

THE EFFECTS OF A COGNITIVE INFORMATION PROCESSING CAREER
INTERVENTION ON THE DYSFUNCTIONAL CAREER THOUGHTS, LOCUS OF
CONTROL, AND CAREER DECISION SELF-EFFICACY OF UNDERPREPARED
COLLEGE STUDENTS

by

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B. A., University of Kentucky, 1993

M. R. C., University of Kentucky, 1995

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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Department of Special Education, Counseling, and Student Affairs

College of Education

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Abstract

This study investigated the impact of a seven-session career intervention in a First Year Experience course on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. The career intervention was based on the cognitive information processing approach to career decision making (Peterson, Sampson, & Reardon, 1991; Peterson, Sampson, Reardon, & Lenz, 1996; Reardon, Lenz, Sampson, & Peterson, 2000; Sampson, Reardon, Peterson, & Lenz, 2004) and utilized the CTI workbook (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b). Participants in the study were full-time freshmen enrolled in remedial academic courses at a small, open-enrollment institution.

The study was a Nonequivalent Control Group design with delayed posttest. Ten hypotheses were identified and tested. The Career Thoughts Inventory, the Rotter IE Scale, and the Career Decision Self-Efficacy-Short Form were administered at pretest, posttest, and delayed posttest. ANCOVA was used to analyze differences between the mean scores by group for each of the dependent variables. In addition, dependent *t*-tests were used to examine the differences between the mean scores within group for each of the dependent variables.

Results of this study indicated that underprepared students who participated in the career intervention significantly improved dysfunctional career thoughts on all variables from pretest to posttest. Further, improvement in dysfunctional career thoughts was maintained four weeks after the intervention. Significant differences were also found at posttest between the treatment and control groups for CTI Total and

Decision-Making Confusion. In addition, a significant positive correlation was found between dysfunctional career thinking and locus of control, indicating the participants with higher levels of dysfunctional career thoughts also had a more external locus of control.

Locus of control was not significantly different from pretest to posttest in the treatment group; however, locus of control did become more internal following the intervention. At delayed posttest, locus of control of the treatment group was not significantly different from Rotter's (1966) normative sample while the control group continued to be significantly more external than the normative sample. While career decision self-efficacy was not significantly different from pretest to posttest, students' scores indicated confidence in their ability to perform career tasks.

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Approved by:

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Dedication

This work is dedicated to my family. I love you all very much. To my husband, Scott, and the boys, Gabe, Mason, and Carter, you were patient through long nights and weekends of “homework” and always believed I could accomplish this. To my parents, David and Flo Howard, you have always been my bedrock and I never would have gotten to this point without you. Also, to my sisters, Lori and Dev, thanks for always believing I could do it. And finally, I want to express my deep gratitude to my mother- and father-in-law, Gloria and Harold Henderson. Without you as editor, chauffeur, and cheering section, it would have been a much greater struggle to persevere.

CHAPTER 1 - INTRODUCTION

The ability to formulate clear and effective decisions, particularly career decisions, is an essential skill in all aspects of an individual's life. According to the National Career Development Association (NCDA, 2000), careers are “formulated by the continuous evaluation of personal goals and the perception, assessment, and decisions regarding opportunities to achieve those goals” (p. 6). In addition to decision making about personal goals, Super (1980) suggested career encompasses the “combination and sequence of roles played by a person during the course of a lifetime” (p. 282), including work, family, leisure, learning, and citizenship.

Because of changes in the world of work and the more frequent occurrence of job changes over a person's work life, counselors and clients find it necessary to address the concept of having one lifelong career (Engels, 1994). Therefore, “career development has moved from emphasis only on fitting a person into the labor market to career development over the lifespan . . . from compartmentalizing human beings to helping them become whole persons by integrating the totality of their many life roles and experiences” (NCDA, 2000, p. 11). Career development is “the total constellation of psychological, sociological, educational, physical, economic, and chance factors that combine to influence the nature and significance of work” of any individual over the lifespan (Sears, 1982, p. 139).

Various authors have stressed the importance for young people to develop good career decision-making skills (Fouad, 1997; Gysbers, 1997; Magnuson & Starr,

2000; Schulthesis, 2005; Zunker, 1994). Zunker (1994) noted the need for development of career decision-making skills by insisting that one of the primary purposes of career life planning is to develop skills that assist individuals in learning to control their futures. Peterson, Sampson, Reardon, and Lenz (1996) defined career decision-making as the “thought processes by which an individual integrates self-knowledge and occupational knowledge to arrive at an occupational choice” (p. 426).

Those thought processes are refined by the experiences students encounter along the way. Krumboltz (1979) noted that career decision-making skills are developed as a result of learning experiences. New learning experiences are chosen and subsequent choices made based on the experiences a person undergoes. In addition, research has shown that locus of control is amenable to change through interventions that supply new learning experiences (Bartsch & Hackett, 1978; Broley, 1986; Lebedina-Manzoni, 2004; Mattick & Peters, 1988). While the need for facilitating early career development interventions is widely accepted (Gottfredson, 1981, 1996; Herr & Cramer, 1996; Hughey & Hughey, 1999; Magnuson & Starr, 2000), many underprepared students lack sufficient learning experiences and are often behind their peers in career development as well as in academic areas (Arbona, 2005; Jackson & Healy, 1996; Peterson, 1993; Peterson & del Mas, 1998).

According to Hughey and Hughey (1999), the decreased levels of job security, the increased levels of competition, the increased rate of change, and the increased use of technology make preparing students for the future essential. Research indicates that 50% or more of all college students have career-related

issues (Gordon, 1982; Gray & Herr, 2006; Healy & Reilly, 1989; Kramer, Higley, & Olsen, 1994; Theophilides, Terenzini, & Lorang, 1984; Titley & Titley, 1980).

Approximately 75% of college students change their major at least once, and these changes may increase the time students need to graduate as well as the cost for the students and for the institution (Kramer et al., 1994; Peterson & del Mas, 2002; Titley & Titley, 1980). Peng (2001) noted that colleges and universities have a career education responsibility and that career education is an integral and interactive part of higher education, particularly with the current landscape of the labor market. Career interventions have often been used in the college setting to fill the need for career education.

Career interventions designed “to enhance a person’s career development or to enable that person to make more effective career decisions” (Spokane, 1991, p. 22) can be very helpful for individuals struggling to make effective career decisions (Jurgens, 2000). Career interventions have been shown to be effective in enhancing internal locus of control (Bartsch & Hackett, 1978; Broley, 1986; Luzzo, Funk, & Strang, 1996), career decidedness (Jurgens, 2000; Mitchell & Krumboltz, 1987), career decision-making self-efficacy (Foltz & Luzzo, 1998; Reece & Miller, 2006; Scott & Ciani, 2008), and career decision-making skills (Peterson, Sampson, & Reardon, 1991; Peterson et al., 1996; Sampson, Lenz, Reardon, & Peterson, 1999) while helping individuals reduce negative career thoughts (Austin, Dahl, & Wagner, 2003; Osborn, Howard, & Leierer, 2007; Reed, Lenz, Reardon, & Leierer, 2000). In addition, research suggests that a career course that uses the Cognitive Information Processing approach may have a positive impact on retention and on student

efficiency at pursuing educational degrees (Folsom, Peterson, Reardon, & Mann, 2001; Folsom & Reardon, 2003).

Although the number of students pursuing educational degrees at postsecondary institutions continues to increase, students are often unprepared for the rigors of higher education (ACT, 2007; Grimes & David, 1999; Roueche & Roueche, 1993). Many arrive at postsecondary institutions unprepared academically and psychologically for the challenges and obstacles they may face (Brewer & Landers, 2005; Gray & Herr, 2006; Roueche & Roueche, 1993). According to the National Center for Educational Statistics (U.S. Department of Education, 2003), 42% of freshmen at public two-year colleges enrolled in at least one remedial reading, writing, or mathematics course in Fall 2000 while 28% of entering freshmen at U.S. degree granting institutions enrolled in at least one remedial course (U.S. Department of Education, NCES, 2003). Statistics from the University System of Georgia reflect the national trend. Approximately 24% of freshmen attending Georgia state-supported postsecondary institutions enrolled in at least one remedial class, while the percentage of freshmen required to take at least one remedial course at Gordon College was 54.7% (Board of Regents of the University System of Georgia, 2007).

In the United States, approximately one-fifth to one-quarter of incoming freshmen are from low income backgrounds, one-third are minority students, and 35 to 40 percent are the first in their families to attend college (Horn & Nevill, 2006; Kojaku & Nunez, 1998; NCES, 1996). These students are often less prepared

academically and socially to attend college and are more prone to drop out (Grimes & David, 1999; Grunder & Hellmich, 1996; Pascarella & Terenzini, 1991, 2005).

These at-risk students are more likely to have a pattern of unsuccessful academic attempts in their history and are less likely to persist in the face of failure (Luzzo, 1996; Pascarella & Terenzini, 1991; Stage & Williams, 1988). In contrast, early and frequent experiences with success greatly reduce the chances of students dropping out and offset the effects of failure (Pascarella & Terenzini, 2005; Tinto, 2008). Students who believe college will provide better employment and career opportunities are also more likely to persist in their college careers (Peterson & Del Mas, 2002).

Nunn and Parish (1992) found that at-risk students have more of an external locus of control (Rotter, 1966), feeling that their efforts do not significantly impact their success or failure. Students with an external locus of control are likely to experience cognitive, motivational, and affective deficits that result in a lack of effort (Perry & Penner, 1990). Conversely, internal locus of control has been positively correlated with effective study habits and college academic success (Gifford, Briceno-Perriott, & Mianzo, 2006; Grimes, 1997; Pascarella & Terenzini, 2005; Prociuk & Breen, 1974). College students who have an internal locus of control are more likely to possess attitudes and skills that indicate higher levels of vocational decidedness (Blustein, 1987; Taylor, 1982), career exploration behavior (Luzzo, 1996), career decision-making self-efficacy (Enright, Conyers & Szymanski, 1996; Luzzo et al., 1996; Luzzo, Hitchings, Retish, & Shoemaker, 1999; Niles & Sowa, 1992), and career maturity (Luzzo, 1993, 1995) than are students with an external

locus of control. Although a generalized expectancy of control beliefs may be relatively stable over time, “changing circumstances and continual appraisals by the individual will most likely influence beliefs about locus of control, particularly in specific situations” (Marks, 1998, p. 257), and thus may be influenced by intervention.

Need for the Study

Many higher educational institutions are faced with a daunting task of helping underprepared students develop the skills and attitudes necessary to successfully complete their educational and career goals. The development of career decision-making skills is an important aspect of the overall college experience for these students, especially in light of research that shows students are more motivated and perform better when they see a relationship between their goals and the academic classes they are required to complete (Hitchings & Retish, 2000; Pascarella & Terenzini, 2005; Peterson & del Mas, 2002; Stage & Williams, 1988). In addition, enhancing career decision-making skills will help students develop a process that allows them to recognize a problem, research and analyze options, and come to reasonable solutions to issues that arise in their career development (Kramer et al., 1994; Peterson et al., 1991; Peterson et al., 1996; Sampson et al., 1999).

Beyond the need to problem solve effectively is the need to recognize the extent that effort and belief in personal control have on successful career decision making (Lease, 2004; Luzzo, 1996; Peterson & del Mas, 2002). Other than Osborn et al. (2007), no research has been completed to explore the impact of a career intervention on underprepared college students. Furthermore, Sampson, Peterson,

Lenz, Reardon, and Saunders (1996c) recommended that future research investigate the possible relationship between dysfunctional career thinking and locus of control, but despite an intuitive connection, no previous research has explored that relationship. In addition, no previous research has investigated whether *Improving Your Career Thoughts: A Workbook* (the CTI Workbook) (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996b) can create positive changes in students' locus of control. Increasing students' awareness of the relationship between their career goals and the academic classes they are required to complete helps them to be more motivated and to perform better (Hitchings & Retish, 2000; Pascarella & Terenzini, 2005; Peterson & del Mas, 2002; Stage & Williams, 1988), both critical goals in light of the number of at-risk and underprepared students attending U.S. higher educational institutions.

Research shows underprepared students have a lower course completion rate, greater attrition, more test anxiety, and a more external locus of control (Grimes, 1997). They often lag in career development (Peterson, 1998; Peterson & del Mas, 2002) and have lower career decision self-efficacy (Peterson, 1993). These underprepared students also frequently have unrealistic goals based on the desire for instant gratification (Bulger & Watson, 2006) instead of informed and thoughtful career decision making. It is important for postsecondary institutions to engage these underprepared students in career interventions that give them the means to challenge their dysfunctional career thoughts, to actively pursue their own career development, and to raise awareness of their own personal control.

Theoretically-based research is needed to explore the impact of a career intervention focusing on underprepared college students, particularly as this population continues to grow in higher education. Furthermore, a review of the literature did not uncover research that utilized the CTI Workbook (Sampson, et al., 1996b) with underprepared college students. In addition, dysfunctional career thoughts (Osborn, et al., 2007), external locus of control (Gifford et al., 2006; Grimes, 1997), and low career decision self-efficacy (Peterson, 1993; Peterson & del Mas, 2002) were found to be problematic for underprepared students.

Purpose of the Study

The purpose of this study was to explore the impact of a career intervention in a First Year Experience course on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. The career intervention utilized the CTI workbook (Sampson et al., 1996b) and was based on the CIP approach to career decision making (Peterson et al., 1991; Peterson et al., 1996; Reardon, Lenz, Sampson, & Peterson, 2000; Sampson, Reardon, Peterson, & Lenz, 2004).

A second purpose of the study was to investigate the relationship between locus of control and dysfunctional career thinking. Studies have shown that vocationally undecided college students were significantly more external in their locus of control (Cellini & Kantorowski, 1984; Fuqua, Blum, & Hartman, 1988; Taylor, 1982). In addition, dysfunctional career thoughts, as measured by the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, & Reardon, 1996a), were “consistently inversely correlated with positive constructs (e.g., vocational identity,

certainty, and knowledge about occupations and training) and directly correlated with indecision” (Sampson et al., 1996c, p. 59).

The third purpose was to compare the levels of dysfunctional career thoughts, locus of control, and career decision self-efficacy of members of the treatment group with those of a control group. Studies have found that cognitive restructuring activities can enhance locus of control (Lebedina-Manzoni, 2004; Mattick & Peters, 1988; Serfaty, Turkington, Heap, Ledsham, & Jolley, 1999). In addition, Reed et al. (2000), Austin et al. (2003), and Osborn et al. (2007) found significant changes in levels of dysfunctional thoughts within the treatment group; however, no control groups were used. Studies investigating the results of career interventions on locus of control, with the exception of Williamson (1979), have had significant results (Bartsch & Hackett, 1978; Broley, 1986; Luzzo et al., 1996); but they also used a within subjects design, and no data were available for control groups. Similarly, control groups were not used in studies investigating the results of career interventions on career decision self-efficacy (Fukuyama, Probert, Neimeyer, Nevill, & Metzler, 1988; Luzzo et al., 1996).

A fourth purpose of the study was to assess the impact of the career intervention over time. Locus of control has been shown to be amenable to change (Bartsch & Hackett, 1978; Broley, 1986; Luzzo et al., 1996), as have dysfunctional career thoughts (Austin et al., 2003; Osborn et al., 2007; Reed et al., 2000) and career decision self-efficacy (Fukuyama et al., 1988; Luzzo & Day, 1999; Luzzo et al., 1996). While Werner (2003) found that levels of dysfunctional career thoughts were sustained over time, the intervention in that study did not provide a significant

change in dysfunctional career thinking from pretest to posttest. Therefore, it remained to be seen if a significant change in locus of control, career decision self-efficacy, or dysfunctional career thoughts would be sustained over time.

Research Questions

The research questions addressed by this study were as follows:

1. Will there be a positive correlation between levels of dysfunctional career thoughts and locus of control?
2. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) decrease in underprepared college students of the treatment group from pretest to posttest?
3. Will locus of control of the underprepared college students in the treatment group become more internal from pretest to posttest?
4. Will the career decision self-efficacy of underprepared college students in the treatment group increase from pretest to posttest?
5. Will the treatment group experience lower levels in dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) than the control group following the career intervention?
6. Will locus of control of the treatment group be more internal than that of the control group at posttest?
7. Will the career decision self-efficacy of the treatment group be higher than that of the control group at posttest?

8. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) be maintained in the treatment group from posttest to delayed posttest four weeks later?
9. Will locus of control be maintained in the treatment group from posttest to delayed posttest four weeks later?
10. Will career decision self-efficacy be maintained in the treatment group from posttest to delayed posttest four weeks later?

Definitions of Terms

1. *Underprepared.* An underprepared student is one who has been determined to be academically at risk. Underprepared students are commonly described as those students most vulnerable for attrition because of a lack of academic or social preparation for college (Milliron, 2002). Students in this study were determined to be academically underprepared for college level courses. They were full-time students who were required to take three remedial courses because they did not achieve minimum scores on the three sections of the placement exam, the Computer-Adaptive Placement Assessment and Support System (COMPASS; ACT, 2003).

The COMPASS is a computerized placement exam that assesses reading, writing, and math skills. The COMPASS was chosen by the Georgia Board of Regents as an assessment tool used to determine a student's level of preparation for college-level courses. Minimum scores to

avoid placement in remedial classes are 78 on the Reading, 65 on the writing, and 42 on the math.

The verbal section of the COMPASS is required for students with college preparatory curriculum deficiency in English and for students who do not have an SAT verbal score of 430 or higher or an English ACT score of 17 or higher. The mathematics section of the COMPASS is required for students with a college preparatory curriculum deficiency in mathematics and for students who do not have an SAT math score of 400 or higher or a Math ACT score of 17 or higher.

2. *Dysfunctional Career Thoughts.* Dysfunctional career thoughts are manifested in a person's negative misconceptions, self-defeating assumptions, self-defeating behavior, myths, private rules, self-defeating statements, irrational expectations, dysfunctional cognitions, or dysfunctional career beliefs (Sampson et al., 1996c). Dysfunctional career thinking reveals itself through behavior, emotions, and verbal expression. Sampson et al. (2004) noted that dysfunctional career thinking could not be measured directly; however, they stated, "it can be inferred from an individual's endorsement of statements (test items), reflecting a variety of dysfunctional career thoughts" (p. 91). The Career Thoughts Inventory (CTI; Sampson et al., 1996a) will be used to assess dysfunctional career thinking. Scores on the CTI include a Total Score and scores on each of the following construct scales: Decision-Making Confusion (DMC),

Commitment Anxiety (CA), and External Conflict (EC). Higher scores indicate more dysfunctional career thoughts.

The Decision-Making Confusion scale “reflects an individual’s inability to initiate or sustain the decision-making process as a result of disabling emotions and/or a lack of understanding about the decision-making process itself” (Sampson et al., 2004, p. 92). The Commitment Anxiety scale “reflects an individual’s inability to make a commitment to a specific career choice, accompanied by generalized anxiety about the outcome of the decision-making process” (p. 92), and the anxiety tends to perpetuate the indecision. The External Conflict scale “reflects an individual’s inability to balance the importance of self-perceptions with the importance of input from significant others, resulting in a reluctance to assume responsibility for decision making” (p. 92).

3. *Locus of Control*. Locus of control is the core construct in Rotter’s (1966) social learning theory and is described as a generalized expectancy of the degree to which an individual believes that events in one’s life are the consequences of one’s behavior, versus a belief that events are outside one’s control. Rotter’s (1990) theoretically driven definition explains locus of control of reinforcement as

the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons

expect the reinforcement is a function of chance, luck or fate, is under the control of powerful others, or is simply unpredictable. (p. 489)

Locus of control was assessed using Rotter's (1966) Internal Versus External Control Scale (IE Scale), with higher scores indicating an external locus of control.

4. *Career Decision Self-Efficacy*. Career decision self-efficacy was developed from Bandura's (1977) social cognitive theory and Crites' (Crites, 1978; Crites & Savickas, 1996) career maturity model. Taylor and Betz (1983) described career decision self-efficacy as one's belief that one can successfully complete the tasks necessary to making career decisions.

The two domains of career decision self-efficacy are career selection content and career selection process (Betz, 2000; Betz & Luzzo, 1996). Career selection content refers to content domains such as accounting, sciences, or mathematics. People may avoid careers that require the content if they have low self-efficacy in the content domains. The career selection process refers to "confidence with respect to the process of career decision making" (Betz, 2004, p. 344). A person may avoid making career decisions or implementing career decisions if he or she has low self-efficacy in career decision making.

Career decision self-efficacy was assessed using the Career Decision Self-Efficacy-Short Form (Betz, Klein, & Taylor, 1996). Higher scores on

this scale are indicative of greater confidence in the ability to perform career tasks and a greater likelihood of exhibiting approach behavior.

Limitations

Participants in this study were traditional-age, first-semester students at a small public institution in Georgia. Results may not be generalizable to other populations. In addition, the results are limited by the extent to which the participants responded honestly and accurately. The results are also limited by the accuracy of the instruments to measure the constructs that were the focus of the study. Furthermore, the lack of random assignment of participants and constraints on sample size were limitations of the study. In addition, students in the treatment group were enrolled in two different sections of the First Year Experience (FYE) course taught by different instructors, and the intervention was facilitated by the researcher. Finally, a larger sample size typically reduces the chances of type II error occurring.

CHAPTER 2 - REVIEW OF THE LITERATURE

The purpose of this study was to investigate the effectiveness of a CIP career intervention on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. The study also examined the relationship between dysfunctional career thoughts and locus of control. The review of the literature is divided into five sections to give a general overview of the research on underprepared students and the theoretical concepts addressed in this study. The first section summarizes relevant literature related to underprepared students in postsecondary institutions. The second section examines literature related to locus of control and interventions designed to enhance locus of control. The third section addresses the Cognitive Information Processing approach (Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004) to career decision making and the fourth section reports research on dysfunctional career thoughts and interventions designed to decrease dysfunctional career thoughts. The final section discusses career decision self-efficacy theory and relevant interventions.

Underprepared Students

An increasing number of students enrolling in postsecondary institutions are unprepared for the rigors of higher education. Nunley, Shartle-Galotto, and Smith (2000) noted that academic preparation is becoming increasingly important as many public colleges practice an open admissions policy. According to ACT (2007), only 23% of graduating high school seniors who took the ACT were college ready in English, Science, Mathematics, and Reading. Furthermore, in the most

recently available national survey, the National Center for Educational Statistics (US Department of Education, NCES, 2003) reported that 42% of freshmen at public two-year colleges enrolled in at least one remedial reading, writing, or mathematics course in Fall 2000 while 28% of entering freshmen at U.S. degree-granting institutions enrolled in at least one remedial course. Moreover, Provasnik and Planty (2008) noted in a survey of beginning postsecondary students that approximately 29% of community college students, as compared with 19% of students at public four-year institutions, reported having taken some remedial coursework in their first year.

Many students arrive at postsecondary institutions unprepared academically and psychologically for the challenges and obstacles they may face. Peterson (1993) described underprepared students as those who enter postsecondary education with marginal academic credentials. Generally their high school performance indicates underdeveloped skills in reading, writing, or math. These underprepared students are at risk of attrition, and may leave the postsecondary institution prior to completing their programs of study. Gray and Herr (2006) suggested that many teens and their parents may be deluding themselves; they noted that being “enrolled in college prep programs does not necessarily mean they graduate prepared to do college-level work, even when they got good grades in high school” (p. 63). Gray and Herr (2006) also suggested that minimally qualified high school students are not truly academically qualified to succeed in college.

Roueche and Roueche (1993) characterized underprepared students as not only those who are academically underprepared for college, but also those “who have little if any support from key family members, who are first-generation college attenders, who have what some have described as failure expectations, and who have little academic success as they begin their postsecondary experience” (p. 1). The student’s disbelief in his or her own ability may lead to a self-fulfilling prophecy of failure. The student’s behavior (e.g., lack of proper supplies, incomplete assignments, hostility towards peers and instructors, or failure to participate in class activities) may perpetuate the failure expectations. According to Roueche and Roueche (1993), unlike the academically prepared student who is motivated and goal oriented, the at-risk student has unrealistic goals and is motivated not by success, but by failure.

Another subset of underprepared students, according to Pascarella, Whitt, Nora, Edison, Hagendorn, and Terenzini (1996), is first-generation college students. Pascarella et al. suggested that first-generation students enter college academically at risk and encounter a world where they are less likely to experience many conditions positively related to persistence, performance, and learning. First-generation students are often underprepared and have weaker reading, mathematics, and creative thinking skills. In addition to a lack of academic preparedness, first-generation students also indicated lower degree aspirations and anticipated a longer time to complete a degree. These students reported studying less, taking fewer humanities and fine arts courses, working more,

completing fewer hours, attending racial or cultural awareness activities less frequently, and receiving less encouragement from friends to continue enrollment.

In a study of potential first-generation college students, Brewer and Landers (2005) studied the postsecondary education enrollment rates of 758 Talent Search participants in comparison with enrollment rates of a control group of 450 individuals who were eligible for Talent Search services but did not participate. The Talent Search program provides career exploration and counseling services to low-income students who have the potential to be first-generation college graduates. Results from this study indicated over “93% of Talent Search participants enrolled in postsecondary education. This compares to an enrollment rate of 42.2% for members of a control group of students who were eligible for Talent Search services but did not participate” (p. 204).

Changes in American higher education have given a growing number of minority, disadvantaged, and nontraditional (age 25 and over) students, who are often less academically prepared than their peers (Gardiner, 1994), access to college. While the community college environment offers students opportunities to attend postsecondary school, many students discover they do not possess the necessary skills and attitudes for successfully engaging themselves within the academic community and ensuring continued academic progress (Roueche & Roueche, 1993).

Grimes and David (1999) collected extensive data about how underprepared students differ from college-ready students in demographic, experiential, and attitudinal characteristics. Underprepared students had lower high

school GPAs and rated themselves lower in academic ability, intellectual self-confidence, and emotional health. These students differed significantly from college-ready students in some demographic characteristics, such as ethnicity and career aspirations as well as reasons for attending college (e.g., satisfying parents or difficulty finding a job). According to the results of the study, these students differ from college-ready students in more than academic performance; they spend more time going to parties and watching television and less time socializing with different ethnic groups. The underprepared students in this study had significantly higher expectations of failing one or more classes and lower persistence to graduation.

In another study, Bulger and Watson (2006) found that underprepared students who enrolled in postsecondary institutions were less likely to complete remedial courses or seek assistance with college application processes. These students were also less likely to have a significant level of involvement with their peers and their parents. Bugler and Watson concluded that the absence of positive social integration can lead to several negative outcomes including isolation and attrition.

Locus of Control

Theory

Social learning theory examines human behavior as it is influenced by the interactions between cognitive, behavioral, and environmental conditions (Bandura, 1977). Social learning theory considers behavior to be goal-directed and contends that it can be observed, described, and used to predict. Rotter (1954)

described the theory as social learning because the “major or basic modes of behaving are learned in social situation and are inextricably fused with needs requiring for their satisfaction the mediation of other people” (p. 84).

Social learning theory views behavior as a function of reinforcement value and expectancy. Reinforcement value is defined as “the degree of preference for any reinforcement to occur if the possibilities of their occurring were all equal” (Rotter, 1954, p. 107). Expectancy is the “probability held by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation or situations” (Rotter, 1954, p. 107).

When a person is in a novel situation, generalized expectancies will be more important in determining expectancy than will specific expectancies based on prior experience. As the person gains more experience in the situation, however, generalized expectancies will have much less significance while specific expectancies will become more important (Phares, 1976).

Rotter (1966) developed locus of control of reinforcement as a theoretical construct of social learning theory. Rotter (1971) theorized that rewarding a behavior would result in an increase in the expectation of future rewards. This concept differs from that of behavioral theories because it incorporates one’s belief in one’s ability to control that reinforcement. If a person perceives a reinforcement as contingent upon his behavior, then the occurrence of either a positive or negative reinforcement will strengthen or weaken the potential for that behavior to recur in the same or similar situation. In other words, if a person sees the reinforcement as being outside his control or not contingent upon his behavior,

namely depending on chance, fate, powerful others, or unpredictable events (external locus of control), then the preceding behavior is less likely to be strengthened or weakened (Rotter, 1966). Conversely, if the person attributes the outcome to his own behavior, it is referred to as internal locus of control.

While changes in either reinforcement value or expectancies can change behavior, with adults it is considered easier and more practical to change expectancies (Phares, 1976). One variable affecting the size of expectancy is the number of previous experiences an individual has with a situation (Phares, 1976). In other words, individuals tend to base their expectancies on their most recent experience if they had few earlier experiences that contradict that recent experience. Inconsistent experiences will have less effect on expectancies when a person has more experience to draw upon for reference. Keller (1983) suggested that "personal expectancy for success is influenced by past experience with success or failure at the given task, locus of control, and personal causation" (p. 418).

State versus Trait

According to Reigeluth (1983), "A useful distinction in the discussion of student characteristics is trait versus state. Traits are student characteristics that are relatively constant over time...whereas states are student characteristics that tend to vary during individual learning experiences, such as level of content-specific knowledge" (p. 32). Reigeluth (1983) further suggested that any personality trait "generally rests upon certain knowledge, skills, and abilities" (p.

170) but to develop an ability “one has to generalize a skill by transforming a particular skill into a more general one” (p. 170).

Although generalized expectancy of control beliefs may be relatively stable over time, “changing circumstances and continual appraisals by the individual will most likely influence beliefs about locus of control, particularly in specific situations” (Marks, 1998, p. 257). In social learning theory, the “unit of investigation for the study of personality is the interaction of the individual and his meaningful environment” (Rotter, 1954, p. 85). In other words, situational factors must be considered in addition to traits, needs, and habits in order to more accurately understand behavior.

Learned social behavior is emphasized in social learning theory. Phares (1976) hypothesized that “learned attitudes, values, and expectations seem more useful than instincts, hormones, and blood pressure” (p. 11). Furthermore, an individual’s experiences are interrelated, though varied; thus, “change is still possible through proper selection of new learning experiences” (Phares, 1976, p. 11).

Although research has shown that locus of control is amenable to change through interventions that supply new learning experiences (Bartsch & Hackett, 1978; Broley, 1986; Lebedina-Manzoni, 2004; Mattick & Peters, 1988; Serfaty et al., 1999), inconsistent experiences will have less effect on expectancies when a person has other experience to draw upon for reference. Therefore, the more failure a student experiences, the more difficult it may be to alter expectancies with new learning experiences.

In addition, an external locus of control may be influenced by several factors including beliefs about social-political matters, beliefs about powerful others, beliefs about potential for control, or beliefs about cultural or family values (Garza & Widlak, 1977; Gurin, Gurin, & Morrison, 1978; Levenson, 1974; Rotter, 1966). Further, Gurin et al. (1978) suggested a potential differentiation between personal control, which refers to belief about ability to control events in one's life, and ideological control, which refers to belief about the potential to control society at large.

Locus of Control and Underprepared Students

Expectancies drawn from previous experiences are of particular interest in education research. In a meta-analysis of locus of control, Kalechstein and Nowicki (1997) found that both measures of general and specific expectancies for locus of control were positively correlated with academic achievement and there was a tendency for internals to attain greater achievement than externals. Research in the area of locus of control and academic achievement has shown a clear relationship between a student's expectation that one can have an influence on an outcome and the student's motivation to take action. People with an internal locus of control display more readiness to take action to correct shortcomings when presented an opportunity to do so (Phares, 1976). McMillan and Forsyth (1991) suggested that students are more likely to be motivated if needs are being met, if they see value in what they learn, and if they believe success is attainable with reasonable effort.

Research indicates that underprepared students have a lower course completion rate, greater attrition, more test anxiety, and a more external locus of control (Grimes, 1997). That finding is troubling as research notes that an internal locus of control is important to the retention and persistence of students (Bulger & Watson, 2006; Grimes & David, 1999). The experiences of the underprepared students appear to be filtered through a belief system which includes a marginal sense of personal empowerment for effecting change, in addition to a devaluing sense of personal competence (Nunn & Parish, 1992).

