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Enhancing career decision-making self-efficacy via a university career course intervention

Craig Allan Oreshnick

Iowa State University

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Enhancing career decision-making self-efficacy via a university career course intervention

Oreshnick, Craig Allan, Ph.D.

Iowa State University, 1991
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via a university career course intervention

by

Craig Allan Oreshnick

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INTRODUCTION

Overview of Bandura's Self-Efficacy Theory

Bandura (1977) introduced a cognitively-based theory of psychological change and has subsequently expounded the theory (Bandura, 1986b). Self-efficacy theory, an extension of social learning theory, proposes that different modes of treatment similarly affect change by enhancing an individual’s sense of self-efficacy (SE). According to SE theory, alterations in level and strength of SE expectations are postulated to be a mechanism that underlies behavioral changes arising from diverse treatment methods. SE expectations are essentially expectations of personal mastery and are defined as the belief that an individual can successfully perform a behavior that is required to produce a given outcome. SE expectations are differentiated from outcome expectations, which are defined as an individual’s belief that a specified course of action (behavior) will lead to certain outcomes. Bandura hypothesized that SE expectations strongly influence coping behaviors in terms of whether or not they are undertaken, how much effort is put forth if initiated, and the extent to which such behaviors persist. SE beliefs are theorized to play a central role in reference to human agency in general (Bandura, 1989).

According to SE theory, expectations of SE vary on the following three dimensions: 1) magnitude; 2) generality; and
3) strength (Bandura, 1977, 1986b). The magnitude dimension refers to the difficulty level of the task or behavior that is associated with the SE expectation. The magnitude of SE expectations can range from low levels, in which the associated behaviors/tasks would be relatively easy, to high levels which would involve extremely demanding behaviors/tasks. Differences in generality involve variation in the degree to which a SE expectation regarding a particular behavior/task will generalize to other behaviors/tasks. Finally, the strength dimension orders SE expectations along a continuum ranging from weak to strong. Weak expectations of personal mastery are readily extinguished in response to disconfirming experiences; whereas strong efficacy expectations are maintained despite discrepant experiences. According to Bandura, SE is best analyzed through the employment of an assessment procedure which taps all three dimensions.

SE theory identifies four main sources of information by which SE expectations are derived or modified: 1) performance accomplishments; 2) modeling or vicarious experiences; 3) verbal persuasion; and 4) physiological states (emotional arousal) (Bandura, 1977). These have also been referred to enactive, vicarious, exhortative, and emotive sources, respectively. Performance accomplishments function as a source of efficacy information in that repeated experiences of success or mastery typically establish or
enhance expectations of SE. In contrast, repeated unsuccessful experiences, in general, lower expectations of personal mastery. In sum, Bandura suggests that the cumulative impact of success and failure experiences influences SE appraisals. Vicarious experiences in which an individual observes a model successfully perform the behavior of interest provides information which generally enhances SE expectations; whereas modeled failure experiences are likely to lower SE expectations. The verbal persuasion (exhortative) source alters expectations of SE via suggestions that the individual can successfully perform the behavior in question. Performance accomplishments, due to their direct experiential base, are suggested to have a greater impact on expectations of mastery than vicarious and exhortative sources. The emotional arousal (emotive) source of efficacy information, stems from physiological feedback concerning an individual's state of arousal associated with performance (or anticipated performance) of the behavior/task in question. High levels of aversive arousal and anxiety impact negatively on performance and SE as well. Expectations of SE are generally enhanced in situations in which aversive arousal and anxiety are low, and are likely to be lowered in situations involving a high level of aversive arousal.

SE theory postulates that the cognitive appraisal or processing of different sources of efficacy information determines the specific impact of such information on SE
expectations (Bandura 1977, 1986b). Furthermore, it is suggested that the manner in which efficacy information is cognitively appraised is influenced by a number of factors. For example, appraisal of information arising from performance accomplishments is influenced by situational variables, attributions regarding causality, and assessment of task difficulty. Cognitive processing of information stemming from vicarious experiences is said to be affected by such variables as model characteristics, model and observer similarity, situational variables, and task difficulty. Similarly, the appraisal of information arising from verbal persuasion is influenced by characteristics of the persuaders; whereas, information stemming from emotional arousal is appraised in relation to situational characteristics and attributions concerning the source of the arousal. Thus, as noted in the above examples, various factors influence the cognitive appraisal of efficacy information, which, in turn, mediates the effect of efficacy information on expectations of mastery.

As noted by Bandura (1986b) in relation to the "multiple determination" of SE, the processing of efficacy related information is complicated by the fact that, in addition to processing information arising from a single source, individuals must often weigh and integrate efficacy information arising from more than one source. Similarly, new SE relevant information must be weighed against and integrated with previously obtained SE information and experiences.
Given the notion that SE is influenced by the processing of new SE relevant experiences vis-a-vis previous SE experiences, and given individual differences in past SE related experiences as well as likely individual differences in information processing, it is reasonable to assume that a single source of SE information will not affect all individuals in a uniform way (Bandura & Adams, 1977). Such processing is further complicated given the possibility that the accuracy of the appraisal may be influenced by personal processing biases.

A critical analysis of Bandura's SE theory can be found in Rachman (1978). SE theory, like most other theories, is not without its critics (see Borkovec, 1978; Eastman & Marzillier, 1984; Marzillier & Eastman, 1984; Teasdale, 1978; and Wolpe, 1978). Bandura's conceptualization regarding the distinction between SE expectations and outcome expectations is an aspect of SE theory that has been pointedly criticized (Eastman & Marzillier, 1984; Marzillier & Eastman, 1984; and Teasdale, 1978). For example, Eastman and Marzillier (1984) contend that "self-efficacy theory is conceptually problematic and, in particular, that the central concept of efficacy expectations is not unambiguously differentiated from outcome expectations" (p. 213). However, as noted by Maddux and Stanley (1986), Maddux and Barnes (1985) have found that SE expectations can be clearly distinguished from outcome expectations.
Bandura (1978, 1984) defended SE theory by responding to criticisms and elaborated on his theory in attempt to address identified misconceptions. Along a similar line, Bandura underscored the need to evaluate SE theory within the proper context. More specifically, when evaluating SE theory, it is important to note that SE is hypothesized to be a major determinant of change (behavior), as opposed to being the sole determinant of change (Bandura, 1978, 1984, 1986a). Kazdin (1978) and Wilson (1978) suggested that the potential viability of SE theory is enhanced by the theory's amenability to empirical testing. Accordingly, results from a variety of empirical studies have offered support for SE theory.

Empirical Support for Self-Efficacy Theory

Since the introduction of Bandura's SE theory, numerous studies have attempted to empirically investigate the theory's propositions. Early empirical support for SE theory was provided by a series of paradigmatic studies which utilized phobic subjects and were conducted by Bandura and his colleagues (Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Adams, Hardy, & Howells, 1980). In these studies, microanalyses of the congruence between SE and performance at the level of individual tasks were used to assess the usefulness of SE expectations as predictors of behavioral performance. These studies provide support for Bandura's contention that enhanced performance (therapeutic change) is associated with higher degrees of SE.
Bandura et al. (1977) demonstrated that they could "instate" (i.e., establish or produce) efficacy expectations within subjects via participant modeling and live modeling treatments, and found that both level and strength of efficacy expectations were accurate predictors of subsequent task performance. In accord with SE theory, results of this study also showed that a treatment based on performance accomplishments (i.e., participant modeling) produced efficacy expectations that were greater in magnitude, stronger, and more generalized than efficacy expectations produced by a strictly vicarious modeling treatment (i.e., live modeling). Bandura and Adams (1977), in one aspect of their study, found that systematic desensitization—a treatment involving emotive-based experiences—significantly increased both level and strength of SE expectations. Similarly, they demonstrated that SE was a consistently reliable predictor of subsequent performance, both over the course of treatment and following treatment. Bandura et al. (1980) demonstrated that level and strength of SE expectations were increased following covert (cognitive) modeling, and showed that the resulting efficacy expectations were predictive of subsequent performance. In a second part of this study, the authors obtained conceptually similar findings using participant modeling and a different treatment population (agoraphobics as opposed to snake phobics) --attesting to the generality of SE theory.
As pointed out by Bandura (1982), the aforementioned research suggests that different therapeutic interventions (e.g., enactive-, vicarious-, and emotive-based treatments) serve to instate and/or enhance SE expectations. SE expectations, in turn, were shown to be predictive of subsequent behavioral performance regardless of how these expectations were instated. Bandura, Reese, and Adams (1982) extended the aforementioned findings by conducting a causal analysis of the relationship between perceived SE and performance in which levels of SE were manipulated via an experimental design. Findings showed a high congruence between manipulated levels of SE and performance in which higher levels of efficacy corresponded to greater performance. In addition, SE was shown to be a superior predictor of future performance, as compared with subjects past performance as a predictor --which was also the case in Bandura and Adams’ 1977 study. The finding that SE was a better predictor than past performance, along with the fact that similar performance attainments were found to have differential effects on subjects’ perceived SE, attests to the importance of the cognitive appraisal of SE relevant performances.

The study by Bandura et al. (1982) also offered support for the purported relationship between SE and physiological states (aversive arousal). More specifically, findings showed an inverse relationship between SE (level and strength) and both anticipatory distress and performance distress regarding
tasks that were perceived as threatening. Accordingly, when faced with tasks in which subjects judged themselves to be less efficacious, subjects tended to report more distress (negative arousal).

In addition to the studies which examined SE theory in the context of treating phobic disorders, a large body of research exists in which SE theory has been evaluated in relation to a broad domain of psychological and behavioral functioning. SE has proven useful in predicting behavior and accounting for change in a variety of areas, including: assertiveness training (Kazdin, 1979); health-related behavior (O'Leary, 1985), athletic performance (Wurtele, 1986), achievement behavior (Schunk, 1981, 1982, 1983, & 1984); smoking cessation (Condioyte & Lichtenstein, 1981; DiClemente, 1981; and McIntyre, Lichtenstein, & Mermelstein, 1983); and addictive-behavior problems in general (DiClemente, 1986). In general, research findings have supported the application of SE conceptualizations to a broad range of psychological/behavioral functioning and collectively attest to the theory's broad explanatory power (Bandura, 1982, 1986a, 1986b). Readers interested in a more extensive review of such supporting research should consult Bandura (1982, 1984, 1986b).

Career Self-Efficacy

SE theory has been extended to the area of vocational psychology with promising results. Application of SE theory
to the career domain has given rise to the notion of "career self-efficacy". Career self-efficacy, as defined by Betz and Hackett (1986), is a broad label which encompasses self-efficacy expectations regarding a wide range of behaviors associated with career choice and vocational adjustment (i.e., career development). Career self-efficacy can be broken down into more specific types of SE related to different aspects of career development, including: academic and mathematics self-efficacy, career decision-making self-efficacy, and occupational self-efficacy.

Given that the present study of career decision-making self-efficacy is embedded within the career SE area, a general overview of pertinent aspects of this area is warranted. A detailed review of the literature on career decision-making self-efficacy will be presented following the general overview. Career decision making per se involves both content and process dimensions. Betz & Hackett (1986) highlighted this distinction and pointed out that the "content dimension" refers to the choice itself (i.e., major or career selected); whereas, the "process dimension" addresses the process used in making the choice. Career decision making SE focuses on the process aspect of career decision making (Betz & Hackett, 1986).

Self-efficacy approach to career development

The initial application of SE theory to career choice and development was provided by Hackett and Betz (1981). Although
the resulting career SE model was espoused as being particularly relevant for women, it was offered as a comprehensive model applicable to men as well. Hackett and Betz (1981) have been aptly credited (Lent & Hackett, 1987) with generating a research agenda that lent structure to the study of career self-efficacy. Career related self-efficacy expectations have subsequently been recognized as a potentially important variable in understanding and influencing women's career development (Betz & Fitzgerald, 1987; Richardson & Johnson, 1984). Regardless of gender, studies suggest that career related self-efficacy expectations have utility regarding understanding career choice behavior and play an important role in the study of career development (Betz & Hackett, 1986).

Following a comprehensive review of the career SE literature, Lent and Hackett (1987) concluded that: 1) research has lent support for the application of SE theory to the career domain; 2) research appears to be in its "formative stages" but is nonetheless promising; 3) cause-and-effect research is needed to further elucidate the reciprocal nature of the relationship between SE and career behavior; and 4) the relationship between career SE and other career variables (e.g., career indecision) warrants further investigation. The interested reader is referred to Lent and Hackett (1987) and Betz and Hackett (1986) for a more detailed review of the career self-efficacy literature.
Self-efficacy and academic/career choice

A number of studies have attempted to explore the relationship between career-related SE and career choice (i.e., choice of a college major and/or career). Along this line, several studies have examined the relationship between academic-related SE and consideration of potential college majors. Academic SE in this context pertains to students' SE regarding academic-related tasks/requirements. [For clarification purposes, the term academic SE has also been used in the literature to refer to academicians' SE regarding work-related tasks (see Landino & Owen, 1988; Schoen & Winocur, 1988).] Other studies have investigated the relationship between SE expectations regarding particular occupations (i.e., occupational SE) and consideration of such occupations as a career choice alternatives.

Mathematics SE, a specific type of academic SE, has been primarily studied in relation to educational decision making. Mathematics SE has been found to predict selection of science-based versus non-science-based college majors (Betz & Hackett, 1983), as well as selection of science/math related majors (Hackett, 1985; Hackett & Betz, 1989). In general, subjects with high mathematics SE tended to select science- and math-oriented majors. Additionally, studies suggest that academic-related SE is significantly related to persistence in technical/scientific majors (Brown, Lent, & Larkin, 1989;

Studies that have investigated the postulated relationship between occupational SE and career choice (consideration) have been generally supportive. Betz and Hackett (1981) found that occupationally-related SE was a significant predictor of career options considered by undergraduate students. More specifically, students with high SE for certain careers tended to consider these careers as options. Along this line, various other studies have found a significant relationship between occupational SE and an individual's perceived career options (Ayres-Gerhart, 1980/1981; Layton, 1984/1985; Rotberg, Brown, & Ware, 1987; Taylor & Popma, 1988). Lent, Brown, and Larkin (1986, 1987) similarly found that academic/vocational SE significantly predicted perceived career options in technical/scientific fields. In general, research suggests that greater occupational SE regarding specified occupations is associated with greater consideration of such occupations as career alternatives. Relatedly, lower occupational SE regarding specified occupations is related to less consideration of such occupations as career options. Also noteworthy is a study by Post-Kammer and Smith (1986) which, using a disadvantaged student population, found that consideration of math-oriented occupations was influenced by career related SE expectations. Although the relationship between occupational SE and career choice has been supported
as documented above, it should be noted that findings have not been unequivocal (see Clement, 1987).

Additionally, a number of studies have suggested that gender differences in academic/career choice are related to, (or associated with) gender differences in career-related SE (Ayres-Gerhart, 1980/1981; Betz & Hackett, 1981; Betz & Hackett, 1983; Hackett, 1985; Lapan, Boggs, & Morrill, 1989; Layton, 1984/1985; Post-Kammer & Smith, 1986). For example, Betz and Hackett (1981) found that gender differences in occupational SE regarding gender traditional versus nontraditional occupations paralleled gender differences in traditionality of major/career choice. As another example, the study by Lapan, Boggs, & Morrill (1989) found that SE regarding educational and job requirements for occupations representative of the "Investigative" and "Realistic" Strong-Campbell Interest Inventory (SCII) General Occupational Themes (GOTs) mediated gender differences in obtained scores on these themes. Males expressed greater SE and greater interest regarding these themes; whereas, females expressed lower SE and less interest regarding these themes. Since vocational interests play an important role in the career decision-making process, the finding that career-related SE mediates gender differences regarding expressed interest in these GOTs suggests an avenue by which SE impacts occupational choices. Also remarkable is the finding that gender differences in
career SE have been observed across cultures as well (Matsui, Ikeda, & Ohnishi, 1989).

Career Decision-Making Self-Efficacy

Research examining career decision-making self-efficacy focuses on the "process" aspect of career choice (i.e., process variables involved in career decision-making). More specifically, research has centered on self-efficacy beliefs regarding career decision-making tasks (behaviors) and their relationship to career decision-making. Taylor and Betz (1983) conducted a pioneering study in the area of career decision-making SE. These researchers investigated the relationship between career decision-making SE and career indecision using two college student samples. Correlational findings showed a moderate (-.40) inverse relationship between the strength of career decision-making SE and vocational indecision. In addition, a multiple regression analysis revealed that career decision-making SE was a significant predictor of career indecision. Individuals with lower career decision-making SE tended to indicate greater levels of career indecision. Taylor and Betz also found that college students reported moderately high career decision-making SE on the average. As well, results were generally suggestive of a lack of gender differences in career decision-making SE. Taylor and Betz (1983) also developed a measure of career decision-making SE termed the Career Decision-Making Self-Efficacy Scale (CDMSE) which will be reviewed in the following section.
Taylor and Betz (1983) suggested that the relationship between career decision-making SE and vocational indecision/decidedness is most likely reciprocal in nature. That is, SE expectations regarding career decision-making tasks are thought to impact vocational indecision (decidedness), and vocational indecision (decidedness) is thought to affect SE expectations. In other words, SE expectations can be viewed as both an antecedent to and a consequence of vocational indecision (decidedness). For example, strong SE expectations may lead an individual to engage in career decision-making tasks which result in vocational decidedness. On the other hand, strong career decision-making SE expectations may develop as the result of an individual deciding on a vocation. Along a similar line, weak SE expectations may keep an individual from engaging in career decision-making tasks and thus contribute to vocational indecision. Conversely, vocational indecision may engender weak career decision-making SE expectations. Taylor and Betz (1983) noted that their study served as an initial investigation of the relationship between career decision-making SE and career indecision, and further acknowledged that additional research is needed to examine the reciprocal nature of this relationship.

Taylor and Popma (1988, 1990) further explored the relationship between career decision-making SE and career indecision using a college student sample, and provided
findings consistent with those presented by Taylor and Betz (1983). More specifically, they also found a significant inverse relationship between career decision-making SE and career indecision ($r = -.51, p < .001$). Similarly, findings revealed a significant direct relationship between career decision-making SE and vocational decidedness ($r = .46, p > .001$). Thus, college students who exhibited higher career decision-making SE indicated more vocational decidedness.

Results from a multiple regression analysis indicated that CDMSE scores proved to be a significant predictor of vocational indecision; whereas, the other independent variables (e.g., occupational SE, career salience, and locus of control) were not significant predictors. Additionally, discriminant analyses revealed that career decision-making SE significantly predicted decision-making status regarding college major and career choice. Again, no significant gender differences in career decision-making SE were found. An inverse relationship was found between career decision-making SE and a locus of control variable: subjects who expressed a more external locus of control tended to exhibit less career decision-making SE.

Oreshnick (1986) also examined the relationship between career decision-making SE and career indecision/decidedness, and obtained results that were generally consistent with the aforementioned findings. Career decision-making SE was assessed by using the Short Form Career Decision-Making Self-
Efficacy Scale (Oreshnick, 1986). In general, the college student sample expressed strong career decision-making SE expectations, as did subjects in the Taylor and Betz study. Lack of gender differences in career decision-making SE were similarly suggested. Significant correlational findings showed that career indecision was negatively correlated with both career decision-making SE ($r = -.50$) and past success with respect to career decision-making task performance ($r = -.61$). Significant correlational findings additionally showed that career decidedness was positively correlated with both career decision-making SE ($r = .50$) and past success with respect to career decision-making task performance ($r = .61$). Subjects who reported low career indecision and high career decidedness tended to report stronger career decision-making SE and greater success regarding career decision-making task performance. Both strength of career decision-making SE and extent of past career decision-making task success were significant predictors of indecision and decidedness status.

Thus, the Oreshnick (1986) study uniquely examined the relationship between career decision-making SE and past performance on career decision-making tasks. Overall results showed that subjects with stronger SE expectations regarding career decision-making tasks tended to report career decision-making task experiences that were more successful and tended to engage in more career decision-making tasks compared to subjects with weaker SE expectations. Subjects with
relatively weaker career decision-making SE expectations thus tended to report less success regarding career decision-making task experiences and tended to engage in fewer career decision-making tasks. Such findings are consistent with Bandura's (1977) theoretical postulations that successful experiences enhance SE expectations, unsuccessful experiences weaken SE expectations, and low SE expectations may deter individuals from attempting related tasks. Career decision-making SE expectations have also been shown to be positively associated with career exploration activities (Blustein, 1989).

Lowe (1983) attempted to determine the extent to which (pretreatment) SE expectations regarding career decision-making tasks predicted subsequent success in a career decision-making course which served as an intervention for back-injured industrial workers in need of a career change. Lowe sought to evaluate the hypotheses that: 1) pretreatment SE expectations would predict changes in career undecidedness (pre-versus-post treatment); and 2) the intervention would lead to greater changes in SE expectations, as compared to changes in undecidedness. While results indicated in reduction in undecidedness (pre-versus-post treatment), there was no indication of changes in SE expectations. Pretreatment SE expectations failed to predict the observed changes in undecidedness. Given the absence of validity data for the SE instrument employed in the study, Lowe underscored that the
apparent lack of support for the study's hypotheses may be related to invalid measurement of the SE variable. Accordingly, Lowe concluded that this potential (measurement) confound precludes meaningful interpretation of the findings.

Solberg, Good, and Nord (1991a) examined the effectiveness of a self-efficacy based career course intervention in terms of its ability to both enhance career-related SE expectations and promote career decidedness within a college student population. Outcome variables were assessed using a 4-part questionnaire which asked subjects to provide ratings regarding their: 1) SE expectations regarding six "career exploration" and "job search" related tasks, such as "understand your own career-related values" and "interview a professional in the career you wish to pursue"; 2) outcome expectations concerning the same six career-related tasks employed as SE items (instructions asked respondents to rate how important performing each task is in securing a job); 3) certainty about the career they would like to pursue; and 4) certainty that their career choice (or eventual career choice) will result in career-related satisfaction. Results suggested that subjects experienced significant increases in SE expectations, outcome expectations, career "certainty" ratings, and predicted career "satisfaction" ratings. No significant gender-, age-, or ethnicity-related differences were found in SE expectation ratings at pretest or posttest. Additionally, changes in SE ratings significantly predicted
changes in career "certainty" and "satisfaction" ratings. In contrast, changes in outcome expectation ratings did not significantly predict changes in career "certainty" and "satisfaction" ratings. Findings were consistent with SE theory in that SE expectations constituted a better predictor of behavior than outcome expectations.

The Solberg et al. (1991a) study merits further comment with respect to the nature of the study and its limitations. First, since a number of the SE expectation ratings were made in reference to career search tasks that are commonly associated with the career decision-making process, the SE ratings can be viewed (at least to some extent) as a measure of career decision-making SE. Second, the study's design precludes cause-and-effect interpretations regarding the observed increases in career-related SE expectations given the absence of a control group. Third, the lack of reliability and validity data on the dependent measures introduces an additional confound that needs to be taken into account when interpreting the results. Lastly, although no gender differences in career-related SE expectations were found, a disproportionate sampling of males and females (skewed in favor of females) renders this last finding somewhat inconclusive.

Measurement of career decision-making self-efficacy

Research has also focused on the development and evaluation of an instrument to measure career decision-making
SE (Robbins, 1985; Taylor & Betz, 1983; Taylor & Popma, 1988, 1990). The Career Decision-Making Self-Efficacy Scale, which measures SE expectations with respect to career decision-making tasks and behaviors, has been the focus of this research. The CDMSE consists of 50 items, each of which represents a career decision-making task. The measure was rationally derived and is made up of five 10-item subscales, each of which stems from one of the following career choice competencies (Crites, 1961, 1965, 1973): (1) self-appraisal, (2) obtaining occupational information, (3) goal selection, (4) planning, and (5) problem-solving. Scoring procedures yield a total score, five subscale scores, and 50 single-item scores.

Robbins (1985) examined the construct validity of the CDMSE by assessing concurrent and discriminant validity. Concurrent validity findings showed that the CDMSE total score and subscale scores were significantly correlated with self-esteem, career decidedness (with the exception of one CDMSE subscale), and vocational identity -- the last of which was viewed by Robbins as a measure of career decision-making confidence. The self-esteem variable was assessed using the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1979) which is a measure of global self-esteem. In reference to discriminant validity, findings showed that the CDMSE scores significantly differentiated between high and low vocational identity groups (i.e., high and low career decision-making confidence groups).
Robbins interpreted the moderate correlations between career decision-making SE and self-esteem as suggesting that "the CDMSE is also a measure of a person's general sense of self-worth and confidence" (p. 67). As noted by Marlatt (1985), Bandura differentiates between SE and self-esteem by stressing that SE refers to an expectancy that one can adequately perform a given task or behavior in a specific situation (i.e., a specific expectancy), whereas self-esteem refers to a "global self-image" (p. 129) which is maintained across many situations (i.e., a global expectancy). Sherer et al. (1982) differentiated between these two constructs by noting that SE concerns beliefs about an individual's own abilities, whereas self-esteem concerns beliefs about one's self-worth. Subsequent research by Oresnick (1985) examined whether or not the CDMSE and RSES measure the same construct using a "corrected-for-attenuation" correlational procedure recommended by Strahan (1983). The obtained corrected-for-attenuation correlation between the two scales was .49; the two scales have approximately 25% shared variance. Accordingly, results suggested that the scales measure two distinct constructs which are not totally independent. In other words, the scales were found to measure two distinct, but correlated, dimensions. On a more general level, discriminant validity findings by Lent, Brown, and Larkin (1986) suggest that career SE and global self-esteem are distinct constructs.
In addition, Robbins (1985) contended that the CDMSE might more appropriately be termed a measure of generalized career SE rather than a measure of career decision-making SE. In contrast, Taylor and Betz (1983) showed that CDMSE scores were significantly (negatively) correlated with the "lack of career decision-making structure and confidence" factor (subscale) of the Career Decision Scale (CDS: Osipow, Carney, Winer, Yanico, & Koschier, 1980). Additionally, Taylor and Betz (1983) reported that their CDMSE factor analyses suggest the existence of a general factor which seems to closely correspond to the CDS "lack of career decision-making structure and confidence" factor. Taylor and Betz suggested that the CDMSE seems to assess career decision-making SE with respect to career decision-making tasks in general, as opposed to specifically with regard to the five subscale task domains as they had initially hypothesized. Use of the five subscales was not supported by the factor analytic component of their study.

Further comment is warranted regarding the factor structure of the CDMSE and the utility of the subscale scores. Factor analytic results obtained by Taylor and Betz (1983) failed to produce a well-defined factor structure, but did suggest the presence of a general factor. In reference to the CDMSE subscale scores, findings by Robbins (1985) questioned their use. Taylor and Popma (1988, 1990) replicated Taylor and Betz's factor analyses regarding the CDMSE and obtained a
more defined factor structure which accounted for 26% of the total variance. The 26% figure represents approximately half the total variance accounted for by the factor structure obtained in Taylor and Betz's initial study. Taylor and Popma (1988) underscored the need for future research which might further elucidate the factor structure of the CDMSE. Taylor and Popma (1990), based on their findings in conjunction with previous research, concluded that "the CDMSE scale seems to be measuring efficacy expectations across a broad range of career decision-making behaviors and situations and may best be characterized as a generalized career self-efficacy measure covering a multifaceted domain of career decision-making behaviors" (p. 28).

Based on Taylor and Betz's (1983) finding that suggested the existence of a general factor, Oreshnick (1985) further examined the CDMSE factor structure by introducing a general factor via a modified version of Wherry's (1959) rotation procedure (see Wolins, 1982). All 50 CDMSE items on the resulting rotation showed moderate-to-strong loadings on the general factor. Once the general factor was isolated, item loadings on the remaining extracted factors were, for the most part, low. These findings, in conjunction with those reported by Taylor and Betz (1983) and Robbins (1985), suggest that the CDMSE is measuring one dimension. In view of the research that suggests the CDMSE is unidimensional, dropping the subscale scoring seems warranted. Accordingly, the CDMSE
would then be scored on a total score and individual item basis.

Taylor & Popma (1988, 1990) further evaluated the career decision-making SE construct by conducting a construct validity study examining concurrent as well as predictive validity. Findings offered support for both concurrent and predictive validity of the CDMSE. In terms of concurrent validity, the CDMSE was shown to be significantly related to measures of occupational SE, vocational indecision, and vocational decidedness. In reference to predictive validity, the CDMSE was shown to significantly predict decision-making status regarding college major and career choice.

A related measure of career decision-making SE is the Short Form Career Decision-Making Self-Efficacy Scale (SFCDMSE) (Oreshnick, 1986). The SFCDMSE is a revised version of the CDMSE in which the 5-subscale format was eliminated and the total number of items was reduced to 20 items. The 20 resulting items were those that loaded highest on the general factor introduced in the Oreshnick (1985) study. The SFCDMSE yields a total score as well as 20 individual item scores. The use of the SFCDMSE as a short-form measure of career decision-making SE expectations was supported by psychometric findings obtained by Oreshnick (1986).

