Tallahassee community  
- Maintained a weekly caseload of two clients, consisting of both individual and family counseling sessions  
- Conducted intakes, formulated case conceptualizations, formed diagnostic impressions, developed individualized and comprehensive treatment plans, and recorded case notes  
- Engaged in individual and group supervision on a weekly basis  
- Observed other colleagues’ using one-way glass mirrors to provide feedback and discussed alternative therapeutic techniques and approaches  
- Provided therapeutic interventions for clients presenting with a variety of mental health and contextual concerns, including but not limited to depression, anxiety, and relational and work difficulties  

The Academy of Physical and Social Development, Newton, MA  September 2013-May 2014  
**Counseling Intern**  
*Approximately 20 hours/week, including 1 hour of individual supervision, 1 hour of group supervision and 9 hours of direct contact (approximately 800 hour internship)*  
- Developed clinical skills counseling 4 groups of as many as 7 children presenting with developmental delays in social, emotional and physical skills  
- Counseled children diagnosed with Autism Spectrum Disorder, Pervasive Developmental Disorder, Attention Deficit Hyperactive Disorder, Adjustment and Anxiety Disorders  
- Administered treatment in skill building through interactive games and activities  

Watertown Middle School, Watertown, MA  September 2013-May 2014  
**Counseling Intern**  
- Developed clinical skills through counseling 5 students individually and an Anxiety and Attention-based group of 4 students  
- Gained experience practicing clinical skills and counseling in a school setting  
- Counseled students in a milieu and group setting in classes directed towards students with behavioral and anxiety based presenting issues
ASSESSMENT EXPERIENCE

Practice of Drs. Robert and Suzonne Kline, Tallahassee, FL May 2017-August 2017
Clinical Practicum Trainee
Supervisor: Robert Kline, PsyD.
• Performed intellectual, achievement, and memory testing with clients referred by various government agencies to determine eligibility for disability benefits
• Administered and scored assessments to individuals ranging from children to older adults

Psychological Center for Growth and Development, Thomasville, GA August 2016-December 2016
Practicum Trainee
Supervisor: Joseph Garmon, Ph.D.
• Assessed adults, adolescents, and children for cognitive/intellectual deficits as part of Social Security and Vocational Rehabilitation Evaluations
• Evaluated adults, adolescents, and children for private psychological evaluations including psychosexual, neurological, autism, and pre-surgical evaluations
• Counseled a weekly client in rural private practice setting
• Wrote case notes in an electronic note-taking system and attended weekly supervision sessions

Tallahassee Memorial Behavioral Health Clinic (TMBHC), Tallahassee, FL September 2015-May 2016
Practicum Assessment Trainee (Tallahassee Memorial Hospital)
Supervisor: Larry Kubiak, Ph.D.
• Performed clinical interview, assessed for suicide risk and abuse, and administered assessments
• Interpreted assessment results, reviewed interview data, and consulted with supervising psychologist to formulate DSM-V (ICD-10) diagnostic impressions
• Wrote comprehensive psychological reports
• Administered assessments, including WASI-II, MMPI-2, MMPI-A, BDI, and BAI
• Recommended interventions and services to in-patient clients ranging from adolescents to adults

CAREER DEVELOPMENT EXPERIENCE

FSU Career Center, Tallahassee, FL August 2014-May 2018
Career Advisor
Supervisor: Casey Dozier, Ph.D. and Erica Stallings, M.Ed.
• Provided brief-staff assistance to students, alumni, and community individuals in career planning and the process of career decision making using cognitive information processing (CIP) theory on a drop-in basis
• Created Individual Learning Plans (ILP) with clients and helped locate career and educational planning resources
• Assisted clients with professional and career development strategies, locating job and internship options, and advised clients on a variety of topics related to career development and employment
• Evaluated and screened for need of particular career assessments and referrals to use with clients
• Administered, scored, and interpreted print and computer career assessment tools, such as the Career Thoughts Inventory (CTI), Self-Directed Search (SDS), computer-assisted career guidance systems (CACGS), and card sorts
• Participated in activities and outreach events related to career development
• Critiqued and developed student resumes at FSU in preparation for job and internship applications
• Facilitated exploration for college students and community members of differing cultural backgrounds in preparation for career decision-making and problem solving
• Participated in Career Center’s Diversity & Inclusion Task Force to assess the degree of multicultural integration at career service centers in universities across the country

