

Reducing Negative Career Thoughts with a Career Course: Technical Report No. 25

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Abstract

The effectiveness of a university career development course based on cognitive information processing theory was assessed. Students showed a significant decrease in their negative career thoughts when the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996a) was used as a pre-test and posttest measure. The greatest decrease in negative thinking was found in students with the highest level of negative thinking at the beginning of the course. Specific components of negative career thinking, decision making confusion and commitment anxiety, contributed significantly to the main effect. There were no significant interactions with race or gender.

Introduction

Course-based career interventions have been in existence for almost 100 years (Borow, 1960; Maverick, 1926). Colleges and universities provide career courses in order to increase student retention and provide for successful job placement (Gimmestad, 1984). The literature suggests that undecided students tend to drop out more frequently if no help is offered with educational and career planning (Lisansky, 1990), and that the lack of a career goal is an important reason why some students decide not to pursue a degree (Beal & Noel, 1980; Goodson, 1982; Kern, 1995). Career course competencies related to job placement typically include items such as “to become familiar with labor market forecasts,” “to locate information about occupations,” and “to better understand the relationship between majors and jobs” (Reardon & Regan, 1981, p. 268).

Course-based career interventions have demonstrated a clear impact using various theoretical constructs. Lent, Larkin, and Hasegawa (1986) reported that career course interventions led to changes in career decision-making readiness constructs such as career maturity (Carver & Smart, 1985; Smith, 1981), vocational identity (Johnson, Smither, & Holland, 1981; Remer, O'Neill, & Gohs, 1984), career indecision (Barker, 1981), and psychosocial development (Stonewater & Daniels, 1983). In recent years, researchers have studied these and other variables and continue to find significant effects from career course interventions. Johnson and Smouse (1993), Oreshnick (1992), and Quinn and Lewis (1989) found significant relationships between a course treatment and reduced career indecision. Hardesty (1991) reported a meta-analysis regarding the beneficial effects of career courses on career maturity and career decidedness. Other variables studied during the past 20 years showing the positive impact from a career course include self-efficacy (Oreshnick, 1992; Wiseman, 1988), self-concept (Carver & Smart, 1985), interpersonal locus of control (Broley, 1986), and self-esteem (Wachs, 1986; Weist, 1980).

Courses have commonly been based on theoretical models provided by Super, Holland, Tiedeman and O' Hara, and Crites (Carver & Smart, 1985). An example of a text with an integrated theory base is Take Charge of Your Future, A Career Planning Guide (Harris-Bowlsbey, Spivack, & Lisansky, 1991). While the general effectiveness of integrated theory based career courses has been documented (Oliver & Spokane, 1988, Spokane & Oliver, 1983), there is a need for research that evaluates courses and specific variables which may relate to student and institutional outcomes. Some research has been conducted relating cognitive

variables to career courses, e.g., Wiseman (1988) added a cognitive restructuring component to a course and Remer, O'Neill, & Gohs, 1984 examined cognitive resources. The present study seeks to add to this area by examining the impact of a course based upon cognitive information processing theory in reducing negative or dysfunctional career thoughts.

Background of the Study

The career course examined in this study has been in existence since 1973 (Peterson, Sampson, & Reardon, 1991). The original course was a series of career seminars, which was eventually developed into a formal three credit hour course with the leadership of staff in the counseling center and the career placement center. Instructional systems specialists further developed and improved the course design and integrated multimedia career development resources available through the university's career resource center. In 1984, the conceptual base of the course changed to include a systems approach, and in 1993, a foundation in cognitive information processing (CIP) theory was added. The present course is based on CIP theory (Peterson, Sampson, & Reardon, 1991; Peterson, Sampson, Reardon, & Lenz, 1996; Sampson, Lenz, Reardon, & Peterson, 1999) which is incorporated into the text, Career Planning and Development: A Comprehensive Approach and related workbook, (Student Manual; Reardon, Lenz, Sampson, & Peterson, 2000).