Although not a measure of career decision-making SE per se, the Career Search Efficacy Scale (CSES: Solberg, Good, & Nord, 1991b) was developed to measure SE regarding career
search tasks in general. While some overlap in item content exists between the CSES and CDMSE inventories (as might be expected given that career decision-making comprises a subset of career search tasks in general), the CSES purports to measure SE in relation to the broader construct of career search competence (Solberg et al., 1991b). Career search competence refers to "one's confidence in utilizing effective career exploration strategies" (Solberg, Good, & Nord, 1991c), and encompasses tasks related to self-exploration, career exploration, job search, networking, and self presentation/promotion. Solberg et al. (1991b) found that the CSES significantly predicted college students' level of vocational identity, thereby providing support for the concurrent validity of the measure.

Career decision-making self-efficacy, career decision-making anxiety, and career indecision

The relationship between anxiety and career indecision has been a focus of considerable research. In general, the existence of a relationship between career indecision and anxiety has been supported (Brown & Strange, 1981; Fuqua, Seaworth, & Newman, 1987; Hartman, Fuqua, & Blum, 1985; Hawkins, Bradley, & White, 1977; Kimes & Troth, 1974; O'Hare & Tamburri, 1986). Higher level of anxiety are generally associated with higher levels of career indecision, and vice versa. Fuqua et al. (1987) underscored the need for future research to identify variables that mediate the relationship
between anxiety and career indecision, which would further elucidate the anxiety / career indecision relationship. Theoretically, career decision-making SE could mediate this relationship, as well as directly lead to reductions in both career decision-making anxiety and career indecision.

SE theory views the relationship between SE expectations and anxiety as being inverse in nature (Bandura, 1977). SE theory posits that low SE task expectations lead to anxiety regarding such tasks. Conversely, anxiety regarding particular tasks constitutes a source of SE information which theoretically should lower SE expectations with respect to those tasks. Extending this relationship to the domain of career decision-making SE, career decision-making SE and career decision-making anxiety would theoretically covary in an inverse direction. A moderate degree of career decision-making anxiety may, however, be functional (Harren, 1979).

Kaplan and Brown (1987) took career decision-making SE expectations into account while examining the role of anxiety in career indecision, but obtained inconclusive results. Although not studying career decision-making SE per se, findings by O'Hare and Tamburri (1986) suggested that SE-oriented career decision-making coping behavior is significantly and inversely correlated with both career decision-making anxiety and career indecision. O'Hare and Beutell (1987) similarly found a significant inverse correlation between measures of SE-oriented career decision-
making coping behavior and career indecision. The relationship between career decision-making SE, career decision-making anxiety, and career indecision is in need of further investigation.

Furthering career decision-making self-efficacy research

A major limitation of career SE research has been the lack of experimental (cause-and-effect) investigations to further advance the existing research base which is predominantly correlational in nature (Betz & Hackett, 1986; Lent & Hackett, 1987; Taylor & Popma, 1988, 1990). This limitation applies to career decision-making SE research as well. Lowe (1983) was unsuccessful in attempting to manipulate (enhance) career decision-making SE expectations, however, as previously noted, the failure to impact SE may be attributable to psychometric shortcomings of the SE measure.

The research literature is devoid of studies that evaluate the effects of SE based (career) interventions on vocational behavior (Brooks, 1990; Lent and Hackett, 1987). Studies which investigate the effectiveness of SE-based career interventions are needed in order to further evaluate the career SE construct (Betz & Hackett, 1986; Hackett and Betz, 1981; Lent & Hackett, 1987), including the career decision-making SE construct. The psychological importance of SE expectations in career decision making will be reinforced if research can show that career interventions enhance SE and subsequently impact vocational behavior (Mitchell & Krumboltz,
1990). Although Solberg et al. (1991a) demonstrated increases in career decision-making related SE expectations for participants of a SE based career intervention, the absence of both a control group and psychometric data regarding the dependent measures precludes cause-and-effect based conclusions. Of particular relevance to the current study, a void presently exists in the form of a lack of any published research that evaluates the effectiveness of a SE related, career decision-making intervention in terms of its impact on career decision-making SE and other career decision-making related variables. While career interventions aimed at modifying SE essentially rest on the assumption that there is a causal relationship between career SE and career behavior, it is also the case that treatment research would be a viable method for establishing this causal relationship (Lent & Hackett, 1987). Accordingly, treatment research targeted at enhancing career decision-making SE and evaluating the impact on career behavior (e.g., career decision-making status) is a viable means for evaluating hypothesized cause-and-effect relationships.

Although there have been analog studies which have supported the theorized relationship between successful and unsuccessful performance experiences on career-related SE (Campbell & Hackett, 1986; Hackett & Campbell, 1987), these studies employed contrived performance experiences and tasks of questionable career relevance (Lent & Hackett, 1987). Lent
and Hackett (1987) underscored the need for career SE studies which utilize career-relevant tasks and examine the effects of actual performance accomplishments on career SE. Similarly, research is needed which directly examines the theorized relationship between career decision-making SE and behavioral performance on career decision-making tasks (Robbins, 1985).

As previously noted, the relationship between career decision-making SE and career indecision warrants further investigation. Along a similar line, Taylor and Betz (1983) emphasized the need for investigations which address problems in career decision making by taking SE expectations into account. Relatedly, Taylor and Popma (1988) pointed out the importance of assessing career decision-making SE along with indecision and decidedness as outcome variables in career decision-making intervention studies.

Robbins (1985) alluded to the need for additional studies which explore the relationship between career decision-making SE and other variables associated with the career decision-making process. With respect to other variables, career decision-making anxiety appears to be a promising variable for further study. Robbins (1985) found that career decision-making SE was significantly related to trait anxiety, however, the magnitude of the correlation was moderately low ($r = .24$, $p < .05$). As previously noted, Taylor and Betz (1983) found that the Career Decision Scale's "lack of structure and confidence" factor concerning vocational decision-making was
the factor most strongly related to the general factor found on the CDMSE. Factor analytic studies of the CDS (which have replicated this factor in particular) suggest that this factor appears to involve a choice anxiety component as well (Osipow, 1980; Osipow, Carney, & Barak, 1976; Slaney, Palko-Nonemaker, Alexander, 1981). The relationship between career decision-making SE and career decision-making anxiety merits further investigation in view of the aforementioned findings and the postulated relationship between these two variables.

Lent and Hackett (1987) offered additional recommendations for extending career SE research that apply to career decision-making SE research as well. On a general treatment level, Lent and Hackett (1987) suggested that potential career SE enhancement procedures utilize one or more of the following: 1) opportunities for performance accomplishments; 2) vicarious learning experiences (peer modeling); 3) positive verbal persuasion regarding individuals' capabilities; and 4) anxiety reduction procedures. These recommended SE enhancement procedures are directly related to the four sources of SE information and, in line with SE theory, appear to be viable avenues for intervention.

Current Research: Rationale, Purposes, and Hypotheses

As suggested in the previous section, experimental (cause-and-effect oriented) career intervention studies are needed to further career decision-making SE research in particular, and career SE research in general. A potentially valuable study
would involve implementing a career decision-making intervention and subsequently examining its effect on career decision-making SE. Moreover, implementing a career decision-making intervention that theoretically should enhance career decision-making SE expectations would provide an opportunity to demonstrate prospective changes in career decision-making SE pre-versus-post treatment. Accordingly, the current study involves the implementation of a SE-related career intervention designed to assist undergraduate students in their career development. The intervention is in the form of a career development course (class) which focuses on career decision-making and planning. Robbins (1987) implemented essentially the same intervention in a career-oriented study and observed a significant pre-test versus post-test decrease in career indecision as measured by the CDS, however did not examine career decision-making SE. Thus, one purpose of the present research is to further examine the career decision-making SE construct using a career intervention context.

A second aspect of this study addresses the aforementioned need to further evaluate the relationship between performance accomplishments and career decision-making SE. As previously noted and consistent with SE theory, general SE research suggests that performance accomplishments are a highly effective way to enhance SE. The career course intervention utilized in this study provides opportunities for performance accomplishments (i.e., mastery experiences) on a number of
career decision-making related tasks. Accordingly, the career intervention constitutes a theoretically-based SE enhancement intervention, and provides a context to evaluate the relationship between career decision-making SE and career decision-making related performance accomplishments. Relatedly, the second purpose of this study is to examine the relationship between performance accomplishments on career decision-making tasks and career decision-making SE in an applied context.

A third component of the current study addresses the lack of research concerning the relationship between career decision-making SE and career decision-making anxiety. As previously noted, career decision-making anxiety is posited to be both impact as well as be impacted by career decision-making SE. Thus, a third purpose of the current research is to further evaluate the relationship between career decision-making SE and career decision-making anxiety.

The fourth purpose of the current study is to further evaluate the effectiveness of the career course intervention in terms of its effect on career indecision. In their review of the literature focusing on career interventions with university, college, and community-college subjects, Pickering and Vacc (1984) found career course interventions were generally successful and effectively impacted career decision-making. Career course interventions have been shown to be effective in reducing career indecision and promoting career
decision-making (Barker, 1981; Davis & Horne, 1986; Lent, Larkin, & Hasegawa, 1986). In fact, a meta-analytic review by Oliver and Spokane (1988) suggested that career class interventions were the most effective type of career intervention. Although career course interventions are a common offering at colleges/universities and have been supported by research in general, there exists a general lack of formal evaluation of these courses as well as other college-based career interventions (Goodson, 1982). Findings by Robbins (1987) documented a decrease in career indecision following implementation of an earlier version of the career course used in the current study but did not include a control group as part of the study. The current study includes a control group which will assist in evaluating the effectiveness of the present career course intervention.

Another related purpose is to further examine the relationship between career indecision and career decision-making SE in a career intervention context. Theoretically, enhanced career decision-making SE expectations can be an antecedent to reductions in career indecision as well as a consequence of increased career decidedness. In general, increases in career decision-making SE would theoretically covary with reductions in career indecision. As previously noted, correlational studies have provided support for the hypothesized inverse relationship between these two variables. Accordingly, a fifth purpose of the present study is to
further document the hypothesized relationship between career indecision and career decision-making SE, and to examine this relationship while taking related variables (i.e., career decision-making anxiety and career decision-making performance accomplishments) into account.

A sixth aspect of the current research concerns the measurement of career decision-making SE. There appears to be a general need for continued examination of career SE measures, including reliability and validity aspects (Betz & Hackett, 1986). Although both the CDMSE and SFCDMSE have shown adequate reliability and validity, the research evaluating the validity of the SFCDMSE has been less extensive. Consequently, further examination of the SFCDMSE's validity is warranted. Thus, an additional purpose of this study is to further examine the validity of the SFCDMSE.

Several sets of hypotheses are advanced in reference to the aforementioned purposes of the current study. Hypotheses are ordered to correspond with the outlined purposes of the study. Hypotheses 1, 2, and 3 reflect the main emphasis of the study. While Hypotheses 4, 5, and 6 are also of considerable theoretical importance, they reflect a secondary emphasis of the current research. In reference to the following series of hypotheses, the "treatment group" refers to subjects who participated in the career course intervention; whereas, the "control group" refers to subjects who participated in the learning skills course.
Hypothesis 1 advances that the treatment group will exhibit significantly greater increases in career decision-making SE in comparison to the control group.

Hypothesis 2A advances that success regarding career decision-making performance accomplishments and career decision-making SE will be significantly correlated in a positive direction. Subjects who report greater success regarding their career decision-making task performance are hypothesized to exhibit greater career decision-making SE than those who report less success regarding their performance on the career decision-making tasks associated with the career intervention. Furthermore, it is hypothesized (Hypothesis 2B) that success regarding career decision-making performance accomplishments will significantly predict career decision-making SE at posttest.

Hypothesis 3A predicts a significant inverse relationship between career decision-making SE and career decision-making anxiety. Hypothesis 3B posits that career decision-making anxiety will significantly predict career decision-making SE.

Hypothesis 4 predicts that the treatment group will exhibit significantly greater decreases in career indecision and significantly greater increases in vocational decidedness in comparison to the control group.

Hypothesis 5A predicts that career decision-making SE will significantly covary with career indecision (decidedness). More specifically, career decision-making SE and career
indecision are predicted to be negatively correlated; whereas, career decision-making SE and career decidedness are predicted to be positively correlated. Relatedly, Hypothesis 5B advances that career decision-making SE will significantly predict career indecision and career decidedness. Hypotheses 5A and 5B are consistent with previous research findings and are advanced, in part, to replicate such findings. It is also advanced that career decision-making SE will play an important role in elucidating the relationship between career indecision/decidedness and both career decision-making performance accomplishments and career decision-making anxiety (Hypothesis 5C). More specifically, Hypothesis 5C states that career decision-making SE will significantly add to career decision-making performance accomplishments and career decision-making anxiety in the prediction of career indecision/decidedness.

In reference to further evaluating the validity of the SFCDMSE, Hypothesis 6A advances that the SFCDMSE will show similar relationships to variables of interest that are shown by the CDMSE and such variables. Relatedly, Hypothesis 6B predicts that the SFCDMSE will be psychometrically sensitive to any changes in career decision-making SE that are tapped by the CDMSE.

Two ancillary hypotheses concern the relationship between career decision-making SE and academic SE, in view of self-efficacy theory's "generality" dimension (which advances that
SE expectations generalize across similar tasks). Ancillary Hypothesis 1 predicts a significant positive correlation between career decision-making SE and academic SE, as measured by the instruments employed in the study. Prior to delineating the second ancillary hypothesis, a few precursory comments regarding conceptualization of the study's design are warranted. Given that the study's objectives concern the enhancement of career decision-making SE, subjects in a learning skills course (as contrasted with those in a career planning course) are conceptualized as comprising the control group. For reasons analogous to those that will later be presented as to why the career planning course constitutes a career SE intervention, the learning skills course can be similarly conceptualized to constitute an academic SE intervention. Accordingly, changes in academic SE (increases) are likely to be present within control group. Alternatively, when looking at both career decision-making SE and academic SE, the control (learning skills) and treatment (career planning) groups can be conceptualized as comparison groups in a general sense.

The second ancillary hypothesis, which is twofold in nature, predicts that changes in career decision-making SE will be positively correlated with changes in academic SE, and similarly, changes in academic SE will be positively correlated with changes in career decision-making SE (Ancillary Hypothesis 2A). However, it is further predicted
that significant changes in career decision-making SE will be associated with the career planning class; whereas, any significant changes in academic SE will be associated with the learning skills class (Ancillary Hypothesis 2B).
METHOD

Subjects

The study sample was obtained from an initial pool of 225 students. The majority of these students were enrolled in either a career and life planning course (experimental condition) or a learning skills course (control condition). Five students were enrolled in both classes and were subsequently excluded from the study to avoid potential confounding. A limited number of students had yet to officially register for the respective course at the time of the pretest. The career and learning skills classes were offered for university credit through the counseling center of a large, western, state university. Subjects volunteered to participate in the study in exchange for extra credit in their respective classes. Subjects who participated in the career and life planning course comprised the treatment group; whereas, subjects who participated in the learning skills course comprised the control group.

A prerequisite for inclusion in the study involved the completion of an assessment battery at both start and completion of the course. Subjects were recruited with the understanding that their desired participation would involve completing both pretest and posttest assessment packets. Not included in the pool of 225 students were 3 students who opted to complete an alternative extra-credit option in lieu of the
study and several students who choose not to participate in either the study nor the extra-credit alternative.

The initial pool of 225 students was further reduced as the result of several factors, the biggest of which was attrition. Attrition over the course of the study resulted in the loss of 47 potential subjects, yielding a 21% attrition rate. Attrition resulted from the absence of students from class at the posttest, students who dropped or withdrew from the course, exercised student prerogatives not to complete the study, and decisions not to register for the course by some students who had yet to register. Failure to follow questionnaire instructions accounted for a loss of 4 potential subjects; whereas, incomplete questionnaire packets resulted in a loss of 8 prospective subjects. (Incomplete questionnaire packets were those in which more than 1 major questionnaire item was missing.) Lastly, 2 prospective subjects were lost as a consequence of their disruptive behavior during the posttest assessment, which cast reasonable doubt about the accuracy of their responses. In total, 66 prospective subjects were lost due to the aforementioned reasons, which essentially represented a 29% reduction in sample size.

The resulting overall sample that was employed in the study consisted of 159 subjects, and included a total of 73 males (45.9% of the sample) and 86 females (54.1% of the sample). Subjects' ages ranged from 17 to 50 years, with a
mean age of approximately 21 years. The breakdown of subjects by school year (with corresponding percentages) was as follows: 89 freshmen (56%), 41 sophomores (25.8%), 18 juniors (11.3%), 7 seniors (4.4%), and 4 who did not fall under the "freshman through senior" classification scheme (2.5%). In reference to ethnic composition, the sample was relatively homogeneous with approximately 90% of subjects reporting Caucasian-American ethnicity. Asian-American and Hispanic-American subjects each comprised approximately 2% of the sample. The remaining subjects were relatively equally distributed across several ethnic groups. Seventy-three subjects (45.9% of the sample) reported that they had declared a major at the time of the pretest; whereas, 86 subjects (54.1% of the sample) indicated that they had not declared a major. The reported majors spanned across the university's various disciplines including art, engineering, pre-medicine, speech, psychology, education, and business to name a few.

Measures

Career Decision-Making Self-Efficacy Scale (CDMSE)

The Career Decision-Making Self-Efficacy Scale (CDMSE: Taylor & Betz, 1983) was used to assess career decision-making SE expectations (see Appendix A). Respondents are instructed to indicate their confidence in their ability to successfully complete each career decision-making task. Responses to each of the 50 items are based on a 10-point Likert scale with "0" indicating no confidence and "9" indicating total confidence.
An example of an item is as follows: "decide what you value most in an occupation". Since item number 32 (find out the employment trends for an occupation in the 1980s) was dated, it was rewritten as follows: "find out the employment trends for an occupation in the 1990s". Excluding subscale scoring, scoring procedures yield 50 single item scores and a total score. Single item scores range from 0 to 9 and are simply the rating assigned to each item. The total score is calculated by summing the individual item scores; CDMSE total scores range from 0 to 450. Higher score values indicate greater career decision-making SE.

Psychometric properties of the CDMSE with respect to internal consistency reliability and item-total score correlations are high. Obtained standardized coefficient alpha values for the total score across two student samples, as well as for the combined sample, were .97 (Taylor & Betz, 1983). In reference to item-total score correlations, point-biserial correlational values ranged from .50 to .80 for 86% of the items (the lowest $r_{pb}$ value was .29) (Taylor & Betz, 1983). In general, CDMSE validity studies examining concurrent, discriminant, and predictive validities have been supportive (see Oreschnick, 1985; Robbins, 1985; Taylor & Popma, 1988, 1990).
The Short-Form Career Decision-Making Self-Efficacy Scale (SFCDMSE) is a short-form version of the CDMSE, as previously noted (see Appendix B). The 20 items which comprise the SFCDMSE were selected from the 50 items that comprise the CDMSE. Individual item scores range from 0 to 9 as is the case on the CDMSE; total scores range from 0 to 180 with higher scores indicating greater career decision-making SE. Although the SFCDMSE was not administered per se, SFCDMSE total scores were obtained from responses to the CDMSE.

Findings regarding the psychometric properties of the SFCDMSE have been supportive (Oreshnick, 1986). More specifically, a total score test-retest reliability correlation of .85 (p < .0005) was obtained over a 2-week interval. Test-retest correlations for individual items ranged from .35 to .78 (p < .01), with 70% of the correlations falling between .64 and .78, inclusive. A high degree of internal consistency was reflected by an obtained coefficient alpha value of .92. Item-total score correlations ranged from .53 to .73 (p = .0001), with 80% of the correlations occurring between .61 and 73, inclusive. Findings by Oreshnick (1986) also provided support for the SFCDMSE in reference its predictive validity.
Development of the Performance Accomplishment Rating Scale (PARS) for Career Decision-Making Tasks

In order to examine the relationship between career decision-making SE and career decision-making task accomplishments (performance), it was required that an instrument be developed to measure the latter. Accordingly, the Performance Accomplishment Rating Scale (PARS) was developed to measure career decision-making task performance (see Appendix C). The scale requires subjects to rate how successful they were in performing a series of tasks related to the career decision-making process that were associated with the career course intervention.

The PARS is a 13-item rating scale in which subjects indicate whether or not they have attempted each task and subsequently rate how successful they were at accomplishing attempted tasks. Success ratings are made on 10-point Likert scale which ranges from "completely unsuccessful" (1) to "completely successful" (10). The PARS yields the following three scores: 1) a "task attempt" score (PARSTA); 2) a "total success" score (PARSTS); and 3) a "mean success" score (PARSMS).

The task attempt score is simply the total number of items to which subjects responded "yes" (to indicate that they had attempted the task) and measures the number of tasks attempted. The total success score reflects the overall degree of success (or lack of success) experienced in
reference to subjects' career decision-making task performances and are obtained by summing the success ratings for attempted items. Mean success scores reflect the average degree of success regarding a subjects' career decision-making task performances and are calculated by dividing the total success score by the respective task attempt score. Accordingly, the mean success score measures task success by taking into account both the number of tasks attempted and respective success ratings.

Task attempt scores range from 0 to 13; the greater the score, the more tasks attempted. Total success scores range from 1 to 130, with higher scores indicating greater overall career decision-making task success. Lastly, mean success scores range from 0 to 10, with higher scores indicating greater career decision-making task success. No psychometric data are available for the PARS.

State-Trait Anxiety Inventory (STAI, Form Y-1)

The State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), which consists of both State- and Trait-Anxiety scales, was used to measure career decision-making anxiety. More specifically, the State-Anxiety scale (Form Y-1) was administered with modified instructions to focus subjects on anxiety regarding career decision-making in particular (see Appendix D). This modification is consistent with STAI manual recommendations concerning the use of the State-Anxiety scale to measure
anxiety with respect to specific situations. A number of previous studies have also modified the directions on the State-Anxiety scale to focus on anxiety in relation to career decision making (see Brown & Strange, 1981; Kaplan & Brown, 1987; and O'Hare & Tamburri, 1986).

The State-Anxiety scale was developed to measure anxiety conceptualized as being a transitory emotional state or condition, as contrasted to trait anxiety which is conceptualized as being an enduring personality trait or disposition (Spielberger et al., 1983). The State-Anxiety scale consists of 20 statements which respondents rate on a 4-point Likert scale. The scale ranges from "not at all" (1) to "very much so" (4) and refers to how respondents feel at the particular time. Half of the items are worded to indicate the presence of anxiety (e.g., item 3 reads "I am tense"); whereas, the remaining items are worded to reflect the absence of anxiety (e.g., item 1 reads "I feel calm"). Items which reflect a lack of anxiety are scored inversely. For example, an item rating of 1 is transformed into a rating of 4, an item rating of 2 is transformed into a rating of 3, and so forth. Scores are simply the sum of item ratings taking into account reverse weighted items. Scores range from 20 to 80, with higher scores indicating greater anxiety. The total score on the modified STAI State-Anxiety scale will hereafter be referred to as the career decision-making anxiety (CDMANX) score.
O'Hare & Tamburri (1986) employed the State-Anxiety scale (Form X, Spielberger, Gorsuch, & Lushene, 1970) with modified instructions focusing on career decision-making and obtained an alpha reliability of .94, which was consistent with that reported by Spielberger et al. (1970) for the State-Anxiety scale. Similarly, Kaplan & Brown (1987) found that the STAI (Form X, Spielberger et al., 1970) with modified career decision-making related instructions showed high internal consistency reliability with an obtained Cronbach alpha coefficient of .87. In reference to validity related findings, the State-Anxiety scale (Form X, Spielberger et al., 1970) with modified career decision-making instructions was found to relate to career choice status, with undecided subjects reporting significantly greater anxiety than decided subjects (Brown & Strange, 1981; O'Hare & Tamburri, 1986).

Given the high correlation between Forms X and Y of the STAI (ranging from .96 to .98), reliability and validity studies conducted on Form X are viewed by Spielberger et al. (1983) as being applicable to Form Y as well. In developing Form Y, 30% of the items on Form X were replaced, resulting in an instrument with improved psychometric properties. The improved psychometric properties include: elimination and replacement of items with weak psychometric properties; increased internal consistency; and a resulting factor structure that is more differentiated and consistent (Spielberger et al., 1983). The reliability of Form Y is high
as reflected by assessments of internal consistency (more specifically, alpha correlation coefficients and item-remainder correlations). For example, State-Anxiety scale alpha coefficients obtained from a large normative college sample were .91 and .93 for male and female college students, respectively (Spielberger et al., 1983). Relatedly, the State-Anxiety scale median item-remainder correlation was .59 for the college student sample. For most research applications involving the assessment of anxiety, the two forms can be viewed as being interchangeable (Spielberger et al., 1983). Accordingly, the State-Anxiety scale (Form Y) was modified for use in the current study given its superior psychometric properties. In sum, research regarding the reliability and validity of the STAI supports the use of the STAI (Form Y) in research and clinical applications (see Spielberger et al., 1983 for a more extensive review).

Career Decision Scale (CDS)

The Career Decision Scale (CDS: Osipow, Carney, Winer, Yanico, & Koschier, 1987) was employed as a measure of career (vocational) indecision and decidedness. The CDS is an 18-item measure: items 1 and 2 reflect decidedness (certainty) with respect to career and college major choice, respectively; items 3-18 form a general indecision index. A respondent indicates how descriptive each item is of him or her by marking his/her response on a 4-point Likert scale ranging from "not at all like me" (1) to "exactly like me" (4).
In reference to scoring, the summation of Certainty Scale items 1 and 2 provides a measure of educational/vocational decidedness (decidedness score); whereas, the summation of Indecision Scale items 3 through 18 provides an indecision score. In the former case, scores range from 2 to 8, with higher scores indicating more decidedness. In the latter case, scores range 16 to 64, with higher scores reflecting greater career indecision. The decidedness and indecision subscales are negatively correlated.

The instrument has demonstrated reliability and validity, and has shown sensitivity to change when used as a pre- and post-treatment measure for career indecision interventions (see Osipow, 1987 for an extensive review). Total score test-retest reliability is sufficiently high for the indecision subscale: .90 and .82 based on two college student samples over a two-week period (Osipow et al., 1976). Relatively, item test-retest correlations based on all 18 items ranged from .34 to .82, with the majority of coefficients falling within .60 to .70 range. Item test-retest correlations for items one and two ranged from .72 to .79. Total score test-retest reliability, based on a six-week interval and indecision scale items, was found to be .70 for a large college student sample (Slaney et al., 1981). Osipow (1987) reviews a number of studies which collectively offer support for the construct, convergent, and discriminant validity of the instrument. Although there remains a lack of clarity regarding the factor
structure of the CDS, the use of the CDS as a unidimensional measure of career indecision is well supported (Slaney, 1988). Identifying clear and reliable career indecision factors is an important aspect of future research in general (Slaney, 1988).

**Demographic Data Sheets**

A demographic data sheet (see Appendix E) requested information regarding additional variables of interest, including: gender, age, year in school, cumulative grade-point average (GPA), ethnic background, major choice status, and career choice status. For the GPA variable, cumulative college GPA was requested. However, first quarter freshman were asked to list their high school GPA instead. The "major choice status" and "career choice status" variables paralleled those employed by Taylor and Popma (1988, 1990). The major choice variable consisted of three levels indicating whether subjects were decided, tentatively decided, or undecided regarding a major. Similarly, the career choice status variable consisted of three levels indicating whether subjects were decided, tentatively decided, or undecided in reference to their career choice. Status regarding whether or not subjects had declared a major, and the major if declared, were tapped by a "college major" variable on demographic data sheet.

A modified demographic data sheet which included major choice status, career choice status, and college major variables was developed for administration during post-test
assessment phase (see Appendix F). The modified demographic data sheet also included an item which assessed subjects' career decision-making related involvements during the current quarter.

Development of the Academic Self-Efficacy Survey (ASES)

The Academic Self-Efficacy Survey (ASES) was developed to measure academic self-efficacy in reference to the academic/study skills covered in the learning skills course (see Appendix G). In view of the task-specific nature of SE measurement, learning skills tasks were selected to represent the domain of skills addressed in the course. A total of nine items comprise the ASES. The format for rating SE in relation to the ASES tasks paralleled that used on the CDMSE, is consistent with the assessment methodology employed in the SE literature in general, and reflects the "strength" dimension of SE in particular.

The directions instruct respondents to indicate their confidence in their ability to successfully complete each respective task based on a 10-point Likert scale ranging from "0" (no confidence) to "9" (complete confidence). An example of an item is as follows: "read textbooks in a way that promotes mastery of important concepts". Scoring procedures yield 9 single item scores and a total score. Single item scores range from 0 to 9 and directly reflect the rating assigned to the particular item. The total score is obtained by summing the individual item scores. ASES total scores
range from 0 to 81, with higher scores indicating greater academic self-efficacy. No psychometric data are available for this measure.

Design

Given that random assignment of subjects was not possible, a quasi-experimental design was employed utilizing control and treatment groups. Subjects participating in the career course, which included a total of 6 class sections, comprised the treatment group. Subjects participating in the learning skills course, which also included a total of 6 class sections, comprised the control group.

