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Garrett J. McAuliffe

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A STUDY OF  
A GROUP CAREER DEVELOPMENT INTERVENTION BASED  
ON SOCIAL LEARNING AND DECISION-MAKING PRINCIPLES

A Dissertation Presented

By

GARRETT JOHN McAULIFFE

Submitted to the Graduate School of the  
University of Massachusetts in partial fulfillment  
of the requirements for the degree of

DOCTOR OF EDUCATION

May 1985

Education

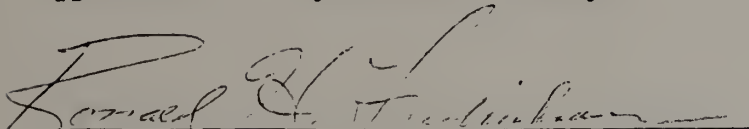
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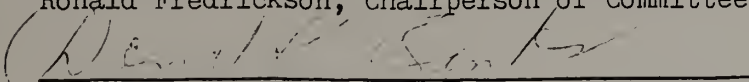
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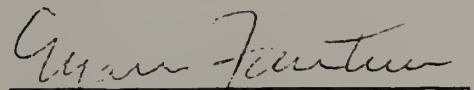
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I hope that this work, and any that I do in the future, gives back in some way what all of the above have given to me in the past.

ABSTRACT

A STUDY OF

A GROUP CAREER DEVELOPMENT INTERVENTION BASED  
ON SOCIAL LEARNING AND DECISION-MAKING PRINCIPLES

May 1985

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Directed by: Professor Ronald Fredrickson

The purpose of this study was to assess the effectiveness of group career decision-making treatments for thirty-nine community college students, ten males and twenty-nine females. Treatments of twenty sessions and ten sessions, and a no-treatment control group were compared. The treatments applied all or part of a structured decision-making model in a classroom setting. The model consisted of 1) commitment to active decision-making, 2) self-assessment, 3) generating options, 4) seeking information, 5) choosing, 6) planning, and 7) taking action.

Between-group pre- and post-test scores were compared and change scores within groups were assessed on the following variables: certainty and satisfaction with occupational and educational plans, number and variety of occupational and educational plans made, number of occupations being considered, appropriateness of first-choice occupation, cognitive decision-making skills, and frequency of information-seeking behavior. Attribute-treatment interactions on age, sex, and reading level were also studied.

Although the results were somewhat mixed, the trend favored the

effectiveness of the longer treatment over the control, and, to a lesser extent, the longer treatment over the shorter one. The longer treatment scored significantly higher than the control on satisfaction with occupational plans and frequency of information-seeking, and non-significantly higher on eight of the other nine post-test measures. The shorter treatment scored significantly higher than the control only on frequency of information-seeking, and non-significantly higher on seven of the other nine measures. On within-group change scores, the longer treatment gained significantly on five measures, compared to three for the shorter treatment, and none for the control. A partial follow-up study showed treatment gains to be maintained for the longer treatment, particularly on certainty and satisfaction measures, information-seeking, and in a consistently smaller number of occupational options. Some significant age differences were noted, although sex and reading level differences were generally negligible.

Implications for practice included: 1) diagnosing particular career problems, 2) addressing affective issues in career interventions, 3) individualizing the content of group treatments, particularly for different age groups, and 4) acknowledging gender-related career issues.



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## CHAPTER I

### INTRODUCTION

Can individuals be taught systematic decision-making skills which can be applied to career choice? Will teaching these skills result in appropriate decisions, as determined by the consistency of decisions with external measures of attitudes, interests and values?

Helping clients of all ages to make satisfying career choices and enabling individuals to enact career plans are central issues for contemporary counseling. The above questions reflect a particular approach to these concerns: that of promoting good career choice by teaching decision-making skills.

#### The Purpose

It was the purpose of this research to test whether career decision-making strategies could be taught and whether a systematic career decision-making intervention results in good decisions by participants. A good decision is here defined as one which yields consequences consistent with the values and abilities of the decider.

This study evaluated two group career decision-making interventions and their impact on community college students. Specifically, the following experimental questions were asked: (a) What is the relationship between the career decision-making intervention and certainty and satisfaction with occupational and educational plans? (b) How does the career decision-making intervention affect specific occupational and

educational plans? (c) How does the career decision-making intervention affect the number of occupational options considered? (d) Does the career decision-making intervention improve both knowledge of and use of decision-making skills (specifically, information-seeking skills)? (e) What is the relationship between learned decision-making skills and the quality (appropriateness) of decisions and does the intervention improve the quality of decisions? (f) What is the effect of subjects' age, sex, and reading level on outcomes? (g) What is the effect of a more comprehensive intervention that includes choice-making, planning, and other forms of follow-up, as compared to a less extensive intervention?