CIP theory focuses on career problem-solving and decision-making skills (Peterson et al., 1996). The model is comprised of three knowledge domains, which are represented by a pyramid. The foundation of the pyramid symbolizes the knowledge domains, which include self-knowledge and occupational knowledge. The middle level of the CIP pyramid represents the decision-making skills domain, which includes generic information-processing skills essential in gathering and using information to solve problems and make decisions. These skills include five CASVE phases for receiving external or internal signals of a gap between one's current and desired situation (Communication), interrelating problem components (Analysis), generating alternatives (Synthesis), prioritizing options or alternatives (Valuing), and forming an action plan to close the gap (Execution). At the top of the pyramid is the executive processing domain which relates to metacognitions, such as self-talk, self-awareness, and control and monitoring, that govern the choosing and sequencing of cognitive strategies used to make career decisions.

The course is comprised of three units. Unit I, "Career Concepts and Applications," focuses on self-knowledge, knowledge about options, and decision making. Assignments include writing an autobiography and completing the Self-Directed Search (Holland, 1994) and a skills assessment activity. Students develop knowledge about occupational and educational options through the use of two computer-assisted career guidance systems (e.g., SIGI PLUS, Discover, or Choices) and by writing a research paper on one or three occupations. The concepts of decision making and metacognitions are introduced in this unit and students have the opportunity to apply this knowledge through creating an Individual Action Plan (IAP). The IAP includes a career goal, a breakdown of steps to meet that goal which includes activities, resources needed, and completion dates. Students also complete the CTI (Sampson et al., 1996a) which helps them identify their level of negative thinking that can be impeding their career problem solving and decision making. Chapter 5 in the text (Reardon et al., 2000), "Thinking about My Career Decision," and related class activities and assignments provide instruction on the process of reframing negative metacognitions into more positive thoughts for career problem solving and decision making. Students also have access to Improving Your Career Thoughts: A Workbook for the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, & Saunders,

1996c), which may be recommended by the instructor as a vehicle to help students understand and alter their negative career thoughts, using a cognitive restructuring exercise.

Unit II, “Social Conditions Affecting Career Development,” focuses on current social, economic, family, and organizational changes affecting the career planning process and the need for students to develop more complex cognitive schema to solve career problems. Unit III of the course focuses on employability skills and strategies for implementing academic/career plans. Assignments include two information interview reports, the completion of a resume and cover letter, and a strategic/academic career plan paper. This final paper utilizes the CASVE cycle from the CIP model as an overarching cognitive strategy to help students integrate their learning into the career problem-solving and decision-making process.

The course is taught by a lead instructor and several co-instructors with an instructor/student ratio of 1:8-12. The class is a mixture of lecture, panel presentations, and small and large group activities. Each instructor is assigned a small group of students who meet throughout the semester during class time. The instructors also meet individually with the students at least once during the semester to assist them in developing their IAP and to discuss their assessments and progress in the class. Further information about this career course is available at <<http://www.fsu.edu/~career/sds3340.html>>. This course is also described as an intervention in a case study report by Reardon and Wright (1999).

The Career Thoughts Inventory (CTI) was used to measure the impact of the career course. The CTI is based on cognitive information processing theory (Peterson et al., 1991; Peterson et al., 1996) and cognitive therapy (Beck, 1976; Beck, Emery, & Greenberg, 1985; Beck, Rush, Shaw, & Emery, 1979) in relation to career problem solving and decision making. Developed using a rational-empirical method, the CTI yields a total score which is used as a global indicator of dysfunctional career problem solving and decision making and three construct scale scores: Decision Making Confusion (DMC), Commitment Anxiety (CA), and External Conflict (EC). The DMC scale measures an inability to begin or continue the decision-making process due to impairing emotions and/or a lack of knowledge about the process of decision making. This is directly connected to Unit I of the course. The CA scale denotes an inability to commit to a specific career choice, and the presence of generalized anxiety about the consequence of making a career decision. This is connected to Units I and III of the course. The EC scale represents a person’s negative thinking with regard to balancing one’s own perceptions against the perceptions of significant others related to making career choices. While this is related to all three units of the course, it is especially related to Unit II in the course which covers socioeconomic factors affecting career decision making and problem solving.

Research has demonstrated a connection between CTI scales and other measured constructs which may be particularly useful in assessing the impact of career course interventions. For example, Kilk (1997) found that scores on all three of the CTI scales distinguished between students who had selected a field of study and students who had not selected a field of study. Her research also showed that the DMC scale differentiated between those students who had completed or who were enrolled in a college career course and those who had not completed a college career course. There was also a significant difference in the DMC and EC scores between those students who had completed or who were enrolled in a college

career course and the students who comprised the normative sample for the CTI instrument (Kilk, 1997).