Treatment Intervention

The treatment intervention consisted of a 10-week career and life planning course which meet once a week for an hour and 55 minutes. The course was didactic and experiential in nature, and focused on career choice as a process. The intervention was implemented in a consistent manner across classes in accordance with an instructor's manual which detailed the course curriculum in terms of lectures, readings, in-class exercises, and assignments. Course instructors, who were pre-doctoral psychology graduate student interns, attended weekly consultation meetings to discuss the logistics regarding upcoming classes. The aforementioned steps sought to standardized the career intervention across the various class sections so as to provide treatment subjects with
similar learning opportunities and experiences. Each of the six sections was taught by a different instructor.

The course was designed to assist participants in the career decision-making and planning process via lectures, discussions, guided experiences, and assignments in reference to the following: 1) self-appraisal of interests, values, abilities, and personal characteristics; 2) gathering career-related occupational (academic) information; and 3) integration of the information gleaned from self-appraisal and occupational information gathering tasks.

In terms of specific self-appraisal tasks, subjects were provided opportunities to: a) define their interests via completion and group interpretation of the Strong-Campbell Interest Inventory; b) clarify personal and work-related values through paper-and-pencil exercises; c) identify personal abilities and skills through paper-and-pencil exercises; and d) examine personal preferences via completion and group interpretation of the Myers-Briggs Type Indicator.

In reference to specific occupational information gathering tasks, subjects were provided opportunities to: a) utilize the university’s career library in researching one or two occupational fields; b) outline the occupational field(s) with respect to several categories (nature of the work, working conditions, qualifications, employment outlook, etc.); and c) conduct information gathering interviews with individuals affiliated with the occupational field(s).
With respect to the integration of information gleaned from self-appraisal and occupational information gathering tasks, subjects completed an integration task in the form of a major integration paper. Instructors encouraged integration of information throughout the quarter. The career course also addressed additional topics, including: goal-setting and planning, cover letter and resume writing, and decision-making. A course grade was assigned based on points earned for completed assignments, attendance, and class participation.

Control Group

The learning skills course was designed to assist students in their academic pursuits and focused on study skills as opposed to career decision-making and career planning. Topics covered included: goal-setting; values clarification; time management; memory and concentration; reading and writing techniques; note-taking; textbook mastery; test preparation, test taking, and test anxiety. Subjects in the learning skills course were provided opportunities for performance accomplishments regarding study skill related tasks. The learning skills course was similar in length to the career course and was also graded. Although goal-setting and values clarification were addressed in both courses, their emphases were different. For example, work values were not addressed in the learning skills class.
Procedure

All subjects read and agreed to an informed consent form (see Appendix H) and completed a demographic data sheet prior to completing the study measures. Treatment and control group subjects were administered the CDMSE, CDS, modified STAI (Form Y-1), and ASES in counterbalanced order during the first class meeting, thus constituting the pretest assessment phase. Near the completion of their respective courses, control and treatment subjects were administered the CDMSE, CDS, modified STAI (Form Y-1), ASES, and PARS in counterbalanced order, thus constituting the posttest assessment phase. The modified demographic data sheet was also completed by all subjects during the post-test assessment phase.

Data Analysis

All analyses were conducted using the Statistical Analysis System (SAS) software package. Initial analyses were conducted employing frequency distributions for discrete variables of interest and measures of central tendency for continuous variables assessed in the study. Correlation matrices, which utilized Pearson Product-Moment correlation coefficients, were produced for continuous variables of interest at both pretest and posttest. The correlation matrices served as a source for the correlations described below. The posttest correlation matrices were produced using the overall sample (i.e., the pooled data combining the treatment and control groups), as well as the treatment group
data separately. A general linear model procedure/framework was used to conduct the following statistical analyses: simple regression, multiple regression, analysis of variance (ANOVA) (with unbalanced data), analysis of covariance (ANCOVA), and F-tests (with unbalanced data). Since a few subjects had a missing item on either the CDMSE or modified STAI State-Anxiety scale, these questionnaires were prorated in these cases to obtain a total score. STAI prorated scores were computed following the recommended procedure detailed in the STAI manual (STAI: Spielberger et al., 1983). CDMSE prorated scores were obtained by calculating a mean for the completed items, multiplying the resulting mean item-rating by 50, and rounding off the product.

Two sets of general analyses were conducted in order to evaluate Hypothesis 1 which predicts changes (i.e., enhancement) in career decision-making SE associated with the career intervention. The first set of analyses involved ANOVA procedures based on a linear model fitted with CDMSE difference scores (posttest - pretest) as the dependent variable (DV), with group (treatment vs. control), gender, and instructor as independent variables or IV(s). The second set of analyses employed ANCOVA procedures based on a similar model with the following modifications: 1) CDMSE posttest scores replaced CDMSE differences score as the DV; and 2) CDMSE pretest scores were added as a covariate.
In reference to both sets of general analyses, a cell means model (see Searle, 1987) was employed to account for combined effects of the independent variables rather than singular effects. Estimates regarding ANOVA and ANCOVA statistics were calculated as linear combinations of solutions from least squares equations. The effects of each model were solved by setting up least squares equations and calculating solutions for the cell means using least squares. Accordingly, estimated effects were equal to the solutions for the least squares equations. General contrasts of interest included: 1) treatment vs. control (group contrast); 2) male vs. female (gender contrast); and 3) instructor (instructor within group contrast). Group, gender, and instructor contrasts were further examined via the following additional contrasts: 4) male vs. female within treatment group; 5) male vs. female within control group; 6) treatment vs. control within male subjects; 7) treatment vs. control within female subjects; 8) instructor within treatment group; and 9) instructor within control group. A covariate contrast was included as part of the general contrasts for the ANCOVA analyses. Modifications of the initial models were planned in the event that results dictated. More specifically, modifications involved dropping nonsignificant independent variables from the model.

The relationship between career decision-making SE and both success regarding career decision-making performance
accomplishments (Hypothesis 2) and career decision-making anxiety (Hypothesis 3) was analyzed as subsequently detailed. Analyses were conducted using the overall sample data in general, as well as the treatment group data in particular. Pearson product-moment correlations were computed between subjects' posttest CDMSE total score and posttest PARS mean success score. Pearson product-moment correlations were computed between subjects' CDMSE total score and CDMANX score for pretest and posttest scores, respectively. Recall that Hypothesis 2A predicts a positive relationship between the CDMSE and PARS variables; whereas, Hypothesis 3A predicts an inverse relationship between the CDMANX and PARS variables. The ability of these variables to predict career decision-making SE was examined by employing simple regression and multiple regression analyses. Simple regression analyses were conducted by separately regressing posttest CDMSE total scores on both PARS mean success scores and CDMANX scores. Multiple correlations were calculated, along with corresponding R-squared values, using posttest CDMSE total scores as the dependent (criterion) variable and both PARS mean success scores and CDMANX posttest scores as independent (predictor) variables. The ability of both success regarding career decision-making performance accomplishments (Hypothesis 2B) and career decision-making anxiety (Hypothesis 3B) to predict career decision-making SE was thus evaluated.
At this point, a slight digression regarding the use of PARS "mean success" scores over PARS "total success" scores in the evaluation of Hypothesis 2 (and Hypothesis 5C) is warranted. Preliminary correlational analyses demonstrated a highly significant positive correlation between the two PARS scores ($r = .65$, $p = .0001$ and $r = .75$, $p = .0001$ for the respective overall sample and treatment group analyses), as would be expected. Since the PARS "mean success" score incorporates subjects' PARS "total success" and PARS "task attempt" scores, it takes into account the number of tasks attempted in arriving at an indicator of task success and, therefore, provides more information than the "total success" scores alone. The "mean success" score essentially adjusts for the number of tasks which subjects attempt. With the "total success" score, a subject could be relatively less successful at a number of tasks and score higher than someone who was more actually more successful but attempted fewer tasks. Accordingly, the "mean success" score is more clearly interpretable than the "total success" score.

Two sets of general analyses were conducted in order to evaluate Hypothesis 4 which predicts changes in career indecision (decidedness) pre-versus-post career intervention. The first set of analyses utilized ANOVA procedures in the context of two similar linear models which differed only in terms of the DV. The first model fitted CDS decidedness difference scores (posttest - pretest) as the DV, with group
(treatment vs. control), gender, and instructor as IV(s). The second model fitted CDS indecision difference scores (pretest - posttest) as the DV. The second set of analyses utilized ANCOVA procedures based on 2 models analogous to those employed in the first set of analyses with the exception of the following modifications: 1) CDS decidedness scores (posttest) replaced CDS decidedness difference scores as the DV in the first model; 2) CDS indecision scores (posttest) replaced CDS indecision difference scores as the DV in the second model; 3) CDS decidedness scores (pretest) were added as a covariate in the first model; and 4) CDS indecision scores (pretest) were added as a covariate in the second model.

In reference to both sets of general analyses concerning Hypothesis 4, as was the case in the analysis of Hypothesis 1, a cell means model was employed to account for combined effects of the independent variables. Estimates were again calculated as linear combinations of solutions from least squares equations. The effects of each model were solved by setting up least squares equations and calculating solutions using least squares. Similarly, estimated effects were equal to the solutions for the least squares equations. The general contrasts and additional contrasts paralleled those detailed in the Hypothesis 1 analysis. A covariate contrast was again included as part of the general contrasts for the ANCOVA analyses. Modifications of the initial models were planned in
the event that results dictated modification of the model(s). Planned modifications were along the same line as those mentioned in reference to Hypothesis 1.

Hypothesis 5, concerning the relationship between career decision-making SE and career indecision/decidedness, was evaluated as subsequently detailed. Analyses were conducted using the overall sample data in general, as well as the treatment group data in particular. Hypothesis 5A, which advances that career decision-making SE will significantly covary with career indecision (inversely) and with career decidedness (in an positive direction), was examined using Pearson product-moment correlations. Pearson product-moment correlations were computed between subjects' CDMSE total score and CDS indecision score for pretest and posttest scores, respectively. Similarly, Pearson product-moment correlations were computed between subjects' CDMSE total score and CDS decidedness score for pretest and posttest scores, respectively. In order to examine the ability of career decision making SE to predict career indecision and decidedness (Hypothesis 5B), simple regression analyses were conducted by separately regressing posttest CDS indecision and decidedness scores on posttest CDMSE total scores. Hypothesis 5C, which predicts that career decision-making SE will significantly add to both career decision-making performance accomplishments and career decision-making anxiety in the prediction of career indecision and decidedness, was primarily
evaluated using multiple regression analyses. The multiple regression analyses were run in pairs using similar analyses for career indecision and decidedness variables. Within each pair of multiple regression analyses, identical analyses were run with the exception that one analysis employed (posttest) CDS indecision scores as the DV, whereas the other analysis used (posttest) CDS decidedness scores as the DV. Thus, all pairs of multiple regression analyses employed (posttest) CDS indecision and decidedness scores as DV(s). For the first pair of analyses, the IV(s) consisted of posttest: CDMSE total scores, PARS mean success scores, and CDMANX scores. In reference to the second pair of analyses, the IV(s) consisted of (posttest) CDMSE total scores and (posttest) PARS mean success scores. Regarding the third pair of analyses, the IV(s) consisted of (posttest) CDMSE total scores and (posttest) CDMANX scores. Multiple correlations were obtained for the multiple regression analyses, along with corresponding R-squared values. To aid in interpretation, simple regression analyses were conducted by separately regressing (posttest) CDS indecision and decidedness scores on (posttest) PARS mean success and CDMANX scores, respectively.

In order to evaluate whether the SFCDMSE shows similar relationships to variables of interest that are shown by the CDMSE and such variables (Hypothesis 6A), these relationships were evaluated by examining the associations among variables within the Pearson product-moment correlation matrices for
pretest and posttest variables, respectively. More specifically, comparisons between the SFCDMSE and CDMSE measures were made by examining the extent to which these measures similarly correlated with the following variables of interest: career indecision as reflected by CDS indecision scores; career decidedness as measured by CDS decidedness scores; and career decision-making anxiety as reflected by CDMANX scores. Furthermore, Spearman rank-order correlation coefficients were calculated between CDMSE and SFCDMSE scores to evaluate the degree to which both instruments yielded similarly ranked data. Spearman correlations were calculated for pretest, posttest, and difference scores (posttest - pretest), respectively. To evaluate if the SFCDMSE was psychometrically sensitive to prospective changes in career decision-making SE tapped by the CDMSE (Hypothesis 6B), the analyses for Hypothesis 1 were rerun with SFCDMSE scores used in place of CDMSE scores. SFCDMSE difference scores were obtained by subtracting SFCDMSE pretest scores from SFCDMSE posttest scores.

Three groupings of additional analyses were run to augment the aforesaid data analysis. The first grouping involved 2 sets of supplemental analyses that were designed to assess for prospective decreases in career decision-making anxiety associated with the career intervention. The first set involved ANOVA procedures based on a linear model fitted with CDMANX difference scores (pretest - posttest) as the dependent
variable, with group (treatment vs. control), gender, and instructor as IV(s). The second set employed ANCOVA procedures based on an analogous model with the following modifications: 1) CDMANX (posttest) scores replaced CDMANX difference scores as the DV; and 2) CDMANX (pretest) scores were added as a covariate.

In reference to both sets of analyses, as was the case in the previously detailed ANOVA and ANCOVA analyses, a cell means model was employed to account for combined effects of the independent variables. Similarly, the effects of each model were solved by setting up least squares equations and calculating solutions using least squares. The contrasts were identical to those utilized in previous ANOVA and ANCOVA analyses. Planned modifications of the initial model(s) were similarly along the same line as those mentioned in previous analyses.

The second grouping of supplemental analyses, which involved 2 sets of analyses, examined the relationship between: 1) career decision-making SE and gender; and 2) career decision-making SE and school year, respectively. The first set involved ANOVA procedures based on a linear model fitted with CDMSE total scores (pretest) as the dependent variable and gender as the independent variable (IV). The second set involved ANOVA procedures based on a linear model fitted with CDMSE total scores (pretest) as the dependent variable and school year as the IV.
In reference to both sets of analyses, a cell means model was employed and analyzed in a manner analogous to that of previously delineated ANOVA analyses. The contrasts for the first model were as follows: 1) male vs. female (gender); 2) male vs. female within treatment group; and 3) male vs. female within control group. The contrasts for the second model were as follows: 1) school year vs. school year; 2) school year vs. school year within treatment group; and 3) school year vs. school year within control group.

The third grouping of additional analyses were employed to evaluate the ancillary hypotheses concerning academic SE and career decision-making SE. Pertinent correlations were obtained using the overall sample and treatment group data sets. Ancillary Hypothesis 1, which predicts a significant positive correlation between academic SE and career decision-making SE, was evaluated by computing Pearson product-moment correlations between subjects' ASES total score and CDMSE total score for pretest and posttest scores, respectively. Ancillary Hypothesis 2A, which predicts a positive correlation between prospective changes in CDMSE and ASES total scores, was evaluated by computing Pearson product-moment correlations between subjects' CDMSE and ASES difference scores (posttest - pretest).

In order to assess for prospective increases in academic SE associated with the career intervention (Ancillary Hypothesis 2B), 2 sets of supplemental analyses that were
employed. The first set utilized ANOVA procedures based on a linear model fitted with ASES difference scores (posttest - pretest) as the dependent variable (DV), with group (treatment vs. control), gender, and instructor as IV(s). The second set utilized ANCOVA procedures based on an analogous model with the following modifications: 1) ASES (posttest) scores replaced ASES difference scores as the DV; and 2) ASES (pretest) scores were added as a covariate. A cell means model was employed and analyzed in a manner consist with previously detailed ANOVA and ANCOVA analyses, employing the same series of contrasts.

In closing, three final notes are in order regarding the data analysis. First, it should be noted that the "career decision-making related involvements" item on the modified demographic data sheet did not figure into the analyses for the current study. Second, difference scores for the ANOVA based analyses were calculated in a consistent manner to assist interpretation of the findings. More specifically, difference scores were calculated to yield positive scores taking predictions into account. If increases in a score were predicted, the difference scores were calculated by subtracting pretest scores from posttest scores. In such cases, greater difference scores reflect greater increases. If decreases in a score were predicted, the difference scores were calculated by subtracting posttest scores from pretest scores. In these cases, greater difference scores reflect
greater decreases. Third, BLUEs for ANOVA and ANCOVA based analyses were also calculated in a consistent manner to assist interpretation of the results. "Treatment versus control" based comparisons were calculated subtracting control estimates from treatment estimates. "Male versus female" based comparisons were calculated subtracting female estimates from male estimates.
RESULTS

The following analyses, unless otherwise specified, were based on the total sample of 159 subjects. Characteristics of the treatment and control groups are presented first, followed by statistics concerning measures of central tendency. Correlation matrices are then presented for variables of interest. Afterwards, results regarding the study's hypotheses are presented on a hypothesis-by-hypothesis basis. Results from the supplemental analyses are then presented. The tables are sequentially ordered at the end of the chapter.

Treatment Group Characteristics

The treatment (career intervention) group consisted of 71 subjects. Males comprised 45.1% of the treatment group (n = 32); whereas, females comprised 54.9% (n = 39). Subjects' ages ranged from 18 to 45 years, with a mean age of approximately 22 years. The breakdown of subjects by school year was as follows: 16 freshmen (22.5%), 30 sophomores (42.3%), 17 juniors (23.9%), 6 seniors (8.5%), and 2 who did not fall under the "freshmen through senior" classification scheme (2.8%). Thirty-one subjects (43.7%) reported that they had declared a major at the time of the pretest; whereas, 40 subjects (56.3%) indicated that they had not declared a major.

In reference to subjects' reported major choice status (pretest), the breakdown was as follows: 39.4% undecided (n = 28), 45.1% tentatively decided (n = 32), and 15.5% decided (n = 11). The corresponding breakdown for major choice status
variable at posttest was as follows: 16.9% undecided (n = 12), 49.3% tentatively decided (n = 35), and 33.8% decided (n = 24). In regard to subjects' reported career choice status (pretest), the percentages and frequencies were as follows: 49.3% undecided (n = 35), 47.9% tentatively decided (n = 34), and 2.8% decided (n = 2). Correspondingly, the percentages and frequencies for the career choice variable at posttest were as follows: 19.7% undecided (n = 14), 62.0% tentatively decided (n = 44), and 18.3% decided (n = 13).

Sixty-five of the 71 subjects (91.5%) completed all items on the major inventories of interest. Six of the 71 subjects (8.5%) had an incomplete questionnaire (i.e., were missing a questionnaire item on either the modified STAI State-Anxiety scale or CDMSE). As previously noted, these questionnaires were prorated. Sixty-nine of the 71 subjects reported cumulative GPAs. Sixty-one subjects reported college GPAs; whereas, 8 subjects reported high school GPAs given that they were first semester freshmen.

Control Group Characteristics

The control group consisted of 88 subjects. Males comprised 46.6% of the control group (n = 41); whereas, females comprised 53.4% (n = 47). Subjects' ages ranged from 17 to 50 years, with a mean age of approximately 21 years. The breakdown of subjects by school year was as follows: 73 freshmen (83.0%), 11 sophomores (12.5%), 1 junior (1.1%), 1 senior (1.1%), and 2 who did not fall under the "freshmen
through senior" classification scheme (2.3%). Forty-two subjects (47.7%) reported that they had declared a major at the time of the pretest; whereas, 46 subjects (52.3%) indicated that they had not declared a major.

In reference to subjects' reported major choice status (pretest), the breakdown was as follows: 26.1% undecided (n = 23), 34.1% tentatively decided (n = 30), and 39.8% decided (n = 35). The corresponding breakdown for major choice status variable at posttest was as follows: 25.0% undecided (n = 22), 42.05% tentatively decided (n = 37), and 32.95% decided (n = 29). In regard to subjects' reported career choice status (pretest), the percentages and frequencies were as follows: 29.55% undecided (n = 26), 45.45% tentatively decided (n = 40), and 25.0% decided (n = 22). Correspondingly, the percentages and frequencies for the career choice variable at posttest were as follows: 27.3% undecided (n = 24), 50.0% tentatively decided (n = 44), and 22.7% decided (n = 20).

Eighty-one of the 88 subjects (92.0%) completed all items on the major inventories of interest. Seven of the 88 subjects (8.0%) had an incomplete questionnaire (i.e., were missing a questionnaire item). Six of these questionnaires, which were modified STAI State-Anxiety and CDMSE questionnaires, were prorated as previously described. The remaining incomplete questionnaire, a PARS, was dropped from the analyses. Eighty-one of the 88 subjects reported cumulative
GPAs. Sixty-six subjects reported high school GPAs given that they were first semester freshmen; whereas, 15 subjects reported college GPAs.

Measures of Central Tendency

Means, standard deviations, and ranges for the major variables of interest are reported for the overall sample at pretest in Table 1. Table 2 presents means and standard deviations for major variables of interest at both pretest and posttest for the treatment (intervention) group. Control group means and standard deviations for major variables of interest at pretest and posttest are reported in Table 3.

Correlation Matrices

Pearson Product-Moment correlation results are presented via several correlation matrices. Table 4 presents correlation coefficients for pretest variables based on the overall sample. Table 5 presents correlation coefficients for posttest variables based on the overall sample. Treatment group correlation coefficients for posttest variables are reported in Table 6. In reference to the GPA variable at pretest, 150 subjects reported their GPA: 76 subjects reported their college GPA and 74 subjects reported their high school GPA. GPA was therefore treated as 2 separate variables: college GPA (GPA-C) and high school GPA (GPA-HS).
Hypothesis 1 - Enhancement of Career Decision-Making Self-Efficacy

Findings in the following two sections are related to Hypothesis 1 which predicts changes (i.e., increases) in career decision-making SE associated with the career intervention. Section 1 delineates ANOVA related findings. Sections 2 details ANCOVA related results. A summary table of the contrast findings for the respective analyses is provided at the end of each section.

Section 1: Analysis of Variance (ANOVA) / CDMSE scores

The first series of results stemmed from ANOVA procedures based on a linear model fitted with CDMSE difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results are as follows. The group (treatment vs. control) contrast was significant \( F(1,139) = 18.73, p = .0001 \). The corresponding treatment effect, based on the Best Linear Unbiased Estimator (BLUE), estimated that treatment subjects' difference scores significantly exceeded those of control subjects by 34.26 (BLUE = 34.26, \( p = .0001 \)). The gender (male vs. female) contrast proved significant \( F(1,139) = 7.50, p < .01 \). The corresponding gender effect estimated that females' difference scores significantly exceeded those of males by 22.45 (BLUE = -22.45, \( p < .01 \)). The instructor (instructor within group) contrast was non-significant.
Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was non-significant. The "male vs. female within control group" contrast was significant \( F(1,139) = 5.80, p < .05 \). The corresponding gender effect estimated that, within the control group, females' difference scores significantly exceeded those of males by 25.85 (BLUE = -25.85, \( p < .05 \)). The "treatment vs. control within male subjects" group contrast was significant \( F(1,139) = 10.25, p < .005 \). The corresponding treatment effect estimated that difference scores for treatment group males significantly exceeded those of control group males by 37.10 (BLUE = 37.10, \( p < .005 \)). The "treatment vs. control within female subjects" group contrast was significant \( F(1,139) = 8.48, p < .005 \). The corresponding treatment effect estimated that difference scores for treatment group females significantly exceeded those of control group females by 31.43 (BLUE = 31.43, \( p < .005 \)). The "instructor within treatment group" contrast approached significance \( F(5,139) = 2.23, p = .055 \); whereas, the "instructor within control group" contrast was non-significant.

In view of the non-significance of the "instructor within group" and "instructor within control group" contrasts and borderline significance of the "instructor within treatment group" contrast, the preceding model was recalculated dropping
the "instructor" variable. The corresponding results for the reduced model are delineated below.

The group (treatment vs. control) contrast remained significant \[ F(1,155) = 13.87, p < .0005 \]. The corresponding treatment effect estimated that treatment subjects' difference scores significantly exceeded those of control subjects by 27.49 (BLUE = 27.49, \( p < .0005 \)). The gender (male vs. female) contrast again proved significant \[ F(1,155) = 7.86, p < .01 \]. The corresponding gender effect estimated that females' difference scores significantly exceeded those of males by 20.69 (BLUE = -20.69, \( p < .01 \)).

Further examination of the group and gender contrasts under the reduced model yielded the following results. The "male vs. female within treatment group" contrast remained non-significant. The "male vs. female within control group" contrast remained significant \[ F(1,155) = 5.94, p < .05 \]. The corresponding gender effect estimated that, within the control group, females' CDMSE difference scores significantly exceeded those of males by 24.00 (BLUE = -24.00, \( p < .05 \)). The "treatment vs. control within male subjects" contrast remained significant \[ F(1,155) = 8.03, p = .005 \]. The corresponding treatment effect estimated that CDMSE difference scores for treatment group males significantly exceeded those of control group males by 30.80 (BLUE = 30.80, \( p = .005 \)). The "treatment vs. control within female subjects" contrast remained significant as well \[ F(1,155) = 5.86, p < .05 \]. The
corresponding treatment effect estimated that CDMSE difference scores for treatment group females significantly exceeded those of control group females by 24.18 (BLUE = 24.18, \( p < .05 \)).

Consult Table 7 for a summary of the aforementioned contrast findings for the ANOVA based analyses.

Section 2: Analysis of Covariance (ANCOVA) / CDMSE scores

The second series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest CDMSE scores as the DV; and CDMSE pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved significant \( [F(1,138) = 125.20, \ p = .0001] \). CDMSE pretest scores (the covariate) significantly predicted CDMSE posttest scores (the DV) in the model (BLUE = .67, \( p = .0001 \)). The resulting estimated regression coefficient was .67 (\( p = .0001 \)). The group (treatment vs. control) contrast was significant \( [F(1,138) = 14.05, \ p < .0005] \). The corresponding treatment effect estimated that CDMSE posttest scores for the treatment group significantly exceeded those of the control group by 27.39 (BLUE = 27.39, \( p < .0005 \)). The gender (male vs. female) contrast was significant \( [F(1,138) = 5.95, \ p < .05] \). The corresponding gender effect estimated that CDMSE posttest scores for female subjects significantly exceeded the those of male subjects by 18.28 (BLUE = -18.28, \( p < .05 \)). The
instructor (instructor within group) contrast was significant \[ F(8,138) = 2.02, p < .05 \].

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was non-significant. The "male vs. female within control group" contrast was borderline in terms of significance \[ F(1,138) = 3.62, p = .059 \]. The corresponding gender effect estimated that CDMSE posttest scores for control group females "significantly" exceeded those of control group males by 18.76 (BLUE = -18.76, p = .059). The "treatment vs. control within male subjects" contrast was significant \[ F(1,138) = 6.78, p = .01 \]. The corresponding treatment effect estimated that the CDMSE posttest scores for treatment group males significantly exceeded those of control group males by 27.79 (BLUE = 27.79, p = .01). The "treatment vs. control within female subjects" contrast was significant \[ F(1,138) = 7.52, p < .01 \]. The corresponding treatment effect estimated that CDMSE posttest scores for treatment group females significantly exceeded those of control group females by 26.99 (BLUE = 26.99, p < .01). The "instructor within treatment group" contrast was significant \[ F(5,138) = 2.32, p < .05 \]; whereas, the "instructor within control group" contrast was non-significant.

See Table 8 for a summary of the aforementioned contrast findings for the ANCOVA based analyses.
Hypothesis 2 - Relationship Between Career Decision-Making Self-Efficacy and Career Decision-Making Performance Accomplishments

Findings reported in this section are related to Hypotheses 2A and 2B. Recall that Hypothesis 2A predicts a positive relationship between career decision-making SE and success regarding career decision-making performance accomplishments; whereas, Hypothesis 2B advances that success regarding career decision-making performance accomplishments will predict (posttest) career decision-making SE. In reference to Hypothesis 2A, a significant positive correlation was obtained between (posttest) CDMSE total scores and PARS mean success scores for both the overall sample and treatment group ($r = .70, p = .0001$; $r = .73, p = .0001$, respectively). With respect to Hypothesis 2B, results from the simple regression analyses (based on SAS's Type III sum of squares) indicated that PARS mean scores significantly predicted (posttest) CDMSE total scores for both the overall sample and treatment group [$F(1,156) = 152.34, p = .0001$; $F(1,69) = 78.01, p = .0001$, respectively].

Hypothesis 3 - Relationship Between Career Decision-Making Self-Efficacy and Career Decision-Making Anxiety

Findings reported in this section are related to Hypotheses 3A and 3B. Recall that Hypothesis 3A predicts an inverse relationship between career decision-making SE and career decision-making anxiety; whereas, Hypothesis 3B advances that career decision-making anxiety will predict
career decision-making SE. In reference to Hypothesis 3A, a significant negative correlation was obtained between CDMSE total scores and CDMANX scores at both pretest and posttest for the overall sample ($r = -.40, p = .0001; r = -.48, p = .0001$, respectively). Similarly, a significant negative correlation was obtained between CDMSE total scores and CDMANX scores at posttest for the treatment group ($r = -.40, p < .001$). In reference to Hypothesis 3B, results from the simple regression analysis (based on SAS's Type III sum of squares) indicated that CDMANX scores (posttest) significantly predicted (posttest) CDMSE total scores for both overall sample and treatment group analyses [$F(1,157) = 47.94, p = .0001; F(1,69) = 12.85, p < .001$].