### The Problem

Career indecision, dissatisfaction with career goals, and the lack of career plans are problems that have been noted by many sources (Work in America, 1973; Tolbert, 1974; Thoresen and Ewart, 1976) as potent factors in worker mobility, educational achievement, mental health, and worker productivity. There is evidence to show that choosing occupations that are consistent with one's interests is related to job satisfaction (Kunze, Decker, and Eckelman, 1976) and performance (Muchinsky and Hoyt, 1974). Negative results of poorly-formed career goals can lead to underemployment and delay in enacting life plans, as well as to related economic and emotional impacts.

The need for help with career planning was noted as long ago as the turn of the century by Parsons (1909). Surveys show that career counseling was requested by fully 78% of high school students in a 1974 study

3

(Prediger, Roth and Noeth) and that it is the most sought-after type of counseling by college students (Carney, Savitz, and Weiskott, 1979). Social trends indicate that concern about setting appropriate career goals, and the subsequent need for help with that problem, will continue, exacerbated by the increasing numbers of occupational options available. The changing roles of women, specifically in relation to career, and the difficult job market in many fields also indicate the continuing need for help with decision-making and planning.

Education has been charged with a major responsibility for helping students learn to "make considered, appropriate choices" (Hansen, 1963, p. 19 ). Ryan (1968) says that "youth need to be able to relate information about themselves to information about occupational opportunities and to weigh alternatives, considering consequences of competing choices in arriving at vocational decisions and making educational plans" (p. 4). This can also be said for adults. Barak, Carney, and Archibald (1975) indicate that failure to make a career choice at appropriate times, or making unrealistic choices, may be due to lack of information, the usage of inaccurate information, or a developmental skill deficiency. All of these are amenable to career guidance.

Recent innovations in career decision-making and planning have impacted one-to-one counseling, computerized approaches, and group programs. Evolving from preceding counseling emphases on the trait-factor, or "matching," approach, then on information-giving, and, more recently, on self-assessment, a set of broader, more comprehensive approaches, generally called "decision-making models," have been introduced into practice. In the decision-making approaches, attention has been given to all of the



above dimensions of effective career planning, including commitment to engaging in decision-making, self-assessment of needs, generating alternatives, occupational information-seeking, choosing, planning, and follow-up. The aforementioned (Barak, Carney, and Archibald, 1973) information and skill deficits as factors in career indecision, are incorporated in this model.

Hoyt (1975), in his statements on career education, describes the decision-making approach in terms of instruction: "Career decision-making skills ... can be taught to and learned by almost everyone. Individuals can effectively use such skills, once learned, to enhance their career development" (p. 3). Career decision-making skills are here defined as a set of abilities to identify one's preferences (values, interests and abilities), to generate occupational alternatives, to find information about these alternatives, to choose by comparing one's preferences to occupational characteristics, and to make plans and to take action based on that choice. A "good decision" has been defined as one which uses these skills (Gelatt, Varenhorst, Carey and Miller, 1973). It has also been defined as one in which there is consistency between an individual's preferences and an occupation's characteristics (Krumboltz, 1979).

Promoting good career decision-making has been particularly the responsibility of the counseling field in education; teaching these decision-making skills has been suggested as the mode of response (Gelatt, 1962; Katz, 1963). Krumboltz (1966) has included the learning of decision-making skills as one of the three major behavioral goals for counseling.

Consistent with this call to teach decision-making, strategies

and programs for rational, systematic decision-making have been proposed, including those by Katz, (1963 ), Yabroff (1969), Magoon (1969), Gelatt, Varenhorst, Carey and Miller (1973), and Krumboltz and Baker (1973), to name only a few. These approaches differ in two significant ways from the earlier career guidance methods, such as the trait-factor approach. First, the decision-making models have aimed at the teaching of measurable and maintainable skills. A recent theory, the "Social Learning Theory of Career Decision-Making" (Krumboltz, 1979), has explicitly applied learning principles to the career decision-making process and has suggested that career-related "task approach skills" (Krumboltz, 1979, p.25), such as self-assessment, information-seeking, and goal-setting can be taught, resulting in more effective long-term career behavior.

A second, related characteristic of decision-making instruction is that it has been characterized by attention to the process of decision-making, as opposed to a traditional emphasis on the outcome, or content.

Gelatt (1973, p. 9) defines a good decision in process terms:

A good decision ... is one in which the skills of decision-making are used to choose the alternative that is best according to the decision-maker's preferences.

In sum, this decision-making process can be operationalized, taught, and maintained as a set of skills which are transferable to future situations. It is assumed that a learning-based model results in the use of these skills, which increases an individual's chances of satisfying outcomes through the gathering of information and a subsequent reduction in the "unknown."

Assumptions about the efficacy of group career interventions based on decision-making models must, however, be tested. As Holland,

Magoon, and Spokane (1981) have pointed out, the increased application of group career decision-making interventions has not been accompanied by a similar interest in evaluation. This, they indicate, is a harder task than the creation of the new forms of career assistance themselves. Specifically, career guidance professionals must now ask: Does teaching a client decision-making skills enable him/her to be more effective in completing the decision-making process successfully? Jones and Jung (1979) specify this as a research priority, saying that "... research should experimentally investigate the impact of direct and indirect interventions aimed at helping the individual acquire, practice, and use such skills ..." (p. 212).