Other researchers have shown that career thoughts are related to emotional states such as perfectionism (Osborn, 1998), anger expression (Strausberger, 1998), and depression (Saunders, Sampson, Peterson, & Reardon, in press). These emotional states can be linked to decision-making problems. In another study, Sampson et al. (1996b) reported that the CTI accurately discriminated between clients (those seeking career services) and nonclients, with clients always indicating more negative or dysfunctional career thoughts. Altogether, these studies suggest a relationship between dysfunctional career thoughts and problematic emotional states which, in turn, interfere with the capacity for effective career problem solving and decision making. The CTI and the career development course are designed to help identify and address dysfunctional thoughts which are not only theoretically relevant to career planning, but also practical in their application (Peterson, Sampson, & Reardon, 1991).

The purpose of the present study was to learn more about how our career course changed the career thinking of students. More particularly, we wanted to know if student gender and ethnicity were associated with career thoughts, if there were overall changes in the nature of career thoughts from the beginning to the end of the career course, and if some kinds of career thoughts changed more than others.

Methods

Participants

One-hundred and eighty-one undergraduates at a southern research university participated in the study (see Table 1). The majority of students completed the course to fulfill elective requirements for the baccalaureate degree; however, 22 students (12%) in rehabilitation services enrolled in the course as part of their major. Nine course sections were offered during the 1997 fall and 1998 spring semesters. The sample consisted of 126 females (70%) and 55 males (30%). Freshmen made up 18% of the sample, sophomores 50% of the sample, and juniors and seniors represented 15% and 17% of the sample, respectively. Their ages ranged from 18 - 39 with a mean of 19.9 (SD = 2.4). Ethnic diversity of the sample was proportional to the general student population (see Table 1), including American Indian (1%), African American (13%), Hispanic American (4%), Caucasian (75%), Other (3%), and not classified (3%). The students' scores on the Occupational Alternatives Question (OAQ; Slaney, 1980), a measure of career decidedness, ranged from 1-4 with a mean of 2.73 (SD=.74). The OAQ is scored as follows: 1 = a first choice is listed with no alternatives; 2 = a first choice is listed with alternatives; 3 = no first choice is listed, just alternatives; and 4 = neither is listed. The typical student in this study listed either a first choice with alternatives or, more likely, no first choice and only alternatives.

Table 1Demographic Information of Client Sample

Variable	n	%
Gender		
Female	126	69.6
Male	55	30.4
Ethnicity		
African American	24	13.3
American Indian	2	1.1
Asian American	0	0
Caucasian	136	75.1
Hispanic American	8	4.4
Other	6	3.3
No Reply	5	2.8
Classification		
Freshman	33	18.2
Sophomore	90	49.7
Junior	27	14.9
Senior	31	17.1
Occupational Alternatives Question Score		
1	9	5
2	53	29.3
3	97	53.6
4	22	12.2

Note. The Occupational Alternatives Question (OAQ; Slaney, 1980) is a measurement of career decidedness in which the students lists occupational alternatives under consideration and then designates a first choice, if applicable.

- 1 = first choice designated, without alternatives
- 2 = first choice designated, with alternatives
- 3 = no first choice designated, alternatives listed
- 4 = no first choice designated, no alternatives listed

Instrument

The CTI was used to assess the students' content and degree of dysfunctional career thinking. Using a national sample of 1,938 adults, college students, high school students, and clients, Sampson et al. (1996b) reported internal consistency coefficient alphas for the total score scale ranging from .93-.97, DMC scale .90-.94, CA scale .79-.91 and EC scale .74-.81. Stability measures for the total and construct scale scores were also adequate as measured by four week test-retest stability coefficients with the college student sample. The coefficients for the CTI Total, DMC, CA, and EC scales were .86, .82, .79, and .74 respectively.

The CTI items and scales also possess content, construct, and criterion-related validity (Sampson et al., 1996b). The CTI has demonstrated convergent validity with the Identity scale and Occupational Information and Barriers items of the My Vocational Situation (MVS; Holland, Daiger, & Power, 1980); the Certainty and Indecision scales of the Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, & Koschier, 1987); the Decidedness, Comfort, Self-Clarity, Knowledge about Occupations & Training Decisiveness, and Career Choice Importance scales of the Career Decision Profile (CDP; Jones, 1989); and the Neuroticism domain, including Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability as measured by the NEO PI-R (NEO PI-R; Costa & McCrae, 1992).