Multiple Regression Results for Hypotheses 2B and 3B Combined

Results in this section stem from a multiple regression analysis using PARS mean success scores and CDMANX scores together as predictors of CDMSE total scores. Multiple correlation findings based on the overall sample indicated that 53.3% of the variance in subjects' CDMSE scores was predicted on the basis of subjects' PARS mean success scores and CDMANX scores ($R^2 = .5326$). Removing the joint effects from the multiple correlation (via SAS's Type III regression procedure which yielded partial $F$ values) showed that the unique contribution of both predictors was significant. More specifically, the unique contribution of subjects' PARS mean
success scores was significant in predicting CDMSE total scores \([F(1,155) = 99.85, p = .0001]\), and the unique contribution of subjects' CDMANX scores was significant in predicting CDMSE total scores \([F(1,155) = 12.78, p = .0005]\).

Multiple correlation findings based on the treatment group indicated that 56.0% of the variance in treatment subjects' CDMSE scores was predicted on the basis of their PARS mean success scores and CDMANX scores \((R^2 = .5595)\). Removing the joint effects from the multiple correlation showed that the unique contribution of both predictors was significant. More specifically, the unique contribution of treatment subjects' PARS mean success scores was significant in predicting treatment subjects' CDMSE total scores \([F(1,68) = 62.15, p = .0001]\), and the unique contribution of treatment subjects' CDMANX scores was significant in predicting treatment subjects' CDMSE total scores \([F(1,68) = 4.46, p < .05]\).

Hypothesis 4 - Reduction of Career Indecision and Enhancement of Vocational Decidedness

Findings in the following four sections pertain to Hypothesis 4 which advances reduction in career indecision and enhancement of career decidedness pre-versus-post career intervention. Sections 1 and 2 report ANOVA related results based on CDS decidedness and indecision scores, respectively. Sections 3 and 4 report ANCOVA related results stemming from CDS decidedness and indecision scores, respectively. A
summary table of the contrast findings for each series of analyses is provided at the end each section.

Section 1: ANOVA (CDS decidedness scores)

The first series of results stemmed from ANOVA procedures based on a linear model fitted with CDS decidedness difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results are as follows. The group (treatment vs. control) contrast was significant \[ F(1, 139) = 44.05, p = .0001 \]. The corresponding treatment effect estimated that treatment subjects' difference scores significantly exceeded those of control subjects by 1.74 (BLUE = 1.74, \( p = .0001 \)). Both the gender (male vs. female) and instructor (instructor within group) contrasts were non-significant.

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" and "male vs. female within control group" contrasts were non-significant. The "treatment vs. control within male subjects" group contrast was significant \[ F(1, 139) = 23.36, p = .0001 \]. The corresponding treatment effect estimated that difference scores for treatment group males significantly exceeded those of control group males by 1.85 (BLUE = 1.85, \( p = .0001 \)). The "treatment vs. control within female subjects" group contrast was significant \[ F(1, 139) = 20.69, p = .0001 \]. The corresponding treatment effect estimated that difference scores for
treatment group females significantly exceeded those of control group females by 1.62 (BLUE = 1.62, p = .0001). The "instructor within treatment group" contrast approached significance [F(5,139) = 2.18, p = .059]; whereas, the "instructor within control group" contrast was non-significant.

Collectively, the significance of the treatment vs. control within male and female contrasts, non-significance of the gender contrast, and non-significance of the male vs. female within treatment and control group contrasts indicate that the observed treatment effect was not gender specific. Accordingly, the gender variable was subsequently dropped from the model thereby creating a reduced model. In view of the non-significance of the "instructor within group" and "instructor within control group" contrasts, and borderline significance of the "instructor within treatment group" contrast, the aforementioned reduced model was run both with and without the instructor variable. In sum, the original model was recalculated using a reduced model which dropped the gender variable (reduced model #1), and also recalculated using another reduced model which dropped both gender and instructor variables (reduced model #2). The corresponding results for the reduced models are delineated below.

Results stemming from reduced model #1 are as follows. The group (treatment vs. control) contrast remained significant [F(1,149) = 51.04, p = .0001]. The corresponding
treatment effect estimated that treatment subjects' difference scores significantly exceeded those of control subjects by 1.76 (BLUE = 1.76, \( p = .0001 \)). The instructor (instructor within group) contrast remained non-significant, as did the "instructor within control group" contrast. The "instructor within treatment group" contrast was clearly significant \([F(5,149) = 2.48, p = .03]\). Results stemming from reduced model #2 are as follows. The group (treatment vs. control) contrast remained significant \([F(1,157) = 47.85, p = .0001]\). The corresponding treatment effect estimated that treatment subjects' difference scores significantly exceeded those of control subjects by 1.67 (BLUE = 1.67, \( p = .0001 \)).

Refer to Table 9 for a summary of the aforementioned contrast findings for the ANOVA based analyses.

Section 2: ANOVA (CDS indecision scores)

The second series of results stemmed from ANOVA procedures based on a linear model fitted with CDS indecision difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results are as follows. The group (treatment vs. control) contrast was significant \([F(1,139) = 16.22, p = .0001]\). The corresponding treatment effect estimated that treatment subjects' difference scores (pretest - posttest) significantly exceeded those of control subjects by 5.20 (BLUE = 5.20, \( p = .0001 \)). Both the gender (male vs. female) and instructor (instructor within group) contrasts were non-significant.
Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" and "male vs. female within control group" contrasts were non-significant. The "treatment vs. control within male subjects" group contrast was significant \( F(1,139) = 5.32, \ p = .02 \). The corresponding treatment effect estimated that difference scores (pretest - posttest) for treatment group males significantly exceeded those of control group males by 4.36 (BLUE = 4.36, \( p = .02 \)). The "treatment vs. control within female subjects" group contrast was significant \( F(1,139) = 11.79, \ p = .001 \). The corresponding treatment effect estimated that difference scores (pretest - posttest) for treatment group females significantly exceeded those of control group females by 6.04 (BLUE = 6.04, \( p = .001 \)). The "instructor within treatment group" and "instructor within control group" contrasts were non-significant.

Collectively, the significance of the treatment vs. control within male and female contrasts, non-significance of the gender contrast, and non-significance of the male vs. female within treatment and control group contrasts indicate that the observed treatment effect was not gender specific. Accordingly, the gender variable was subsequently dropped from the original model. Furthermore, in view of the non-significance of all 3 instructor contrasts, the instructor variable was also dropped from the original model. The
reduced model was therefore recalculated dropping out gender and instructor variables, retaining only the group (treatment vs. control) IV. Results from the reduced model are as follows. The group (treatment vs. control) contrast remained significant \( F(1, 157) = 17.65, \ p = .0001 \). The corresponding treatment effect estimated that treatment subjects' difference scores (pretest - posttest) significantly exceeded those of control subjects by 4.88 (BLUE = 4.88, \ p = .0001).

Refer to Table 10 for a summary of the aforementioned contrast findings for the ANOVA based analyses.

**Section 3: ANCOVA (CDS decidedness scores)**

The third series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest CDS decidedness scores as the DV; and CDS decidedness pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved significant \( F(1, 138) = 95.37, \ p = .0001 \). CDS decidedness pretest scores (the covariate) significantly predicted posttest CDS decidedness scores (the DV) in the model (BLUE = .66, \ p = .0001). The resulting estimated regression coefficient was .66 (\ p = .0001). The group (treatment vs. control) contrast was significant \( F(1, 138) = 24.96, \ p = .0001 \). The corresponding treatment effect estimated that CDS decidedness posttest scores for the treatment group significantly exceeded those of the control group by 1.29 (BLUE = 1.29, \ p = .0001). The gender (male vs. female)
contrast was non-significant, as was the instructor (instructor within group) contrast.

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" and "male vs. female within control group" contrasts were non-significant. The "treatment vs. control within male subjects" group contrast was significant \[ F(1,138) = 15.75, p = .0001 \]. The corresponding treatment effect estimated that the CDS decidedness posttest scores for treatment group males significantly exceeded those of control group males by 1.44 (BLUE = 1.44, \( p = .0001 \)). The "treatment vs. control within female subjects" group contrast was significant \[ F(1,138) = 10.92, p = .001 \]. The corresponding treatment effect estimated that the CDS decidedness posttest scores for treatment group females significantly exceeded those of control group females by 1.14 (BLUE = 1.14, \( p = .001 \)). The "instructor within treatment group" contrast was significant \[ F(5,138) = 2.25, p = .05 \]; whereas, the "instructor within control group" contrast proved non-significant.

Collectively, the significance of the treatment vs. control within male and female contrasts, non-significance of the gender contrast, and non-significance of the male vs. female within treatment and control group contrasts indicate that the observed treatment effect was not gender specific.
Accordingly, the gender variable was subsequently dropped from the model thereby creating a reduced model.

The reduced model produced the following results. The covariate contrast remained significant \( F(1, 148) = 98.86, p = .0001 \). CDS decidedness pretest scores (the covariate) significantly predicted posttest CDS decidedness scores (the DV) in the model (BLUE = .63, \( p = .0001 \)). The resulting estimated regression coefficient was .63 (\( p = .0001 \)). The group (treatment vs. control) contrast remained significant \( F(1, 148) = 26.27, p = .0001 \). The corresponding treatment effect estimated that CDS decidedness posttest scores for the treatment group significantly exceeded those of the control group by 1.24 (BLUE = 1.24, \( p = .0001 \)). The general instructor (instructor within group) contrast remained non-significant. The "instructor within treatment group" contrast was again significant \( F(5, 148) = 2.40, p < .05 \); whereas, the "instructor within control group" contrast remained non-significant.

See Table 11 for a summary of the aforementioned contrast findings for the ANCOVA based analyses.

**Section 4: ANCOVA (CDS indecision scores)**

The fourth and final series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest CDS indecision scores as the DV; and CDS indecision pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved...
significant ($F(1,138) = 80.68, p = .0001$). CDS indecision pretest scores (the covariate) significantly predicted posttest CDS indecision scores (the DV) in the model (BLUE = \( .59, p = .0001 \)). The resulting estimated regression coefficient was \( .59 (p = .0001) \). The group (treatment vs. control) contrast was significant \( [F(1,138) = 7.69, p = .01] \). The corresponding treatment effect estimated that posttest CDS indecision scores for the treatment group were significantly lower than those for the control group by a margin of 3.29 (BLUE = -3.29, \( p = .01 \)). The gender (male vs. female) contrast was non-significant, as was the instructor (instructor within group) contrast.

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" and "male vs. female within control group" contrasts were non-significant. The "treatment vs. control within male subjects" group contrast was significant \( [F(1,138) = 3.91, p = .05] \). The corresponding treatment effect estimated that posttest CDS indecision scores for treatment group males were significantly lower than those for the control group males by a margin of 3.33 (BLUE = -3.33, \( p = .05 \)). The "treatment vs. control within female subjects" group contrast was significant \( [F(1,138) = 3.99, p = .05] \). The corresponding treatment effect estimated that posttest CDS indecision scores for treatment group females were significantly lower than those for the control group females
by a margin of 3.25 (BLUE = -3.25, p = .05). The "instructor within treatment group" contrast was significant [F(5,138) = 2.27, p = .05]; whereas, the "instructor within control group" contrast proved non-significant.

Collectively, the significance of the treatment vs. control within male and female contrasts, non-significance of the gender contrast, and non-significance of the male vs. female within treatment and control group contrasts indicate that the observed treatment effect was not gender specific. Accordingly, the gender variable was subsequently dropped from the model thereby creating a reduced model.

The reduced model produced the following results. The covariate contrast remained significant [F(1,148) = 88.05, p = .0001]. CDS indecision pretest scores (the covariate) significantly predicted posttest CDS indecision scores (the DV) in the model (BLUE = .58, p = .0001). The resulting estimated regression coefficient was .58 (p = .0001). The group (treatment vs. control) contrast remained significant [F(1,148) = 7.01, p = .01]. The corresponding treatment effect estimated that posttest CDS indecision scores for the treatment group were significantly lower than those for the control group by a margin of 2.92 (BLUE = -2.92, p = .01). The general instructor (instructor within group) contrast remained non-significant. The "instructor within treatment group" contrast was again significant [F(5,148) = 2.48, p <
whereas, the "instructor within control group" contrast remained non-significant.

See Table 12 for a summary of the aforementioned contrast findings for the ANCOVA based analyses.

Hypothesis 5 - Relationship Between Career Indecision/Decidedness and Career Decision-Making: Self-Efficacy, Performance Accomplishments, and Anxiety

Findings reported in this section are related to Hypotheses 5A, 5B, and 5C. Recall that Hypothesis 5A asserts that: 1) career indecision will be negatively correlated with career decision-making SE and 2) career decidedness will be positively correlated with career decision-making SE. Recall that Hypothesis 5B asserts that career decision-making SE will significantly predict both career indecision and career decidedness. In reference to Hypothesis 5A, significant negative correlations were obtained between CDMSE total scores and CDS indecision scores at both pretest ($r = -.37, p = .0001$) and posttest ($r = -.35, p = .0001$) for the overall sample. A significant negative correlation was obtained between CDMSE total scores and CDS indecision scores at posttest for the treatment group ($r = -.39, p = .001$).

Significant positive correlations were obtained between CDMSE total scores and CDS decidedness scores at both pretest ($r = .46, p = .0001$) and posttest ($r = .44, p = .0001$) for the overall sample. A significant positive correlation was
obtained between CDMSE total scores and CDS decidedness scores at posttest for the treatment group ($r = .46, p = .0001$).

With respect to Hypothesis 5B, results from the simple regression analyses (based on SAS's Type III sum of squares) are as follows. CDMSE total scores (posttest) significantly predicted posttest CDS indecision scores for both the overall sample and treatment group [$F(1,157) = 21.38, p = .0001; F(1,69) = 12.61, p = .001$, respectively]. Similarly, CDMSE total scores (posttest) significantly predicted posttest CDS decidedness scores for both the overall sample and treatment group [$F(1,157) = 37.46, p = .0001; F(1,69) = 18.22, p = .0001$, respectively].

As previously detailed, Hypothesis 5C asserts that career decision-making SE will significantly add to both career decision-making performance accomplishments and career decision-making anxiety in the prediction of career indecision/decidedness. The first series of results concerns analyses regarding the "career indecision" aspect of Hypothesis 5C. Results from the from the multiple regression analyses using CDMSE total scores, PARS mean success scores, and CDMANX scores as IV(s) in the prediction of posttest CDS indecision scores are as follows. Multiple correlation findings based on the overall sample indicated that 22.8% of the variance in subjects' CDS indecision scores was predicted on the combined basis of subjects' CDMSE total scores, PARS mean success scores, and CDMANX scores ($R^2 = .2281$). Removing
the joint effects from the multiple correlation (via SAS's Type III regression procedure which yielded partial F values) showed that the unique contribution of only 1 of the 3 variables was significant. More specifically, the unique contribution of subjects' CDMANX scores was significant in predicting CDS indecision scores \([F(1,154) = 17.50, p = .0001]\), whereas the unique contributions the CDMSE and PARS variables were not significant. In comparison, multiple correlation findings based on treatment group data indicated that 21.8% of the variance in treatment subjects' CDS indecision scores was predicted on the combined basis of their CDMSE total scores, PARS mean success scores, and CDMANX scores \((R^2 = .2182)\). Removing the joint effects from the multiple correlation showed that the unique contributions of 2 of the 3 variables were significant. More specifically, the unique contributions of treatment subjects' CDMSE total scores and CDMANX scores were significant in predicting CDS indecision scores \([F(1,67) = 5.62, p < .05; F(1,67) = 4.94, p < .05, \text{ respectively}]\).

Results from the multiple regression analyses using CDMSE total scores and PARS mean success scores as IV(s) in the prediction of posttest CDS indecision scores were as follows. Multiple correlation findings based on the overall sample indicated that 14.0% of the variance in subjects' CDS indecision scores was predicted on the combined basis of subjects' CDMSE total scores and PARS mean success scores \((R^2\)
Removing the joint effects from the multiple correlation showed that the unique contribution of only the PARS variable was significant in predicting CDS indecision scores \( F(1,155) = 4.44, p < .05 \). In comparison, multiple correlation findings based on the treatment group indicated that 16.1\% of the variance in CDS indecision scores was predicted by CDMSE total scores and PARS mean success scores \( R^2 = .1605 \). Removing the joint effects from the multiple correlation showed that the unique contribution of only the CDMSE variable was significant in predicting CDS indecision scores \( F(1,68) = 8.60, p = .005 \).

Results from the multiple regression analyses using CDMSE total scores and CDMANX scores as IV(s) in the prediction of posttest CDS indecision scores were as follows. Multiple correlation findings based on the overall sample indicated that 21.9\% of the variance in subjects' CDS indecision scores was predicted on the combined basis of subjects' CDMSE total scores and CDMANX scores \( R^2 = .2193 \). Removing the joint effects from the multiple correlation showed that the unique contribution of both the CDMSE and CDMANX variables was significant in predicting CDS indecision scores \( F(1,156) = 4.53, p < .05; F(1,156) = 19.88, p = .0001 \), respectively). In comparison, multiple correlation findings based on the treatment group indicated that 21.0\% of the variance in CDS indecision scores was predicted by CDMSE total scores and CDMANX scores \( R^2 = .2100 \). Removing the joint
effects from the multiple correlation showed that the unique contribution of both the CDMSE and CDMANX variables was significant in predicting CDS indecision scores ($F(1,68) = 6.17, p < .05; F(1,68) = 4.77, p < .05$, respectively).

Also with respect to the "indecision" aspect of Hypothesis 5C, results from the simple regression analyses (based on SAS's Type III sum of squares) were as follows. PARS mean success scores significantly predicted posttest CDS indecision scores for both the overall sample and treatment group ($F(1,156) = 21.88, p = .0001; F(1,69) = 3.97, p = .05$). Similarly, CDMANX scores significantly predicted posttest CDS indecision scores for both the overall sample and treatment group ($F(1,157) = 38.44, p = .0001; F(1,69) = 11.08, p = .001$).

See Table 13 for an overview of the aforementioned multiple regression findings for the "career indecision" aspect of Hypothesis 5C.

The second series of results concerns analyses regarding the "career decidedness" aspect of Hypothesis 5C. Results from the multiple regression analyses using CDMSE total scores, PARS mean success scores, and CDMANX scores as IV(s) in the prediction of posttest CDS decidedness scores are as follows. Multiple correlation findings based on the overall sample indicated that 25.6% of the variance in subjects' CDS decidedness scores was predicted on the combined basis of subjects' CDMSE total scores, PARS mean success scores, and
CDMANX scores ($R^2 = .2562$). Removing the joint effects from the multiple correlation showed that the unique contributions of 2 of the 3 variables were significant. More specifically, the unique contributions of subjects' CDMSE total scores and CDMANX scores were significant in predicting CDS decidedness scores $[F(1,154) = 4.85, p < .05; F(1,154) = 11.41, p = .001$, respectively]. In comparison, multiple correlation findings based on the treatment group data indicated that 29.2% of the variance in treatment subjects' CDS decidedness scores was predicted on the combined basis of their CDMSE total scores, PARS mean success scores, and CDMANX scores ($R^2 = .2916$). Removing the joint effects from the multiple correlation showed that the unique contributions of 2 of the 3 variables were significant. More specifically, the unique contributions of treatment subjects' CDMSE total scores and CDMANX scores were significant in predicting their CDS decidedness scores $[F(1,67) = 7.61, p = .01; F(1,67) = 7.36, p = .01$, respectively].

Results from the multiple regression analyses using CDMSE total scores and PARS mean success scores as IV(s) in the prediction of posttest CDS decidedness scores were as follows. Multiple correlation findings based on the overall sample indicated that 20.1% of the variance in subjects' CDS decidedness scores was predicted on the combined basis of subjects' CDMSE total scores and PARS mean success scores ($R^2 = .2011$). Removing the joint effects from the multiple
correlation showed that the unique contribution of only the CDMSE variable was significant in predicting CDS decidedness scores \( F(1,155) = 9.97, p < .005 \). In comparison, multiple correlation findings based on the treatment group indicated that 21.4% of the variance in CDS decidedness scores was predicted by CDMSE total scores and PARS mean success scores \( R^2 = .2138 \). Removing the joint effects from the multiple correlation showed that the unique contribution of only the CDMSE variable was significant in predicting CDS indecision scores \( F(1,68) = 11.47, p = .001 \).

Results from the from the multiple regression analyses using CDMSE total scores and CDMANX scores as IV(s) in the prediction of posttest CDS decidedness scores were as follows. Multiple correlation findings based on the overall sample indicated that 25.4% of the variance in subjects' CDS decidedness scores was predicted on the combined basis of subjects' CDMSE total scores and CDMANX scores \( R^2 = .2544 \). Removing the joint effects from the multiple correlation showed that the unique contribution of both the CDMSE and CDMANX variables was significant in predicting CDS decidedness scores \( F(1,156) = 14.58, p < .0005; F(1,156) = 12.92, p < .0005 \), respectively). In comparison, multiple correlation findings based on the treatment group indicated that 28.4% of the variance in CDS decidedness scores was predicted by CDMSE total scores and CDMANX scores \( R^2 = .2843 \). Removing the joint effects from the multiple correlation showed that the
unique contribution of both the CDMSE and CDMANX variables was significant in predicting CDS decidedness scores \(t(1,68) = 9.18, p < .005; t(1,68) = 7.17, p = .01, \text{ respectively} \).

Also with respect to the "career decidedness" aspect of Hypothesis 5C, results from the simple regression analyses (based on SAS’s Type III sum of squares) were as follows. PARS mean success scores significantly predicted posttest CDS decidedness scores for both the overall sample and treatment group \(t(1,156) = 27.48, p = .0001; t(1,69) = 6.09, p < .05 \). Similarly, CDMANX scores significantly predicted posttest CDS decidedness scores for both the overall sample and treatment group \(t(1,157) = 35.57, p = .0001; t(1,69) = 15.95, p < .0005 \).

See Table 14 for an overview of the aforementioned multiple regression findings for the "career decidedness" aspect of Hypothesis 5C.

Hypothesis 6 - Relationships Between both SFCDMSE and CDMSE Inventories and Variables of Interest

Results reported in this section are related to Hypotheses 6A and 6B. Recall that Hypothesis 6A advances that the CDMSE and SFCDMSE will show similar relationships to variables of interest; whereas, Hypothesis 6B posits that the SFCDMSE will be sensitive to prospective changes in career decision-making SE tapped by the CDMSE. Note that variables of interest for Hypothesis 6A analyses included: CDS decidedness scores, CDS indecision scores, and CDMANX scores. In relation to
Hypothesis 6A, Tables 4 and 5 contain pertinent correlations of interest at pretest and posttest, respectively. Inspection of Table 4 shows that pretest correlation coefficients between both CDMSE and SFCDMSE total scores and the respective scores for the variables of interest are congruent in direction, magnitude, and probability level. Similarly, inspection of Table 5 shows that posttest correlation coefficients between both CDMSE and SFCDMSE total scores and the respective scores for the variables of interest are congruent in direction, magnitude, and probability level. Also in relation to Hypothesis 6A, results pertaining to the Spearman rank-order correlations were significant for the following analyses: (1) pretest CDMSE and SFCDMSE total scores ($r_s = .96, p = .0001$); (2) posttest CDMSE and SFCDMSE total scores ($r_s = .96, p = .0001$); and (3) CDMSE and SFCDMSE difference scores (posttest - pretest) ($r_s = .92, p = .0001$). In sum, all of the Spearman rank-order analyses proved significant.

Results regarding Hypothesis 6B stem from 2 series of analyses involving ANOVA and ANCOVA procedures, respectively. The first series of results stemmed from ANOVA procedures based on a linear model fitted with SFCDMSE difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results were as follows. The group (treatment vs. control) contrast was significant [$F(1,139) = 12.00, p = .001$]. The corresponding treatment effect estimated that treatment subjects' difference
scores significantly exceeded those of control subjects by 11.87 (BLUE = 11.87, p = .001). The gender (male vs. female) contrast proved significant \( \text{F}(1,139) = 6.37, p = .01 \). The corresponding gender effect estimated that females' difference scores significantly exceeded those of males by 8.95 (BLUE = -8.95, p = .01). The instructor (instructor within group) contrast was non-significant.

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was significant \( \text{F}(1,139) = 3.81, p = .05 \). The corresponding gender effect estimated that, within the treatment group, females' difference scores significantly exceeded those of males by 9.83 (BLUE = -9.83, p = .05). The "male vs. female within control group" contrast was non-significant. The "treatment vs. control within male subjects" group contrast was significant \( \text{F}(1,139) = 4.62, p < .05 \). The corresponding treatment effect estimated that difference scores for treatment group males significantly exceeded those of control group males by 10.77 (BLUE = 10.77, p < .05). The "treatment vs. control within female subjects" group contrast was significant \( \text{F}(1,139) = 7.71, p = .01 \). The corresponding treatment effect estimated that difference scores for treatment group females significantly exceeded those of control group females by 12.96 (BLUE = 12.96, p = .01). The "instructor within treatment group" contrast was significant
[F(5,139) = 2.47, p < .05]; whereas, the "instructor within control group" contrast was non-significant.

Consult Table 15 for a summary of the aforementioned contrast findings for the ANOVA based analyses. In addition, Table 16 provides a summary to the congruity between ANOVA based contrast results for Hypothesis 6B comparing SFCDMSE results with CDMSE findings.

The second series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest SFCDMSE scores as the DV; and SFCDMSE pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved significant [F(1,138) = 127.67, p = .0001]. SFCDMSE pretest scores (the covariate) significantly predicted SFCDMSE posttest scores (the DV) in the model (BLUE = .66, p = .0001). The resulting estimated regression coefficient was .66 (p = .0001). The group (treatment vs. control) contrast was significant [F(1,138) = 8.40, p < .005]. The corresponding treatment effect estimated that SFCDMSE posttest scores for the treatment group significantly exceeded those of the control group by 9.02 (BLUE = 9.02, p < .005). The gender (male vs. female) contrast was significant [F(1,138) = 5.62, p < .05]. The corresponding gender effect estimated that SFCDMSE posttest scores for female subjects significantly exceeded the those of male subjects by 7.57 (BLUE = -7.57, p <
.05). The instructor (instructor within group) contrast was significant \[F(8,138) = 1.99, p = .05\].

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was significant \[F(1,138) = 4.02, p < .05\]. The corresponding gender effect estimated that SFCDMSE posttest scores for treatment group females significantly exceeded those of treatment group males by 9.06 (BLUE = -9.06, p < .05). The "male vs. female within control group" contrast was non-significant. The "treatment vs. control within male subjects" contrast proved non-significant. The "treatment vs. control within female subjects" contrast was significant \[F(1,138) = 6.70, p = .01\]. The corresponding treatment effect estimated that SFCDMSE posttest scores for treatment group females significantly exceeded those of control group females by 10.88 (BLUE = 10.88, p = .01). The "instructor within treatment group" contrast was significant \[F(5,138) = 2.50, p < .05\]; whereas, the "instructor within control group" contrast was non-significant.

See Table 17 for a summary of the aforementioned contrast findings for the ANCOVA based analyses. In addition, Table 18 provides a summary to the congruity between ANCOVA based contrast results for Hypothesis 6B comparing SFCDMSE results with CDMSE findings.
Career Decision-Making Anxiety Analyses

Results presented in this section are related to the supplemental analyses that were conducted to assess for prospective decreases in career decision-making anxiety associated with the career intervention. These results stemmed from two series of analyses involving ANOVA and ANCOVA analyses, respectively. The first series of results stemmed from ANOVA procedures based on a linear model fitted with CDMANX difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results were as follows. The group (treatment vs. control) contrast was non-significant. The gender (male vs. female) contrast was borderline with respect to significance \( F(1,139) = 3.62, p = .059 \). The corresponding gender effect estimated that females' difference scores (pretest - posttest) "significantly" exceeded those of males by 3.78 (BLUE = -3.78, p = .059). The instructor (instructor within group) contrast proved non-significant.

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was significant \( F(1,139) = 6.60, p = .01 \). The corresponding gender effect estimated that, within the treatment group, females' difference scores (pretest - posttest) significantly exceeded those of males by 7.24 (BLUE = -7.24, p = .01). The "male vs. female within control group" contrast was non-significant.
The "treatment vs. control within male subjects" group contrast was non-significant. In contrast, the "treatment vs. control within female subjects" group contrast proved significant $[F(1,139) = 5.51, p < .05]$. The corresponding treatment effect estimated that difference scores (pretest - posttest) for treatment group females significantly exceeded those of control group females by 6.13 (BLUE = 6.13, $p < .05$). Both the "instructor within treatment group" and "instructor within control group" contrasts were non-significant.

In view of the non-significance of all 3 instructor contrasts, the instructor variable was consequently dropped from the original model. Results from the reduced model were as follows. The group (treatment vs. control) contrast remained non-significant. The gender (male vs. female) contrast was significant $[F(1,155) = 4.06, p = .05]$. The corresponding gender effect estimated that females' difference scores (pretest - posttest) significantly exceeded those of males by 3.50 (BLUE = -3.50, $p = .05$). Further examination of the group and gender contrasts yielded the following results. The "male vs. female within treatment group" contrast remained significant $[F(1,155) = 7.65, p = .01]$. The corresponding gender effect estimated that, within the treatment group, females' difference scores (pretest - posttest) significantly exceeded those of males by 7.15 (BLUE = -7.15, $p = .01$). The "male vs. female within control group" contrast remained non-significant. The "treatment vs. control within male subjects"
group contrast remained non-significant. The "treatment vs. control within female subjects" group contrast remained significant \([F(1,155) = 4.84, p < .05]\). The corresponding treatment effect estimated that difference scores (pretest - posttest) for treatment group females significantly exceeded those of control group females by 5.17 (BLUE = 5.17, \(p < .05\)).