Nunn and Parish (1992) examined differences between high school students who were at risk for school failure and a control group of peers. Of the 111 participants, 64 students were identified as at-risk with a history of one or more of the following: unexcused absences/tardies, well below average school performance, and behavioral/disciplinary problems. Statistically significant differences were found with respect to locus of control, self-concept, and personal styles of learning. At-risk students' locus of control was more externally oriented, indicating a greater tendency toward believing that behavior had little effect upon outcomes. Self-concept comparisons also showed a more negative self-perception of competency for underprepared students. Nunn and Parrish (1992) characterized the underprepared students as individuals who were less motivated toward achievement, had lower self-concepts as learners, and desired a more informal and nontraditional approach to learning.

Perry and Penner (1990) suggested that cognitive factors influencing students' perceived control (i.e., internal/external locus) should be taken into

consideration when remedial interventions for academic achievement are developed. In a study of 198 males and females enrolled in an introductory college course, loss of control represented a serious threat to college students' academic development because it could potentially cause helplessness-related cognitive, motivational, and affective deficits. Students with external locus of control were identified as one potential at-risk group that exhibits stable attributional patterns sometimes associated with low perceived control. Attributional retraining provided remedial assistance for these at-risk students by restoring perceived control. In this study, attributional retraining enabled external locus students to learn more during a lecture and to make better use of study materials than they had before.

Gifford et al. (2006) studied the ACT scores and locus of control of 3,000 first-year college students to determine the effectiveness of predicting first-year academic achievement as measured by end-of-first-year cumulative GPA. They found that first-year students who entered the university with lower scores on the locus of control scale (internals) obtained significantly higher GPAs than those who scored higher (externals) on the same scale.

Locus of Control and Career Issues

Locus of control has been shown to influence career-related issues as well. Greenhaus and Sklarew (1981) studied the factors influencing participation in career exploration among university undergraduates. Using the upper and lower thirds of the locus of control distribution, the study showed that the relationship between the importance of work in the individual's life and work-related exploration was significantly stronger for internal students than for external students.

In another study, Liberty, Burnstein, and Moulton (1966) reported that externally controlled males preferred occupations which had greater prestige (status) than the degree of competence required for the job, whereas internally controlled males preferred occupations with low prestige relative to the degree of competence required. The researchers concluded that externally controlled people express a desire for status that they do not feel they can attain through their own efforts. Further, Gable, Thompson, and Glanstein (1976) reported in their study of college females that the individuals with the lowest vocational maturity scores were also more external and more atypical in their occupational choices.

Locus of control has also been examined in terms of how it relates to vocational decisiveness. In a study involving college students, Taylor (1982) found that vocationally undecided students were more external in their beliefs and had higher levels of fear of success. In terms of sex differences, she found that females had higher fear of success scores and were more external than the males. Taylor suggested that “individuals who believe that career decisions are internally caused and under their own control may take both an active role in the direction of their educational/vocational futures and personal responsibility for decision making and for gathering the kinds of information necessary to such decisions” (p. 319).

Also working with a college population, Cellini and Kantorowski (1984) examined the relationship between locus of control and career decidedness for 290 undergraduates. They concluded that students with an internal locus of control were significantly more likely to become decided about their career plans during their college years than were students with an external locus of control. Further,

Hartman and Fuqua (1983) also concluded that undecided students could be characterized as being externally controlled, as well as state and trait anxious, and confused as to their own identity.

In another study that looked at locus of control, Lease (2004) explored racial and institutional type group differences in career locus of control, career-related mentoring, and world of work knowledge. She found that the African American students in the study came from a lower socioeconomic background than did the Caucasian students and had a more external career locus of control. In addition, external career locus of control was a significant predictor of career decision-making difficulties.

Kishor (1981) also found that locus of control accounted for a significant portion of the variance in decisional status of the high school students. She reported that those high school students who were vocationally decided had higher self-esteem and were more internally oriented. While both self-esteem and locus of control were statistically significant, Kishor concluded that locus of control accounted for the greater variance in decisional status of the students.

Locus of Control Interventions

Research has shown that locus of control can be altered with appropriate interventions (Bartsch & Hackett, 1978; Broley, 1986; Lebedina-Manzoni, 2004; Mattick & Peters, 1988; Serfaty et al., 1999). Bartsch and Hackett (1978) used a pretest, treatment, posttest design, administering Rotter's (1966) Internal-External Locus of Control scale to 64 college students in a course entitled "Effective Personal and Career Decision Making." The study involved the use of two

experimental and two control groups. A primary finding of the study was that students who participated in this 10-week course altered their locus of control beliefs toward greater internal locus of control. They were more articulate in describing career concepts and reported giving more thought and taking more action toward resolving career concerns than the participants in the control groups.

In a study similar to that of Bartsch and Hackett (1978), Broley (1986) evaluated the effect of a career development course on the locus of control of female undergraduate students. The experimental group consisted of 22 female students enrolled in a career development course and the control group consisted of 22 female students enrolled in a psychology course with no career-related content. Results indicated that the students who completed the career course had a significantly more internal locus of control relative to career decision making in comparison with the control group.

Research has shown that locus of control also can be enhanced with cognitive restructuring activities (Lebedina-Manzoni, 2004; Mattick & Peters, 1988; Serfaty et al., 1999). In Mattick and Peters' (1988) study, 51 social phobics with severe scrutiny fears were randomly assigned to investigate the effectiveness of therapist-assisted guided exposure with and without a cognitive restructuring procedure. Cognitive restructuring procedures were used to reduce faulty thinking by teaching participants a systematic procedure to identify and counter the faulty thinking. Additionally, the study examined the ability of changes in locus of control, irrational attitudes, and within-session habituation to predict level of functioning at follow-up. Analyses for between-group differences showed that guided exposure

combined with cognitive restructuring had greater effects on behavior and on self-rated avoidance of the target situation than did guided exposure alone. On behavioral diary sheets, the participants in the combined condition reported deliberate reevaluations of irrational thoughts to a significantly greater degree than did those in the exposure condition.

In addition to enhancing locus of control, research has shown that cognitive restructuring activities also can be effective as a career intervention (Mitchell & Krumboltz, 1987). In a study of 42 undergraduate students, Mitchell and Krumboltz (1987) found that cognitive restructuring was more effective than decision-making training or the no treatment control in helping students reduce career decision-making anxiety, and “increase appropriate career decision-making behavior and learn subsequently used skills” (p. 173). Peng (2001) compared the effectiveness of two career education courses, one of which was a cognitive restructuring career course, on the career decision-making skills of college students in Taiwan. He found that the both courses had a significant effect on the career indecision as compared to students who did not take a career education course.

Kovalski and Horan (1998) investigated the effectiveness of an Internet-based cognitive restructuring intervention on the irrational career beliefs of 43 junior-high-school girls. While there was no significant main effect between pre-test and posttest of the intervention as a whole, Kovalski and Horan (1998) did identify improvements on one of the four irrational beliefs, the belief that certain jobs are more appropriate for men.

In a study of 115 college students at the University of Zagreb, Lebedina-Manzoni (2004) investigated factors the students attributed to their academic success or lack of success. All students completed instruments to examine automatic thoughts and attributions about success; success was determined by past grade point averages. She found that locus of control and the automatic thoughts of the students were significant factors in their academic success. Unsuccessful students were more likely to attribute success to general knowledge, luck, interesting contents, parents, and current mood on the exam. These unsuccessful students were also likely to be “preoccupied with themselves during an exam so that they undervalue and incriminate themselves” (p. 707) and reported being unsuccessful on an exam because they are too distracted to concentrate on the task at hand. Lebedina-Manzoni suggested that treatment for unsuccessful students should be directed towards cognitive restructuring of negative thoughts.

Cognitive Information Processing (CIP)

Theory

The Cognitive Information Processing paradigm “concerns the actual thought and memory processes involved in solving career problems and making career decisions” (Peterson et al., 1996, p. 427). It was developed from the field of cognitive psychology and was designed to “help persons make an appropriate current career choice and, while doing so, to learn improved problem-solving and decision-making skills that they will need for future choices” (Sampson et al., 2004,

p. 2). The language and constructs were intended to be used by practitioners as well as by laypersons using career services.

The CIP approach has several key assumptions (Peterson et al., 1996; Peterson et al., 2002; Sampson et al., 1996b; Sampson et al., 2004). The first assumption is that career problem solving and decision making involve both emotions and thoughts. It is postulated that cognition and emotion are inseparable in career choice. While it is important to fully consider choices, emotion can help motivate a person to make a choice and follow through or cause a person “to act too slowly, too quickly, or too randomly to make an appropriate choice” (Sampson et al., 2004, p. 3).

The second assumption of the CIP approach is that effective career problem solving and decision making involve both gaining knowledge and a process for thinking about the knowledge gained. Knowledge is the information a person has, and thinking is the process used to make the career choices.

The third assumption is that “what we know about ourselves and the world we live in is constantly evolving and interacting” (Sampson et al., 2004, p. 3). A person organizes information about oneself and the world in increasingly complex ways as the person continues having learning experiences. Career services and resources can benefit individuals as they sort through the information available and use the most relevant information.

The fourth assumption is that career problem solving and decision making are skills and, as with any other skill, they can be improved through learning and practice. The CIP approach strongly encourages individuals to utilize career

resources and services to practice the information processing skills necessary to become better problem solvers.

Individuals use career problem-solving and decision-making skills to resolve career problems. Sampson et al. (2004) define a career problem as a “gap between a person’s current situation and a future career situation that he or she desires”

(p. 5). Factors contributing to career problems include the rapid changing of society and the economy; the difficulty one may have reconciling one’s beliefs about what is in one’s best interest with the beliefs of other important people in the person’s life; the sheer amount of information available in considering career options; and the inconsistent ways that humans remember past events, based on current thoughts or feelings (Sampson et al., 2004).

The CIP approach describes problem solving as “a series of thought processes in which information about a problem is used to arrive at a plan of action necessary to remove the gap between an existing and desired state of affairs” (Sampson et al., 2004, p. 5). For problem solving to be effective, the outcome must result in a choice that has a reasonable chance of closing the gap between the current situation and the desired situation (Peterson et al., 1996).

Decision making requires adequate problem solving in addition to the cognitive and affective processes needed to develop a plan of action and to follow through to a reasonable resolution. For decision making to be effective, the outcome must result in the personal behavior that is needed to solve the

presenting problem (Peterson et al., 1996; Peterson et al., 2002; Sampson et al., 2004).

Sampson et al. (2004) emphasized the importance of developing good career problem-solving and decision-making skills in their definition of lifestyle development. Lifestyle development is an “integration of career, relationship, spiritual, and leisure decisions that contribute to a guiding purpose, meaning, and direction in one’s life. Effective lifestyle development is dependent on effective career development, which, in turn, is dependent on effective decision-making, which is further dependent on effective problem solving” (p. 6). The CIP approach is designed to help individuals with that lifestyle development by teaching appropriate, user-friendly problem-solving and decision-making skills.

According to Sampson et al. (2004), CIP is built on two core constructs: (a) the Pyramid of Information Processing Domains, and (b) the CASVE cycle. The Pyramid of Information Processing Domains involves the content of career problem solving and decision making while the CASVE cycle is the actual process of career problem solving and decision making.

Pyramid of Information Processing Domains

The first construct, the Pyramid of Information Processing Domains, has three hierarchical levels or domains. The base of the pyramid includes the two knowledge domains of self-knowledge and occupational knowledge. These domains are critical as a foundation for effective problem solving and decision making.

Self-knowledge includes elements such as a person's perception of one's values, interests, skills, and preferences about employment. Values are described as motivators for work while interests are characterized as activities or behaviors a person enjoys. Skills are the activities a person performs well, and can be used synonymously with abilities. A person's employment preferences could be an aspect of employment the person is seeking or an aspect the person is seeking to avoid. Self-knowledge is typically influenced by a person's characteristics and is gained through life experiences. Self-knowledge is stored in episodic memory (Tulving, 1972, 1984) and can be influenced by past experiences and past and current emotions.

The second knowledge domain, occupational knowledge, includes information on how the world of work is organized and knowledge of individual occupations. Included in this domain is information on education, training, and employment options. Acquisition of occupational knowledge occurs through direct experience, observation of experiences of others in real life, or the influence of the media (Sampson et al., 2004). A schema, or memory structure, for the world of work can help a person organize what one knows about occupations and can reduce the complexity so that the individual has enough relevant information without being overwhelmed. Occupational knowledge is stored in semantic memory as a series of verifiable facts rather than as personal perceptions (Sampson et al., 2004).

The second tier of the pyramid represents the decision-making skills domain. The decision-making skills domain requires obtaining knowledge about

generic information-processing skills needed to solve problems. The CASVE cycle is the decision-making model used in the CIP approach.

The top tier of the pyramid represents the executive processing domain, which includes metacognitions. According to Sampson et al. (2004), metacognitions control the selection and sequencing of cognitive strategies a person may use to solve a career problem. Cognitive strategies may include self-talk, self-awareness, and monitoring and control.

Self-talk is used to describe silent conversations one may have with oneself about how well he or she is completing a task. Positive self-talk can keep one motivated to finish a task while negative self-talk may discourage the person and inhibit the process of career problem solving and decision making (Sampson et al., 2004).

Self-awareness is the “extent to which people are aware of themselves as they progress through the problem-solving and decision-making process (including an awareness of the nature and impact of self-talk on their behavior)” (Sampson et al., 2004, p. 24). Improvement in a person’s self-awareness may allow one to recognize old patterns of negative self-talk or other negative behavior that causes the person to lose motivation for solving the problem.

Monitoring and control refer to the “extent to which people are able to monitor where they are in the problem-solving process and control the amount of attention and information required for problem solving (including monitoring when their self-talk is dysfunctional and subsequently controlling or altering their thoughts to be more appropriate)” (Sampson et al., 2004, p. 24). An individual’s

ability to recognize when he or she has enough information to move on to the next step in the CASVE cycle is an example of monitoring and control.

CASVE

The second construct, the CASVE cycle, is designed to improve a client's decision-making skills and increase awareness of the key phases in the career problem-solving and decision-making process. The CASVE cycle includes the five sequential phases of Communication, Analysis, Synthesis, Valuing, and Execution.

Communication, the first phase of the CASVE cycle, is the phase in which the person becomes aware that a gap exists between an existing and a desired state of affairs. This awareness can come from an external cue (e.g., a positive or negative event) or from a comment made by a significant other. Awareness may also come from an internal cue, including the person's awareness of negative emotions, avoidance behavior, or physiological changes. "Clients generally seek assistance with a career problem when the discomfort they feel becomes greater than their fear of change" (Sampson et al., 2004, p. 26).

Analysis is the phase in which the person establishes a mental model of the problem and begins to recognize the relationships among the components of the problem. This phase may include clarifying self-knowledge and relating self-knowledge to occupational knowledge to form a clear picture of how personal characteristics interact with the options being considered. Stereotypes can be identified and reframed. In this phase, "clients engage in a recurring process of clarifying existing knowledge or obtaining new information, followed by time to

reflect on and integrate what has been learned, leading to new or more complex mental models” (Sampson et al., 2004, p. 27).

Synthesis, the third phase in the cycle, is the phase of decision making when the person expands and narrows the options being considered. The aim of this phase is to avoid missing alternatives without being overwhelmed by options. There are two phases within synthesis, elaboration and crystallization. Elaboration is the divergent thinking that allows the individual to consider many different options. Crystallization is the convergent thinking that eliminates options that are incompatible with one’s self-knowledge.

Valuing is the phase of the CASVE process that allows individuals to evaluate the costs and benefits of each alternative and how significant others may be affected by their choice (Sampson et al., 2004). During this phase, the individual will prioritize the alternatives to optimize benefits and minimize cost in relation to the needs of everyone involved. After priorities are established among the top three to five options considered, tentative primary and secondary choices are made. The choices are tentative because ensuing reality testing may reveal that a choice is inappropriate or unrealistic.

In the Execution phase, the individual establishes and commits to a plan of action for implementing the tentative first choice. The plan may include selecting a preparation program, reality-testing, and employment seeking. The amount of time taken to complete the Execution phase depends largely on the amount of preparation involved, such as years of postsecondary training versus a relatively short time to implement a lateral job change.