Because CTI items are all written as negative statements in the same direction, we examined the potential problem of a testing effect that might confound the effects of the experimental stimulus. Taking the pretest could have influenced students' responses to the posttest, thus compromising the reliability and validity of the CTI as an instrument in this study. The potential existence of a response set in CTI results was tested by item statistics for all students (N = 181) for within-subjects. An F-max test contrasting the variance between the pretest and the posttest revealed a critical ratio of 1.60, indicating no significant difference in the variance between the two. Thus, the dispersion remained the same across the two testing sessions. This finding parallels the F-max test reported in the CTI manual (Sampson et al., 1996b).

In the present study, the internal consistency of the CTI-total score and the three construct scales was determined by calculating coefficient alphas for the precourse and postcourse CTI scores. Coefficient alphas for the CTI-total and construct scales, pretest and posttest are presented in Table 2. These reliability findings are similar to the findings reported by Sampson et al. (1996b). Reliability coefficients for the pretest and posttest CTI scales were computed. The pretest alpha for the overall instrument was .94, and the pretest construct scale alphas were as follows: DMC = .93, CA = .83, and EC = .78. Likewise, reliabilities for the posttest CTI were computed. The alpha for the CTI-Total was .96, and posttest career course CTI scale alphas were DMC = .93, CA = .88, and EC = .83. These results, like findings reported by Sampson et al. (1996b), suggest that the CTI-Total and the DMC, CA, and EC scales are internally consistent in the pre- and posttest.

Table 2

Scale	X	s	SEM	a	F
CTI Total					
Pre-Test	53.66	19.64	1.46	0.94	
High	72.51	8.81			
Medium	56.93	4.49			
Low	30.8	13.40			
Posttest	38.87	20.18	1.5	0.96	132.70**
High	52.36	12.90			
Medium	39.48	17.54			
Low	24.29	19.10			
Dec. Making Confusion (DMC)					
Pre-Test	12.79	7.86	0.56	0.93	
High	19.72	4.09			
Medium	14.05	3.59			
Low	4.32	4.53			
Posttest	7.86	6.33	0.47	0.93	47.65**
High	11.43	5.11			
Medium	8.48	5.81			
Low	3.54	5.45			
Commitment Anxiety (CA)					
Pre-Test	15.58	5.22	0.39	0.83	
High	19.34	3.40			
Medium	16.43	2.60			
Low	10.80	5.16			
Posttest	12.20	5.70	0.42	0.88	45.34**
High	15.51	3.86			
Medium	12.30	4.66			
Low	8.69	6.25			
External Conflict (EC)					
Pre-Test	4.10	2.77	0.21	0.78	
High	5.92	2.55			
Medium	3.18	2.32			
Low	2.17	2.08			
Posttest	3.50	2.76	0.20	0.83	4.34*
High	4.90	2.58			
Medium	3.18	2.47			
Low	2.36	2.62			

** p < .001 * p < .05

Next, we assessed the intercorrelation coefficients among the CTI scales, pre-and posttest (see Table 3). Moderate correlations were found among the pretest scales ranging from .38 to .65. Likewise, moderate correlations on the posttest scales ranged from .51 to .64. In addition, the pretest-posttest correlation on the students CTI Total score was .59. The correlation of the DMC pretest and posttest scales was .55, CA scales .57, and EC scales .50. These moderate but significant positive correlations suggest that the three factors are related, yet distinct, in terms of the global construct under investigation in this study.

Table 3

Pre-Tests				Posttests		
CTI Total	DMC	CA	EC	CTI Total	DMC	CA
.91**						
.83**	.65**					
.61**	.46**	.38**				
.59**	.55**	.48**	.35**			
.52**	.55**	.35**	.27**	.90**		
.54**	.47**	.57**	.24**	.86**	.64**	
.34**	.26**	.22**	.50**	.70**	.55**	.51**

Procedure

During the first week of the course, each student completed a research consent form, a demographic questionnaire, and the research version of the CTI. No feedback was provided about the CTI results. In the third week of the course, students completed the standardized published form of the CTI as part of their class assignments; this copy was interpreted with the student in an individual instructor conference and returned for their use. Finally, students again completed the research version of the CTI as a posttest during the last week of the semester. The research version of the CTI included the 48 items printed in a booklet and an answer sheet for blackening responses. The published version of the CTI combined the inventory, answer sheet, and profile form into one booklet.