Consult Table 19 for a summary of the aforementioned contrast findings for the ANOVA based analyses.

The second series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest CDMANX scores as the DV; and CDMANX pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved significant \([F(1,138) = 63.19, p = .0001]\). CDMANX pretest scores (the covariate) significantly predicted CDMANX posttest scores (the DV) in the model (BLUE = .59, \(p = .0001\)). The resulting estimated regression coefficient was .59 (\(p = .0001\)). The group (treatment vs. control), gender (male vs. female), and instructor (instructor within group) contrasts were all non-significant. The "male vs. female within treatment group" and "male vs. female within control group" contrasts were non-significant, as were the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" contrasts. Similarly, the "instructor within treatment group" and "instructor within control group"
contrasts were also non-significant. In sum, only the covariate contrast reached significance.

See Table 20 for a summary of the aforementioned contrast findings for the ANCOVA based analyses.

Ancillary Hypotheses 1 and 2 - Relationship Between Career Decision-Making Self-Efficacy and Academic Self-Efficacy

Results presented in this section are related to Ancillary Hypotheses 1, 2A, and 2B. Recall that Ancillary Hypothesis 1 predicts a positive correlation between career decision-making SE and academic SE. Relatedly, Ancillary Hypothesis 2A predicts a positive correlation between changes in career decision-making SE and changes in academic SE. Recall that Ancillary Hypothesis 2B predicts significant enhancement of career decision-making SE for career intervention subjects, and significant enhancement of academic SE for "control" group subjects.

In reference to Ancillary Hypothesis 1, significant positive correlations were obtained between CDMSE and ASES total scores at pretest ($r = .51, p = .0001$) and posttest ($r = .68, p = .0001$) for the overall sample, as well as at posttest for the treatment group ($r = .70, p = .0001$). With respect to Ancillary Hypothesis 2A, the obtained correlation coefficient between CDMSE and ASES difference scores proved significant for both the overall sample ($r = .31, p = .0001$) and treatment group ($r = .46, p = .0001$).
Results concerning Ancillary Hypothesis 2B are basically twofold. Those concerning the first aspect (i.e., changes in career decision-making SE) are the same as those presented for Hypothesis 1. Results concerning the second aspect (i.e., changes in academic SE) stem from two series of analyses involving ANOVA and ANCOVA procedures, respectively. The first series of results stemmed from ANOVA procedures based on a linear model fitted with ASES difference scores as the DV, with group (treatment vs. control), gender, and instructor as IV(s). General contrast results were as follows. The group (treatment vs. control) contrast was significant \([F(1,139) = 14.51, p < .0005]\). The corresponding treatment effect estimated that "control" subjects' difference scores significantly exceeded those of "treatment" subjects by 7.37 (BLUE = -7.37, \(p < .0005\)). The gender (male vs. female) contrast proved significant \([F(1,139) = 5.22, p < .05]\). The corresponding gender effect estimated that females' difference scores significantly exceeded those of males by 4.58 (BLUE = -4.58, \(p < .05\)). The instructor (instructor within group) contrast proved significant \([F(8,139) = 2.23, p < .05]\).

Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was significant \([F(1,139) = 3.87, p = .05]\). The corresponding gender effect estimated that, within the treatment group, females' difference scores significantly exceeded those of males by
The "male vs. female within control group" contrast was non-significant. Both the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" group contrasts proved non-significant. The "instructor within treatment group" contrast was non-significant; whereas, the "instructor within control group" contrast was significant \([F(3,139) = 4.43, p = .005]\).

Consult Table 21 for a summary of the aforementioned contrast findings for the ANOVA based analyses.

The second series of results stemmed from ANCOVA procedures based on a linear model fitted with: posttest ASES scores as the DV; and ASES pretest scores (the covariate), group (treatment vs. control), gender, and instructor as IV(s). The covariate contrast proved significant \([F(1,138) = 57.39, p = .0001]\). ASES pretest scores (the covariate) significantly predicted ASES posttest scores (the DV) in the model (BLUE = .48, \(p = .0001\)). The resulting estimated regression coefficient was .48 (\(p = .0001\)). The group (treatment vs. control) contrast was significant \([F(1,138) = 7.81, p < .01]\). The corresponding treatment effect estimated that ASES posttest scores for the control group significantly exceeded those of the treatment group by 4.53 (BLUE = -4.53, \(p < .01\)). The gender (male vs. female) contrast was non-significant. The instructor (instructor within group) contrast proved significant \([F(8,138) = 2.54, p = .01]\).
Examination of the additional group, gender, and instructor contrasts yielded the following results. The "male vs. female within treatment group" contrast was borderline with respect to significance \[ F(1, 138) = 3.68, p = .057 \]. The corresponding gender effect estimated that ASES posttest scores for treatment group females "significantly" exceeded those of treatment group males by 4.48 (BLUE = -4.48, \( p = .057 \)). The "male vs. female within control group" contrast was non-significant. The "treatment vs. control within male subjects" contrast proved significant \[ F(1, 138) = 8.26, p < .005 \]. The corresponding treatment effect estimated that ASES posttest scores for control group males significantly exceeded those of treatment group males by 6.70 (BLUE = -6.70, \( p < .005 \)). The "treatment vs. control within female subjects" contrast was non-significant. The "instructor within treatment group" contrast was non-significant; whereas, the "instructor within control group" contrast proved significant \[ F(3, 138) = 3.75, p = .01 \].

See Table 22 for a summary of the aforementioned contrast findings for the ANCOVA based analyses.

Supplemental Analyses Involving Career Decision-Making Self-Efficacy and both Gender and School Year Variables

Results reported in this section are related to the supplemental analyses that were conducted to examine the relationship between: 1) career decision-making SE and gender; and 2) career decision-making SE and school year.
Results concerning the relationship between career decision-making SE and gender stemmed from ANOVA procedures based on a linear model fitted with CDMSE total scores (pretest) as the DV and gender as the IV. Contrast results were as follows. The male vs. female (gender) contrast was non-significant. Similarly, both the "male vs. female within treatment group" and "male vs. female within control group" contrasts proved non-significant. Thus, males and females did not significantly differ in CDMSE total scores at pretest.

Results concerning the relationship between career decision-making SE and school year stemmed from ANOVA procedures based on a linear model fitted with CDMSE total scores (pretest) as the DV and school year as the IV. Contrast results were as follows. The "school year vs. school year" contrast was non-significant. Similarly, both the "school year vs. school year within treatment group" and "school year vs. school year within control group" contrasts proved non-significant. Thus, CDMSE total scores were not significantly different across subjects with different school year classifications (freshmen, sophomore, etc.).
Table 1. Measures of central tendency for major variables of interest at pretest for overall sample

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<td>20.0 - 76.0</td>
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Table 2. Treatment group means for major variables of interest at pretest and posttest

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Note. n = 71.
### Table 3. Control group means for major variables of interest at pretest and posttest

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*Note.* n = 88.
Table 4. Correlations between variables at pretest for overall sample

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<th>CDS decidedness score</th>
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<td>--</td>
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<td>3. CDS decidedness score</td>
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<td>.39****</td>
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<td>-.37****</td>
<td>-.61****</td>
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<td>.44****</td>
<td>.19*</td>
</tr>
<tr>
<td>7. Age</td>
<td>.10</td>
<td>.07</td>
<td>-.08</td>
</tr>
<tr>
<td>8. GPA-C&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-.08</td>
<td>-.09</td>
<td>.07</td>
</tr>
<tr>
<td>9. GPA-HS&lt;sup&gt;b&lt;/sup&gt;</td>
<td>.04</td>
<td>.02</td>
<td>.10</td>
</tr>
</tbody>
</table>

<sup>a</sup>n = 76.
<sup>b</sup>n = 74.
*p < .05.
**p = .01.
***p = .001.
****p = .0001.
<table>
<thead>
<tr>
<th>CDS indecision score</th>
<th>CDMANX score</th>
<th>ASES total score</th>
<th>Age</th>
<th>GPA-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.45****</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-.17*</td>
<td>-.31****</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.02</td>
<td>-.07</td>
<td>.02</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>-.03</td>
<td>-.18</td>
<td>.37***</td>
<td>.10</td>
<td>--</td>
</tr>
<tr>
<td>-.29**</td>
<td>-.11</td>
<td>.15</td>
<td>-.01</td>
<td>--</td>
</tr>
</tbody>
</table>
Table 5. Correlations between variables at posttest for overall sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>CDMSE total score</th>
<th>SFCDMSE total score</th>
<th>CDS decidedness score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CDMSE total score</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>2. SFCDMSE total score</td>
<td>.97*****</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>3. CDS decidedness score</td>
<td>.44*****</td>
<td>.42*****</td>
<td>--</td>
</tr>
<tr>
<td>4. CDS indecision score</td>
<td>-.35*****</td>
<td>-.32*****</td>
<td>-.60*****</td>
</tr>
<tr>
<td>5. CDMANX score</td>
<td>-.48*****</td>
<td>-.46*****</td>
<td>-.43*****</td>
</tr>
<tr>
<td>6. ASES total score</td>
<td>.68*****</td>
<td>.64*****</td>
<td>.29*****</td>
</tr>
<tr>
<td>7. PARSTA^a</td>
<td>.33*****</td>
<td>.31*****</td>
<td>.35*****</td>
</tr>
<tr>
<td>8. PARSTA^b</td>
<td>.54*****</td>
<td>.52*****</td>
<td>.41*****</td>
</tr>
<tr>
<td>9. PARSMS^c</td>
<td>.70*****</td>
<td>.68*****</td>
<td>.39*****</td>
</tr>
</tbody>
</table>

^a_{n} = 158.
^b_{n} = 158.
^c_{n} = 158.
*p = .05.
**p = .01.
***p < .01.
****p < .001.
*****p = .0001.
<table>
<thead>
<tr>
<th>CDS indecision score</th>
<th>CDMANX score</th>
<th>ASES total score</th>
<th>PARSTA</th>
<th>PARSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.44*****</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-.20**</td>
<td>-.43*****</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-.15*</td>
<td>-.13</td>
<td>.29****</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>-.25***</td>
<td>-.27****</td>
<td>.47*****</td>
<td>.91****</td>
<td>--</td>
</tr>
<tr>
<td>-.35*****</td>
<td>-.43*****</td>
<td>.59*****</td>
<td>.32****</td>
<td>.65*****</td>
</tr>
</tbody>
</table>
Table 6. Correlations between variables at posttest for treatment group

<table>
<thead>
<tr>
<th>Variables</th>
<th>CDMSE total score</th>
<th>SFCDMSE total score</th>
<th>CDS decidedness score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CDMSE total score</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>2. SFCDMSE total score</td>
<td>.97****</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>3. CDS decidedness score</td>
<td>.46****</td>
<td>.43***</td>
<td>--</td>
</tr>
<tr>
<td>4. CDS indecision score</td>
<td>-.39***</td>
<td>-.33**</td>
<td>-.55****</td>
</tr>
<tr>
<td>5. CDMANX score</td>
<td>-.40***</td>
<td>-.37**</td>
<td>-.43***</td>
</tr>
<tr>
<td>6. ASES total score</td>
<td>.70****</td>
<td>.65****</td>
<td>.40***</td>
</tr>
<tr>
<td>7. PARSTA</td>
<td>.30**</td>
<td>.28*</td>
<td>.26*</td>
</tr>
<tr>
<td>8. PARSTS</td>
<td>.61****</td>
<td>.60****</td>
<td>.35**</td>
</tr>
<tr>
<td>9. PARSMS</td>
<td>.73****</td>
<td>.71****</td>
<td>.28*</td>
</tr>
</tbody>
</table>

Note. n = 71.

*p ≤ .05.

**p ≤ .01.

***p ≤ .001.

****p = .0001.
<table>
<thead>
<tr>
<th></th>
<th>CDS</th>
<th>CDMANX</th>
<th>ASES</th>
<th>PARSTA</th>
<th>PARSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>score</td>
<td>indecision</td>
<td>score</td>
<td>total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.37***</td>
<td>--</td>
<td></td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>-.32**</td>
<td>-.40***</td>
<td>--</td>
<td></td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>-.33**</td>
<td>-.27*</td>
<td>.49****</td>
<td>--</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>-.35**</td>
<td>-.38***</td>
<td>.66****</td>
<td>.84****</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>-.23*</td>
<td>-.32**</td>
<td>.62****</td>
<td>.29*</td>
<td>.75****</td>
<td></td>
</tr>
</tbody>
</table>
Table 7. Summary of ANOVA based contrast results for Hypothesis 1 using CDMSE difference scores as the DV

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full, Reduced</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>borderline</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 8. Summary of ANCOVA contrast results for Hypothesis 1 using CDMSE posttest scores as the DV and CDMSE pretest scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>borderline</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

*Note.* Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 9. Summary of ANOVA based contrast results for Hypothesis 4 using CDS decidedness difference scores as the DV

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, Reduced #1, Reduced #2</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full, Reduced #1</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full, Reduced #1</td>
<td>borderline yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full, Reduced #1</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 10. Summary of ANOVA based contrast results for Hypothesis 4 using CDS indecision difference scores as the DV

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

*Note.* Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 11. Summary of ANCOVA contrast results for Hypothesis 4 using CDS posttest decidedness scores as the DV and CDS pretest decidedness scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full, reduced</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full, reduced</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 12. Summary of ANCOVA contrast results for Hypothesis 4 using CDS posttest indecision scores as the DV and CDS pretest indecision scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full, reduced</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full, reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full, reduced</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 13. Overview of multiple regression results for the "career indecision" aspect of Hypothesis 5C using CDS indecision scores as the DV

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Overall sample</th>
<th>Treatment group</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDMSE total, PARSMS, and CDMANX scores</td>
<td>Non-significant</td>
<td>Significant</td>
</tr>
<tr>
<td>CDMSE total and PARSMS scores</td>
<td>Non-significant</td>
<td>Significant</td>
</tr>
<tr>
<td>CDMSE total and CDMANX scores</td>
<td>Significant</td>
<td>Significant</td>
</tr>
</tbody>
</table>
Table 14. Overview of multiple regression results for the "career decidedness" aspect of Hypothesis 5C using CDS decidedness scores as the DV

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Overall sample</th>
<th>Treatment group</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDMSE total, PARSMS, and CDMANX scores</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>CDMSE total and PARSMS scores</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>CDMSE total and CDMANX scores</td>
<td>Significant</td>
<td>Significant</td>
</tr>
</tbody>
</table>
Table 15. Summary of ANOVA based contrast results for Hypothesis 6B using SFCDMSE difference scores as the DV

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

*Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).*
Table 16. Summary of the congruity between ANOVA based contrast results for Hypothesis 6B comparing SFCDMSE results with CDMSE findings

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Congruence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>borderline</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>yes</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 17. Summary of ANCOVA contrast results for Hypothesis 6B using SFCDMSE posttest scores as the DV and SFCDMSE pretest scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 18. Summary of the congruity between ANCOVA based contrast results for Hypothesis 6B comparing SFCDMSE results with CDMSE findings

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Congruence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>borderline</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>yes</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 19. Summary of ANOVA based contrast results for supplemental analyses using CDMANX difference scores as the DV

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full, Reduced</td>
<td>no</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>borderline yes</td>
</tr>
<tr>
<td></td>
<td>Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full, Reduced</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full, Reduced</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full, Reduced</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 20. Summary of ANCOVA contrast results for supplemental analyses using CDMANX posttest scores as the DV and CDMANX pretest scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>yes</td>
</tr>
</tbody>
</table>

Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).
Table 22. Summary of ANCOVA contrast results for Ancillary Hypothesis 2B using ASES posttest scores as the DV and ASES pretest scores as the covariate

<table>
<thead>
<tr>
<th>Contrast</th>
<th>Model(s)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Group (Trt vs. Cntrl)</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Gender (M vs. F)</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>M vs. F within Trt Group</td>
<td>Full</td>
<td>borderline</td>
</tr>
<tr>
<td>M vs. F within Cntrl Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Trt vs. Cntrl within M</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Trt vs. Cntrl within F</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor</td>
<td>Full</td>
<td>yes</td>
</tr>
<tr>
<td>Instructor within Trt Group</td>
<td>Full</td>
<td>no</td>
</tr>
<tr>
<td>Instructor within Cntrl Group</td>
<td>Full</td>
<td>yes</td>
</tr>
</tbody>
</table>

*Note. Trt = treatment; Cntrl = control. M = male(s); F = female(s).*
In general, the obtained results are consistent with the majority of the hypotheses advanced at the outset of this study. Hypotheses 1, 2, 3, and 4 all received considerable support. Albeit to a somewhat lesser extent, Hypotheses 5 and 6 received support as well. The ancillary hypotheses, for the most part, were supported. The overall findings offer support for enhancing career decision-making SE through the use of a career course intervention, and provide further support for career SE theory in general and career decision-making SE conceptualizations in particular.

The ensuing discussion proceeds along the following lines. The primary findings of this study are discussed on a hypothesis-by-hypothesis basis. Findings concerning the supplemental analyses and ancillary hypotheses are then discussed, followed by a discussion of the remaining findings. Subsequently, a general discussion and review of the major findings is provided. The implications of the study's findings are then addressed, followed by a commentary concerning limitations of the present study. Lastly, suggestions for future research in the career decision-making SE area are offered in light of the current findings.

Hypothesis 1 - Enhancement of Career Decision-Making Self-Efficacy

In reference to Hypothesis 1, findings from the ANOVA based analyses are discussed in the Section 1; whereas,
findings from the ANCOVA based analyses are discussed in Section 2. Findings from both sets of analyses were consistent with Hypothesis 1 which predicted increases in career decision-making SE for treatment group subjects as compared to control group subjects.

Section 1: ANOVA (CDMSE scores)

As noted above, results from the ANOVA based analyses (for the full and reduced models) supported the first hypothesis. Given that the results for the full and reduced models were consistent, a distinction will not be made between the respective results. The group (treatment vs. control) contrast provided the basic test of Hypothesis 1. The group contrast results suggest that treatment subjects showed a significant increase on the CDMSE (pretreatment vs. posttreatment) relative to control subjects. A significant increase on the CDMSE is viewed as reflecting a significant increase in career decision-making SE, and is therefore consistent with Hypothesis 1.

The gender (male vs. female) contrast results suggest that female subjects showed a significantly greater increase on the CDMSE (pretreatment vs. posttreatment) in comparison to male subjects, thereby reflecting a significant increase in career decision-making SE for female subjects as compared to male subjects in general. Examination of the additional group and gender related contrasts allows for a more in-depth interpretation of the treatment and gender effects. The non-
significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ in terms of their CDMSE difference scores (i.e., they did not significantly differ with respect to changes in career decision-making SE). The "male vs. female within control group" contrast results suggest that control group females showed a significantly greater increase on the CDMSE (pretreatment vs. posttreatment) in comparison to control group males, thereby reflecting a significant increase in career decision-making SE for control group females relative to control group males. The "treatment vs. control within male subjects" group contrast results suggest that treatment group males showed a significant increase on the CDMSE (pretreatment vs. posttreatment) relative to control group males, thereby reflecting a significant increase in career decision-making SE for treatment group males as compared to control group males. Similarly, the "treatment vs. control within female subjects" group contrast results suggest that treatment group females showed a significant increase on the CDMSE (pretreatment vs. posttreatment) relative to control group females, thereby reflecting a significant increase in career decision-making SE for treatment group females as compared control group females.

The non-significance of the "male vs. female within treatment group" contrast results, and significance of both the "treatment vs. control within male subjects" and
"treatment vs. control within female subjects" contrast results collectively suggest that career intervention significantly enhanced career decision-making SE for both male and female treatment group subjects. The overall gender differences tapped by the gender (male vs. female) contrast stem from the gender differences within the control group as reflected by the "male vs. female within control group" contrast findings. The finding of a significant increase in career decision-making SE for control group females relative to control group males will be revisited in the discussion section regarding the ancillary hypotheses.

The non-significance of the instructor (instructor within group) contrast results suggests that course instructor did not prove to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. Examination of the additional instructor related contrast results allows for a more in-depth evaluation of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a "significant" impact on subjects' CDMSE difference scores. That is to say, results suggest that the extent of change in treatment subjects' career decision-making SE was related, at least in part, to instructor differences. However, it should be noted that the preceding contrast results were borderline in terms of significance. A more rigorous interpretation of the
finding would view the contrast result as approaching, rather than demonstrating, significance. The non-significance of the "instructor within control group" contrast results suggests that the instructor variable did not have a significant effect on subjects' CDMSE difference scores within the control group.

Section 2: ANCOVA (CDMSE scores)

As previously noted, results from the ANCOVA based analyses were consistent with Hypothesis 1 as well. The covariate contrast results suggest that CDMSE pretest scores (the covariate) were a significant predictor of CDMSE posttest scores (the DV), leading to rejection of the null hypothesis in which the corresponding regression coefficient is equal to 0. Since the relationship between the covariate and DV was shown to be significant, partialling out the effect of the covariate prior to assessing the effect of the IV(s) on the DV was supported. When interpreting the ANCOVA based findings, it should be kept in mind that all subjects were equated in terms of their pretest CDMSE scores. The group (treatment vs. control) contrast provided the basic test of Hypothesis 1 in the ANCOVA based analyses, as was the case in the ANOVA based analyses. The group contrast results suggest that CDMSE posttest scores for the treatment group significantly exceeded those of the control group thereby suggesting a significant pre-versus-post increase in CDMSE total scores for the treatment group as compared to the control group. Again, increases in CDMSE total scores are viewed as reflecting
increases in career decision-making SE which are consistent with those predicted in Hypothesis 1.

The gender (male vs. female) contrast results suggest that CDMSE posttest scores for female subjects significantly exceeded those of male subjects, thereby suggesting a significant pre-versus-post increase in CDMSE total scores for female subjects as compared to male subjects in general. Examination of the additional group and gender related contrasts allows for a more refined interpretation of the observed treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ with respect to their posttest CDMSE total scores. That is to say, the results suggested significant (pre-versus-post) increases in career decision-making SE for treatment group males and females alike. The "male vs. female within control group" contrast results suggest that CDMSE posttest scores for control group females "significantly" exceeded those of control group males, thereby suggesting a significant (pre-versus-post) increase in CDMSE total scores for control group females as compared to control group males. Accordingly, this result suggests a significant increase in career decision-making SE for control group females relative to control group males. It should be noted that the preceding contrast results were borderline in terms of statistical significance. A more rigorous interpretation
of the finding would view the contrast result as approaching, rather than demonstrating, significance. The "treatment vs. control within male subjects" group contrast results suggest that CDMSE posttest scores for treatment group males significantly exceeded those of control group males, thereby suggesting a significant pre-versus-post increase in CDMSE total scores for treatment group males as compared to control group males. Accordingly, this result suggests a significant increase in career decision-making SE for treatment group males relative to control group males. The "treatment vs. control within female subjects" group contrast results suggest that CDMSE posttest scores for treatment group females significantly exceeded those of control group females, thereby suggesting a significant pre-versus-post increase in CDMSE total scores for treatment group females as compared to control group females. Accordingly, this result suggests a significant increase in career decision-making SE for treatment group females relative to control group females.

The non-significance of the "male vs. female within treatment group" contrast results, and significance of both the "treatment vs. control within male" and "treatment vs. control within female" contrast results collectively suggest that career intervention significantly enhanced career decision-making SE for both male and female treatment group subjects. These findings parallel those of the ANOVA based analyses. The overall gender differences suggested by the
gender (male vs. female) contrast stem from the gender differences within the control group as reflected by the "male vs. female within control group" contrast findings, as was the case for the ANOVA based findings. The (ANCOVA) finding of a "significant" increase in career decision-making SE for control group females relative to control group males will be addressed in the discussion section for the ancillary hypotheses, as is the case for the analogous ANOVA finding.

The instructor (instructor within group) contrast results suggest that course instructor proved to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. Examination of the additional instructor related contrast results allows for a more in-depth evaluation of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' posttest CDMSE total scores. That is to say, results suggest that the extent of change in treatment subjects' career decision-making SE was related, at least in part, to instructor differences. The non-significance of the "instructor within control group" contrast results suggests that the instructor variable did not have a significant effect on subjects' posttest CDMSE total scores within the control group.
Hypothesis 1: Concluding remarks

In general, the ANCOVA findings paralleled those of the ANOVA based analyses. More specifically, both sets of analyses suggested the existence of a treatment effect in line with that predicted by Hypothesis 1. Similarly, findings from both sets of analyses suggested that the treatment effect was not gender-specific. Notwithstanding the borderline significance of the ANCOVA results, both sets of analyses suggested that control group females showed a significant increase in career decision-making SE relative to control group males (a finding which will be subsequently addressed). Although some differences existed, the ANOVA and ANCOVA findings were, for the most part, consistent with respect to the effect of the instructor variable. Despite the borderline significance of the ANOVA results, both sets of analyses suggested that changes in treatment subjects' career decision-making SE were dependent, to some extent, on instructor based differences. Similarly, both sets of analyses suggested that the instructor variable did not have a significant effect on subjects' SE related scores within the control group.

Hypothesis 2 - Relationship Between Career Decision-Making Self-Efficacy and Career Decision-Making Performance Accomplishments

Correlational results supported Hypothesis 2A which predicted a positive relationship between career decision-making SE and success regarding career decision-making performance accomplishments. More specifically, the
significant positive correlation obtained between (posttest) CDMSE total scores and PARS mean success scores (.73) for the treatment group suggested that treatment subjects who reported greater career decision-making SE at posttest tended to report greater success regarding their career decision-making performance accomplishments. On the other hand, treatment subjects who reported relatively lower career decision-making SE at posttest tended to report less success regarding their career decision-making performance accomplishments. Findings for the overall sample were similar in nature. Such findings are in line with SE theory's proposition that successful experiences enhance SE expectations, whereas unsuccessful experiences weaken SE expectations.

Results from the (simple) regression analyses supported Hypothesis 2B which advanced that subjects' success regarding career decision-making performance accomplishments would significantly predict subjects' (posttest) career decision-making SE. In support of this hypothesis, subjects' PARS mean success scores were found to significantly predict their CDMSE total scores (at posttest). Such findings held for the overall sample and treatment group alike. Collectively, the findings are consistent with the contention that an individual's success regarding his/her career decision-making SE task involvements directly relates to the strength of his/her career decision-making SE.
Hypothesis 3 - Relationship Between Career Decision-Making Self-Efficacy and Career Decision-Making Anxiety

Correlational results supported Hypothesis 3A which predicted an inverse relationship between career decision-making SE and career decision-making anxiety. More specifically, the significant negative correlation obtained between (posttest) CDMSE total scores and (posttest) CDMANX scores for the treatment group (- .40) suggested that treatment subjects who reported greater career decision-making SE (at posttest) tended to report lower career decision-making anxiety (at posttest). On the other hand, treatment subjects who reported relatively lower career decision-making SE (at posttest) tended to report higher career decision-making anxiety (at posttest). A significant negative correlation between SE and anxiety was obtained for the overall sample at both pretest and posttest as well. Such findings are in line with SE theory's postulation of a negative relationship between SE and anxiety in general.

Results from the (simple) regression analyses supported Hypothesis 3B which advanced that subjects' career decision-making anxiety would significantly predict subjects' career decision-making SE. In support of this hypothesis, subjects' (posttest) CDMANX scores significantly predicted their (posttest) CDMSE total scores. Such findings held for both the overall sample and treatment group alike. Collectively, the findings are consistent with the contention that an
individual's level of career decision-making anxiety inversely relates to the strength of his/her career decision-making SE.

**Hypotheses 2B and 3B Combined - Multiple Regression Analyses**

Multiple regression findings yielded additional support for Hypotheses 2B and 3B. In support of these hypotheses, multiple correlation findings revealed that 56.0% of the variance in treatment subjects' CDMSE scores was predicted on the combined basis of their "PARS mean success" and "CDMANX" scores. Moreover, partially out the joint effects from the multiple correlation revealed that the unique contribution of both IV(s) was significant. The overall sample analyses yielded similar findings. Such findings are congruent with SE theory's postulations that both mastery (success) experiences and anxiety play critical roles in the determination of SE.

**Hypothesis 4 - Reduction of Career Indecision and Enhancement of Vocational Decidedness**

In reference to Hypothesis 4, findings for the "vocational decidedness" analyses are discussed in Section 1; whereas, findings for the "career indecision" analyses are discussed in Section 2. Sections 1A and 2A deal with the respective ANOVA based findings; whereas, Sections 1B and 2B deal with the respective ANCOVA findings.