The individual returns to the Communication phase when the Execution phase is complete. The individual will determine whether the gap between the existing and desired state of affairs has been effectively resolved. If the problem has been removed, the problem-solving and decision-making process is complete. If the problem has not been resolved, the process begins anew and the individual cycles back through the CASVE process.

CIP Applicability

CIP theory has been evaluated for applicability in a variety of situations. Sampson et al. (1999) discussed the effectiveness of the CIP approach for problem solving and decision making for employment issues. They suggested that in a “volatile economy in which ongoing job change is becoming the norm, greater attention needs to be paid to the development and application of career theory to the employment process” (p. 48). The authors also discussed the appropriateness of using career theory to make employment decisions including ways individuals would utilize the step-by-step process to make appropriate employment decisions.

In addition, Sampson, Peterson, Reardon, and Lenz (2000) discussed the importance of using a readiness assessment, such as the CTI (Sampson et al., 1996a), to improve career delivery services for clients. They hypothesized that using a theoretically based readiness assessment would give practitioners a better basis for meeting client needs by increasing the “congruence between client needs and the capacity of career interventions to cost-effectively meet these needs” (p. 173). Furthermore, Sampson et al. concluded that readiness assessments could

be used for outcome evaluation to document changes in dysfunctional career thoughts following an intervention.

McLennan and Arthur (1999) proposed an expansion of the CIP approach to career problem solving and decision making (Peterson et al., 1991; Peterson et al., 1996; Sampson et al., 2004) to include considerations in women's career development. They suggested that the CIP approach could be extended to women's career development by focusing on both the individual and structural factors that affect women's career development. McLennan and Arthur (1999) stated that the CIP approach is "an integration of existing perspectives and theories, it provides strong linkage between theory and practice, and it accounts for the experience of women in our society" (p. 94).

Folsom et al. (2001) found that a CIP-based undergraduate course in career planning may have a positive impact on retention and on student efficiency at pursuing educational degrees. Students who completed the career course had higher graduation rates as compared with the general student population and graduated with fewer credit hours on average than the general population. The authors suggested that the "results lend some support to the argument that this career course may be an effective intervention that results in more efficient and cost-effective degree completion processes" (p. 13).

Reardon, Leirer, and Lee (2007) investigated the impact of a career course on student grades over the 26 years the course has been offered. They concluded that the CIP-based career course appeared to be an effective intervention, as evidenced by student grades. While the grades fluctuated between academic

semesters and declined in the most recent years, 74% of the students achieved course objectives, which indicates the course was an effective intervention for most students. Reardon et al. (2007) further suggested that this study offers “evidence that grades might be used to measure the impact of career course interventions, especially if the treatment variables are carefully described and the grading procedures are fully explained and replicable by other researchers” (p. 495).

Dysfunctional Career Thinking

Dysfunctional career thinking manifests itself in a person's negative misconceptions, self-defeating assumptions, self-defeating behavior, myths, private rules, self-defeating statements, irrational expectations, dysfunctional cognitions, or dysfunctional career beliefs (Sampson et al., 1996c). Sampson et al. (2004) suggest that by reducing dysfunctional career thinking, clients will be able to “effectively process information needed for career problem solving and decision making” (p. 93). As individuals become more adept at challenging dysfunctional career thinking, they will likely think in “more creative, reality-based ways about their career choices” (p. 93).

Railey and Peterson (2000) assessed the dysfunctional career thoughts of female inmates. They found that the first-time offender group and probationer group displayed more commitment anxiety than the repeat offender group. Railey and Peterson suggested that individual and group career interventions targeted at the elimination of dysfunctional thoughts, such as cognitive restructuring or thought stopping, should be effective. They also recommended that career interventions

with first-time offenders and those with low coherence indices should develop a concise, realistic vision of the future and formulate short- and long-term career goals.

Saunders (1997) investigated the contribution of depression and dysfunctional career thinking to career indecision in 215 undergraduates. She also examined the relationship between depression and dysfunctional career thinking. She found that dysfunctional career thinking accounted for a significant amount of variance in career indecision using both the Career Decision Scale (Osipow, Carney, Winer, Yanico, & Kaschier, 1987) and the OAQ (Occupational Alternatives Question, Zener & Schnuelle, 1976). Depression did not add substantially to the amount of variance explained. Saunders suggested that “depression, and perhaps more strongly dysfunctional career thinking, in career indecision aids in identification and development of effective intervention strategies” (p. 95).

Kilk (1997) studied the relationship between dysfunctional career thoughts and selection of college major. Results indicated significantly higher levels of dysfunctional career thoughts for students who had not selected a field of study than students who had selected a field of study. The results supported the supposition that students who have not decided on a major field of study might “have trouble making career decisions (DMC), making a commitment (CA) to a field of study, and valuing the opinions of others when faced with career decisions (EC)” (Kilk, 1997, p. 88). Kilk suggests one practical implication for the study is that advisors and faculty members can better assist students in selecting a major field

of study if the student is first aware of and addresses his or her dysfunctional career thoughts.

In a study of 148 undergraduate students, Lustig and Strauser (2002) investigated the relationship between dysfunctional career thoughts and sense of coherence. According to Antonovsky (1987), sense of coherence is one's global orientation that the world is comprehensible, manageable, and meaningful. The results showed a medium relationship between dysfunctional career thoughts and sense of coherence that accounted for 14% of the variance. The Lustig and Strauser (2002) suggested the results indicated that "individuals with a stronger sense of coherence seemed to have less dysfunctional career thoughts and therefore, would be better able to deal effectively with the career decision-making process" (p. 8).

Another study examined the relationship between dysfunctional career thoughts and learning disabilities (Dipeolu, Reardon, Sampson, & Burkhead, 2002). Although the authors expected the students with learning disabilities in the sample to exhibit more dysfunctional career thoughts than the normative group (Sampson, et al., 1996c), results indicated fewer negative career thoughts than students in the normative group on the CTI Total, Decision-Making Confusion, and Commitment Anxiety. Dipeolu et al. did find higher levels of External Conflict in the students with disabilities. Because this study was conducted with a "high-functioning group of college students" (p. 424), most of whom were receiving academic accommodations for their disabilities, the authors suggested that the participants in the study "may have adjusted well to the demands and complexities

of college life” (p. 422) and may not be representative of younger students with learning disabilities.

Interventions to Reduce Dysfunctional Career Thoughts

Reed, Lenz, Reardon, and Leierer (2001) used the CTI (Sampson et al., 1996a) to assess the dysfunctional career thoughts of students in a three-credit career course. The results indicated that students enrolled in the career course had significantly reduced negative thinking about career planning at posttest, relative to pretest scores. The finding applied to all three CTI subscales, and the largest decreases in negative career thoughts emerged with students who scored highest on the pretest.

As with Reed et al. (2001), Austin et al. (2003) revealed the positive impact of a career decision-making intervention on the reduction of negative career thoughts of participants. Austin et al. (2003) investigated the efficacy of a community centered career decision-making program based on CIP's career decision-making model. Using the CTI (Sampson et al., 1996a) as a pretest and posttest measure, the authors assessed the dysfunctional career thoughts of 40 adult participants (20 male and 20 female). The CTI Total score and the three subscales showed a significant decrease in negative career thoughts after the intervention. According to Austin et al. (2003), the findings suggest that participants taking such a career course will engage more successfully in the career decision-making process. Reducing the participants' dysfunctional career thoughts and teaching decision-making strategies could enhance their chances of finding a

rewarding career path and increase confidence in their ability to make career decisions that are internally valued rather than valued by significant others.

Since the majority of the studies exploring career interventions used three-credit-hour classes and included students in multiple academic levels, Osborn et al. (2007) examined whether the findings noted in Reed et al.'s (2001) study would be found for an ethnically diverse group of 158 freshmen in a six-week, one-credit-hour career course. Participants were enrolled in the Freshman Summer Institute (FSI) program, which promotes the academic success of first-year students and retention toward graduation by providing academic support and by coordinating campus services. Students were considered "alternate admits" because their high school GPA suggested the potential for academic success but their test scores did not meet the university admission standards. Results showed a significant interaction between levels of dysfunctional career thinking, as assessed by the CTI, by career course, indicating that the effect of the career course was not the same for the three pretreatment levels of dysfunction. The course was effective in significantly reducing overall dysfunctional career thoughts, as well as dysfunctional thoughts specific to decision-making confusion, commitment anxiety, and external conflict. College freshmen with the highest level of dysfunctional career thoughts had the most dramatic decrease in those thoughts at posttest. Neither gender nor race/ethnicity was significantly correlated to dysfunctional career thoughts.

Werner (2003) developed an eight-week CIP career intervention with college students in a learning community. While the resulting changes in

dysfunctional career thinking were not statistically significant, the treatment means changed on all the dependent variables in the desired direction. The control group means changed little from pre-intervention to delayed post-intervention. Werner suggested that the eight-week intervention, which followed an eight-week academic intervention, may not have given the students sufficient exposure to the information.

According to Carr (2004), while the CTI has been used in research since its release, the CTI Workbook has received little attention in the literature. In an attempt to fill this gap in the literature, Carr investigated the efficacy of the CTI Workbook to effectively reframe dysfunctional career thoughts. Participants from five sections of a career development course volunteered, and data were collected three times over the semester. At posttest, the participants were able to create more effective reframes of dysfunctional career thoughts and the cognitive component of the CTI Workbook alone did improve the effectiveness of reframes of dysfunctional career thoughts. However, “several questions remain about the longevity and generalization of learning, and whether or not additional variables such as salience of dysfunctional thoughts and externality of reframing stimuli may influence workbook effectiveness” (Carr, 2004, p. 32).

Corroborating Carr’s (2004) results, Strohm (2008) investigated the impact of a CIP-based career intervention on the vocational identity and dysfunctional career thoughts of 55 high school students. Three groups of high school seniors were assessed using the CTI (Sampson et al., 1996a) and the Vocational Identity (VI) scale of My Vocational Situation (Holland, Daiger, & Power, 1980). The

treatment group that received an intervention using the SDS and the CTI workbook showed a significant decrease in dysfunctional career thoughts and improvement in vocational identity. The SDS group showed significant improvement only in levels of vocational identity and improved less than the workbook group. Strohm suggested that “combining the SDS with the CTI workbook is a better way to increase levels of VI than using the SDS as the sole component of an intervention” (p. 89).

Career Decision Self-Efficacy

Theory

The construct of career decision self-efficacy was developed from Bandura’s (1977) social cognitive theory and Crites’ (Crites, 1978; Crites & Savickas, 1996) career maturity model. Bandura (1994) described self-efficacy as “people’s beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (p. 71). Self-efficacy beliefs can establish how a person feels, thinks, behaves, and becomes motivated.

There are four major sources of self-efficacy (Bandura, 1977, 1994, 1995, 1997): (a) mastery experience; (b) vicarious experience; (c) verbal persuasion; and (d) emotional arousal. According to Bandura (1997), mastery experiences are the most significant sources of efficacy information because “they provide the most authentic evidence of whether one can master whatever it takes to succeed” (p. 80). Bandura (1977, 1997) also emphasized the importance of success and failure experiences to help individuals develop a resilient sense of self-efficacy.

In addition to Bandura's (1977, 1994, 1997) self-efficacy construct, career choice competencies from Crites' (1978) career maturity model were the basis for defining competencies in career decision making (Betz & Luzzo, 1996; Betz & Taylor, 2006). Later, those five competencies became the subscales in the Career Decision Self-Efficacy Scale (CDSE, Taylor & Betz, 1983). The five career competencies used as the CDSE subscales are: (a) Self-Appraisal; (b) Occupational Information; (c) Goal Selection; (d) Career Planning; and (e) Problem Solving.

Career self-efficacy has two domains, career selection content and career selection process (Betz, 2000; Betz & Luzzo, 1996). Career selection content refers to content domains such as accounting, sciences, or mathematics. People may avoid careers that require the content if they have low self-efficacy in the content domains. In other words, a person may avoid a mathematics-based career if the person has low self-efficacy in mathematics courses. The career selection process refers to "confidence with respect to the process of career decision making" (Betz, 2004, p. 344). A person may avoid making career decisions or implementing career decisions if he or she has low self-efficacy in career decision making.

Career Decision Self-Efficacy: Research and Interventions

Betz and Hackett (1981) conducted the first study of career self-efficacy. In a study of 235 college students, they investigated the relationship of career self-efficacy expectations to perceived career options. The participants were asked to rate their level of confidence in completing the educational and job requirements of

20 occupations. The occupations were divided into two groups, traditional occupations and nontraditional occupations. The results revealed that women's self-efficacy was lower in traditionally male-dominated occupations and higher for traditionally female-dominated occupations. The men's self-efficacy was equivalent for both male- and female-dominated occupations.

Subsequent studies have reaffirmed the importance of self-efficacy in career development. Taylor and Popma (1990) studied the relationships among career decision self-efficacy, vocational indecision, career salience, and locus of control. The study supported Taylor and Betz's (1983) findings that career decision self-efficacy was inversely related to career indecision. The results also indicated that career decision self-efficacy was negatively related to locus of control.

In addition, Betz and Voyten (1997) examined the relationships among career decision self-efficacy, career indecision, and outcome expectations. Three hundred-fifty participants completed the Career Decision Self-Efficacy-Short Form (Betz et al., 1996) and the Career Decision Scale (Osipow, Carney, & Barak, 1976; Osipow, Carney, Winer, Yanico, & Koschier, 1987). Following the intervention, a multiple regression analysis showed that self-efficacy beliefs were better predictors of career indecision than outcome expectations and career exploration. The analysis also showed a negative relationship between career decision self-efficacy and career indecision and a positive relationship between career decision self-efficacy and outcome expectations. The researchers concluded that "higher levels of career decision making self-efficacy are generally positively related to exploratory intentions and are related to lower levels of indecision" (p. 184).

Gloria and Hird (1999) investigated the career decision self-efficacy in different racial/ethnic groups of declared and undeclared students. They found that undeclared students had lower levels of career decision self-efficacy and higher trait anxiety than declared students. The authors also established that racial/ethnic minority students in the study had lower career decision self-efficacy than did Caucasian students. Further, Gloria and Hird found that ethnicity explained a larger percentage of the variance for career decision self-efficacy in racial/ethnic minority students than in Caucasian students.

In a study of 627 undergraduates, Paulsen and Betz (2004) examined the relationship between career decision self-efficacy and self-efficacy “as it relates to the basic competencies required of the typical liberal arts education” (p. 355). They assessed students’ confidence in leadership, cultural sensitivity, mathematics, science, technology use, and writing abilities. The results showed that students’ confidence on these six factors accounted for 49% of the variance in career decision self-efficacy. Confidence in leadership ability was the largest predictor of career decision self-efficacy in all groups.

In another study, Quimby and O’Brien (2004) found that career barriers including sex discrimination, multiple role conflict, and dissatisfaction with careers, accounted for significant variance (10% for women without children and 20% for women with children) in the career decision self-efficacy in nontraditional (i.e., over 25 years old) college women. Social support explained another 16% of the variance in this sample. These findings indicate to career counselors the importance of assessing the presence of both career barriers and social support

among undecided individuals, especially those with lower levels of career decision self-efficacy.

Research has shown that career decision self-efficacy can be improved with career interventions. Fukuyama, Probert, Neimeyer, Nevill, and Metzler (1988) studied the effects of a computer-assisted career guidance program, DISCOVER (ACT, 1988), on the career decision self-efficacy and career decidedness of undergraduates. Results indicated significant improvement in career decision self-efficacy and a decrease in career indecision following students' exposure to DISCOVER. Maples and Luzzo (2005) found that in addition to improving career decision self-efficacy, using DISCOVER also enhanced students' career decision-making attributional style.

In a study of 99 first year college students, Luzzo and Day (1999) evaluated the effects of Strong Interest Inventory feedback on career decision-making self-efficacy. There were three treatment groups: the Strong Interest Inventory (SII) with feedback focused on social-cognitive beliefs, an SII only group, and a control group. Results indicated the group that received feedback in addition to completing the SII exhibited significantly greater posttest scores on the CDSE-SF in comparison to the other two groups.