Instructors discussed the results of the CTI with their students in individual meetings. Typically, these meetings included a brief review of the CTI's purpose and the identification of negative or problematic thoughts that might interfere with effective career problem solving or decision making. In some instances, the instructor referred to the *CTI Workbook* (Sampson et al., 1996c), or to material in chapter five of the text (Reardon et al., 2000) which provided information on the process of reframing negative career thoughts. In addition, one class meeting focused on the contents of chapter five, "Thinking about My Career Decision," and each chapter

of the text provided instruction on learning more positive metacognitions to enhance career decision making.

Results

Three research questions were investigated in this study.

1. Is student gender and/or ethnicity related to the nature of career thoughts from the beginning to the end of a career course?
2. Does the nature of students' career thoughts, when analyzed in terms of high, medium, and low groups, change from the beginning to the end of a career course?
3. Do career thoughts related to decision making confusion, commitment anxiety, and external conflict change differently from the beginning to the end of a career course?

Changes in Career Thoughts Related to Gender and Ethnicity

Our initial question pertained to any differences in career thoughts related to student gender and ethnicity. Using the pretreatment scores on the DMC, CA, and EC as dependent variables, we conducted a MANOVA to assess whether there were any significant initial differences between the students based upon gender or race. These scores were submitted to a 2 (gender) X 2 (minority group, majority group) X 2 (pre-career course, post-career course) repeated measures MANOVA. Analyses including gender and race as independent variables for the precourse and the postcourse revealed no gender or race effects, or their interaction. The findings for gender were [$F(3, 175) = 1.00, p = ns$], race [$F(3, 175) = 2.07, p = ns$], and their interaction [$F(3, 175) = 1.08, p = .ns$].

Changes in Career Thoughts

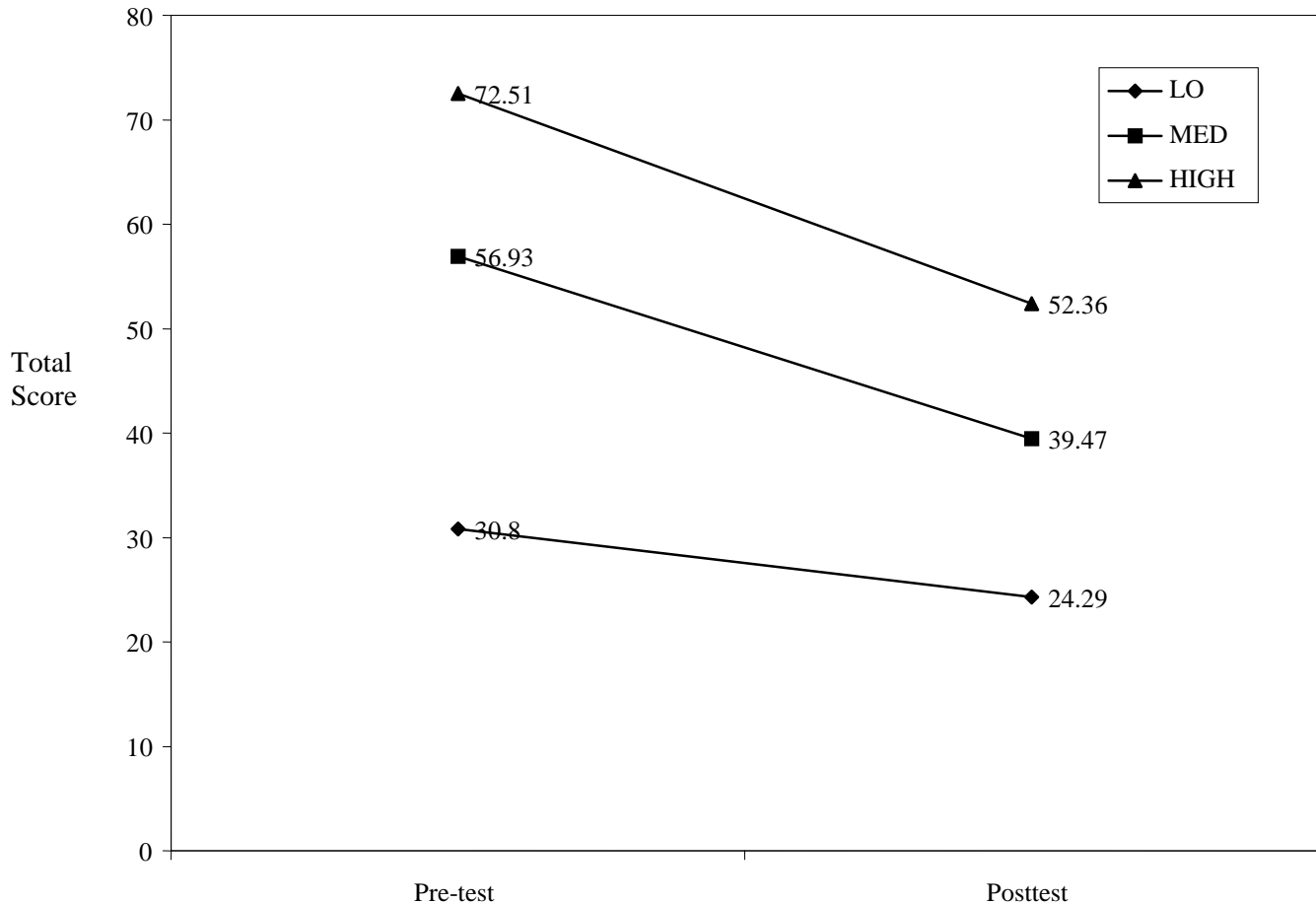
Our second question involved the possible influence of a career planning course on changes in the dysfunctional career thoughts as measured by the Career Thoughts Inventory Total score (CTI-Total). The analyses regarding this question used one-group repeated measures (precourse test, postcourse test) multivariate analysis of variance (MANOVA) design (see Table 2). We performed a 3 (level of dysfunctional career thinking) X 2 (pretest vs. posttest) MANOVA with repeated measures, using the CTI Total score. The within subject variable was the CTI-Total score. The MANOVA revealed a significant effect for the career course on the CTI-Total score.