**Section 1A: ANOVA (vocational decidedness)**

Findings from the ANOVA based analyses supported Hypothesis 4 regarding the prediction that treatment group subjects would exhibit significantly greater increases in
vocational decidedness as compared to control group subjects. The group (treatment vs. control) contrast was of critical importance in testing the "vocational decidedness" aspect of Hypothesis 4. The group contrast results for all three models suggest that treatment subjects showed a significant increase in CDS decidedness scores (pretreatment vs. posttreatment) relative to control subjects. A significant increase in CDS decidedness scores is viewed as reflecting a significant increase in vocational decidedness, and is therefore consistent with the "vocational decidedness" prediction which comprises part of Hypothesis 4.

The non-significance of the gender (male vs. female) contrast results from the full model suggests that, overall, males and females did not differ in terms of their CDS decidedness difference scores. Examination of the additional group and gender related contrasts allows for a more in-depth evaluation of the treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ in terms of their CDS decidedness difference scores (i.e., they did not significantly differ with respect to changes in vocational decidedness). Similarly, the non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their CDS decidedness difference scores.
The "treatment vs. control within male subjects" group contrast results suggest that treatment group males showed a significant increase in CDS decidedness scores (pretreatment vs. posttreatment) relative to control group males, thereby reflecting a significant increase in vocational decidedness for treatment group males as compared to control group males. The "treatment vs. control within female subjects" group contrast results suggest that treatment group females showed a significant increase in CDS decidedness scores (pretreatment vs. posttreatment) relative to control group females, thereby reflecting a significant increase in vocational decidedness for treatment group females as compared to control group females. The non-significance of the "male vs. female within treatment group", "male vs. female within control group", and gender (male vs. female) contrast results, coupled with the significant findings from the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" contrasts, collectively suggest that the career intervention significantly enhanced vocational decidedness for both male and female treatment group subjects.

The non-significance of the instructor (instructor within group) contrast results for both the full model and (first) reduced model suggests that course instructor did not prove to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. Examination of the additional instructor related
contrast results allows for a more in-depth evaluation of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' CDS decidedness difference scores. That is to say, results suggest that the extent of change in treatment subjects' vocational decidedness was related, at least in part, to instructor differences. Although the results for the full model were borderline in terms of significance, the findings for (first) reduced model (which dropped the non-significant gender variable from the model) were clearly significant. The non-significance of the "instructor within control group" contrast results for both the full model and (first) reduced model suggests that the instructor variable did not have a significant effect on subjects' CDS decidedness difference scores within the control group.

Section 1B: ANCOVA (vocational decidedness)

Findings from the ANCOVA based analyses (for the full and reduced models) also supported Hypothesis 4 with respect to the "vocational decidedness" prediction. Given that the results for the full and reduced models were consistent, a distinction will not be made between the respective results. The covariate contrast results suggest that CDS decidedness pretest scores (the covariate) were a significant predictor of CDS decidedness posttest scores (the DV), leading to rejection of the null hypothesis in which the corresponding regression
coefficient is equal to 0. Since the relationship between the covariate and DV was shown to be significant, partially out the effect of the covariate prior to assessing the effect of the IV(s) on the DV was supported. When interpreting the ANCOVA based findings, it should be kept in mind that all subjects were equated in terms of their pretest CDS decidedness scores. The group (treatment vs. control) contrast was of central importance in testing the "vocational decidedness" aspect of Hypothesis 4 in the ANCOVA based analyses, as was the case in the ANOVA based analyses. The group contrast results suggest that CDS decidedness posttest scores for the treatment group significantly exceeded those of the control group, thereby suggesting a significant pre-versus-post increase in CDS decidedness scores for the treatment group as compared to the control group. Again, increases in CDS decidedness scores are viewed as reflecting increases in vocational decidedness which are consistent with those predicted in Hypothesis 4.

The non-significance of the gender (male vs. female) contrast result suggests that, overall, males and females did not differ in terms of their posttest CDS decidedness scores. Examination of the additional group and gender related contrasts allows for a more in-depth evaluation of the treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not
significantly differ in terms of their posttest CDS decidedness scores (i.e., they did not significantly differ with respect to changes in vocational decidedness).

Similarly, the non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their posttest CDS decidedness scores. The "treatment vs. control within male subjects" contrast results suggest that CDS decidedness posttest scores for treatment group males significantly exceeded those of control group males, thereby suggesting a significant pre-versus-post increase in CDS decidedness scores for treatment group males as compared to control group males. Accordingly, this result suggests a significant increase in vocational decidedness for treatment group males relative to control group males. The "treatment vs. control within female subjects" contrast results suggest that CDS decidedness posttest scores for treatment group females significantly exceeded those of control group females, thereby suggesting a significant pre-versus-post increase in CDS decidedness scores for treatment group females as compared to control group females. Accordingly, this result suggests a significant increase in vocational decidedness for treatment group females relative to control group females. The non-significance of the "male vs. female within treatment group", "male vs. female within control group", and gender (male vs. female) contrast results, coupled with the significant
findings from the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" contrasts, collectively suggest that the career intervention significantly enhanced vocational decidedness for both male and female treatment group subjects. Such findings are consistent with those of the ANOVA based analyses.

The non-significance of the instructor (instructor within group) contrast results suggests that the course instructor did not prove to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. Examination of the additional instructor related contrast results allows for a more in-depth evaluation of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' posttest CDS decidedness scores. That is to say, results suggest that the extent of the increase in treatment subjects' career decidedness was related, at least in part, to instructor differences. The non-significance of the "instructor within control group" contrast results suggests that the instructor variable did not have a significant effect on subjects' posttest CDS decidedness scores within the control group.

In general, the ANCOVA findings paralleled those of the ANOVA based analyses. More specifically, both sets of analyses confirmed the existence of a treatment effect (as
predicted) and the absence of a gender effect. Notwithstanding the borderline significance of the ANOVA results (full model), both sets of analyses suggested that changes in treatment subjects' career decidedness were dependent, to some extent, on instructor based differences. Additionally, both sets of analyses suggested that the instructor variable did not have a significant effect on subjects' decidedness scores within the control group.

Section 2A: ANOVA (career indecision)

Findings from the ANOVA based analyses supported Hypothesis 4 regarding the prediction that treatment group subjects would exhibit significantly greater decreases in career indecision as compared to control group subjects. The group (treatment vs. control) contrast was of central importance in testing the "career indecision" aspect of Hypothesis 4. The group contrast results, for both the initial and reduced model, suggest that treatment subjects showed a significant decrease in CDS indecision scores (pretreatment vs. posttreatment) relative to control subjects. A significant decrease in CDS indecision scores is viewed as reflecting a significant decrease in vocational indecision, and is therefore consistent with the "career indecision" prediction which comprises part of Hypothesis 4. The non-significance of the gender (male vs. female) contrast results from the full model suggests that, overall, males and females did not differ in terms of their CDS indecision difference.
scores. The non-significance of all three instructor contrasts suggests that the instructor variable did not significantly affect subjects' CDS indecision difference scores.

Examination of the additional group and gender related contrasts allows for a more in-depth evaluation of the treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ in terms of their CDS indecision difference scores (i.e., they did not significantly differ with respect to changes in vocational indecision). Similarly, the non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their CDS indecision difference scores. The "treatment vs. control within male subjects" group contrast results suggest that treatment group males showed a significant decrease in CDS indecision scores (pretreatment vs. posttreatment) relative to control group males, thereby reflecting a significant decrease in vocational indecision for treatment group males as compared to control group males. The "treatment vs. control within female subjects" group contrast results suggest that treatment group females showed a significant decrease in CDS indecision scores (pretreatment vs. posttreatment) relative to control group females, thereby reflecting a significant decrease in
vocational indecision for treatment group females as compared to control group females. The non-significance of the "male vs. female within treatment group", "male vs. female within control group", and gender (male vs. female) contrast results, coupled with the significant findings from the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" contrasts, collectively suggest that the career intervention significantly reduced vocational indecision for both male and female treatment group subjects. 

Section 2B: ANCOVA (career indecision) 

Findings from the ANCOVA based analyses also supported Hypothesis 4 with respect to the "career indecision" prediction. The covariate contrast results, for both the initial and reduced model, suggest that CDS indecision pretest scores (the covariate) were a significant predictor of CDS indecision posttest scores (the DV), leading to rejection of the null hypothesis in which the corresponding regression coefficient is equal to 0. Since the relationship between the covariate and DV was shown to be significant, partially out the effect of the covariate prior to assessing the effect of the IV(s) on the DV was supported. When interpreting the ANCOVA based findings, it should be kept in mind that all subjects were equated in terms of their pretest CDS indecision scores. The group (treatment vs. control) contrast was of central importance in testing the "vocational indecision" aspect of Hypothesis 4 in the ANCOVA based analyses, as was
the case in the ANOVA based analyses. The group contrast results, for both the initial and reduced model, suggest that posttest CDS indecision scores for the treatment group were significantly lower than those for the control group, thereby suggesting a significant pre-versus-post decrease in CDS indecision scores for the treatment group as compared to the control group. Again, decreases in CDS indecision scores are viewed as reflecting decreases in vocational indecision which are consistent with those predicted in Hypothesis 4.

The non-significance of the gender (male vs. female) contrast result suggests that, overall, males and females did not differ in terms of their posttest CDS indecision scores. Examination of the additional group and gender related contrasts allows for a more in-depth evaluation of the treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ in terms of their posttest CDS indecision scores (i.e., they did not significantly differ with respect to changes in vocational indecision). Similarly, the non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their posttest CDS indecision scores. The "treatment vs. control within male subjects" contrast results suggest that posttest CDS indecision scores for treatment group males were significantly
lower than those for control group males, thereby suggesting a significant pre-versus-post decrease in CDS indecision scores for treatment group males as compared to control group males. Accordingly, this result suggests a significant decrease in career indecision for treatment group males relative to control group males. The "treatment vs. control within female subjects" contrast results suggest that posttest CDS indecision scores for treatment group females were significantly lower than those for control group females, thereby suggesting a significant pre-versus-post decrease in CDS indecision scores for treatment group females as compared to control group females. Accordingly, this result suggests a significant decrease in career indecision for treatment group females relative to control group females. The non-significance of the "male vs. female within treatment group", "male vs. female within control group", and gender (male vs. female) contrast results, coupled with the significant findings from the "treatment vs. control within male subjects" and "treatment vs. control within female subjects" contrasts, collectively suggest that the career intervention significantly reduced career indecision for both male and female treatment group subjects. These findings parallel those of the ANOVA based analyses.

The non-significance of the instructor (instructor within group) contrast results for both the full and reduced model suggests that the course instructor did not prove to be a
significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. Examination of the additional instructor related contrast results allows for a more in-depth evaluation of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' posttest CDS indecision scores. That is to say, results suggest that the extent of reduction in treatment subjects' career indecision was related, at least in part, to instructor differences. Note that the later finding was somewhat disparate with that of the ANOVA analyses. The non-significance of the "instructor within control group" contrast results suggests that the instructor variable did not have a significant effect on subjects' posttest CDS indecision scores within the control group.

In general, the ANCOVA findings paralleled those of the ANOVA based analyses. More specifically, both sets of analyses confirmed the existence of a treatment effect (as predicted) and the absence of a gender effect. A minor disparity between the two sets of findings emerged concerning the effect of the instructor variable within the treatment group. Contrary to the ANOVA findings, the ANCOVA results suggested that the instructor variable significantly impacted treatment subjects' vocational indecision.
Also noteworthy in reference to treatment subjects' changes in career decidedness are the results concerning the "major choice status" and "career choice status" variables. The results show a (pretreatment versus posttreatment) shift on both variables that reflects an increase in "major and career choice" decidedness for treatment subjects relative to control subjects. Such results further reinforce the ANOVA and ANCOVA findings discussed in this section.

Hypothesis 5 - Relationship Between Career Indecision/Decidedness and Career Decision-Making: Self-Efficacy, Performance Accomplishments, and Anxiety

Correlational results supported Hypothesis 5A which predicted an inverse relationship between career decision-making SE and career indecision, and a positive relationship between career decision-making SE and career decidedness. More specifically, the significant negative correlation obtained (at posttest) between CDMSE total scores and CDS indecision scores (−.39) for the treatment group suggested that treatment subjects who reported greater career decision-making SE at posttest tended to report less career indecision. On the other hand, treatment subjects who reported relatively lower career decision-making SE at posttest tended to report more career indecision. The obtained correlation coefficients for the analyses conducted on the overall sample at pretest and posttest (−.37 and −.35, respectively) also supported this relationship. The significant positive correlation obtained
(at posttest) between CDMSE total scores and CDS decidedness scores (.46) for the treatment group suggested that treatment subjects who reported greater career decision-making SE at posttest tended to report greater career decidedness. On the other hand, treatment subjects who reported relatively lower career decision-making SE at posttest tended to report less career decidedness. Findings for the overall sample (at pretest and posttest) also confirmed this relationship.

Results from the (simple) regression analyses supported Hypothesis 5B which advanced that subjects' career decision-making SE would significantly predict subjects' career indecision/decidedness. In support of the "career indecision" aspect of this hypothesis, subjects' CDMSE total scores (posttest) were found to significantly predict their (posttest) CDS indecision scores. Such findings held for the overall sample and treatment group alike. In support of the "career decidedness" aspect of this hypothesis, subjects' CDMSE total scores (posttest) were found to significantly predict their (posttest) CDS decidedness scores for both the overall sample and treatment group.

In sum, findings concerning Hypothesis 5A and 5B are in line with previous research concerning the relationship between career decision-making SE and career indecision/decidedness. Accordingly, such findings replicated previous research in the career decision-making SE area. However, the present study also sought to extend such research
by examining the aforementioned relationships while taking
career decision-making performance accomplishments and career
decision-making anxiety into account. The related findings
are subsequently discussed.

Findings from the multiple regression analyses provided
support for Hypothesis 5C which advanced that career decision-
making SE would significantly add to both career decision-
making performance accomplishments and career decision-making
anxiety in the prediction of career indecision/decidedness.
Findings relevant to the "career indecision" and "career
decidedness" aspects of Hypothesis 5C are discussed in the
following two sections, respectively.

**Hypothesis 5C: Career indecision**

As previously noted, the "career indecision" aspect of
Hypothesis 5C received support. Prior to discussing the
multiple regression results, findings regarding relevant
correlational and simple regression analyses warrant comment.

Treatment subjects' PARS mean success scores were
(significantly) negatively correlated with their (posttest)
CDS indecision scores (-.23) suggesting that treatment
subjects who reported greater success regarding their career
decision-making performance accomplishments tended to report
less career indecision. Conversely, treatment subjects who
reported less success regarding their career decision-making
performance accomplishments tended to report greater career
indecision. The analogous correlation coefficient for the
overall sample analysis was of greater magnitude (-.35) and highly significant. In addition, treatment subjects' PARS mean success scores were found to significantly predict their (posttest) CDS indecision scores suggesting that success regarding career decision-making tasks was a significant predictor of career indecision. The corresponding finding for the overall sample analysis was consistent. In reference to the relationship between CDMANX and CDS indecision scores, treatment subjects' (posttest) CDMANX scores were (significantly) positively correlated with their (posttest) CDS indecision scores (.37). This finding suggests that treatment subjects' who reported greater career decision-making anxiety tended to report greater career indecision. Conversely, treatment subjects who reported less career decision-making anxiety tended to report less career indecision. The analogous correlation coefficients for the overall sample analyses at pretest and posttest were also significant, however were somewhat higher in magnitude (.45 and .44, respectively). In addition, treatment subjects' (posttest) CDMANX scores were found to significantly predict their (posttest) CDS indecision scores suggesting that career decision-making anxiety was a significant predictor of career indecision. The corresponding findings for the overall sample analyses were again consistent. In sum, both the PARS and CDMANX variables proved to be significant individual predictors of CDS indecision scores.
The multiple regression analyses which employed CDMSE total scores and PARS mean success scores as IV(s) in the prediction of (posttest) CDS indecision scores yielded somewhat different results depending on the data set utilized in the analysis. The amount of variance accounted for in subjects' CDS indecision scores by subjects' "CDMSE total" and "PARS mean success" scores was similar for both the overall sample and treatment group analyses (14.0% and 16.1%, respectively). Based on the treatment group analysis, the Type III regression results suggested that the unique contribution of subjects' CDMSE total scores was significant in predicting CDS indecision scores, unlike the unique contribution of the PARS variable. CDMSE total scores were thus found to add significantly to PARS mean success scores in predicting the criterion (CDS indecision scores); but, PARS mean success scores did not contribute significantly to CDMSE total scores in predicting indecision scores. However, based on the overall sample analysis, the Type III regression results suggested that the unique contribution of subjects' CDMSE total scores was not significant in predicting CDS indecision scores, unlike the unique contribution of the PARS variable which was significant. PARS mean success scores were thus found to add significantly to CDMSE total scores in predicting the criterion (CDS indecision scores); however, CDMSE total scores did not contribute significantly to PARS mean success scores in predicting indecision scores. In sum,
findings from the treatment group analysis are consistent the aspect of Hypothesis 5C which advanced that career decision-making SE would add to success regarding career decision-making performance accomplishments in the prediction of career indecision. In contrast, findings from the combined (i.e., overall sample) analysis do not support this contention.

The multiple regression analyses which employed CDMSE total scores and CDManx scores as IV(s) in the prediction of (posttest) CDS indecision scores yielded similar findings for both the overall sample and treatment group analyses. The amount of variance accounted for in subjects' CDS indecision scores by subjects' CDMSE total scores and CDManx scores was similar for both overall sample and treatment group analyses (21.9% and 21.0%, respectively). Type III regression results suggested that the unique contributions of treatment subjects' CDMSE total scores and CDManx scores were both significant in predicting CDS indecision scores. CDMSE total scores were thus found to add significantly to CDManx scores in predicting the criterion (CDS indecision scores), in line with the aspect of Hypothesis 5C which advanced that career decision-making SE would add to career decision-making anxiety in the prediction of career indecision.

The multiple regression analyses which employed CDMSE total scores, PARS mean success scores, and CDManx scores as IV(s) in the prediction of (posttest) CDS indecision scores offered partial support for the "career indecision" aspect of
Hypothesis 5C. The three IV(s) collectively accounted for comparable amounts of variance in subjects' CDS indecision scores in the overall sample and treatment group analyses (22.8% and 21.8%, respectively). However, the analyses did yield somewhat different results depending on the data set utilized in the analyses. With respect to the treatment group analyses, the Type III regression results indicated that the unique contributions of subjects' CDMSE total scores and CDMANX scores were significant in predicting CDS indecision scores, unlike the unique contribution of PARS variable. CDMSE total scores were thus found to significantly add to both PARS mean success scores and CDMANX scores in the prediction of career indecision as advanced in Hypothesis 5C. However, based on the overall sample analysis, the Type III regression results indicated that the unique contribution of subjects' CDMSE total scores was not significant in predicting CDS indecision scores. In terms of added predictability, only CDMANX scores were found to add significantly to the other variables in predicting the criterion (CDS indecision scores).

A number of general observations can be made with respect to the findings concerning the "career indecision" aspect of Hypothesis 5C. First, the findings support the notion that career decision-making SE, success regarding career decision-making performance accomplishments, and career decision-making anxiety all seem to be important factors regarding career indecision. The assertion that career decision-making SE
accounts for variance over-and-above that accounted for by "success regarding career decision-making performance accomplishments" and "career decision-making anxiety" in the prediction of career indecision was suggested by the majority of the multiple regression analyses. Thus, career decision-making SE appears to be a relatively important variable in the career decision-making process, at least as far as career indecision is concerned. Although cause-and-effect can not be inferred, the combined findings from Hypotheses 2, 3, and 5 are consistent with the SE-based conceptualization that career decision-making performance accomplishments and career decision-making anxiety are important variables in the determination of career decision-making SE, which, in turn, is an important variable in the determination of career indecision status. It should be noted that Hypothesis 5C findings also reaffirm the existence of a strong, direct relationship between career decision-making anxiety and career indecision.

Hypothesis 5C: Career decidedness

As previously mentioned, the "career decidedness" aspect of Hypothesis 5C received support. Prior to discussing the multiple regression results, findings regarding pertinent correlational and simple regression analyses warrant comment.

Treatment subjects' PARS mean success scores were (significantly) positively correlated with their (posttest) CDS decidedness scores (.28) suggesting that treatment
subjects who reported greater success regarding their career decision-making performance accomplishments tended to report greater career decidedness. Conversely, treatment subjects who reported less success regarding their career decision-making performance accomplishments tended to report less career decidedness. The analogous correlation coefficient for the overall sample analysis was of greater magnitude (.39) and highly significant. In addition, treatment subjects' PARS mean success scores were found to significantly predict their (posttest) CDS decidedness scores suggesting that success regarding career decision-making tasks was a significant predictor of career decidedness. The corresponding finding for the overall sample analysis was consistent. In reference to the relationship between CDMANX and CDS decidedness scores, treatment subjects' (posttest) CDMANX scores were (significantly) negatively correlated with their (posttest) CDS decidedness scores (-.43). This findings suggests that treatment subjects' who reported less career decision-making anxiety tended to report greater career decidedness. Conversely, treatment subjects who reported greater career decision-making anxiety tended to report less career decidedness. The analogous correlation coefficients for the overall sample analyses at pretest and posttest were consistent. In addition, treatment subjects' (posttest) CDMANX scores were found to significantly predict their (posttest) CDS decidedness scores suggesting that career
decision-making anxiety was a significant predictor of career decidedness. The corresponding findings for the overall sample analyses were again consistent. In sum, both the PARS and CDMANX variables proved to be significant individual predictors of CDS indecision scores.

The multiple regression analyses which employed CDMSE total scores and PARS mean success scores as IV(s) in the prediction of (posttest) CDS decidedness scores yielded similar findings for both the overall sample and treatment group analyses. The amount of variance accounted for in subjects' CDS decidedness scores by subjects' CDMSE total and PARS mean success scores was similar for both the overall sample and treatment group analyses (20.1% and 21.4%, respectively). Type III regression results suggested that the unique contribution of treatment subjects' CDMSE total scores was significant in predicting CDS decidedness scores, unlike the unique contribution of the PARS variable. CDMSE total scores were thus found to add significantly to PARS mean success scores in predicting the criterion (CDS decidedness scores), in line with the aspect of Hypothesis 5C which advanced that career decision-making SE would add to success regarding career decision-making performance accomplishments in the prediction of career decidedness.

The multiple regression analyses which employed CDMSE total scores and CDMANX scores as IV(s) in the prediction of (posttest) CDS decidedness scores yielded similar findings for
both the overall sample and treatment group analyses. The amount of variance accounted for in subjects' CDS decidedness scores by subjects' CDMSE total scores and CDMANX scores was similar for both overall sample and treatment group analyses (25.4% and 28.4%, respectively). Type III regression results suggested that the unique contributions of treatment subjects' CDMSE total scores and CDMANX scores were both significant in predicting CDS decidedness scores. CDMSE total scores were thus found to add significantly to CDMANX scores in predicting the criterion (CDS decidedness scores), in line with the aspect of Hypothesis 5C which advanced that career decision-making SE would add to career decision-making anxiety in the prediction of career decidedness.

The multiple regression analyses which employed CDMSE total scores, PARS mean success scores, and CDMANX scores as IV(s) in the prediction of (posttest) CDS decidedness scores supported the "career decidedness" aspect of Hypothesis 5C. The three IV(s) collectively accounted for comparable amounts of variance in subjects' CDS decidedness scores in the overall sample and treatment group analyses (25.6% and 29.2%, respectively). The Type III regression results indicated that the unique contributions of treatment subjects' CDMSE total scores and CDMANX scores were significant in predicting CDS decidedness scores, unlike the unique contribution of the PARS variable. Results for the overall sample analyses again proved consistent. CDMSE total scores were thus found to
significantly add to both PARS mean success scores and CDMANX scores in the prediction of career decidedness as advanced in Hypothesis 5C.

A number of general observations can be made with respect to the findings concerning the "career decidedness" aspect of Hypothesis 5C. First, the findings support the notion that career decision-making SE, success regarding career decision-making performance accomplishments, and career decision-making anxiety all seem to be important factors regarding career decidedness. The assertion that career decision-making SE accounts for variance over-and-above that accounted for by "success regarding career decision-making performance accomplishments" and "career decision-making anxiety" in the prediction of career decidedness was consistently suggested by the multiple regression analyses. Thus, career decision-making SE appears to be a relatively important variable in the career decision-making process, at least as far as career decidedness is concerned. The "career decidedness" findings associated with Hypothesis 5C further suggested a strong, direct relationship between career decision-making anxiety and career decidedness. In sum, findings from the analyses which employed a counterpart measure of career indecision (CDS decidedness scores) were theoretically consistent with findings from the career indecision analyses (as expected).
Hypothesis 6 - Relationships Between both SFCDMSE and CDMSE Inventories and Variables of Interest

Findings from the correlational analyses supported Hypothesis 6A which advanced that the SFCDMSE would show similar relationships to variables of interest (i.e., CDS decidedness scores, CDS indecision scores, and CDMANX scores) that are shown by the CDMSE and such variables. Inspection of the Pearson product-moment correlation coefficients between the two inventories and the variables of interest revealed that the correlation comparisons were comparable in direction, magnitude, and probability level. Furthermore, the correlation between the SFCDMSE and CDMSE inventories was shown to be high in magnitude (.97) and highly significant. Relatively, subjects' SFCDMSE total scores accounted for 94.1% of the variance in their CDMSE total scores ($r^2 = .9409$). Moreover, the significant findings from Spearman rank-order correlations between SFCDMSE and CDMSE (pretest) total scores (.96), SFCDMSE and CDMSE (posttest) total scores (.96), and SFCDMSE and CDMSE difference scores (.92), suggests that SFCDMSE scores significantly maintained the rank ordering of subjects by CDMSE score. The rank-order findings attest to the strong correlation between the two inventories in an applied context. Collectively, the findings offer support for both the criterion and concurrent (construct) validity of the SFCDMSE.
In reference to Hypothesis 6B, findings from the ANOVA based analyses are discussed in Section 1; whereas, findings from the ANCOVA based analyses are discussed in Section 2. Findings from both sets of analyses partially supported Hypothesis 6B which predicted that the SFCDMSE would be psychometrically sensitive to changes in career decision-making SE that are tapped by the CDMSE. Recall that, in order to evaluate Hypothesis 6B, the analyses conducted to test Hypothesis 1 were rerun replacing: 1) CDMSE difference scores with SFCDMSE difference scores as the DV in the ANOVA model; and 2) CDMSE total scores (posttest) with SFCDMSE total scores (posttest) as the DV in the ANCOVA model. Accordingly, comparisons between the CDMSE and SFCDMSE results were central to evaluating Hypothesis 6B.

Section 1: ANOVA (SFCDMSE scores)

As noted above, results from the ANOVA based analyses offered partial support for Hypothesis 6B. The group (treatment vs. control) contrast provided the central test for changes in career decision-making SE. The group contrast results suggested that treatment subjects showed a significant increase on the SFCDMSE (pretreatment vs. posttreatment) relative to control subjects. In line with the CDMSE based analyses, these findings suggest that treatment subjects experienced a significant increase in career decision-making SE (as compared to control subjects).
The gender (male vs. female) contrast results suggest that female subjects showed a significantly greater increase on the SFCDMSE (pretreatment vs. posttreatment) in comparison to male subjects. In line with CDMSE based findings, such findings are suggestive of a significant increase in career decision-making SE for female subjects in general as compared to male subjects in general. The "male vs. female within treatment group" contrast results suggest that treatment group females showed a significantly greater increase on the SFCDMSE (pretreatment vs. posttreatment) in comparison to treatment group males. In contrast to the non-significant CDMSE based findings, such findings suggest a significant increase in career decision-making SE for treatment group females relative to treatment group males. The non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their SFCDMSE difference scores. In contrast to CDMSE based findings, such findings suggest that control group males and females did not significantly differ with respect to changes in career decision-making SE. The "treatment vs. control within male subjects" group contrast results suggest that treatment group males showed a significant increase on the SFCDMSE (pretreatment vs. posttreatment) relative to control group males. In line with CDMSE based findings, such findings are suggestive of a significant increase in career decision-making SE for
treatment group males as compared to control group males. The "treatment vs. control within female subjects" group contrast results suggest that treatment group females showed a significant increase on the SFCDMSE (pretreatment vs. posttreatment) relative to control group females. In line with CDMSE based findings, such findings are suggestive of a significant increase in career decision-making SE for treatment group females as compared to control group females.

The non-significance of the instructor (instructor within group) contrast results suggests that course instructor did not prove to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. This finding is consistent with that from the CDMSE based analysis. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' SFCDMSE difference scores. Consistent with a less (statistically) rigorous interpretation of the corresponding CDMSE based findings (which were borderline in terms of significance), these results suggest that the extent of change in treatment subjects' career decision-making SE was related, at least in part, to instructor differences. However, in line with a more (statistically) rigorous interpretation of the "borderline" CDMSE based findings, the respective SFCDMSE and CDMSE findings would be characterized as being somewhat inconsistent.
since the CDMSE findings would be viewed as "approaching", rather than "demonstrating", significance. The non-significance of the "instructor within control group" contrast results suggests that the instructor variable did not have a significant effect on subjects' SFCDMSE difference scores (i.e., on subjects' career decision-making SE) within the control group, as was consist with the CDMSE based findings.