In addition, Luzzo et al. (1996) evaluated the effects of attributional retraining on the career decision-making self-efficacy of students attending a private liberal arts university. The participants in the experimental group watched an eight-minute attributional retraining videotape designed to encourage students to attribute low levels of confidence in making career decisions and career-related

failures to a lack of effort and successful career decision making to adequate effort. Students who initially exhibited an external locus of control significantly increased their CDSE (Taylor & Betz, 1983) scores following their exposure to the attributional retraining procedure. Luzzo et al. concluded that individuals who believe that they have control over and responsibility for career decisions are more likely to work harder at making career decisions and to explore career options than are those who view career decision making as externally caused and uncontrollable.

Summary

It is plausible that positive changes in career beliefs, attitudes, and behaviors may result from helping students take steps toward making career decisions that reflect a strong sense of control over and responsibility for making career decisions (Luzzo, 1996). As the college population continues to grow, including the population of underprepared students, postsecondary institutions are being called to instruct students in career education as well as academic education (Peng, 2001).

Career interventions have been effective in enhancing internal locus of control (Bartsch & Hackett, 1978; Broley, 1986; Luzzo et al., 1996) and increasing career decision self-efficacy (Foltz & Luzzo, 1998; Reece & Miller, 2006; Scott & Ciani, 2008). The Cognitive Information Processing approach has been used successfully as a career intervention to enhance career decision-making skills (Peterson et al., 1991; Peterson et al., 1996; Sampson et al., 1999) while helping individuals reduce negative career thoughts (Austin et al., 2003; Carr, 2004;

Osborn et al., 2007; Reed et al., 2000; Strohm, 2008). In addition, research suggests that a career course that uses the Cognitive Information Processing approach may have a positive impact on retention and on student efficiency at pursuing educational degrees (Folsom et al., 2001; Folsom & Reardon, 2003).

While interventions have been effective in addressing a variety of career issues (Whiston, Sexton, & Lasoff, 1998), no research has explored the impact of a career intervention in a first year experience course on the dysfunctional career thoughts and locus of control of underprepared college students. Dysfunctional career thoughts (Osborn, et al., 2007) and external locus of control (Gifford et al., 2006; Grimes, 1997) were found to be problematic for underprepared students. With the growing number of underprepared students seeking education at postsecondary institutions, a closer look at a theoretically-based career intervention with this population is needed.

Although research has not yet explored the relationship between dysfunctional career thoughts and locus of control, Lebedina-Manzoni (2004) demonstrated a correlational relationship between dysfunctional thinking in academic pursuits and locus of control. In addition, the CTI workbook includes cognitive restructuring activities and has been shown to improve dysfunctional career thoughts (Carr, 2004; Strohm, 2008), and cognitive restructuring activities have been shown to enhance internal locus of control (Mattick & Peters, 1988; Serfaty et al., 1999). As a result, an exploration of the relationship between dysfunctional career thoughts and locus of control would seem feasible.

CHAPTER 3 - METHOD

The purpose of the study was assess the impact of a career intervention based on the Cognitive Information Processing approach (Peterson et al., 1991; Peterson et al, 1996; Reardon et al., 2000; Sampson et al., 2004), using the CTI Workbook (Sampson et al., 1996b), on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. In addition, the study investigated the relationship between locus of control and dysfunctional career thoughts.

The research questions addressed by this study were as follows:

1. Will there be a positive correlation between levels of dysfunctional career thoughts and locus of control?
2. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) decrease in underprepared college students of the treatment group from pretest to posttest?
3. Will locus of control of underprepared college students in the treatment group become more internal from pretest to posttest?
4. Will the career decision self-efficacy of underprepared college students of the treatment group increase from pretest to posttest?
5. Will the treatment group experience lower levels in dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) than the control group following the career intervention?

6. Will locus of control of the treatment group be more internal than that of the control group at posttest?
7. Will the career decision self-efficacy of the treatment group be higher than that of the control group at posttest?
8. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) be maintained in the treatment group from posttest to delayed posttest four weeks later?
9. Will locus of control be maintained in the treatment group from posttest to delayed posttest four weeks later?
10. Will career decision self-efficacy be maintained in the treatment group from posttest to delayed posttest four weeks later?

This chapter includes a discussion of the following: the participants, the instruments, the procedures used to carry out the study, the research hypotheses tested, the research design, the statistical analyses, and a discussion of the career intervention.

Participants

The sample of the study consisted of 48 undergraduate students enrolled in a three-credit hour First Year Experience course. Data from an additional 15 students were excluded because the students did not attend all of the intervention sessions and chose not to complete them. In addition, 14 Teacher Education majors in their senior year at Gordon College completed the demographic form, the CTI, the IE Scale, and the CDSE-SF for post-hoc comparisons. Coursework was

completed at a small, open-enrollment institution that enrolls approximately 3,500 students per semester. Students self-selected courses based on various reasons, including their preferences for course times and their choice of specific instructors.

In the fall semester of 2007, the College Student Expectancies Questionnaire (CSXQ, Pace & Kuh, 1998) and the Semester Enrollment report (University System of Georgia, 2007) reported a student body composed of 52% Caucasians, 39% African-Americans, 2% Hispanics, and 4% other. Traditional-aged students (18-23) made up 88% of the enrollment and almost all of the students (97%) were in-state residents. Freshmen made up 67% of the total enrollment and 78% of the students were full-time. Female students accounted for 64% of the student population, and approximately 54% of incoming freshmen at Gordon College were first generation college students.

Instruments

Career Thoughts Inventory

The Career Thoughts Inventory (CTI; Sampson et al., 1996a) is comprised of 48 items designed to indirectly measure dysfunctional career thinking. The CTI is used as a screening tool to help individuals identify dysfunctional thinking that impairs their ability to solve career problems effectively and to make appropriate career decisions. The CTI also can be used successfully as a learning resource in conjunction with the CTI Workbook (Sampson et al., 1996b) to “identify, challenge, and alter any negative career thoughts and then follow up with action” (Sampson et al., 1996c, p. 16).

The CTI is based on the Cognitive Information Processing approach (CIP, Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004), which theorizes that, by reducing dysfunctional career thinking, clients can more effectively process information needed for exploration, problem solving, and decision making. By becoming more aware of the negative impact of dysfunctional thinking and by learning the process of cognitive restructuring, clients can begin to think in “more creative, reality-based ways about their career choices” (Sampson et al., 2004, p. 93).

The CTI is a self-administered, objectively scored measure of dysfunctional thoughts in career problem solving and decision making. The 48-item assessment provides a total score as well as scores for three construct scales: Decision-Making Confusion (DMC), Commitment Anxiety (CA), and External Conflict (EC). The CTI uses a Likert scale with responses ranging from “strongly disagree” (0) to “strongly agree” (3) and the total score can range from 0 to 144, with higher scores indicating more dysfunctional thoughts. The CTI can be administered in 7 to 15 minutes and can be scored in 5 to 10 minutes.

The three construct scales provide additional information about where dysfunctional thinking lies. The first construct scale, Decision-Making Confusion, has 14 items with a score range of 0 to 42 and reflects one’s inability “to initiate or sustain the decision making process as a result of disabling emotions and/or a lack of understanding about the decision making process itself” (Sampson et al., 1996c, p. 2). The second construct scale, Commitment Anxiety, has a score range of 0 to 30. The 10 items of the Commitment Anxiety construct scale reflect one’s “inability

to make a commitment to a specific career choice, accompanied by generalized anxiety about the outcome of the decision making process” (p. 2). The third construct scale, External Conflict, is a five-item scale, with a score range of 0 to 15, which reflects an “inability to balance the importance of one’s own self-perceptions with the importance of input from significant others, resulting in a reluctance to assume responsibility for decision making” (p. 2).

Sampson et al. (1996c) have shown the CTI to be a reliable and valid measure of dysfunctional career thinking for adults, college students, and high school students. Coefficient alphas were used to determine the internal consistency for each group in the normative sample. The coefficient alphas for the total score of the CTI range from .93 to .97; from .90 to .94 for Decision-Making Confusion; from .79 to .91 for Commitment Anxiety; and from .74 to .81 for External Conflict. In this study, the coefficient alpha for the CTI Total score was .93; Decision-Making Confusion had a coefficient alpha of .89; the coefficient alpha for Commitment Anxiety was .80; and the coefficient alpha was .63 for External Conflict.

The four-week test-retest stability coefficient for college students was .86 for the CTI total score, .82 for Decision-Making Confusion, .79 for Commitment Anxiety, and .74 for External Conflict (Sampson et al., 1996c). These results are sufficient to show the stability of the results over time.

The content validity of the CTI “concerns the congruence of CTI items, CIP content dimensions, and construct scales with the theoretical basis of the instrument” (Sampson et al., 1996c, p. 51). After completing a review of the

literature on dysfunctional thinking associated with career choices, criteria for dysfunctional career thoughts “were developed for each of the information processing domains: self-knowledge, occupational knowledge, decision making (composed of the subcomponents of communication, analysis, synthesis, valuing, and execution), and executive processing” (Sampson et al., 1996c, p. 41). The eight content dimensions of the CTI were not intended to be used as stand-alone scales because of the consistently high intercorrelations among the dimensions.

A series of principal components analyses with orthogonal rotation were used to determine the construct validity, the extent to which clusters of empirically associated items were conceptually consistent with the CIP theory across populations (Sampson et al., 1996c). The results were utilized in creating the three construct scales of Decision-Making Confusion, Commitment Anxiety, and External Conflict. According to Sampson et al. (1996c), the three-factor solution accounted for 47.3% of the variance in the total normative sample. The analyses revealed that there is “a single powerful confusion entity that is pervasive in career problem solving and decision making” (Sampson et al., 1996c, p. 58) that individuals should address in addition to the issues related to anxiety and potential conflict with significant others.

Convergent validity, the extent to which the CTI scores (total and construct scales) correlate with other measures of similar constructs, was evaluated using instruments that were chosen because of related theoretical constructs on decision making, individual decision-making characteristics, and personality characteristics. Sampson et al. (1996c) correlated CTI-Total and construct scale scores with My

Vocational Situation (MVS; Holland et al., 1980), the Career Decision Scale (CDS; Osipow et al., 1987), The Career Decision Profile (CDP; Jones, 1988), and the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). The convergent validity was measured using Pearson product-moment correlation coefficients for adult, college student, and high school student normative groups. For all groups, the relationships were in the expected direction and the constructs with positive connotations—such as vocational identity, certainty, and decidedness—were inversely correlated with the dysfunctional career thoughts (CTI-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict).

Criterion validity was examined to determine how accurately the CTI distinguished between college students who were seeking career services and college students who were not seeking career services. A MANOVA showed significant differences in CTI scores between the college students seeking services and college students not seeking services. The students seeking services scored higher than students not seeking services on all 48 items of the CTI and significantly higher on 26 items. The data provided adequate support that the CTI can discriminate between persons seeking career services and persons who are not.

Rotter IE Scale

Rotter's (1966) Internal Versus External Control of Reinforcement Scale (IE Scale) is a single-scale, 29-item, forced-choice assessment which includes six filler items to make the purpose of the assessment more ambiguous. The IE Scale

stems from social learning theory in which “responses occur as unlearned or previously unlearned responses and are modified or combined into more refined or more complex behavior, a process speeded up by direct reinforcement or expected reinforcement through imitation” (Rotter, 1982, p. 3). In other words, Rotter based his scale on the assumption that people behave in accordance with their beliefs regarding expectations of how reinforcement is controlled. If a person believes his actions will generate a desirable outcome, he is likely to expend more effort than if he believes that his effort makes no difference and that the outcome is determined by chance or powerful others. The instrument is considered to be a measure of generalized expectancy and may correlate with the value the participant places on internal control, “but none of the items is directly addressed to the *preference* for internal or external control” (Rotter, 1966, p. 10).

Each of the 29 items has two choices and respondents are asked to choose which answer most accurately reflects their personal view. Examples of items from the IE Scale are: (a) “When I make plans, I am almost certain that I can make them work” and (b) “It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow” (Rotter, 1966, p. 11). The IE Scale score is obtained by adding the number of external items selected, with a range of 0-23 and higher scores indicating a more external locus of control.

The evolution of the Rotter (1966) IE Scale began with Phares’ (1957) study of chance and skilled effects in expectancies for reinforcement, the first attempt to assess external control as a psychological variable. He developed a Likert-type scale, on a priori grounds, with 13 items that were thought to be external attitudes

and 13 items thought to be internal attitudes. The results in that study indicated that reinforcements under skill conditions had a greater effect on raising or lowering expectancies for future reinforcements than reinforcements under chance conditions.

James (1957) revised Phares' (1957) instrument with a Likert scale and 26 items based on the most successful in the Phares' (1957) study. James (1957) reported low but significant correlations between his instrument and behavior in the task situation and supported Phares' previous results.

Attempts were made to develop additional subscales for different areas by constructing a forced-choice questionnaire (Rotter, 1966). The earliest form of the instrument included 100 forced-choice items, each one contrasting an external belief with an internal belief. The scale was item analyzed and factor analyzed and reduced to a 60-item scale on the basis of internal consistency criteria.

The item analysis of the 60-item scale indicated that subscales were not generating separate predictions. Achievement tended to correlate highly with social desirability and some of the subscales correlated with other scales. The attempt to measure more specific subscales was discarded.

Data were collected for a large group of subjects to provide item correlations of the IE Scale with the Marlow-Crowne Social Desirability scale (Crowne & Marlowe, 1964). Overall correlations of the IE Scale with the Social Desirability Scale were .35 to .40, which was considered too high and reduction of the 60-item scale was undertaken. Validity data were obtained from internal consistency data in addition to a study investigating the self-effort toward recovery of tuberculosis

patients (Seeman & Evans, 1962) and a study investigating the prediction of individual differences in trials to extinction (Rotter, Liverant, & Crowne, 1961).

Items on the IE Scale which “had a high correlation with the Marlowe-Crowne Social Desirability Scale, a proportional split so that one of the two alternatives was endorsed more than 85% of the time, nonsignificant relationship with other items, or a correlation approaching zero with both validation criteria” (Rotter, 1966, p. 10) were eliminated. When the redundancy was eliminated, the scale was reduced to the current 29-item scale. Factor analyses (Joe & Jahn, 1973; Rotter, 1966) revealed that all items loaded significantly on the general factor, which accounted for 53% of the total scale variance.

The Split-half Spearman-Brown and Kuder-Richardson reliability estimates for the IE Scale ranged from $r = .69$ to $.73$ (Franklin, as cited in Rotter, 1966; Rotter, 1966). In the current study, the Spearman-Brown reliability estimate was $.63$. The internal consistency estimates were relatively stable and while the estimates were only moderately high, the items were not arranged in a difficulty hierarchy and were designed to sample attitudes across a variety of situations. The assessment is an additive one and the items are not comparable.

The construct validity of Rotter’s IE Scale was established by multimethod measurement (Marsh & Richards, 1986; Rotter, 1966). Rotter (1966) established the construct validity of the IE Scale with more than 10 studies that assessed a variety of participants, including prisoners, civil rights participants and non-participants, and smokers and non-smokers. Marsh and Richards (1986)

presented evidence of the current IE Scale's construct validity using three different response designs before and after the conclusion of the Outward Bound program.

Discriminant validity was indicated by the low relationships with variables such as "intelligence, social desirability and political liberalness" (Rotter, 1966, p. 25). These constructs are theoretically different from locus of control and thus not highly correlated.

The test-retest reliabilities range from .49 to .83, and the means for the second administration typically moved approximately one point in the external direction (Rotter, 1966). The one-month test-retest reliability was somewhat higher than the two-month test-retest reliability. Rotter (1966) speculated the lower reliabilities for the two-month period "may be partly a function of the fact that the first test was given under group conditions and the second test was individually administered" (p. 10). Hersch and Scheibe (1967) reported .45 to .87 test-retest reliabilities in a sample of mental hospital volunteers and Zerega, Tseng, and Greever (1976) performed product-moment correlational analyses of test-retest measures over an eight-month period with $r = .55$ in a sample of high school students.