We found a significant multivariate career course effect on the students' CTI-Total scores [$F(1, 178) = 132.70, p < .001, \eta^2 = .43$] (see Figure 1 and Table 2). The CTI-Total postcourse test score ($M = 38.87, SD = 20.18$) was significantly lower than the pretest score ($M = 53.66, SD = 19.64$). This finding suggests that college students tend to reduce dysfunctional thinking about career problem solving and decision making as a result of taking a career planning course.

We also wanted to examine the influence of the level of precourse career dysfunctional thinking on CTI-Total scores at the end of the course. After checking for equivalency in level of career thinking at the beginning of the course, students were assigned to one of three groups (High, Medium, and Low) based on their pre-course CTI-Total score. The average score for the

High, Medium, and Low level groups were 72.51 (SD=8.81), 56.93 (SD = 4.49), and 30.80 (SD =13.40), respectively (see Figure 1).

Figure 1
Total CTI Score, Pre-Test and Posttest, by Group



There was a significant interaction between the Level of Career Dysfunction X Career Course [$F(2, 178) = 10.57, p < .001, \eta^2 = .11$] indicating the effect of the career course was not the same for the three pretreatment levels of dysfunction. The High, Medium, and Low level groups reduced their CTI-Total scores by 20.15 points (SD 16.62), 17.5 points (SD 18.05), and 6.51 (SD = 16.80), respectively. Planned pairwise contrasts among the groups provided the most direct test of the career course influence on the change in career dysfunctional thinking. As shown in Table 2, pairwise contrasts revealed that the High level group had significantly larger changes in CTI-Total scores than the Medium group, and the Medium group had significantly larger changes than the Low level group.

Changes in Three Kinds of Career Thoughts

The third research question sought to examine whether career thoughts related to decision making confusion, commitment anxiety, and external conflict change differently from the beginning to the end of a career course? The analyses regarding this question used one-group

repeated measures (pretest, posttest) multivariate analysis of variance (MANOVA) design. We performed a 3 (level of dysfunctional career thinking) X 2 (precourse vs. postcourse) MANOVA with repeated measures, using the three CTI scales, DMC, CA, and EC.