In sum, most comparisons of the ANOVA based findings for the CDMSE and SFCDMSE analyses showed that the SFCDMSE measured changes in career decision-making SE comparable to those measured by the CDMSE. The SFCDMSE yielded findings consistent with those from the CDMSE analyses in reference to tests of: 1) the overall treatment effect [as reflected by the group (treatment vs. control) comparison]; 2) the "within gender" treatment effects (as reflected by the treatment vs. control within both male and female subjects comparisons); and 3) the instructor effects (for the most part). In reference to tests of the gender effects within (treatment and control) groups (as reflected by the male vs. female within both treatment and control group comparisons), the SFCDMSE similarly tapped an overall gender effect [cf. the gender (male vs. female) comparison results] but attributed it to gender related differences within the treatment group rather than the control group, as had been the case in the CDMSE based analyses.
Section 2: ANCOVA (SFCDMSE scores)

As previously noted, results from the ANCOVA based analyses also offered partial support for Hypothesis 6B. Again, the group (treatment vs. control) contrast provided the central test for changes in career decision-making SE. The group contrast results suggest that SFCDMSE posttest scores for the treatment group significantly exceeded those of the control group, thereby suggesting a significant pre-versus-post increase in SFCDMSE scores for the treatment group as compared to the control group. In line with CDMSE based analyses, these findings suggest that treatment subjects experienced a significant increase in career decision-making SE (as compared to control subjects).

The gender (male vs. female) contrast results suggest that SFCDMSE posttest scores for female subjects significantly exceeded those of male subjects, thereby suggesting a significant pre-versus-post increase in SFCDMSE scores for female subjects as compared to male subjects. In line with CDMSE based findings, such findings are suggestive of a significant increase in career decision-making SE for female subjects as compared to male subjects in general. The "male vs. female within treatment group" contrast results suggest that SFCDMSE posttest scores for treatment group females significantly exceeded those of treatment group males, thereby suggesting a significant pre-versus-post increase in SFCDMSE scores for treatment group females as compared to treatment
group males. In contrast to the non-significant CDMSE based findings, these findings suggest a significant increase in career decision-making SE for treatment group females relative to treatment group males. The non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ with respect to their posttest SFCDMSE total scores. Since the corresponding CDMSE based comparison was borderline in terms of significance, this finding can be viewed as being either consistent or inconsistent with the CDMSE finding depending on the level of experimental rigor employed when interpreting the findings. A more stringent interpretation of the findings would view them as being consistent based on the "non-significance" of the CDMSE finding. The non-significance of the "treatment vs. control within male subjects" group contrast results suggests that male treatment and control group subjects did not significantly differ with respect to their posttest SFCDMSE total scores. The latter finding was inconsistent with the corresponding CDMSE based finding which suggested that treatment group males experienced a significant increase in career decision-making SE compared to control group males. The "treatment vs. control within female subjects" group contrast results suggest that SFCDMSE posttest scores for treatment group females significantly exceeded those of control group females, thereby suggesting a significant pre-versus-post increase in SFCDMSE total scores.
for treatment group females as compared to control group females. In line with the corresponding CDMSE findings, these findings suggest that treatment group females experienced a significant increase in career decision-making SE (as compared to control group females).

The instructor (instructor within group) contrast results, which were in line with the CDMSE based analyses, suggest that course instructor proved to be a significant factor when evaluated within both treatment and control groups in an overall test of the instructor variable. The "instructor within treatment group" contrast results suggest that instructor related differences within the treatment group had a significant impact on subjects' posttest SFCDMSE total scores. In line with CDMSE based findings, these results suggest that the extent of change in treatment subjects' career decision-making SE was related, at least in part, to instructor differences. The non-significance of the instructor within control group contrast results suggests that the instructor variable did not have a significant effect on subjects' posttest SFCDMSE total scores (i.e., on subjects' career decision-making SE) within the control group, as was consistent with the CDMSE based findings.

In sum, several comparisons of the ANCOVA based findings for the CDMSE and SFCDMSE analyses showed that the SFCDMSE measured changes in career decision-making SE comparable to those measured by the CDMSE. The SFCDMSE yielded findings
consistent with CDMSE findings in reference to analyses regarding: 1) the overall treatment effect [as reflected by the group (treatment vs. control) comparison]; 2) one of the "within gender" treatment effects (as reflected by the treatment vs. control within female subjects comparison); and 3) the instructor effects. However, some of the other comparisons did not lend support to Hypothesis 6B. More specifically, in reference to the other "within gender" treatment effect (that regarding the "treatment vs. control within male subjects" comparison), the SFCDMSE failed to pick up on the change in career decision-making SE that was suggested by the corresponding CDMSE finding. Additionally, in reference to tests of the gender effects within (treatment and control) groups (as reflected by the male vs. female within both treatment and control group comparisons), a few comments are warranted. First, the SFCDMSE findings were inconsistent with those of the CDMSE based analyses in that the SFCDMSE findings suggested "gender dependent" increases in career decision-making SE (within the treatment group) that weren't suggested by the CDMSE findings (cf. the "male vs. female within treatment group" comparison results). Second, depending on how stringent of an interpretation one employs, the SFCDMSE based findings may be viewed as either consistent or inconsistent with the "borderline" SE change suggested by the "male vs. female within control group" results from the CDMSE based analyses. Thus, although the gender (male vs.
female) contrast results for the SFCDMSE were consistent with the CDMSE analyses in suggesting gender differences regarding changes in career decision-making SE, the more specific SFCDMSE-based gender findings were not entirely consistent with those from the CDMSE based analyses.

**Hypothesis 6: Concluding remarks**

As detailed, correlational analyses provided strong support for Hypothesis 6A by showing comparable relationships between both the SFCDMSE and CDMSE with major variables of interest. As for Hypothesis 6B, the findings were somewhat mixed. While the SFCDMSE can be credited with measuring changes in career decision-making SE consistent with those measured by the CDMSE as far as the most important comparison is concerned (that reflecting the overall treatment effect), the ANOVA and ANCOVA findings were relatively less supportive when evaluating combined gender and treatment effects. ANOVA and ANCOVA findings were, however, consistently in line with Hypothesis 6B when evaluating instructor effects (i.e., the impact of the course instructor on changes in career decision-making SE). Although the findings undoubtedly suggested a strong relationship between the SFCDMSE and CDMSE, the findings did not support using the measures interchangeably when, for example, working under exacting research conditions. Additional research is needed in order to further evaluate the relative validity of the instruments.
Career Decision-Making Anxiety Analyses

The supplemental analyses that were conducted to assess for prospective decreases in career decision-making anxiety associated with the career intervention provided mixed results. Findings for the ANOVA based analyses are discussed in Section 1; whereas, findings for the ANCOVA based analyses are discussed in Section 2.

Section 1: ANOVA (CDMANX scores)

In general, results from the ANOVA based analyses suggested a reduction in career decision-making anxiety for female treatment subjects only. The group (treatment vs. control) contrast provided the basic test for reductions in career decision-making anxiety. The non-significance of the group contrast results for both the full and reduced models suggests that, overall, treatment and control subjects did not significantly differ in terms of their CDMANX difference scores. Such findings suggest that, overall, treatment and control subjects did not differ with respect to changes in career decision-making anxiety. The gender contrast results for the full model, which were borderline in terms of significance, suggested that female subjects showed a "significant" decrease in CDMANX scores (pretreatment vs. posttreatment) relative to male subjects. The gender contrast results for the reduced model, which were clearly significant, similarly suggested that female subjects showed a significant decrease in CDMANX scores relative to male subjects, thereby
reflecting a significant reduction in career decision-making anxiety for female subjects as compared to male subjects in general. The non-significance of all three instructor contrasts suggests that the instructor variable did not significantly affect subjects' CDMANX difference scores, which in turn suggests that course instructors did not significantly influence changes in career decision-making anxiety.

Examination of the additional group and gender related contrasts allows for a more in-depth interpretation of the treatment and gender effects. Given that the results for the full and reduced models were consistent, a distinction will not be made between the respective results. The "male vs. female within treatment group" contrast results suggest that treatment group females showed a significant decrease in CDMANX scores (pretreatment vs. posttreatment) relative to treatment group males, thereby reflecting a significant decrease in career decision-making anxiety for treatment group females as compared to treatment group males. The non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ in terms of their CDMANX difference scores (i.e., they did not significantly differ with respect to changes in career decision-making anxiety). The non-significance of the "treatment vs. control within male subjects" group contrast results suggests that male treatment and control subjects did not significantly differ with respect
to their CDMANX difference scores, thereby suggesting that male treatment and control subjects did not significantly differ with respect to changes in career decision-making anxiety. The "treatment vs. control within female subjects" group contrast results suggest that treatment group females showed a significant decrease in CDMANX scores (pretreatment vs. posttreatment) relative to control group females, thereby reflecting a significant decrease in career decision-making anxiety for treatment group females as compared to control group females.

Collectively, the pattern of ANOVA findings suggests the presence of a treatment effect regarding the reduction of career decision-making anxiety that was gender specific with female treatment subjects showing a significant pre-versus-post decrease in career decision-making SE relative to other subjects.

Section 2: ANCOVA (CDMANX scores)

In general, results from the ANCOVA based analyses did not suggest a reduction in career decision-making anxiety among subjects who participated in the career intervention. The covariate contrast results suggest that CDMANX pretest scores (the covariate) were a significant predictor of CDMANX posttest scores (the DV), leading to rejection of the null hypothesis in which the corresponding regression coefficient is equal to 0. Since the relationship between the covariate and DV was shown to be significant, partialling out the effect
of the covariate prior to assessing the effect of the IV(s) on the DV was supported. When interpreting the ANCOVA based findings, it should be kept in mind that all subjects were equated in terms of their pretest CDMANX scores. As was the case in the ANOVA analyses, the group (treatment vs. control) contrast provided the basic test for reductions in career decision-making anxiety. The non-significance of the group contrast results suggests that, overall, treatment and control group subjects did not significantly differ regarding their posttest CDMANX total scores. In line with the ANOVA findings, this finding suggests that, overall, treatment and control subjects did not differ with respect to changes in career decision-making anxiety. The non-significance of the gender (male vs. female) contrast result suggests that, overall, males and females did not significantly differ regarding their posttest CDMANX total scores. These findings are contrary to that of the ANOVA (reduced model) analyses which suggested that, overall, females subjects experienced a significant reduction in career decision-making anxiety in comparison to male subjects. The non-significance of all three instructor contrasts suggests that the instructor variable did not significantly affect subjects' posttest CDMANX total scores (i.e., did not significantly affect subjects' career decision-making anxiety). The latter finding was consistent with that of the ANOVA based analyses.
Examination of the additional group and gender related contrasts allows for a more in-depth evaluation of potential treatment and gender effects. The non-significance of the "male vs. female within treatment group" contrast results suggests that treatment group males and females did not significantly differ regarding their posttest CDMANX total scores (i.e., regarding their posttest career decision-making anxiety). This finding runs contrary to the ANOVA results which suggested that treatment group females showed a significant decrease in career decision-making anxiety in comparison to treatment group males. The non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ with respect to their posttest CDMANX total scores. In line with the ANOVA based analyses, this finding suggests that control group males and females did not significantly differ in terms of their posttest career decision-making anxiety. The non-significance of the "treatment vs. control within male subjects" contrast results suggests that male treatment and control subjects did not significantly differ with respect to their posttest CDMANX total scores. In line with the ANOVA analyses, this finding suggests that male treatment and control subjects did not significantly differ with respect to their posttest career decision-making anxiety. The non-significance of the "treatment vs. control within female subjects" contrast
results suggests that female treatment and control subjects did not significantly differ with respect to their posttest CDMANX total scores (i.e., regarding their posttest career decision-making anxiety). This finding is contrary to the ANOVA based results which suggested that treatment group females showed a significant decrease in career decision-making anxiety relative to control group females.

In sum, the ANCOVA findings did not suggest that treatment subjects experienced a significant reduction in career decision-making anxiety relative to control subjects. Furthermore, examination of Tables 2 and 3 shows that the differences between pretest and posttest CDMANX scores for both treatment and control groups were small.

Career decision-making anxiety analyses: Concluding remarks

As previously noted, ANOVA and ANCOVA based analyses yielded different results concerning the existence of a gender-specific treatment effect. Although the ANOVA based analyses suggested the presence of a gender-specific treatment effect regarding changes in career decision-making anxiety, this treatment effect was not confirmed by the ANCOVA findings. Whether or not the results suggest a significant gender-related treatment effect is a matter of interpretation. The ANCOVA analyses provide a test of the treatment and gender effects that is more statistically rigorous than the ANOVA based analyses. A relatively less stringent interpretation would suggest the presence of a gender-specific treatment
effect based on the ANOVA related findings. However, a more stringent interpretation would not support the presence of a gender-specific treatment effect in view of the ANCOVA related findings.

Ancillary Hypotheses 1 and 2 - Relationship Between Career Decision-Making Self-Efficacy and Academic Self-Efficacy

Correlational results supported Ancillary Hypothesis 1 which predicted a positive correlation between career decision-making SE and academic SE. More specifically, the significant positive correlation obtained at posttest between CDMSE and ASES total scores (.70) for the treatment group suggested that treatment subjects who reported greater career decision-making SE at posttest tended to report greater academic SE as well. On the other hand, treatment subjects who reported relatively lower career decision-making SE at posttest tended to report lower academic SE as well. The correlation coefficients from the analyses conducted on the overall sample at pretest and posttest (.51 and .68, respectively) were significant and similarly supportive. Relatedly, correlational results also supported Ancillary Hypothesis 2A which predicted a positive correlation between changes in career decision-making SE and changes in academic SE. More specifically, the significant positive correlation obtained between CDMSE and ASES difference scores (.46) for the treatment group suggested that treatment subjects who experienced greater increases in career decision-making SE
tended to report greater increases in academic SE as well. On the other hand, treatment subjects who reported smaller changes in career decision-making SE tended to report smaller changes in academic SE.

Recall that findings concerning Ancillary Hypothesis 2B were essentially twofold in nature. For the most part, the findings regarding Hypothesis 1 demonstrated support for the first aspect of Ancillary Hypothesis 2B which predicted that significant changes in career decision-making SE would be associated with the career planning class (i.e., treatment group). However, the findings regarding the "male vs. female within control group" contrast results are somewhat controversial and warrant further discussion. To recapitulate, the ANOVA based findings suggested that female control group subjects experienced a significant increase in career decision-making SE compared to male control group subjects. The ANCOVA findings were consist, but borderline in terms of significance. It should be noted that these findings need to be interpreted keeping in mind that changes in career decision-making SE in the control group were not significant when compared to changes in career decision-making SE in the treatment group. If one defers to the ANCOVA findings (which represent a statistically more rigorous test than the ANOVA based analyses) and views the findings as "approaching" rather than "demonstrating" significance, then the aforementioned "differences" in SE tapped by the "male vs. female within
control group" contrast can be interpreted as being "statistically insignificant". Consequently, the findings would be viewed as being consistent with Ancillary Hypothesis 2B. However, if one views both the ANCOVA and ANOVA findings as being statistically significant, then the aforementioned increase in career decision-making SE for control group females (relative to control group males) warrants further examination. The corresponding increase in career decision-making SE for control group females may be attributed to a "generalization" effect in which significant increases in academic SE expectations for control group subjects (which were suggested by the Ancillary Hypothesis 2B findings) generalized to a similar type of SE expectations (i.e., career decision-making SE expectations). Such generalization would be reflected by increases in career decision-making SE. This explanation is in line with the "generalization" dimension of SE theory. However, if this is the case, it is not clear why the generalization in SE expectations was displayed by only the female control subjects.

Finding regarding the second aspect of Ancillary Hypothesis 2B, which predicts that significant changes in academic SE (if present) will be associated with the learning skills class, are discussed in the following two sections. Section 1 focuses on the ANOVA based findings; whereas, Section 2 focused on the ANCOVA based findings. In general,
the findings provided partial support for the second aspect of Ancillary Hypothesis 2B.

Section 1: ANOVA (ASES scores)

The results from the ANOVA based analyses were partially supportive of the "academic SE" aspect of Ancillary Hypothesis 2B. The group (treatment vs. control) contrast provided the basic test of "academic SE" aspect of Ancillary Hypothesis 2B. The group contrast results suggest that learning skill subjects showed a significant increase on the ASES (pretreatment vs. posttreatment) relative to career subjects. A significant increase on the ASES is viewed as reflecting a significant increase in academic SE, and is therefore consistent with the ancillary hypothesis. The gender (male vs. female) contrast results suggest that female subjects showed a significantly greater increase on the ASES (pretreatment vs. posttreatment) in comparison to male subjects, thereby reflecting a significant increase in academic SE for female subjects as compared to male subjects in general.

Examination of the additional group and gender related contrast results allows for a more in-depth interpretation of the treatment and gender effects. The "male vs. female within treatment group" contrast results suggest that career group females showed a significantly greater increase on the ASES (pretreatment vs. posttreatment) in comparison to career group males, thereby reflecting a significant increase in academic SE for career group females relative to career group males.
The non-significance of the "male vs. female within control group" contrast results suggests that males and females in the learning skills group did not significantly differ in terms of their ASES difference scores (i.e., they did not significantly differ with respect to changes in academic SE). The non-significance of the "treatment vs. control within male subjects" group contrast results suggests that male "learning skills" and "career" group subjects did not significantly differ with respect to their ASES difference scores (i.e., they did not significantly differ with respect to changes in academic SE). Similarly, the non-significance of the "treatment vs. control within female subjects" group contrast results suggests that female "learning skills" and "career" group subjects did not significantly differ with respect to their ASES difference scores (i.e., they did not significantly differ with respect to changes in academic SE).

The significance of the "treatment vs. control" contrast results and non-significance of the "male vs. female within control group" contrast results collectively suggest a significant increase in academic SE for both male and female learning skills subjects relative to career subjects. The overall gender differences regarding changes in SE that were suggested by the gender (male vs. female) contrast appear to stem from gender differences within the career group as reflected by the "male vs. female within treatment group" contrast findings. While the suggested changes in academic SE
for the learning skills group were significantly greater than those of the career group, the finding of a significant gender-specific increase in academic SE within the career group warrants further explanation. The corresponding increase in academic SE for career group females (relative to career group males) may be attributed to a "generalization" effect in which significant increases in career decision-making SE expectations for career group subjects (which were suggested by Hypothesis 1 findings) generalized to a similar type of SE expectations (i.e., academic SE expectations). Such generalization would be reflected by increases in academic SE. Again, this explanation is consistent with the "generalization" aspect of SE theory. However, as was the case with the analogous findings concerning the first aspect of Ancillary Hypothesis 2B, it is not clear why the generalization in SE expectations was displayed by only female career subjects. A plausible explanation concerning the lack of statistical significance of both the "treatment vs. control within male" and "treatment vs. control within female" group contrast results asserts that since the treatment effect was relatively small [cf. ANOVA based "treatment vs. control" BLUE(s) for Hypothesis 1 concerning changes in career decision-making SE with those from Ancillary Hypothesis 2B concerning changes in academic SE], analyzing the effect separately within same sex subjects may not have revealed the
effect due to the reduced "n" inherent in the gender-specific analyses.

The instructor (instructor within group) contrast results suggest that course instructor proved to be a significant factor when evaluated within both "treatment" and "control" groups in an overall test of the instructor variable. Examination of the additional instructor related contrast findings allows for a more in-depth interpretation of the instructor variable. The non-significance of the "instructor within treatment group" contrast results suggests that the instructor variable did not have a significant effect on subjects' ASES difference scores (i.e., on subjects' academic SE) within the career group. The "instructor within control group" contrast results suggest that instructor related differences within the learning skills group had a significant impact on subjects' ASES difference scores. That is to say, results suggest that the extent of change in learning skills subjects' academic SE was related, at least in part, to instructor differences.

Section 2: ANCOVA (ASES scores)

The results from the ANCOVA based analyses were partially supportive of the "academic SE" aspect of Ancillary Hypothesis 2B. The covariate contrast results suggest that ASES pretest scores (the covariate) were a significant predictor of ASES posttest scores (the DV), leading to rejection of the null hypothesis in which the corresponding regression coefficient
is equal to 0. Since the relationship between the covariate and DV was shown to be significant, partialling out the effect of the covariate prior to assessing the effect of the IV(s) on the DV was supported. When interpreting the ANCOVA based findings, it should be kept in mind that all subjects were equated in terms of their pretest ASES scores. The group (treatment vs. control) contrast provided the basic test of "academic SE" aspect of Ancillary Hypothesis 2B in the ANCOVA based analyses, as was the case in the ANOVA based analyses. The group contrast results suggest that ASES posttest scores for the control group significantly exceeded those of the treatment group, thereby suggesting a significant pre-versus-post increase in ASES total score for the learning skills group as compared to the career group. Again, increases in ASES total scores are viewed as reflecting increases in academic SE which are consistent with those predicted in Ancillary Hypothesis 2B. The non-significance of the gender (male vs. female) contrast results suggests that, overall, males and females did not differ in terms of their posttest ASES total scores.

Examination of the additional group and gender related contrasts allows for a more comprehensive evaluation of the treatment and gender variables. The "male vs. female within treatment group" contrast results suggest that ASES posttest scores for treatment group females "significantly" exceeded those of treatment group males, thereby suggesting a
significant pre-versus-post increase in ASES total score for career group females as compared to career group males. Accordingly, these results suggest a significant increase in academic SE for career group females relative to career group males. It should be noted that the preceding contrast results were borderline in terms of statistical significance. A more rigorous interpretation of the finding would view the contrast as approaching, rather than demonstrating significance. The non-significance of the "male vs. female within control group" contrast results suggests that control group males and females did not significantly differ with respect to their posttest ASES total scores. That is to say, the results suggested significant (pre-versus-post) increases in academic SE for both males and females within the learning skills group. The "treatment vs. control within male subjects" group contrast results suggest that ASES posttest scores for male subjects in the control group significantly exceeded those for male subjects in the treatment group, thereby suggesting a significant pre-versus-post increase in ASES total score for male "learning skills" subjects as compared to male "career" subjects. Accordingly, this result suggests a significant increase in academic SE for "learning skills" group males relative to "career" group males. The non-significance of the "treatment vs. control within female subjects" group contrast results suggests that female "career" and "learning skills" group subjects did not significantly differ with respect to
their posttest ASES total scores (i.e., did not significantly differ regarding changes in academic SE).

The significance of the "treatment vs. control" contrast results, coupled with the non-significance of the "male vs. female within control group" and "gender (male vs. female)" contrast results, collectively suggest a significant increase in academic SE for both male and female learning skills subjects relative to career subjects. While the suggested changes in academic SE for the learning skills group were significantly greater than those of the career group, the finding of a "significant" gender-specific increase in academic SE within the career group warrants further explanation. The interpretation of these "borderline" results depends on the degree of statistical rigor underlying the interpretation. In the case of a statistically stringent interpretation of the results, the differences in posttest academic SE would be viewed as being statistically insignificant and a gender-specific increase in academic SE (within the career group) would not be suggested. In the case of a less statistically stringent interpretation of the results, the corresponding increase in academic SE for career group females (relative to career group males) could be due to a "generalization" effect analogous to that described in the previous section. Although such an effect would be consistent with the "generalization" dimension of SE theory, it is not apparent why such an effect would apply to female subjects but
not to male subjects. The finding that a treatment effect was suggested by the "treatment vs. control within male subjects" contrast and not by the "treatment vs. control within female subjects" contrast was somewhat unexpected, especially in view that overall gender differences in posttest academic SE were not suggested. However, in line with the explanation offered regarding the analogous ANOVA based contrast findings, it is likely that the lack of statistical significance of the "treatment vs. control within female" group contrast results is a function of the relatively small treatment effect [cf. ANCOVA based "treatment vs. control" BLUE(s) for Hypothesis 1 concerning changes in career decision-making SE with those from Ancillary Hypothesis 2B concerning changes in academic SE]. Analyzing the effect separately within same sex subjects would make it more difficult to pick up on what would be a relatively small effect, given the reduced "n" inherent in the gender specific analyses.

The instructor (instructor within group) contrast results suggest that course instructor proved to be a significant factor when evaluated within both career and learning skills groups in an overall test of the instructor variable. Examination of the additional instructor related contrast results allows for a more in-depth evaluation of the instructor effects. The non-significance of the "instructor within treatment group" contrast results suggests that the instructor variable did not have a significant effect on
subjects’ posttest ASES total scores (i.e., on subjects’ academic SE) within the career group. The "instructor within control group" contrast results suggest that instructor related differences within the learning skills group had a significant impact on subjects’ posttest ASES total scores. That is to say, results suggest that the extent of change in "learning skills" subjects’ academic SE was related, at least in part, to instructor differences. Accordingly, the "instructor" related findings were consistent across ANOVA and ANCOVA based findings.

Ancillary Hypotheses 1, 2A, and 2B: Concluding remarks

In review, Ancillary Hypothesis 1 (predicting a positive correlation between career decision-making SE and academic SE) was clearly supported. Similarly, Ancillary Hypothesis 2A (predicting a positive correlation between changes in both career decision-making SE and academic SE) was also well supported. The "career decision-making SE" and "academic SE" aspects of Ancillary Hypothesis 2B were, for the most part, supported. If one accepts the existence of a "generalization effect" as described, the combined treatment and gender related findings appear theoretically consistent. Most importantly, the "treatment vs. control" contrast results (reflective of the main test of the hypothesis) were consistent across ANOVA and ANCOVA based analyses for both aspects of Ancillary Hypothesis 2B.
Supplemental Analyses Involving Career Decision-Making Self-Efficacy and both Gender and School Year Variables

Analysis of variance findings concerning the relationship between career decision-making SE and gender suggested that the male and female subjects did not significantly differ in reference to their career decision-making SE at pretest. The "male vs. female" (gender) contrast provided the main test for pre-existing gender differences in career decision-making SE. The non-significance of the "male vs. female" (gender) contrast results suggests that, overall, males and females did not significantly differ with respect to their pretest CDMSE total scores (i.e., with respect to their career decision-making SE). The findings for the same analyses conducted within treatment and control groups were consistent with the findings for the overall gender contrast. The lack of significant gender related differences in career decision-making SE is consistent with the findings of previous research.

Analysis of variance findings concerning the relationship between career decision-making SE and subjects' school year status suggested that career decision-making SE did not significantly differ across subjects with different school year classifications (freshmen, sophomore, etc.). The "school year vs. school year" contrast provided the main test for pre-existing differences in career decision-making SE across subjects with different "school year" status. The non-significance of the "school year vs. school year" contrast
results suggests that, overall, subjects with different school year standing did not significantly differ with respect to their pretest CDMSE total scores (i.e., with respect to their career decision-making SE). The findings for the same analyses conducted within treatment and control groups were consistent with the findings for the overall "school year" contrast. Collectively, the results indicate that students’ career decision-making SE does not seem to significantly change as they progress through college.

Other Correlational Findings

The correlational analyses yielded a number of other findings which merit comment. One such finding has to do with the relationship between career decision-making SE and career decision-making task attempts. More specifically, the finding of a significant (positive) correlation between PARS task attempt scores and CDMSE total scores (.30) within the treatment group indicated that treatment subjects who reported attempting more career decision-making related tasks tended to indicate greater career decision-making SE. Similarly, treatment subjects who reported greater career decision-making SE tended to report that they attempted more career decision-making related tasks. Relatedly, the finding of a significant (positive) correlation between PARS total success scores and CDMSE total scores (.61) within the treatment group indicated that treatment subjects who reported more career decision-making task success tended to indicate greater career
decision-making SE. Similarly, treatment subjects who reported greater career decision-making SE tended to indicate greater career decision-making task success. Thus, correlational findings indicated that career decision-making SE was positively correlated with career decision-making task success when measured by both PARS "mean success" and "total success" scores. The significant (positive) correlation observed between PARS task attempt scores and PARS mean success scores within the treatment group (.29) indicated that treatment subjects who reported attempting more career decision-making related tasks tended to report more career decision-making task success. Similarly, treatment subjects who reported more career decision-making task success tended to report attempting more career decision-making tasks. All three of the previously mentioned findings were similarly demonstrated by the correlational analyses conducted on the overall sample. Collectively, the findings are consistent with SE theory's contentions within a career decision-making context. More specifically, the findings are consistent with SE theory's postulations that: 1) task-related performance accomplishments enhance SE expectations regarding such tasks; and 2) high SE expectations regarding particular tasks encourages task attempts in relation to such tasks, and encourages more persistence in response to encountered difficulties stemming from such tasks.
The correlational findings regarding subjects' career decision-making SE and academic ability (the latter of which was reflected by the GPA variables) also warrant comment. In general, findings are consistent with previous research which indicated the lack of a significant relationship between the two variables. More specifically, the non-significant correlation obtained between CDMSE total scores and self-reported college GPA(s) suggested the lack of a significant relationship between subjects' career decision-making SE and academic ability. The non-significant correlation obtained between CDMSE total scores and self-reported high school GPA(s) (obtained in lieu of college GPA(s) for beginning freshmen) similarly suggested the lack of a significant relationship between subjects' career decision-making SE and academic ability. However, with respect to academic SE, a significant (positive) correlation (.37) was obtained between subjects' ASES total scores and self-reported college GPA(s). The finding suggested that subjects who reported greater academic SE tended to report greater academic ability as measured by their cumulative college GPA(s). On the other hand, subjects who reported lower academic SE tended report less academic ability [as reflected by their cumulative college GPA(s)]. Thus, unlike career decision-making SE, findings suggested that academic SE was significantly related to academic ability. The later finding seems consistent with SE theory in that grades can be viewed as reflecting
performance accomplishments related to the application of academic/study skills, which in turn would serve as a source of SE information.