Career Decision Self-Efficacy-Short Form

The Career Decision Self-Efficacy Scale (CDSE; Taylor & Betz, 1983) was designed to measure one's self-efficacy expectations, the belief that one can successfully complete career decision-making tasks. The CDSE was theoretically based on self-efficacy theory, although career-maturity theory was also an important contributor. Bandura (1977) hypothesized that self-efficacy expectations

were a major mediator of behavior and useful in understanding and predicting behavior. Individuals with low self-efficacy expectations regarding a behavior would avoid that behavior while increases in self-efficacy expectations should boost the frequency of approach behavior.

Taylor and Betz (1983) chose the five Career Choice Competencies of career maturity (Crites, 1978) as the basis for scale construction because specifying the behavior domain of interest was an important part of developing the instrument. Therefore, “the five subscales included behaviors pertinent to: a) accurate self-appraisal; b) gathering occupational information; c) goal selection; d) making plans for the future; and e) problem solving” (Betz & Taylor, 2006, p. 7). Ten items were written for each competency area and the scoring key indicates the subscale placement of those 50 items. While the initial instrument used a 10-point scale (ranging from 0, “No confidence at all” to 9, “Complete confidence”), later psychometric evaluation of the CDSE found a five-level confidence continuum was comparable and also provided reliable and valid measurement (Betz, Hammond, & Multon, 2005).

In order to create a shortened version of the CDSE, Betz et al. (1996) eliminated five of the 10 items from each of the CDSE subscales, creating a 25-item instrument. The CDSE-SF uses a 5-point rating scale ranging from “No confidence at all” (1) to “Complete confidence” (5). The total score is the mean of all 25 items (Betz & Taylor, 2006). Scores of 3.5 or higher indicate that the students have greater confidence in their ability to perform the task and will exhibit

approach behavior while scores lower than 3.5 indicate students will exhibit avoidance behavior (Betz & Taylor, 2006).

The CDSE and the CDSE-SF have been reported to be highly reliable. In the CDSE normative sample of 346 students, internal consistency reliability coefficients ranged from .86 to .89 on the subscales and .97 for the total score (Taylor & Betz, 1983). The internal consistency reliability of the CDSE-SF ranged from .73 to .83 for the 5-item subscales and .94 for the 25-item total score (Betz et al., 1996). In a separate study, Betz and Voyten (1997) found CDSE-SF reliabilities ranging from .69 to .83 for the subscales and .93 for the total score. Paulsen (2002) reported an internal consistency coefficient for the total scale of .95, using the CDSE-SF. Paulsen (2002) further found the reliability coefficients of the subscales to range from .80 to .84. In the current study the coefficient alphas for the subscales ranged from .69 to .85 and the Cronbach's alpha for the total scale was .96.

Strong convergent validity was demonstrated between the CDSE and the Career Decision Scale (Osipow et al., 1976; Osipow et al., 1987). The manual for the CDSE and the CDSE-SF (Betz & Taylor, 2006) reported correlations between the CDSE and the Career Decision Scale (Osipow et al., 1976; Osipow et al., 1987) “ranged from -.29 with the Problem Solving subscale to -.48 with the Goal Selection subscale; the correlations between the CDSE total score and the CDS total score was -.40” (Betz & Taylor, 2006, p. 12).

Betz and Taylor (2006) also demonstrated solid criterion-related and construct validity for the CDSE-SF with a number of criterion variables. For

example, CDSE scores have been significantly correlated with locus of control (Taylor & Popma, 1990), with an internal locus of control consistently associated with higher levels of career decision self-efficacy. Also, Betz and Vuyten (1997) studied career decision self-efficacy, career indecision, and outcome expectations and found that CDSE-SF scores were the best predictor of career indecision in a model that included efficacy and outcome expectations. Using the CDSE-SF, there was “evidence of a tighter connection between self-perceptions of career decision-making competence and decisional certainty” (Betz & Taylor, 2006, p. 14).

In 2006, Betz and Taylor made minor changes to the instrument to be current with technological changes. “Use the Internet to find information about occupations that interest you” was examined as a possible replacement for the original item “Find information in the library about occupations you are interested in.” Hartman and Betz (2007) found the item-total correlations for the new and original items were .54 and .50. Based on these favorable results, the “Internet” item is now included in the final 25-item scale, and the “library” item was discarded.

Procedures

Permission to conduct the study was secured from the Institutional Review Boards of Kansas State University and Gordon College. Faculty members teaching the First Year Experience courses were approached and gave permission to use their classes in the study. All materials were provided at no charge, and no tangible inducements were offered to participate in the study. Each participant signed an informed consent form (Appendix A) and a release to access COMPASS

and high school GPA information (Appendix B). Participants also completed a brief demographic form (Appendix C) to gather information about age, gender, ethnicity, disability status, and first generation status.

Each student in the First Year Experience sample took the COMPASS, an ACT placement exam used as an assessment tool by the University System of Georgia to determine a student's level of preparation for college-level courses. The college implemented a policy that requires any student placed in three learning support courses also complete the First Year Experience course in the first semester of college. The Fall 2008 First Year Experience course was a pilot program geared toward helping underprepared students master academic literacy skills. Participants in this study fell into that category.

The study took place during the fall academic semester of 2008, with a seven-session career intervention included as part of the First Year Experience course. The intervention was conducted over three and one-half weeks and each session was 50 minutes in length. According to Whiston et al. (1998), the average number of hours in a career intervention is 7.5, with half of all studies investigated utilizing 3.75 or fewer hours of the treatment with significant effect size. According to Luthans, Avey, Avolio, Norman, and Combs (2006), micro-interventions, interventions that last one to three hours, have been used successfully in organizational psychology research.

The individuals in the treatment group participated in the career intervention after midterm of the semester while the individuals in the control group were offered an opportunity to participate in the CIP career intervention after the study

was complete. One of the treatment group sections of the First Year Experience course was taught by the researcher, a counselor with 10 years experience, while the other section was taught by another qualified faculty member. In both treatment group sections, the career intervention was facilitated by the researcher. Both of the control group sections of the First Year Experience course were taught by a different qualified faculty member; each section contained a maximum of 24 students. The First Year Experience courses were designed to assist underprepared college students to develop the necessary skills, practices, and attitudes for successfully engaging themselves within the academic community and ensuring continued academic progress. The First Year Experience courses offered opportunities for students to develop better study and time management skills as well as opportunities to better understand the culture of academia and its behavioral and technical requirements. The pretests, posttests, and delayed posttests were administered in a group setting by the principal researcher during regular class time. The delayed posttest assessments were administered during regular class time four weeks after the intervention was concluded. The treatment groups and control groups were all assessed on the same dates.

Hypotheses

The research hypotheses addressed by the study were as follows:

Hypothesis 1

There will be a positive relationship between dysfunctional career thoughts and locus of control.

Hypothesis 2

Upon completion of the intervention, the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) in the treatment group will be lower than the levels before the intervention.

Hypothesis 3

Upon completion of the intervention, the locus of control of underprepared college students in the treatment group will become more internal compared to the locus of control before the intervention.

Hypothesis 4

The career decision self-efficacy of the underprepared college students in the treatment group will increase from pretest to posttest.

Hypothesis 5

Upon completion of the intervention, the treatment group will experience lower levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) than will the control group.

Hypothesis 6

Upon completion of the intervention, the locus of control of the treatment group will be more internal than that of the control group.

Hypothesis 7

The career decision self-efficacy of the treatment group will be higher than that of the control group at posttest.

Hypothesis 8

The levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) in the treatment group will be maintained from posttest to delayed posttest four weeks later.

Hypothesis 9

The levels of internal locus of control in the treatment group will be maintained from posttest to delayed posttest four weeks later.

Hypothesis 10

The level of career decision self-efficacy will be maintained in the treatment group from posttest to delayed posttest four weeks later.

Research Design

The study was a quasi-experimental Nonequivalent Control Group design (Gay & Airasian, 2003) with a delayed posttest. The groups were considered nonequivalent because there was no random assignment to groups and the students self-selected the First Year Experience course in which they enrolled. Adding the pretest enabled the researcher to check similarity of the groups prior to treatment. The pretest scores were used for statistical control as covariates.

Statistical Analyses

A univariate analysis of covariance (ANCOVA; Gay & Airasian, 2003) was used to analyze the difference between the mean scores for each of the dependent variables (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, External Conflict, IE locus of control, and career decision self-efficacy). The inclusion of a covariate into an ANOVA generally increases statistical power by accounting for some of the variance in the dependent variable and thus increasing the ratio of variance explained by the independent variables. The ANCOVA statistically adjusted scores based on the pretest of the dependent variables to compensate for initial differences so the results at the end of the study could be accurately compared (Gay & Airasian, 2003). The alpha level for all tests was .05 with a Bonferroni correction made to adjust for multiple comparisons on the ANCOVA with an adjusted alpha of 0.017.

Career Intervention

In the career intervention, based on the Cognitive Information Processing approach (Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004), the students utilized the CTI Workbook (Sampson et al., 1996b). The career intervention format and the assignments utilized in this study were designed to assist students in making informed decisions about majors and careers and to help the students reframe negative career thoughts. The students completed the following three assessments to increase their knowledge of self and clarify interests, values, and abilities: the Self-Directed Search (SDS; Holland, 1994), the Work Importance Locator (U.S. Department of Labor, 2000), and the

SKILL Sort (Georgia Career Information System, 2007). They had opportunities to increase their knowledge of the world of work, of occupations, and of majors. They were also shown ways to become more knowledgeable about implementing effective career decision-making skills by utilizing the CASVE decision-making model.

An integral part of the intervention utilized the CTI Workbook to encourage students to recognize and reframe negative career thoughts. The CTI Workbook is designed to “facilitate the cognitive restructuring of negative career thoughts” (Sampson et al., 2004, p. 93) through the completion of exercises devised “to improve self-awareness of the detrimental impact of dysfunctional thinking on career problem solving and decision making” (p. 93). Research has shown that cognitive restructuring activities also can enhance locus of control (Lebedina-Manzoni, 2004; Mattick & Peters, 1988) and interventions using the CTI Workbook have decreased dysfunctional career thoughts (Carr, 2004; Strohm, 2008).

The first session of the career intervention was used to collect pre-intervention data. Each student completed an informed consent form, a demographic information sheet, the Rotter (1966) IE Scale, the Career Decision Self-Efficacy-Short Form (Betz et al., 1996), and the Career Thoughts Inventory (CTI, Sampson et al., 1996a). The researcher also described the format, content, and purpose of the intervention. Students were given homework assignments to complete the SDS (Holland, 1994), as well as the Work Importance Locator (U.S. Department of Labor, 2000) and the SKILLS sort (Georgia Career Information

System, 2007) in the Georgia Career Information Center (GCIC, <http://www.gcic.peachnet.edu/>).

In the second session, an overview of the Cognitive Information Processing approach (Reardon et al., 2000; Sampson et al., 2004) was presented and discussed. Section Two of the CTI Workbook, Identifying the Nature of your Negative Career Thoughts: CTI Scale Scores, was utilized to facilitate discussion and the interpretation of the CTI scale scores. Students received an overview of the decision-making process (CASVE). Discussion focused on the steps of the CASVE cycle and handouts were given that presented the information visually.

Session three focused on self-knowledge, one of the knowledge domains at the foundation of the Pyramid of Information Processing (Reardon et al., 2000; Sampson et al., 2004). The instructor distributed handouts of the Pyramid of Information Processing to facilitate discussion. Interpretation was provided by the instructor before the students processed results in small groups. The instructor facilitated a group interpretation of the results of the SDS, the Work Importance Locator, and the SKILL Sort. Students completed the Challenging and Altering Your Negative Career Thoughts and Taking Action exercise, Section Three from the CTI Workbook (Sampson et al., 1996b), as a homework assignment. The workbook exercise required the students to write their negative career thoughts and then re-write them in a more positive way. In addition, the instructor explained and demonstrated the process during class and the students had an opportunity to receive assistance during the instructor's office hours.

In the fourth session, the students discussed their responses from the Challenging and Altering Your Negative Career Thoughts and Taking Action exercise from the CTI Workbook (Sampson et al., 1996b). The instructor also presented information on the metacognitive processes of control and monitoring. The class discussed resources available to students and barriers students face that may challenge their ability to successfully navigate the career decision-making process. The students discussed concerns about “locating and gaining access to training in which a mediocre student might succeed” (Weinstein, Healy, & Ender, 2002, p. 347).

In session five, students discussed activities from Section Four of the CTI Workbook, Improving Your Ability to Make Good Decisions. In addition, the instructor facilitated group discussion and presented topics on occupational knowledge, one of the domains at the foundation of the Pyramid of Information Processing (Reardon et al., 2000; Sampson et al., 2004). Students received information on available occupational information and where the information could be located. A discussion about choosing a major, understanding the world of work, and matching majors with occupations was conducted. Homework was given to research information about two possible majors congruent with the student's interests, values, and skills and to write a paragraph about each of the choices. A draft of the homework was to be completed for review during the sixth session.

The sixth session involved an individual meeting of each student with the researcher to discuss and create an Individual Learning Plan (ILP) from the CTI Workbook. All 22 students in the treatment group met individually with the

researcher for approximately 45 minutes. The ILP identified “a sequence of resources and activities to help the client attain his or her goals for career problem solving and decision making” (Sampson et al., 2004, p. 58). Students received feedback on the ILP and had an opportunity to discuss concerns about the career decision-making process. The individual meeting also presented an opportunity for the instructor to give feedback on the paragraphs students completed on academic majors.

During session seven, students were provided information about the changing world of work and the importance of balancing work and non-work roles. Discussion included effects of the global economy, technological advances, and other changes in the way people work. The effects of these changes on individuals and their families were also integrated in the discussion. In addition, students completed posttest assessments of the CTI (Sampson et al., 1996a), the Rotter (1966) IE Scale, and the CDSE-SF (Betz et al., 1996). Students submitted the final version of the paragraphs on academic majors.

Four weeks after session seven, the students completed the CTI (Sampson et al., 1996a), the Rotter (1966) IE Scale, and the CDSE-SF (Betz et al., 1996). The control group was given the assessments during the same week that the assessments were completed by the treatment group.

CHAPTER 4 - RESULTS AND DISCUSSION

The purpose of this study was to explore the impact of a career intervention on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students in a First Year Experience course. The career intervention utilized the CTI Workbook (Sampson et al., 1996b) and was based on the CIP approach to career decision making (Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004). The career intervention was designed to improve career problem solving and decision making.

The Career Thoughts Inventory (CTI; Sampson et al., 1996a), Rotter's Internal External Scale (IE Scale; Rotter, 1966), and the Career Decision Self-Efficacy-Short Form (CDSE-SF; Betz et al., 1996) were used as pretest, posttest, and delayed posttest measures of the dependent variables. This chapter includes a comparison of pretest data by group, the results, a summary of the results, and a discussion of the results.

Pre-Intervention Comparisons

Prior to planned data analysis, the means for age, the high school GPA, and the COMPASS scores were analyzed for both the treatment and control groups using an independent samples *t*-test (see Table 1). COMPASS scores and high school GPA were obtained from the Registrar's office. There were no significant group differences between the means for age, high school GPA, or COMPASS scores.

Table 1

Pre-Intervention Means and Standard Deviations for Age, High School GPA, and COMPASS Scores

	Treatment (<i>n</i> = 22)		Control (<i>n</i> = 26)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	19.41	2.34	18.62	0.80
HS GPA	2.59	0.41	2.57	0.37
COMPASS Reading	60.55	10.14	61.42	15.49
COMPASS Math	23.55	7.30	24.23	7.91
COMPASS English	31.77	16.69	33.92	17.06

In addition, the demographic information was compared for gender, disability status, ethnicity, and first generation status using Chi-Square tests. There were no statistically significant differences in the demographic variables for the treatment group versus the control group. There were 9 (41%) males and 13 (59%) females in the treatment group and 11 (42%) males and 15 (58%) females in the control group. Two (8%) students in the control group identified themselves as disabled while 6 (27%) students in the treatment group identified themselves as such. Nine (41%) students in the treatment group were first generation college students and 11 (42%) students in the control group were first generation. A disproportionate number of students in the total sample identified themselves as African-American (85%) but there was no significant difference in ethnicity between treatment and control groups.