The main effect of the career course was significant [$F(3,176) = 50.26, p < .001, \eta^2 = .46$]. Students who completed the career planning course significantly reduced their dysfunctional career thoughts. Specifically, the univariate tests of the three CTI scales indicated a significant reduction of dysfunctional career thinking. Students experienced significant changes in Decision Making Confusion [$F(1, 178) = 122.68, p < .001, \eta^2 = .41$], Commitment Anxiety [$F(1, 178) = 80.40, p < .001, \eta^2 = .31$], and External Conflict [$F(1, 178) = 8.98, p = .003, \eta^2 = .05$].

We also examined the influence of the precourse dysfunctional career level on postcourse dysfunctional thinking as measured by the DMC, CA and EC scales of the CTI. Students were assigned to one of three groups (High, Medium, and Low) based on their pre-career course CTI-Total score. The main effect of Levels of Dysfunctional Career Thinking was significant [$F(6,350) = 57.00, p < .001, \eta^2 = .46$]; that is, the three groups established by the pretest scores were significantly different from one another on the posttest as measured by the DMC, EC and CA scales. Univariate tests for the DMC [$F(2, 178) = 143.25, p < .001, \eta^2 = .62$], EC [$F(2, 178) = 36.10, p < .003, \eta^2 = .29$], and CA [$F(2, 178) = 65.65, p < .001, \eta^2 = .42$] scales were significant.

Follow-up pairwise tests for the three pre-course levels on the DMC, EC, and CA scales were conducted. Although the groups' mean scores on the three CTI scales were reduced in the posttest, the groups remained significantly different from one another at $p < .001$. The DMC, CA, and EC scale posttest means for the students in the High level group were 11.43, 15.51, and 4.90. These means were significantly greater ($p < .001$) than the means for students in the Medium group (8.48, 12.30, and 3.18). Likewise, the Medium group's scale means were greater than ($p < .001$) the Low group's means (3.54, 8.69, and 2.36) on the DMC, CA, and EC scales.

The interaction of Levels of Dysfunctional Career Thinking X Career Course was also significant [$F(6,350) = 8.62, p < .001, \eta^2 = .13$] indicating the effect of the career course was not the same for all of the levels of dysfunctional career thinking. The univariate test for the DMC scale indicated a significant interaction [$F(2, 178) = 24.63, p < .001, \eta^2 = .22$]. Follow-up pairwise tests for DMC scales were significant at $p < .001$. That is, the students in the High level group the career course significantly reduced DMC scores more than students the Medium and Low groups. Likewise, the Medium level group experienced a significantly ($p < .001$) greater reduction in DMC scores than students in the Low level career dysfunctional thoughts group. The mean reductions for the High, Medium, and Low groups on the DMC scale were 8.30, 5.57 and 0.78 points, respectively.

Although the univariate test of the Levels of Career Dysfunction X Career Course on the CA scale was not significant [$F(2, 178) = 2.83, p < ns, \eta^2 = .03$], the univariate test for EC scale indicated a significant interaction [$F(2, 178) = 3.80, p = .024, \eta^2 = .04$]. Pairwise comparisons indicated that the High level group had a greater reduction ($M = .61, SD = 2.80$) on their post-treatment scores than those in the Medium ($M = .98, SD = 2.47$) and Low ($M = .78, SD = 5.12$)

level groups. Likewise, the Medium level group experienced significantly ($p < .001$) greater changes on the EC scale than the members of the Low level group.

Discussion

As with studies cited earlier (Johnson, Smither, & Holland, 1981; Johnson & Smouse, 1993; Lent, Larkin, & Hasegawa, 1986; Oreshnick, 1992; Quinn & Lewis, 1989; Remer, O'Neill, & Gohs, 1984), the results of this study indicate the positive impact of a career course on cognitive variables. This study was unique in that this course is based on a career theory that is woven throughout the course text and instructional materials. The same theory is reflected in the Career Thoughts Inventory, which is used as both a measure and an intervention in the course. Students showed a significant and dramatic reduction in their levels of negative thoughts at the completion of this course, especially those with higher levels of negative thoughts at the beginning of the course. Although changes identified cannot be unequivocally attributed to the career course examined in this study because of threats to validity inherent in a quasi-experimental pretest-posttest only group design, these data do suggest the students enrolled in the CIP theory-based career course reported a decrease in dysfunctional career thoughts in the areas of decision making confusion, commitment anxiety, and external conflict.