Department of Educational Psychology and Learning Systems, Tallahassee, FL January 2016-May 2018
Research Team Member
Supervisor: Debra Osborn, Ph.D.
• Critiqued and provided feedback on prospective research publications for various professional journals
• Collaborated with research team on article development, goal setting, and publications
• Inputted data to career development research archive for dissertation, thesis, and general research work
• Attended bi-weekly meetings to discuss writing objectives, and strategies for writing and research

FSU Career Center, Tallahassee FL August 2016-May 2018
Student Supervisor
• Supervised 4 masters-level career counseling students during their first career counseling experience
• Provided feedback on resume, cover letter, and personal letter writing
• Assisted supervisees in developing conceptualization, professional etiquette, assessment administration, and ethical problem-solving skills

Department of Educational Psychology and Learning Systems, Tallahassee, FL August 2015-May 2017
Research Assistant
Supervisor: Jim Sampson, Ph.D.
• Prepared literature review for manuscript submission
• Reorganized content for Tech Center website
• Updated bibliography of research and other publications related to CIP theory for Tech Center website
• Beta-tested Faculty Expertise and Advancement System (FEAS) and Faculty Project Planner (FPP) for bugs and glitches
FSU Career Center, Tallahassee, FL  
Practicum Trainee  
September 2015-May 2016  
Supervisor: Jeffrey Garis, Ph.D. and Debra Osborn, Ph.D.

- Conducted weekly individual career counseling with college students, alumni, and community members
- Maintained a weekly caseload of three clients, integrating mental health and career interventions
- Engaged in weekly hour-long group supervision with fellow doctoral students and licensed psychologist
- Administered a variety of assessments, including the MMPI-2, Strong Interest Inventory, and the Self-Directed Search, as well as occupational card sorts
- Conceptualized cases, created individualized treatment plans, performed case presentations, and maintained case files

TEACHING EXPERIENCE

Introduction to Career Development-Undergraduate (SDS 3340)  
Florida State University, Tallahassee, FL  
Lead Instructor  
May 2016-May 2017; May 2018-June 2018

- Served as instructor of record for an undergraduate career course of approximately 30 students on topics including self-knowledge, career exploration, career decision making, social conditions affecting career development, and implementing a strategic career plan
- Supervised and directed 3 co-instructors in preparing and presenting lectures, evaluating students’ assignments, and maintaining grade data

Co-Instructor  
January 2015-May 2016

- Co-taught 3-credit hour career planning course to a class of approximately 30 undergraduate students on topics including self-knowledge, career exploration, career decision making, social conditions affecting career development, and implementing a strategic career plan
- Facilitated a group of eight students and serve as primary contact person for each student
- Graded and provide feedback on assignments, evaluate class performance, and assist students with questions related to assignments and other course activities

Foundations of Career Development (MHS 5340)  
Florida State University, Tallahassee, FL  
Teaching Assistant (TA)  
August 2017-December 2017

- Served as TA for a masters and doctoral level career course of approximately 30 students on topics including career development and services theories, ethics in career services, working with special populations
- Conducted lectures on career theory, ethics, and multicultural concerns in career counseling
- Uploaded and organized course content, and created tests and quizzes on online course platform (Canvas)
- Served as contact point for students for addressing questions and concerns regarding the course
- Graded quizzes, exams, papers, and assignments of all master’s students
SUPERVISOR EXPERIENCE

Human Services Center (FSU), Tallahassee, FL

Student Supervisor

- Supervised 6 masters-level mental health counseling students during their first clinical experience
- Coordinated and ran weekly 1-hour group supervision sessions, consisting of three students
- Supervised one doctoral-level counseling psychology student regarding client cases during first clinical experience
- Read and edited documentation (case notes, intake reports) for supervisees
- Reviewed videos of supervisee’s sessions and provided constructive feedback
- Attended weekly supervision sessions run by HSC Coordinator that discussed work with supervisees and strategies for supervising

RESEARCH EXPERIENCE

ITEST Project, Chestnut Hill, MA

Research Team Member
Supervisor: David L. Blustein, Ph.D.