Comparisons were also made between the groups' pretest levels of the dependent variables, based on scores on Rotter's (1966) IE Scale, the CDSE-SF (Betz et al., 1996), and the CTI (Sampson et al., 1996a). Independent *t*-tests of pretest data (Table 2) showed no significant differences between group means.

Table 2

Independent t-tests of Dependent Variable Pretest Scores

	<i>t</i>	<i>df</i>	<i>p</i>	<i>MD</i>	<i>SED</i>
CTI Total	-0.33	46	0.74	-2.48	7.42
Decision-Making Confusion	-0.18	46	0.86	-0.40	2.20
Commitment Anxiety	-0.53	46	0.60	-0.94	1.77
External Conflict	0.71	46	0.48	0.63	0.88
Internal External	-0.98	46	0.33	-0.72	0.74
CDSE-SF Total	-0.70	46	0.49	-0.13	0.19

Data were obtained at three different times during the semester. Table 3 shows the means, adjusted means, and standard deviations for pretest, posttest, and delayed posttest levels of the dependent variables.

Table 3

Means and Standard Deviations of Dependent Variables: Group x Time

Groups	Pretest		Posttest			Delayed Posttest	
	<i>M</i>	<i>SD</i>	<i>M</i>	Adjusted <i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Career Thoughts Inventory-Total							
Treatment	47.09	24.62	26.27	(25.15)	24.73	24.77	23.91
Control	44.62	26.71	37.96	(38.91)	27.90	37.38	27.15
Decision-Making Confusion							
Treatment	9.82	8.11	6.27	(6.07)	8.16	5.41	6.50
Control	9.42	7.12	9.42	(9.59)	8.31	8.88	7.52
Commitment Anxiety							
Treatment	11.64	5.83	6.36	(6.02)	5.65	5.82	5.75
Control	10.69	6.34	8.04	(8.33)	6.35	7.58	5.79
External Conflict							
Treatment	4.68	2.62	2.55	(2.79)	2.85	2.36	2.53
Control	5.31	3.36	4.27	(4.06)	3.43	4.23	3.32
IE Scale							
Treatment	11.45	2.01	10.32	(10.27)	2.47	9.18	2.55
Control	10.73	2.92	10.54	(10.58)	2.43	10.31	1.89
CDSE-SF							
Treatment	4.12	0.56	4.19	(4.14)	0.64	4.33	0.59
Control	3.98	0.73	4.09	(4.14)	0.67	4.10	0.61

An analysis of the data in relation to normative data on each instrument showed a similar distribution in most of the sample observations. The normative data for college students on the CTI (Sampson et al., 1996c) were as follows: CTI Total was $M = 47.01$ ($SD = 20.89$), DMC was $M = 10.72$ ($SD = 7.39$), CA was

$M = 12.92$ ($SD = 5.36$), and EC was $M = 3.32$ ($SD = 2.15$). Means and standard deviations for the pretest of the sample in this study were as follows: for the CTI Total, $M = 45.75$ ($SD = 25.38$); the DMC was $M = 9.60$ ($SD = 7.52$); the CA was $M = 11.12$ ($SD = 6.07$); and the EC was $M = 5.12$ ($SD = 3.34$).

Unlike scores for the CTI, the mean for the IE Scale in this study's sample at pretest ($M = 11.06$, $SD = 2.55$) was significantly different from Rotter's (1966) normative data [$t(1226) = 4.79$, $p < .05$]. The mean for the normative data on the Rotter (1966) IE Scale, was 8.29 ($SD = 3.97$) from a sample size of 1180 (Rotter, 1966).

Paulsen (2002) developed normative data on the CDSE-SF on a sample of 603 college students ($M = 3.9$, $SD = 0.61$). Scores on the CDSE-SF for the sample in this study ranged from 2.40 to 5.0 ($M = 4.04$, $SD = 0.66$). Scores of 3.5 or higher on the CDSE-SF indicate that the students have greater confidence in their ability to perform the associated task while scores lower than 3.5 indicate that students have less confidence in the associated task (Betz & Taylor, 2006).

Results

A univariate analysis of covariance (ANCOVA; Gay & Airasian, 2003) was used to detect change by group (treatment and control). In addition, dependent t -tests were used to analyze the difference in the means of the dependent variables. Analysis of the data was conducted using version 16.0 of the Statistical Package for the Social Sciences (SPSS) software and the level of significance was set at .05 with a Bonferroni correction made to adjust for multiple comparisons on ANCOVA with an adjusted alpha of 0.017.

Before analyzing the data from the ANCOVA, the following assumptions were assessed: (a) independence of observations, (b) normal distribution of the dependent variables, (c) homogeneity of variances, (d) linear relationships between the covariates and the dependent variable, and (e) homogeneity of regression slopes (Leech, Barrett, & Morgan, 2008). All of the assumptions were met.

After controlling for the differences between pretest scores for participants in the control and treatment groups by using the pretests as a covariate, significant results were obtained on several of the dependent variables. A Bonferroni correction was also made to adjust for multiple comparisons with an adjusted alpha of 0.017. Career Thoughts Inventory-Total scores had a significant main effect for group [$F(1, 45) = 9.13, p = .004$] with an effect size of $\eta^2 = 0.17$. Also, a significant main effect by group was found for Decision-Making Confusion [$F(1, 45) = 8.17, p = .006$]; effect size was $\eta^2 = 0.15$. Commitment Anxiety did not have a significant main effect for group [$F(1, 45) = 3.17, p = .082$] and the effect size was $\eta^2 = 0.06$. External Conflict also did not have a significant main effect for group [$F(1, 45) = 3.57, p = .065$] with an effect size of $\eta^2 = 0.07$. Neither was there a significant main effect by group for locus of control [$F(1, 45) = 0.20, p = 0.66$]; effect size was $\eta^2 = 0.004$. Finally, the results from the Career Decision Self-Efficacy-Short Form also showed no main effect for group [$F(1, 45) = 0.001, p = 0.97$] with an effect size of $\eta^2 = 0.001$.

A series of Pearson correlations were calculated to determine the association between locus of control, dysfunctional career thoughts, and career

decision self-efficacy. A significant positive correlation was found between locus of control and dysfunctional career thoughts, as measured by the CTI Total Score, $r(46) = .31, p < .05$. A stronger, negative correlation was found for career decision self-efficacy and dysfunctional career thoughts, $r(46) = -.51, p < .001$.

Hypotheses

Hypothesis 1

There will be a positive relationship between dysfunctional career thoughts and locus of control.

There was support for Hypothesis 1 based on a significant Pearson correlation result, with a positive correlation of $r(46) = .31, p < .05$. Students with a more external locus of control also had higher levels of dysfunctional career thoughts.

Hypothesis 2

Upon completion of the intervention with underprepared college students, the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) in the treatment group will be lower than the levels before the intervention.

Using dependent t -tests, Hypothesis 2 was supported with statistically significant lower levels of dysfunctional career thoughts in the treatment group following the intervention. The CTI Total Score [$t(21) = 8.11, p < .001$] decreased from 47.09 ($SD = 24.62$) to a mean of 26.27 ($SD = 24.73$) at posttest. The Decision-Making Confusion mean decreased from 9.82 ($SD = 8.11$) at pretest to 6.27

($SD = 8.16$) at posttest [$t(21) = 4.77, p < .001$]. There was also a significant reduction in Commitment Anxiety [$t(21) = 6.07, p < .001$] from a pretest mean of 11.64 ($SD = 5.83$) to a posttest mean of 6.36 ($SD = 5.65$). Also, a significant decrease from pretest to posttest was found for External Conflict [$t(21) = 5.12, p < .001$] with a pretest mean of 4.68 ($SD = 2.63$) and a posttest mean of 2.55 ($SD = 2.85$).

Hypothesis 3

Upon completion of the intervention, the locus of control of underprepared college students in the treatment group will become more internal compared to the locus of control before the intervention.

Based on dependent t -test results for the treatment group, Hypothesis 3 was not supported. Although there was change in the hypothesized direction on the IE Scale and locus of control became more internal, the results were not significant [$t(22) = 1.65, p = 0.11$]. The IE Scale mean decreased from 11.45 ($SD = 2.01$) on the pretest to 10.32 ($SD = 2.47$) on the posttest.

Hypothesis 4

The career decision self-efficacy of the underprepared college students in the treatment group will increase from pretest to posttest.

Although prior research has shown improvement in career decision self-efficacy following a career intervention (Luzzo et al., 1996; Sullivan & Mahalik, 2000), the dependent t -test for Hypothesis 4 showed no statistically significant improvement in career decision self-efficacy in the treatment group from pretest to

posttest [$t(1, 21) = -0.73, p = 0.48$]. The pretest mean for the CDSE total score was 4.12 ($SD = 0.56$) and the posttest mean was 4.19 ($SD = 0.64$).

Hypothesis 5

Upon completion of the intervention, the treatment group will experience lower levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) than will the control group.

An analysis of covariance was conducted to determine whether the posttest levels of dysfunctional career thoughts differed after adjustments were made for pretest differences. The ANCOVA indicated significant change in posttest means for two dependent variables. There was a significant main effect for CTI Total [$F(1, 45) = 9.13, p = .004$] with an adjusted mean of 25.15 ($SE = 3.35$) on the posttest for the treatment group and an adjusted mean of 38.91 ($SE = 3.08$) for the control group.

In addition, there was also a significant main effect by group for Decision-Making Confusion [$F(1, 45) = 8.17, p = .006$]. The adjusted mean on the posttest for the treatment group was 6.07 ($SE = .91$) and the adjusted mean for the control group was 9.59 ($SE = .83$).

Hypothesis 6

Upon completion of the intervention, the locus of control of the treatment group will be more internal than that of the control group.

The results did not support Hypothesis 6. The ANCOVA did not find a significant main effect for locus of control [$F(1, 45) = 0.20, p = 0.66$]. The adjusted mean for the treatment group was 10.27 ($SE = .53$) while the adjusted posttest mean for the control group was 10.58 ($SE = .48$).

Hypothesis 7

The career decision self-efficacy of the treatment group will be higher than that of the control group at posttest.

Hypothesis 7 was not supported. The ANCOVA revealed no main effect for CDSE-SF [$F(1, 45) = 0.001, p = 0.98$]. The adjusted mean of the treatment group was 4.14 ($SE = 0.10$) and the adjusted mean of the control group was 4.14 ($SE = 0.09$).

Hypothesis 8

The levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) in the treatment group will be maintained from posttest to delayed posttest.

Hypothesis 8 was supported. While the means for all the dependent variables decreased from posttest to delayed posttest, the dependent t -tests for each of the dependent variables showed no significant change from the posttest scores. On the CTI Total [$t(21) = 0.74, p = 0.47$], the mean on the posttest was 26.27 ($SD = 24.73$) while the mean of the delayed posttest was 24.77 ($SD = 23.91$). On Decision-Making Confusion [$t(21) = 1.23, p = 0.23$], the mean for the posttest was 6.27 ($SD = 8.16$) and the delayed posttest mean was 5.41 ($SD = 6.50$). On the

Commitment Anxiety subscale [$t(21) = 0.68, p = 0.51$], the posttest mean was 6.36 ($SD = 5.65$) with a delayed posttest mean of 5.82 ($SD = 5.75$). On External Conflict [$t(21) = 0.46, p = 0.074$], the posttest mean was 2.55 ($SD = 2.85$) while the delayed posttest was 2.36 ($SD = 2.53$).

Hypothesis 9

The levels of internal locus of control for the treatment group will be maintained from posttest to delayed posttest.

A dependent t -test supported Hypothesis 9. The level of locus of control was maintained from posttest to delayed posttest. The level of locus of control in the treatment group decreased at a non-significant level [$t(21) = 1.88, p = 0.07$], from 10.32 at posttest to 9.06 at delayed posttest; the locus of control of the control groups also decreased at a non-significant level, from 10.54 to 10.31. There is no indication that intervention influenced the decrease.

Hypothesis 10

The level of career decision self-efficacy will be maintained in the treatment group from posttest to delayed posttest four weeks later.

A dependent t -test supported Hypothesis 10 in that the level of career decision self-efficacy was maintained from posttest to delayed posttest. However, the posttest score did not significantly change from pretest; therefore, there was no indication the intervention influenced the increase. The level of career decision self-efficacy in the treatment group increased [$t(21) = -2.57, p = 0.018$], from 4.19 ($SD = 0.64$) at posttest to 4.33 ($SD = 0.59$) at delayed posttest.

Additional Findings

In addition to the treatment and control groups involved in the study, the instruments were administered once to a group of Teacher Education students in their senior year of a Bachelor of Science degree program at Gordon College to compare scores of incoming underprepared college students with students in their final year. A significant difference [$t(60) = -6.768, p = .000$] was found in high school GPA with a mean of 3.40 for the college seniors and a mean of 2.58 for the incoming underprepared college students. The average age for the incoming students was 18.98 ($SD = 1.72$) while the average age for senior year students was 26.7 ($SD = 7.51$). Twenty-two percent ($n = 3$) of the seniors were first generation college students and 79% ($n = 11$) were not required to take the COMPASS in writing or math.

Independent t -tests compared pretest data for the underprepared students with scores for the seniors. A significant difference was found in the means of the CTI Total Score [$t(60) = 3.997, p < 0.001$] with the senior mean of 15.71 ($SD = 22.24$) and a mean for the underprepared students of 45.75 ($SD = 25.38$). The mean for Decision-Making Confusion for the seniors ($M = 2.50, SD = 4.62$) was also significantly different [$t(60) = 4.32, p < 0.001$] from the mean of the underprepared students ($M = 9.60, SD = 7.52$). In addition, Commitment Anxiety was significantly different [$t(60) = 4.34, p < 0.001$] with a mean of 3.36 ($SD = 5.16$) for the seniors and a mean of 11.12 ($SD = 6.07$) for the underprepared students. External Conflict also was significantly different [$t(60) = 2.87, p = .006$] with a mean of 2.29 ($SD = 3.47$) for the seniors and a mean of 5.02 ($SD = 3.04$) for

underprepared students. Results from the IE Scale were not significantly different [$t(60) = -0.75, p = .58$] with a mean of 11.64 ($SD = 2.49$) for seniors and a mean of 11.06 ($SD = 2.55$) for underprepared students; nor did the results from the CDSE-SF differ significantly [$t(60) = 0.23, p = .82$] with mean of 4.00 ($SD = 0.52$) for the seniors and a mean of 4.04 ($SD = 0.66$) for the students who were underprepared.

Summary of Results

The results showed a weak positive correlation between IE score measuring locus of control and the CTI Total Score measuring dysfunctional career thoughts. In addition, a stronger negative correlation between dysfunctional career thoughts, as assessed by the CTI, and career decision self-efficacy, as assessed by the CDSE-SF, was found.

At the conclusion of a seven-session CIP career intervention, dysfunctional career thoughts significantly decreased from pretest to posttest for the treatment group of underprepared college students enrolled in a First Year Experience course. In addition, four weeks after the intervention the treatment means were maintained for dysfunctional career thoughts. Further, significant differences were found at posttest between the treatment and control groups for CTI Total and Decision-Making Confusion.

The treatment group did not make significant improvements on locus of control (Rotter IE Scale) or career decision self-efficacy (CDSE-SF) following the intervention, although both dependent variables moved in the hypothesized directions. At delayed posttest, means for the treatment group were maintained for

locus of control but did not differ significantly from those of the control group. The means for the treatment group on the CDSE-SF at delayed posttest were significantly higher than at posttest, but there is no evidence that the intervention was responsible for the change.

Discussion

This study began with four purposes. The first purpose was to examine the effects of a CIP-based intervention on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. The second purpose was to investigate the relationship between locus of control and dysfunctional career thinking. The third purpose was to compare the levels of dysfunctional career thinking, locus of control, and career decision self-efficacy of members of the control group with those of the treatment group. Finally, the fourth purpose was to assess the impact of the career intervention over time.