We found these results noteworthy for several reasons. First, students who completed the career class reduced their negative career thoughts as measured by the Career Thoughts Inventory (Sampson et al, 1996a). Second, those students in the high level of dysfunctional career thoughts group reduced CTI-Total score more than the students in the medium and low level groups. Third, these positive changes did not appear to be influenced by the student's gender or majority-minority group status. Therefore, it appears that this career course significantly reduced dysfunctional thinking in college students regardless of their gender or minority status. More importantly, the course appears to reduce dysfunctional career thinking in those students who are in the greatest need of career intervention.

These findings are important for career service providers and students. The reduction of negative career thoughts should enable students to becoming more successful in career decision making and choosing a major or occupational goal. Students who are experiencing decision making confusion possess an inability to begin or continue the decision-making process due to impairing emotions and/or a lack of knowledge about the process of decision making. For example, they might identify with the thought "Choosing an occupation is so complicated, I just can't get started" (Sampson et al., 1996a). If students do not know how to begin the process, they may become discouraged and engage in avoidance strategies. If they can learn about and develop a method for career decision making in the context of a career course, students may begin to engage themselves in the process. Career thoughts related to commitment anxiety, where the student experiences an inability to commit to a specific career choice and generalized anxiety about the consequence of making a career decision, can also accompany a major career decision. A student who has commitment anxiety might endorse the thought "I can't be satisfied unless I can find the perfect occupation for me" (Sampson et al., 1996a). Even if the student has been diligent in gathering self and occupational knowledge, these thoughts of commitment anxiety may actually impede the use of this knowledge for productive career problem solving and decision making.

Students' scores on the EC scale were not as dramatically different from the pretest to the posttest as measured by the CTI. This may be attributed to the smaller number of items on the scale, which naturally lowers its reliability. In addition, while a student might be able to modify negative career thoughts related to decision making confusion and commitment anxiety through gathering information and learning about the career decision making and problem solving process, that same information and learning might not as easily affect external conflict due to the nature of this construct. A representative item which measures external conflict is "I need to choose a field of study or occupation that will please the important people in my life" (Sampson et al., 1996a). Even when armed with better self-knowledge, occupational knowledge, and decision making skills, a student may not feel more comfortable regarding the conflict between personal and parental priorities. External conflict can be especially relevant to the execution of a decision or implementing a strategy to solve a problem.

There were no differences in any of the CTI scale scores related to gender and ethnicity. In addition, the interactions with gender and ethnicity were not significant. These findings provide reassurance to career service providers that it may not be necessary to design special interventions for different groups based on gender and ethnicity alone. Indeed, these data provide further support that the career thoughts construct is valid across different populations (Sampson et al., 1996b). However, caution should be exercised in generalizing the results of this study to all ethnicities since the sample did not include a large number of Asian American, Native American, or Hispanic students.

One limitation of this study involves the inability to specify exactly which career interventions in the course led to the reductions in negative career thoughts. A three credit career course may include up to 60 discrete interventions, e.g., completing the SDS, using SIGI PLUS, writing a research report on an occupation, hearing a lecture on dual career families, and having an individual instructor conference. It is impossible to know for sure which interventions may have been most impactful for a particular student. Moreover, students may have reduced their negative thinking due to other experiences they had at the university or to the maturation process. A number of students enrolled in the class were from special student support programs (e.g., multicultural student support center, athletic department) and these students received additional tutoring and counseling. It is also unknown how many students actually received or used the CTI Workbook (Sampson et al., 1996c) from their instructor.

Future research in career courses should account for this possible variation in the treatment conditions. For example, are there differences in course outcomes associated with course materials, instructor's interest in teaching, or student motivation to complete the course? Does most learning occur at the end of the course or at some other time? Which career interventions included in the course are most impactful? Indeed, if career course interventions are as powerful as they appear to be from reports in the literature, it is incumbent on instructors, textbook authors, and researchers to investigate this intervention more fully.

Future research might also examine the extent to which negative career thoughts measured by the CTI, including DMC, CA, and EC, are related to student retention in college, a successful job campaign, course satisfaction, and mental health. Other studies could examine the

use of the CTI and/or related instructional materials in other settings, e.g., prisons, inpatient or outpatient counseling environments, or private or non-profit career transition programs. Further research in higher education settings might include specific college populations, such as students with disabilities or freshmen. For example, the CTI could be used as a pre-post measure in other types of curricular interventions (e.g., Freshman Year Experience classes).

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