* A qualitative study on the effect of Innovative Technology Experiences for Teachers and Students (ITEST) program on interest in STEM careers
- Collected data of adolescent students taking part in program
- Generated and developed interview materials for qualitative data collection
- Interviewed current students new to the program regarding future career aspirations

Working Project, Chestnut Hill, MA

Research Assistant
Principal Investigator: David L. Blustein, Ph.D.

* A qualitative-narrative look at the lives of workers
- Transcribed and coded interviews regarding personal experience and perspectives of work
- Assisted in the development of interview questions regarding experience and perspectives of work

Gay-Straight Alliance Student Survey, Chestnut Hill, MA

Research Team Member
Principal Investigator: Paul Poteat, Ph.D.

* A quantitative study on individual experiences within Gay-Straight Alliances in High School
- Developed survey questions regarding experiences of students in GSAs to be implemented in research project
- Engaged in literature review of empirically supported measurement scales for survey development

WORK EXPERIENCE

Graduate Education Association, Chestnut Hill, MA

Academic Committee Co-Chair

- Facilitated academic and professional development of Lynch School of Education master’s students through creating events such as Resume and Cover Letters for Education Students, Resources for Graduate Students, and The Research Forum
• Connected students to Faculty and LSOE as the GEA, student representative of the Mental Health Counseling program

VOLUNTEER AND ORGANIZATIONAL EXPERIENCE

Diversity & Inclusion Committee (FSU Career Center), Tallahassee, FL January 2015-May 2018

Committee Member
• Collected and interpreted data from 25 university career centers to evaluate diversity and inclusivity emphasis on career center websites
• Collaborated with committee members to identify, develop and organize career resources geared toward students and community members of diverse backgrounds
• Attended regular meetings to discuss and brainstorm ways to enhance diversity and inclusion within the career center

Graduate Education Association, Chestnut Hill, MA August 2012-May 2013

Academic Committee Volunteer
• Assisted Chairs in development and advertising of events for graduate students of the Lynch School of Education
• Planned and coordinated events including *The Do’s and Don’ts of Publishing*, Resume Writing Workshop, *Tips for Getting Through Finals Week*, and *The Research Forum*

Alpha Phi Omega, Bloomington, IN September 2009-May 2011

Chair, Middle Way House
• Led 20 undergraduate volunteers helping and interacting at after school program of 40 children 2-3 days a week for mothers and children escaping domestic violence
• Guided and organized activities, general playing and grouping of children and volunteers
• Created program that focused on tutoring of children in an afterschool setting

Fairview Elementary School, Bloomington, IN January 2011-May 2011

Volunteer August 2007-May 2008
• Facilitated interaction between students between the ages of 6-12
• Supervised as many as 12 children at one time
• Directed children in the homework and group activities (1-3 students at a time)
• Guided children in Environmental Biology experiments in a fun, age appropriate way, including learning about soil differences, plant growth and nutrition, etc.

PUBLICATIONS


**NONREFEREED REPORTS**


**PROFESSIONAL PRESENTATIONS**


Sides, R., & Miller, A. K. (2017, June). *Becoming positive after not making the cut: Cultural considerations when advising professional baseball athletes*. Presentation at the National Career Development Association Global Conference, Orlando, FL. (National)


PRESENTED WORKSHOPS FOR THE CAREER CENTER
Interviewing
Resume Writing
Choosing a Major
Job Search Strategies
Professional Etiquette

HONORS AND AWARDS
Legacy Fellowship, Florida State University 2014-2019
Rand Fellow, Florida State University, Career Center 2018
Career Advisor Graduate Assistantship, Florida State University 2014
Counseling Psychology Award, Boston College 2012, 2013
Psi Chi Psychology Honors Society, Indiana University Bloomington 2010

PROFESSIONAL AFFILIATIONS
Society of Counseling Psychology, APA Division 17, Member 2016-Present
NCDA’s Diversity Initiatives & Cultural Inclusion Committee, Member 2015-2016
National Career Development Association, Member 2014-Present
American Psychological Association, Student Affiliate 2013-Present
Society for Vocational Psychology, Student Member 2013-Present
Alpha Phi Omega, Indiana University Bloomington 2009-2011