The treatment and control groups began the study with no significant differences in their levels of dysfunctional career thoughts. Results for the treatment group in this study revealed significant improvement on all the dysfunctional career thoughts variables from pretest to posttest. Significant differences between the treatment and control groups were found on the CTI-Total and the Decision-Making Confusion variables. The Commitment Anxiety and External Conflict variables did not have a statistically significant result by group but did move in the hypothesized direction and approached the .05 level of significance. The general findings of the study support previous research that a career intervention can decrease

dysfunctional career thoughts (Austin et al. 2003; Osborn et al., 2007; Reed et al., 2000; Strohman, 2008).

Although the CTI Workbook (Sampson et al., 1996b) was designed to “identify, challenge, and alter any negative career thoughts and then follow up with action” (Sampson et al., 1996c, p. 16), studies by Carr (2004) and Strohman (2008) are the only ones that used the CTI Workbook as a fundamental part of a career intervention. As with Carr (2004) and Strohman (2008), this study supports the efficacy of using the CTI Workbook as a major component of a career intervention designed to reduce dysfunctional career thoughts.

A significant negative correlation was found between dysfunctional career thoughts and career decision self-efficacy. Although the treatment group did not significantly improve their career decision self-efficacy, the pretest mean for the treatment group was above 3.5, the score designated by Betz and Taylor (2006) to indicate that individuals have greater confidence in their ability to perform the associated task and therefore will exhibit approach behavior. Therefore, these students may have felt they possessed “the cognitive capacity and positive affective states to effectively engage in career problem solving and decision making” (Sampson et al., 2004, p. 68) before the intervention and thus may have less change in CDSE-SF scores following the intervention than students with lower pretest career decision self-efficacy.

In addition and as postulated, a significant correlation was found between locus of control and dysfunctional career thoughts; however, the correlation was relatively weak. This provides some evidence that individuals with higher levels of

dysfunctional career thoughts are also likely to have a more external locus of control. Despite the significant correlation, the treatment group did not make significant improvements on locus of control (Rotter IE Scale) following the intervention that did significantly improve dysfunctional career thoughts. This non-significant finding mirrors that of Williamson (1979) but differs from the significant results of Bartsch and Hackett (1978) and Broley (1986). Although locus of control was not significantly changed from pretest to posttest, students did become more internal in their locus of control. In addition, levels of locus of control for the treatment group at delayed posttest were not significantly different from the means found in Rotter's (1966) normative group.

One factor that may have contributed to the lack of significant change in locus of control was the timing of the intervention. Phares (1976) hypothesized that individuals tend to base their expectancies on their most recent experience, unless earlier experiences contradict the recent experience. Many of the students in this sample were experiencing failure. The career intervention took place after midterm and midterm saw a significant decrease in attendance. One possible reason is that 65% (26 out of 40) of the treatment group was failing at least one course at midterm. Attendance in the First Year Experience classes plummeted after midterm and many of the students in the treatment group had to attend make-up sessions of the intervention. Fifteen of the students who originally began the study had to be excluded because they did not attend all of the intervention sessions and chose not to complete them. They were halfhearted in both their attendance and their motivation to complete tasks.

According to Roueche and Roueche (1993), unlike the academically prepared student who is motivated and goal oriented, the at-risk student has unrealistic goals and is not motivated by success, but by failure. The students' behavior, such as lack of proper supplies, incomplete assignments, and failure to participate in class activities, may have perpetuated the failure expectations.

Researchers (Pascarella & Terenzini, 2005; Tinto, 2008) noted that early and frequent experiences with success greatly reduce the chances of students dropping out and offset the effects of failure. Instructors may find it is even more vital to have underprepared students experience success, not just in the first semester, but in the first half of the semester. It appeared that getting midterm failing grades may have had an impact on attendance and motivation. Peterson and del Mas (2002) found that students who believe college will provide better employment and career opportunities are also more likely to persist in their college careers. It is possible that having a career intervention at the beginning of the course or even before classes begin would be helpful for these underprepared students. Students could better define their goals and have an opportunity at the beginning of the semester to connect the importance of the college courses in which they engage to the goals they hope to achieve.

The CTI scores indicated high levels of dysfunctional career thoughts and anxiety about career decisions; in other words, the students exhibited low readiness to make appropriate career decisions. Sampson et al. (2004) defined readiness as "the capability of an individual to make appropriate career choices while taking into account the complexity of family, social, economic, and organizational factors that

influence an individual's career development" (p. 68). Everyone in the treatment group received the same intervention but perhaps some of the students were not ready to take steps to make career choices. Given the lackadaisical attendance and participation in the intervention, the students did not seem to equate the relevance of what they learn in the classroom to achieving their goals. In the ILP (individual learning plan) sessions with students, recurring themes of discussion were their inability to discern a clear path toward reaching career goals and their lack of understanding about the importance of taking responsibility for successfully completing remedial classes and creating clear career goals.

An additional concern for the students in this study was that they were beginning their first semester of college underprepared for the challenge of college level work. The University System of Georgia policy on learning support requires that students successfully exit remedial courses in three attempts. If students are unable to exit remedial courses in that time, they are suspended for three years from the University System. Based on the anecdotal evidence of discussions during the intervention, it is reasonable to consider that the academic requirements placed on these students could keep them from focusing on career decision-making skills.

In addition, current political and economic conditions also may have unexpectedly influenced locus of control results. The economic uncertainty of the recession and political discord over the altercations in the Middle East could have influenced student responses to some items on the IE scale, making the outlook appear more external. An external locus of control score may be influenced by several factors including beliefs about social-political matters, beliefs about powerful

others, beliefs about potential for control, or beliefs about cultural or family values (Garza & Widlak, 1977; Gurin, et al., 1978; Levenson, 1974; Rotter, 1966). The Rotter IE Scale contains several items about the behavior of politicians and whether people can change political decisions in the world around them. For example, the item “By taking an active part in political and social affairs the people can control world events” was of particular interest in a class discussion. It is possible that the current economic and political situation should be taken into consideration when viewing these results.

Yet another possible explanation for lack of significant change in locus of control is the length of the intervention. Krumboltz (1979) noted that career decision-making skills are developed as a result of learning experiences. New learning experiences are chosen and subsequent choices made based on the experiences a person undergoes. The intervention in this study was seven sessions, which may not have been enough time to provide sufficient learning experiences to alter locus of control. Research on locus of control interventions (Bartsch & Hackett, 1978; Broley, 1986) has shown locus of control amenable to change over the course of longer interventions. Bartsch and Hackett (1978) found that students who had participated in a 10-week course titled “Effective Personal and Career Decision Making” altered their locus of control beliefs toward a more internal locus of control. Similarly, Broley (1986) evaluated the effect of a career development course on the locus of control of female undergraduate students. Results indicated that the students who completed the course had significant

increases in internal locus of control relative to career decision making in comparison with those students who did not complete the course.

Meta-analyses of career interventions (Oliver & Spokane, 1988; Whiston, et al., 1998) indicated that career interventions are often advantageous for enhancing career variables, such as career decision self-efficacy and locus of control. Whiston et al. (1998), however, hypothesized, that the outcomes may be moderated by factors such as sample size and number of treatments. It is plausible that a small sample size may have inhibited significant findings for locus of control and career decision self-efficacy. Due to the small sample size, failing to find a statistically significant difference coupled with a small effect size inhibits determining firm conclusions. As a result, the study may have been underpowered. The observed power for locus of control (by group = .28, by time = .27) and career decision self-efficacy (by group = .085, by time = .23), as calculated by SPSS, hinders conclusions about the career intervention's effectiveness on locus of control and career decision self-efficacy. It is possible that a sufficient sample size would have yielded enough power to detect a significant difference, if in fact one did exist.

It is encouraging that posttest scores for the treatment group decreased for the CTI dependent variables (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) and were maintained four weeks after the intervention was completed. This suggests that underprepared college students may continue to utilize gains made with the CIP-based career intervention. Furthermore, although the change was non-significant, locus of control became more internal following the intervention. This suggests that interventions

can have an effect on what has been considered largely a trait-like variable. Finally, while the career decision self-efficacy did not change significantly following the intervention, the CDSE-SF scores at pretest were sufficiently high to suggest students were confident in their ability to perform the career tasks measured by the CDSE-SF prior to the intervention.

CHAPTER 5 - SUMMARY, CONCLUSIONS, AND RECOMMENATIONS

Summary

This study examined the impact of a seven-session career intervention on the dysfunctional career thoughts, locus of control, and career decision self-efficacy of underprepared college students. The career intervention utilized the CTI Workbook (Sampson et al., 1996b) and was based on the CIP approach to career decision making (Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004). Data were gathered at pretest, at posttest, and four weeks later at delayed posttest.

Forty-eight undergraduate students enrolled in a three-credit hour First Year Experience course participated in the study. The groups were divided into treatment or control, based on the section of the First Year Experience course in which they were enrolled. Students self-selected courses for various reasons, including their preferences for course times and their choice of specific instructors. These students completed a demographic form at pretest and completed the CTI, the IE Scale, and the CDSE-SF at pretest, posttest, and delayed posttest.

The research questions addressed by this study were as follows:

1. Will there be a positive correlation between levels of dysfunctional career thoughts and locus of control?
2. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and

External Conflict) decrease in the underprepared college students of the treatment group from pretest to posttest?

3. Will locus of control of the underprepared college students in the treatment group become more internal from pretest to posttest?
4. Will the career decision self-efficacy of underprepared college students in the treatment group increase from pretest to posttest?
5. Following the career intervention, will the treatment group experience lower levels in dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) than the control group?
6. Will locus of control of the treatment group be more internal than that of the control group at posttest?
7. Will the career decision self-efficacy of the treatment group be higher than that of the control group at posttest?
8. Will the levels of dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) be maintained in the treatment group from posttest to delayed posttest four weeks later?
9. Will locus of control be maintained in the treatment group from posttest to delayed posttest four weeks later?
10. Will career decision self-efficacy be maintained in the treatment group from posttest to delayed posttest four weeks later?

Independent and dependent *t*-tests, ANCOVA, and a series of Pearson correlations were used to analyze the data. The significance level for all tests was .05 with a Bonferroni correction made to adjust for multiple comparisons on ANCOVA with an adjusted alpha of 0.017.

Conclusions

Results of this study indicated that the underprepared students in the career intervention significantly improved their dysfunctional career thoughts (Career Thoughts Inventory-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict) from pretest to posttest. The effect sizes for the CTI Total and DMC suggested that large amounts of the variance were explained by the intervention (Leech, Barrett, & Morgan, 2007). In addition, the improvement in dysfunctional career thoughts was maintained four weeks after the completion of the intervention. No significant main effects or interactions were found for locus of control or career decision self-efficacy.

Although locus of control was not significantly improved from pretest to posttest, locus of control did become more internal in the treatment group and was maintained four weeks following the intervention. In point of fact, levels of locus of control for the treatment group at delayed posttest were not significantly different from the means found in Rotter's (1966) normative group. It is possible that extending the time frame of the intervention would have given the students more time to internalize and process the cognitive restructuring exercises, thus resulting in a more significant change.

In conclusion, the results of this study were mixed but encouraging. While locus of control and career decision self-efficacy did not change significantly in the treatment group, the statistically significant improvements in levels of dysfunctional career thoughts suggest that it is possible to provide effective career interventions to underprepared college students using a CIP-based approach. This finding is particularly important as the population of underprepared students continues to grow in American higher education.

Recommendations

Based on the findings of this study, additional research is suggested in the following areas:

1. The study should be replicated with another sample of underprepared college students to see if similar results are obtained.
2. A similar study utilizing a larger sample size could increase the observed power and may yield more information about the impact of the CIP-based career intervention on locus of control.
3. Replicate this study replacing Rotter's (1966) IE scale with another valid and reliable outcome measure related to locus of control that does not contain political or economic items that may affect results. Locus of control may be influenced by several factors including beliefs about social-political matters (Rotter, 1966).

4. A similar study should be completed over a longer period of time to give students more time to internalize and process the cognitive restructuring exercises.
5. A longitudinal study could be conducted to examine the continuing effects of the career intervention on the dysfunctional career thoughts of underprepared college students.
6. A study using a control group and two treatment groups, one that utilizes only the CTI Workbook and one that utilizes a CIP-based intervention (Peterson et al., 1991; Peterson et al., 1996; Reardon et al., 2000; Sampson et al., 2004) without the cognitive restructuring exercises from the CTI Workbook may provide a clearer understanding of the role and significance of the CTI Workbook in a career intervention.

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Appendix A - Informed Consent

Informed Consent Form

Project Title: The effects of a CIP career intervention on the negative career thoughts and locus of control of underprepared college students

Thank you for agreeing to participate in this study which will take place from (date) to (date). This form outlines the purposes of the study and provides a description of your involvement and rights as a participant.

This study is designed:

- 1) to fulfill part of a doctoral research project through Kansas State University.
- 2) to gain insight and experience in the topic of negative career thoughts.
- 3) to be completed as part of the GFYE 0098 course career planning section at Gordon College.

The methods to be used to collect information for this study are explained below. All responses will be reported as group data and no individual student will be identified.

Six class periods and one individual session will be spent discussing career information and decision-making skills. Three times during Fall semester participants will complete two assessments. Once, at the beginning of the study, participants will complete a demographic form. Some students will participate in the career section in Fall 2008, while others will have an opportunity to participate through the Counseling Center in Spring 2009.

There are no foreseeable risks involved. As a result of participating in the project of the other available options, it is hoped that students will understand themselves better, understand their career options, and learn to make informed career decisions.

Any participants with questions about the rationale or who want to discuss any aspect of this research may contact Dr. Kenneth Hughey at 785-532-6445. Questions about the rights of participants or the manner in which the study is conducted may contact Dr. Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, 785-532-3224. Other questions about rationale and methods may be directed to Kristina Henderson at 678-359-5221.

Terms of Participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled. If I choose to withdraw from the research project, I will be given alternate career planning assignments to meet the requirements of the GFYE 0098 course.

I verify that my signature below indicates that I have read and understand this consent form and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

Participant Name (print) _____

Participant Signature _____ Date _____

Witness to Signature _____ Date _____

Appendix B - Student Consent to Release Educational Records

Gordon College

Student Consent to Release Educational Records

Pursuant to the Family Educational Rights and Privacy Act of 1974, I,
_____, hereby consent to the
release by Gordon College of the information concerning my COMPASS scores and high
school grade point average (GPA).

Party to whom such records may be released:

Name: **Kristina Henderson** Relationship: **Instructor**

I understand that such records may not be released except on the condition that the
party to whom the information is being released will not permit any other party to have
access to such information without my written consent, and I do hereby consent to its use in
research with the above named party. I also understand that, at my request, I shall be
provided with a copy of the educational record released pursuant to this consent.

This permission may be revoked with written request at any time. This permission is
valid until May 31, 2009, or such time as I otherwise discontinue attendance at Gordon
College.

Signature of Participant _____

Date _____

Student ID Number _____

Appendix C - Demographic Form

Demographic Form

Please provide the following information

1. Student ID Number _____
2. Gender Female _____ Male _____
3. Date of Birth Month _____ Day _____ Year _____
4. Ethnicity: Asian, Asian American, Pacific Islander _____
 Black, African American, Non-Hispanic _____
 Hispanic, Hispanic American, Latino _____
 Native American, Alaskan Native _____
 Multiracial _____
 White, Non-Hispanic _____

5. Major (circle one): Agricultural and Environmental Sciences Art Astronomy
Biology Business Administration Chemistry Communication
Computer Science Criminal Justice Diagnostic Medical Sonography English
Foreign Language Forestry General Studies Health Information Management
Health/Physical Education History Information Systems Mathematic
Music Nuclear Medicine Technology Nursing Physical Science Physics
Political Science Pre-Dental Hygiene Pre-Medical Technology
Pre-Occupational Therapy Pre-Pharmacy Pre-Physical Therapy Pre-Physician Assistant
Pre-Respiratory Therapy Psychology Radiologic Technology Social Work
Sociology Teacher Education Theatre Undecided

6. Do you have a disability? Yes _____ No _____

If so, what is the diagnosis _____

7. Are you the first member of your immediate family to attend college? _____
(Defined as a 4-year degree program or a 2-year degree program)