Correlational findings regarding subjects' career decision-making SE and age are also of interest. The analysis concerning the CDMSE and age variables was exploratory in nature. The non-significant correlation obtained between subjects' CDMSE total scores and age (in years) suggested the lack of a significant relationship between subjects' career decision-making SE and age.

General Discussion and Review of the Major Findings

The results suggest that participation in the career intervention was associated with significant increases in career decision-making SE. Treatment subjects' success regarding career decision-making tasks that were central to the career intervention was found to significantly predict subjects' (posttest) career decision-making SE. As previously noted, opportunities for success experiences (i.e., performance accomplishments) have been shown to constitute an effective means of enhancing SE. The finding that "career decision-making task success" significantly predicted posttest career decision-making SE is consistent with the notion that career decision-making performance accomplishments were instrumental in enhancing career decision-making SE, however a precise attribution regarding such cause-and-effect cannot be made based on the current study. As predicted, treatment
subjects' career decision-making anxiety also significantly predicted subjects' posttest career decision-making SE, with lower anxiety being associated with greater SE. This is consistent with SE theory in that an individual's anxiety regarding particular tasks is postulated to negatively affect SE expectations regarding such tasks.

Results also replicated the existence of a significant inverse relationship between career indecision and career decision-making SE. Additionally, a significant direct relationship was demonstrated between career decidedness and career decision-making SE, as would be predicted. The results suggest that participation in the career intervention was also associated with significant increases in career decidedness and significant reductions in career indecision, as is consistent with previous research. The finding that treatment subjects' career decision-making SE significantly predicted subjects' level of career indecision (decidedness) is consistent with the contention that career decision-making SE plays an important role in the determination of career indecision (decidedness). Also consistent with that contention is the observation that participation in the career intervention was associated with significant changes in both career decision-making SE and career indecision (decidedness). Furthermore, the unique contribution of career decision-making SE was significant in the prediction of career indecision (decidedness) in the majority of the multiple correlation
analyses which employed other significant predictors of career indecision/decidedness (namely, career decision-making task success and career decision-making anxiety variables). The total percent of variance accounted for in treatment subjects' career indecision (decidedness) scores by the SE, task success, and anxiety variables, while significant, was moderate in magnitude. The findings clearly suggest the importance of the SE, task success, and anxiety variables in the multiple determination of career indecision (decidedness), and suggest the significant involvement of additional variables as well.

Overall, the findings regarding the validity of the SFCDMSE were supportive. Consistent with CDMSE findings, the SFCDMSE similarly assessed the significant increase in career decision-making SE associated with the treatment group. However, differences emerged when measuring some of the more specific treatment and gender effects. Accordingly, it seems most appropriate to employ the CDMSE in exacting research applications and the SFCDMSE in less exacting research applications where administration time is an important consideration. The SFCDMSE would be the instrument of choice in a screening context, especially in light of its high correlation with the CDMSE.

Findings confirmed the existence of a significant direct relationship between career decision-making SE and academic SE (as assessed by the ASES). Relatedly, changes academic SE
were significantly and directly related to changes in career decision-making SE as indicated by correlational analyses. ANOVA and ANCOVA based findings can be viewed as being suggestive of (significant) increases in academic SE for treatment group females and in career decision-making SE for control group females. The former increases were relative to treatment group males; whereas, the latter increases were relative to control group males. As previously noted, such findings may be attributed to the generalization of SE expectations, as would follow from the "generalization" dimension of SE theory. For example, increases in career decision-making SE for treatment group females may have generalized and resulted in corresponding increases in academic SE (also a form of career SE). Why the "generalization" effect would be gender-specific is not apparent based on the current research.

Clinical and Research Implications

The findings which stemmed from this investigation have both clinical and research implications. The clinical implications will be discussed first, followed by a detailing of the research implications. One such clinical implication concerns the use career course interventions, similar to the one employed in the present study, as a means to positively impact college students' career decision-making SE. While the current findings do not incontrovertibly demonstrate cause-and-effect, they do strongly suggest that the career planning
course was instrumental in enhancing career decision-making SE and in reducing career indecision. Intervening on a group level to enhance SE, as was the case with the career course intervention, also offers the added benefit of maximizing an agency's resources when it comes to the provision of career-related services. Furthermore, the career course intervention could be adapted to enhance SE via a workshop format to meet the needs of individuals for whom taking the class would not be a viable option.

A second clinical implication concerns the potential benefit of taking career decision-making SE expectations into account when providing vocational counseling to clients who are experiencing career indecision and/or other career decision-making related difficulties, especially when the intervention is multi-dimensional. The demonstration of a significant relationship between career indecision, career decision-making SE, and career decision-making task success (i.e., performance accomplishments) suggests that the vocational counselor could assist undecided clients by incorporating, into the existing treatment, an intervention aimed at enhancing career decision-making SE expectations through the provision of mastery experiences. For example, providing clients with opportunities for successful career decision-making task experiences and promoting such experiences would constitute one such intervention. The enhancement of career decision-making SE would also be
advantageous in that its impact would most likely transfer beyond the initial career decision-making involvement and positively affect later career decision-making as well. In line with SE theory, increased career decision-making SE would be expected to increase engagement in career decision-making activities, as well as promote continued persistence in response to encountered difficulties.

A third clinical implication concerns the use of the SFCDMSE or CDMSE as part of the initial assessment component of the career counseling process when dealing with undecided or indecisive clients. Use of the SFCDMSE would provide a relatively quick assessment of a client's career decision-making SE which, in turn, would provide insight into a possible factor that might be underlying the career indecision. An advantage to administering the CDMSE is that the wide range of career decision-making tasks which comprise the scale could be reviewed in order to identify tasks (or groupings of tasks) that are perceived as especially problematic. Such tasks could then be targeted as part of the intervention process.

One of the research implications stemming from the current investigation concerns the assessment of career decision-making SE as an outcome measure when evaluating the effectiveness of career decision-making interventions. Collectively, the findings attest to the important role of career decision-making SE in the career decision-making
process. Interventions that are successful in promoting career decision-making may be successful, at least in part, due to their impact on career decision-making SE. If so, assessing career decision-making SE pre- and post-treatment (along with other outcome measures) would provide a measure of an interventions' effectiveness, as well as further confirm the importance of career decision-making SE relative to other outcome measures.

A second research implication concerns the need to routinely include career decision-making SE as a variable when studying career indecision (decidedness). Collectively, the present findings suggest that career decision-making SE, along with career decision-making task accomplishments (success) and career decision-making anxiety, are important factors in the study of career indecision (decidedness). In general, failure to incorporate the SE variable in future studies of career indecision would constitute a significant oversight.

Limitations of the Present Study

In order to place the findings of the current research in a proper perspective and to facilitate the discussion of future research recommendations, a detailing of the limitations of the present study is warranted. One such limitation involves the lack of random assignment of subjects to the control and treatment conditions by the experimenter. While there did not appear to be any confounding of theoretical importance introduced by subjects enrolling in
either the academic or career course, the fact that subjects weren't (experimentally) randomly assigned to conditions does place qualifications on any cause-and-effect related inferences made regarding observed treatment effects. On the other hand, a number of aspects of the current research promote cause-and-effect type of inferences. These aspects include the utilization of a control group, employing difference scores to focus on relative changes in the dependent variables of interest, and statistically controlling for any pre-existing differences in the dependent variables of interest through the employment of ANCOVA based analyses. However, the possibility that a confounding (extraneous) variable may be responsible for the observed treatment effects, although unlikely, cannot be entirely ruled out.

A second limitation concerns the generalizability of the results. Since the sample population consisted of college students, the findings are most directly generalizable to a college student population. Drawing inferences which extend the findings of the present study to other than college students (e.g., high school students) is not directly supported by the current study. Furthermore, given the relative homogeneity of the sample with respect to an ethnicity dimension, the generalization of the results to a multi-cultural college student population would be debatable. Although there aren't compelling theoretical reasons as to why the results would not generalize to a general population, such
a generalization would need to be supported by conducting similar studies with the appropriate sample populations.

A third limitation concerns causal attributions regarding the changes in career decision-making SE within the treatment group. While career decision-making performance accomplishments (i.e., successful task experiences) constituted a major focus of the career intervention and were shown to be significantly associated with the treatment subjects' career decision-making SE at posttest, the intervention also included other variables/aspects theorized to enhance SE, namely: verbal persuasion (on the part of the instructors who attempted to empower students regarding the career decision-making process); vicarious experiences (e.g., observing, or hearing reports of, peers successfully performing career decision-making related assignments); and possible reductions in (career decision-making) anxiety. It is quite probable that these other factors contributed to the observed treatment effect, augmenting the suggested impact of subjects' career decision-making performance accomplishments. However, the relative contributions of these variables can not be ascertained given the study's design (i.e., given that these variables/factors were not experimentally manipulated).

Lastly, a comment regarding the ASES is warranted. As previously noted, the instrument was developed for purposes of the current research using fairly discrete academic tasks (that were addressed in the learning skills class) as items.
The task items were viewed a being representative of the general domain of learning skills. The development of the instrument was consistent with approaches used for instrument development in previous SE research. However, since the instrument was not evaluated regarding its reliability and validity, the findings involving the academic SE measure must be viewed in light of this qualification.

In sum, the aforementioned limitations place qualifications on the current research findings, and must be taken into account with respect to the interpretation and generalization of the findings.

Suggestions for Future Research

The results yielded by the present study, in conjunction with previous findings, suggest the important role of career decision-making SE vis-à-vis career indecision and the career decision-making process. Results further suggest the importance of career decision-making SE enhancement as a means of dealing with career indecision and as a means of facilitating the career decision-making process. Research which further explores the effectiveness of SE based interventions both in the treatment of career indecision and in facilitating career decision-making appears justified. Following are several recommendations for future research in this area.

The first recommendation concerns further evaluating career course interventions, similar to the one employed in
the present study, to identify the relative effectiveness of the various components theorized to enhance career decision-making SE. For example, the current career intervention focused on providing opportunities for successful performance accomplishments pertaining to a variety of career decision-making tasks. However, as previously noted, the intervention also (at least to some extent) consisted of other important components theorized to enhance SE such as verbal persuasion, vicarious learning experiences, and (career decision-making) anxiety reduction. Future studies which experimentally manipulate and control these various components would be useful in ascertaining the relative contribution of each component.

A second recommendation concerns further evaluating the effectiveness of career course interventions, similar to the one employed in the present study, within a strictly experimental framework that includes random assignment of subjects to experimental and "waiting list" control conditions. For example, subjects could be recruited for a career course offered at two separate times (the second course scheduled to begin following the completion of the first course). The second course would constitute the "waiting list" control. All participants would complete the assessment instruments (including the CDMSE) prior to the start of the first course and at the end of the first course. Such a study would yield more definitive "cause-and-effect" based
conclusions regarding the enhancement of career decision-making SE.

A third recommendation stems from the results which suggested that the "instructor" variable influenced the extent of change in career decision-making SE experienced by treatment group subjects. Studies are needed to identify characteristics of career course instructors or the aspects of their teaching styles that might be related to facilitating greater increases in career decision-making SE. Such a study would represent an extension of the current study.

A fourth recommendation concerns replicating the present research across different subject populations. Subject populations of interest might include other college student samples (especially those that are ethnically diverse); college-bound high school students, and non-college bound high school students.

The final recommendation concerns evaluating the relative effectiveness of various career decision-making (career planning) interventions in terms of their ability to enhance career decision-making SE and positively impact career indecision. Interventions that merit investigation include other career decision-making/planning courses, career development workshops, career counseling (both individual and group), and computer-based vocational guidance programs (e.g., SIGI-Plus and DISCOVER). Furthermore, studies designed to identify common factors across the various career
interventions that are instrumental in enhancing career decision-making SE would be part of this research agenda. It is likely that such common factors would correspond to those factors posited by SE theory to be central in the determination of SE.
REFERENCES


ACKNOWLEDGMENTS

I would like to take this opportunity to recognize those individuals who were influential in the completion of this work.

Special thanks go to my parents, Carl and Sophia, who unconditionally supported me throughout my graduate school endeavors.

I would like to extend my appreciation to "Z" (Dr. Donald Zytowski), my major professor, who graciously contributed time, guidance, and expert advice. Appreciation is also extended to Dr. Fred Borgen, Dr. Gary Phye, Dr. Robert Strahan, and Dr. John Littrell for their willingness to serve on my committee and for their respective contributions. The statistical assistance provided by Dr. Keith Boldman was greatly appreciated. A warm thank-you is extended to Dr. Frances Harris (and others at the University of Utah Counseling Center) who facilitated the data collection process.

Trooper, my devoted canine companion, deserves recognition since much of this work was completed with him faithfully at my side.

We did it!
APPENDIX A.

CAREER DECISION-MAKING SELF-EFFICACY SCALE
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APPENDIX B.

SHORT-FORM CAREER DECISION-MAKING SELF-EFFICACY SCALE
CAREER QUESTIONNAIRE

INSTRUCTIONS: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish the task by circling the appropriate number on the 10-point scale to the right of each statement.

Example:

How much confidence do you have that you could:

A. Summarize the skills you have developed in the jobs you have held?

If your response on the 10-point scale was 5, "some confidence", you would circle the number 5 as shown above.

---

HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

1. Determine the steps to take if you are having academic trouble with an aspect of your chosen major.

2. Accurately assess your abilities.
<table>
<thead>
<tr>
<th>HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:</th>
<th>None</th>
<th>Very Little</th>
<th>Some</th>
<th>Much</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. List several occupations that you are interested in.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Choose a career that will fit your preferred lifestyle.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Talk to a faculty member in a department you are considering for a major.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Change occupations if you are not satisfied with the one you enter.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Decide what you value most in an occupation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Ask a faculty member about graduate schools and job opportunities in your major.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. Get involved in a work experience relevant to your future goals.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. Choose a major or career that will fit your interests.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Decide whether or not you will need to attend graduate or professional school to achieve your career goals.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Choose a major or career that will suit your abilities.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. Plan course work outside of your major that will help you in your future career.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:

14. Identify some reasonable major or career alternatives if you are unable to get your first choice. 0 1 2 3 4 5 6 7 8 9

15. Figure out what you are and are not ready to sacrifice to achieve your career goals. 0 1 2 3 4 5 6 7 8 9

16. Talk with a person already employed in the field you are interested in. 0 1 2 3 4 5 6 7 8 9

17. Choose the best major for you even if it took longer to finish your college degree. 0 1 2 3 4 5 6 7 8 9

18. Identify employers, firms, institutions relevant to your career possibilities. 0 1 2 3 4 5 6 7 8 9

19. Find information about graduate or professional schools. 0 1 2 3 4 5 6 7 8 9

20. Successfully manage the job interview process. 0 1 2 3 4 5 6 7 8 9
PERFORMANCE RATING SCALE

Directions: The following items reflect tasks related to the career decision-making process. For each item below, first read the statement describing the task. Then circle "yes" if you have attempted the task or "no" if you have not attempted the task. For each item that you respond "yes", please indicate how successful you were at accomplishing the task by circling the appropriate number on the 10-point scale which ranges from completely unsuccessful (1) to completely successful (10). For each item that you respond "no", do not circle any number on the scale -- go directly to the next item.

Example:

Find out the employment trends for an occupation in the 1990s.

If you have attempted to accomplish the above task, you would circle "yes". If you were somewhat successful in accomplishing this task, you might circle 5 or 6.

On the other hand, if you have not attempted to accomplish the above task, you would circle "no". You would not circle any number on the scale and would move on to the next item.
1. Accurately assess your vocational interests.

2. Accurately assess your personal values.

3. Accurately assess your work-related values.

4. Identify important personal (personality) characteristics to consider when choosing your career.

5. Accurately assess your abilities and skills.

6. Gather occupational-related information using the university's career library (written resources).

7. Gather occupational-related information using information-gathering interviews.

8. Adopt a career decision-making strategy.

9. Problem solve regarding career decision-making barriers/difficulties.
10. Implement goal-setting strategies to facilitate career/academic planning.

11. Consider and weigh information regarding your interests, values, abilities, and personal (personality) characteristics in the career decision-making process.

12. Integrate information gathered from various sources concerning a potential career choice.

13. Evaluate how compatible your interests, values, abilities, and personal (personality) characteristics are with information describing a potential career choice which you've gathered from various sources.
APPENDIX D.

STATE-TRAIT ANXIETY INVENTORY (FORM Y-1): STATE-ANXIETY SCALE WITH MODIFIED INSTRUCTIONS
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APPENDIX E.

DEMOGRAPHIC DATA SHEET
DEMOGRAPHIC DATA SHEET

Please complete the following items about yourself. Check the appropriate answer or fill in the blank.

1) Sex: ___ Male ___ Female

2) Age: ______

3) Yr. in School: ___ Freshman ___ Sophomore
   ___ Junior ___ Senior
   ___ Other (please specify) ____________

4) Cumulative Grade Point Average (G.P.A.): _____
   (first quarter freshmen please list high school G.P.A. here instead: _____ )

5) Ethnic Background: ___ Caucasian American
   ___ Black American
   ___ Hispanic
   ___ American Indian
   ___ Asian American
   ___ Other
      (please specify) ________________

6) Major Choice Status (check one):
   ___ I am undecided about a major
   ___ I am tentatively decided about a major
   ___ I have decided on a major

7) a. Have you declared a major? ___ Yes ___ No
   b. If yes, what is your major? __________________

8) Career Choice Status (check one):
   ___ I am undecided about a career
   ___ I am tentatively decided about my career
   ___ I have decided on a career
APPENDIX F.

MODIFIED DEMOGRAPHIC DATA SHEET
DEMOGRAPHIC DATA SHEET

Please complete the following items about yourself. Check the appropriate answer or fill in the blank.

1) Major Choice Status (check one):
   __ I am undecided about a major
   __ I am tentatively decided about a major
   __ I have decided on a major

2) a. Have you declared a major? ___ Yes ___ No
   b. If yes, what is your major? __________________

3) Career Choice Status (check one):
   __ I am undecided about a career
   __ I am tentatively decided about my career
   __ I have decided on a career

4) Please indicate any career decision-making related involvements that you have had this quarter by checking one or more of the following if applicable:
   __ Career & Life Planning Class
     (Educational Psychology 261)
   __ Career Development Workshop
   __ Career Counseling
   __ Other (please specify) __________________________
APPENDIX G.

ACADEMIC SELF-EFFICACY SURVEY
ACADEMIC QUESTIONNAIRE

INSTRUCTIONS: For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the following 10-point continuum.

Example:

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

A. Determine the steps to take if you are having test-anxiety difficulties.

If your response on the 10-point continuum was 5, "some confidence", you would circle the number 5 in the right hand column as follows: 0 1 2 3 4 5 6 7 8 9

<table>
<thead>
<tr>
<th>HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:</th>
<th>No Confidence at all</th>
<th>Very Little Confidence</th>
<th>Some Confidence</th>
<th>Much Confidence</th>
<th>Complete Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Implement strategies to schedule/manage your time most productively.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Take meaningful lecture notes which capture the important aspects of your class lectures.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOW MUCH CONFIDENCE DO YOU HAVE THAT YOU COULD:</td>
<td>No Confidence</td>
<td>Very Little Confidence</td>
<td>Some Confidence</td>
<td>Much Confidence</td>
<td>Complete Confidence</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>3. Write a comprehensive research paper on an assigned topic.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Prepare for exams by summarizing and integrating information from lectures and textbooks.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Implement test-taking strategies for essay, multiple-choice, and short-answer exams.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Read textbooks in a way that promotes mastery of the important concepts.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Utilize memory techniques to aid in remembering course material.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Take steps to promote concentration if distractions are interfering with your studying.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Clearly specify your academic-related goals.</td>
<td>0 1 2 3 4 5 6 7 8 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX H.

INFORMED CONSENT FORM
The general purpose of this study is to examine the relationship between a person's career decision-making related beliefs, feelings, and experiences. You will be asked to complete questionnaire packets containing questions regarding career decision making, academic-related tasks, and general information about yourself. Your participation will contribute to the research efforts in this area of study. The extent of your participation will involve completing a questionnaire packet in class at both the beginning and end of the quarter. It should take approximately 30 minutes of your time on each occasion.

Your instructor has granted permission to conduct this study in class and will give extra-credit points to those who participate. The study poses no foreseeable discomforts or identifiable risk to your physical or psychological well-being. Your participation is voluntary and you may withdraw at any time without penalty and/or refuse to answer any questions which you find invasive or objectionable. Your status in this class will not be affected if you choose not to participate. If you choose not to participate or withdraw from the study, you may complete extra-credit assignments in class during the first and second part of the study. Completing the research packets or extra-credit assignment packets will earn you the same amount of extra-credit points. Students may also choose not to participate in either option.

The information gathered from the research will be safeguarded and remain confidential through: a) the use of subject code numbers; b) limiting access to subjects' names and respective code numbers to only the study's investigator for data collection purposes; c) securing questionnaires and data under lock and key; and d) retaining only coded (numbered) questionnaire packets without any record of subjects' names following the collection of the questionnaire packets at the end of the quarter. Reporting of the study's results will be in terms of overall (group) findings; the data for individual subjects will not be reported.

The study's investigator will provide you with the details of the research project after you have completed the second part of the study. The investigator may also deliver a guest lecture in your class relating the research topic to your experience in this class. Your consent to participate in this study will be implied through your participation.
APPENDIX I.

APPROVALS FOR RESEARCH WITH HUMAN SUBJECTS
Craig Oresnick  
Iowa State University  
Through Counseling Center  
University of Utah  

Dear Mr. Oresnick:

RE: Human Subjects Application - ENHANCING CAREER DECISION-MAKING SELF-EFFICACY VIA A UNIVERSITY CAREER COURSE INTERVENTION

Thank you for making the corrections requested by the General University IRB. We have reviewed these materials and approved your proposal.

The Board has asked me to remind you of the following regulations of the University of Utah and the Department of Health and Human Services.

The Board is required to review any change in your research activity. In other words, should you make any changes in your project following approval (including changes in the population to be employed, the materials to which subjects are to be exposed, the procedures to be employed) you must report these to the Board for review. Should changes in your activity be anticipated, please enumerate these changes in a letter sent to the Board.

HHS regulations require that you submit annual and terminal progress reports to Utah's General Institutional Review Board and that you receive at least annual reapproval of your activity by this Board. You are also required to report to this Board any serious reaction resulting from your study. Failure to submit these reports may result in severe sanctions being placed on the University.

Sincerely,

John McDonnell, Acting Chair

135 Milton Bennion Hall  
Salt Lake City, Utah 84112  
(801) 561-5382
August 29, 1990

General University Institutional Review Board for Research with Human Subjects
135 Milton Bennion Hall
University of Utah
CAMPUS

Dear Board Members:

I am writing to you concerning the dissertation research proposed by Mr. Craig Oreshnick entitled "Enhancing Career Decision-Making Self-Efficacy Via a University Career Course Intervention". The University Counseling Center is pleased to give Mr. Oreshnick access to students in its Learning Skills and Career and Life Planning courses and to facilitate their participation in his research. The instructors are willing to offer students extra credit in the courses for participation in the research or the alternative exercises. The Counseling Center also will provide a room where participants can complete the inventories or alternate extra credit projects. Access to the students and use of the Counseling Center facilities is contingent on final approval by the Institutional Review Board.

Sincerely,

[Signature]

Frances N. Harris, Ph.D.
Research Coordinator

University Counseling Center
450 So. 558
Salt Lake City, Utah 84112
(801) 591-6826
Information for Review of Research Involving Human Subjects
Iowa State University
(Please type and use the attached instructions for completing this form)

1. Title of Project: Enhancing Career Decision-Making Self-Efficacy via a University Career Course Intervention

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Craig Greshnick 7-19-90
Typed Name of Principal Investigator

Psychology
Department

1840 S. 1300 E.
Campus Address
Salt Lake City, UT 84105
Campus Telephone (801) 488-4143
Work Address
Work Phone

3. Signatures of other investigators

Donald G. Schumski 7/20/90
Typed Name of Principal Investigator

Relationship to Principal Investigator

Major Professor

4. Principal Investigator(s) (check all that apply)

☐ Faculty ☐ Staff ☑ Graduate Student ☑ Undergraduate Student

5. Project (check all that apply)

☐ Research ☑ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project) ..

6. Number of subjects (check all that apply)

_____ # Adults, non-students _____ # ISU student _____ # minors under 14 _____ # minors 14 - 17 _____ other (explain) 150 University of Utah Students

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

The topic of study is career decision-making self-efficacy (CDMSE) which refers to an individual's beliefs regarding his or her capacity to successfully perform tasks and behaviors related to career decision making. A review of the literature reveals a need for intervention studies which attempt to enhance CDMSE and subsequently evaluate the relationship between prospective changes in CDMSE and other career-related variables. Similarly, experimental studies are needed to further evaluate the CDMSE construct in relation to general self-efficacy theory postulates.

In general, the present research is a career intervention study which addresses the aforementioned research needs. The career intervention is in the form of a Career and Life Planning course offered through the University Counseling Center at the University of Utah. The career course offers opportunities for successful experiences regarding ... (continued on Page 4)

(Please do not send research, thesis, or dissertation proposals.)

* 8. Informed Consent: ☐ Signed informed consent will be obtained. (Attach a copy of your form.)

☐ Modified informed consent will be obtained. (See instructions, item 8.)

☐ Not applicable to this project.

* Please refer to Pages 5 and 6 for an information sheet covering the 8 points regarding informed consent as detailed in Item 8 of the instructions.
9. **Confidentiality of Data**: Describe below the methods to be used to ensure the confidentiality of data obtained. (See instructions, item 9.)

The information and data collected during the study will remain confidential. Confidentiality will be maintained through: 1) the use of subject code numbers; 2) limiting access to the names and code numbers during data collection to only the principal investigator; 3) securing questionnaires and data under lock and key; and 4) removing identifiers from questionnaire packets during the data collection process. Furthermore, only overall (group) results will be reported in any written accounts of the study.

The procedure regarding the use of code numbers warrants further elaboration. ...

(continued on Page 4)

10. **What risks or discomfort will be part of the study?** Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

The study poses no foreseeable discomforts or identifiable risk to subjects' physical or psychological well-being.

11. **CHECK ALL** of the following that apply to your research:

- A. Medical clearance necessary before subjects can participate
- B. Samples (Blood, tissue, etc.) from subjects
- C. Administration of substances (foods, drugs, etc.) to subjects
- D. Physical exercise or conditioning for subjects
- E. Deception of subjects
- F. Subjects under 14 years of age and/or Subjects 14 - 17 years of age
- G. Subjects in institutions (nursing homes, prisons, etc.)
- H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

- **Items A - D** Describe the procedures and note the safety precautions being taken.

- **Item E** Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

- **Item F** For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

- **Items G & H** Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

H. **Both institutional and agency approval are required for the present research**.

Institutional approval from the University of Utah is currently being sought. Agency approval from the University of Utah Counseling Center, which oversees the implementation of the classes from which subjects will be drawn, has been received on a provisional basis subject to institutional approval. Documentation of both institutional and agency approval will be furnished when received.
Checklist for Attachments and Time Schedule

The following are attached (please check):

12. [ ] Letter or written statement to subjects indicating clearly:
   a) purpose of the research (see Informed Consent Statement, Appendix B)
   b) the use of any identifier codes (names, #’s), how they will be used, and when they will be
      removed (see Item 17) (see Informed Consent Statement)
   c) an estimate of time needed for participation in the research and the place (see Informed Consent Statement)
   d) if applicable, location of the research activity (not applicable)
   e) how you will ensure confidentiality (see Informed Consent Statement)
   f) in a longitudinal study, note when and how you will contact subjects later (not applicable)
   g) participation is voluntary; nonparticipation will not affect evaluations of the subject (see Informed Consent Statement)

13. [ ] Consent form (if applicable) (see Appendix B for modified informed consent statement)

14. [ ] Letter of approval for research from cooperating organizations or institutions (if applicable) Letters of approval
    from the Univ. of Utah (institution) and Univ. of Utah Counseling Ctr. (agency) will be

15. [ ] Data-gathering instruments (see Appendixes D through J) forthcoming.

16. Anticipated dates for contact with subjects:
    First Contact                                      Last Contact
    9/24/90                                            12/7/90
    Month/Day/Year                                      Month/Day/Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual
    tapes will be erased:

    12/7/90
    Month/Day/Year

18. Signature of Department/Executive Officer       Date          Department or Administrative Unit
    [signature]
    8/13/90
    [Day/Year]
    [Psychology]

19. Decision of the University Human Subjects Review Committee:

    [ ] Project Approved with the understanding that the letters from the University of Utah
    Human Subjects Research Committee and the University of Utah Counseling Center will
    be sent when available.

    Patricia M. Keith
    Name of Committee Chairperson  8/16/90
    Date
    Signature of Committee Chairperson