Research on the decision-making approach itself, regardless of whether it is applied via individual, group, or computer modes, has not been sufficient. Crites noted in 1969 that the theories of vocational choice which have received the least research attention were the decision-making theories. He suggested that this situation be changed, because he saw them as "comprehensive enough to encompass most of the variables which other theories have proposed as the critical ones in the process of vocational choice," and he noted that they are "more readily translatable into operational terms and hence more susceptible to empirical test" (p. 692).

In 1970 Kroll, Dinklage, Lee, Morley, and Wilson noted that "little research effort has been expended to study the necessary and sufficient conditions for teaching effective decision-making." Seven years later, in their review of vocational guidance research over a five-year span, Holcomb and Anderson (1977, p. 344) commented that "Comparatively



little research is being done in career counseling, including the areas of processes, methods, and outcomes." They specify that studies on techniques and methods in general accounted for only 3.8% of the articles on vocational guidance from 1971 to 1976. During those years, Bergland, Quatrano, and Lindquist (1975, p. 33) noted, "Few studies have been reported in which experimental designs have been employed to evaluate the effectiveness of procedures for teaching decision-making." More recently, Egner and Jackson (1978, p. 45) reported that their review of the literature revealed "no comprehensive research studies related to teaching decision-making skills." Zytowski (1978, p. 155) confirmed this in his review of vocational guidance and career development research for 1977, reporting no studies on the teaching of decision-making skills, and concluding more generally that "Not a lot of literature is reported here, and that which is might be characterized as spotty and uneven." Noting the national economy and employment outlook, he does indicate that studies of interventions should be a 'growth stock' for researchers. As will be seen, research on decision-making interventions has increased in the last few years.

Thus, if it is true that the teaching of decision-making offers promise as an effective guidance approach, one which has the advantage of providing for maintainable career skills and, ultimately, of increasing the odds of clients' making good decisions, then the task of demonstrating the validity of these assumptions is urgent.

Currently, while a number of studies have looked at career decision-making interventions, major questions remain. These questions include (1) the contribution of particular program components to counseling

goals, (2) the impact of subject attributes (e.g. age, intelligence, motivation) on treatment outcomes, (3) the development of appropriate outcome measures.

Regarding the first, i.e. "treatment components, Spokane and Oliver's (1982) "metaanalysis" of many career interventions indicated that "the outcome status of the average client receiving any type of vocational intervention exceeded that of 80% of the untreated controls" (p. 13). However, we have little information on the contribution of particular treatment parameters. Fretz (1981) has pinpointed "the need to consider the distinctive effects of specific content domains such as occupational information, self-information, and ... decision-making processes (pp. 84-85).

The second issue, that of attribute-treatment interactions, or "ATI's," has not had the attention that authors such as Krumboltz (1966) indicate that it deserves. The question to be asked here is "What interventions work with which clients?" Fretz (1981), and Spokane and Oliver (1982) have suggested a number of client attributes that ought to be examined.

Finally, there have been difficulties in defining appropriate outcome measures for vocational interventions. Katz (1966) emphasizes placing importance on the learning of decision-making skills rather than on longer-term effects, such as specific decisions made: "If we assume career decision-making to be a desirable skill, we should determine whether the skill has been acquired, not whether it is predictive of a long-range criterion such as job choice or eventual job success" (p. 36). Others (Gelatt, 1962; Krumboltz, 1966) have similarly suggested that the development of decision-making skills be considered a goal of career guid-

ance. Krumboltz (1979) however, counters the notion of using decision-making skills as the major criterion for treatment success by adding that "we have no verification that application of a decision-making strategy actually results in better decisions" (p. ix) and he calls for study of the actual decisions individuals make subsequent to treatment. It seems, then, that both decision-making skills and the quality of resulting decisions should be measured in order to test the effectiveness of a career decision-making treatment. The relationship between the two should also be explored. In light of this, Oliver (1979), Fretz (1981), and Spokane and Oliver (1982) recommend that, rather than using one criterion, a variety of subjective and objective measures be used to evaluate outcomes.

In sum, this research has responded to the question asked by Williamson and Bordin (1941, p. 8) over forty years ago: "What counseling techniques will produce what types of results with what type of students?"

## C H A P T E R     I I

### REVIEW OF LITERATURE

#### Teaching Career Decision-Making: Theoretical Basis

Two theories especially contribute to an instructional approach to career decision-making and planning. They are the social-learning and decision-making theories, which are briefly described here.

#### Social Learning Theory

A learning theory-oriented explanation of career development has been described by Krumboltz (1979). It is called a "Social Learning Theory of Career Decision-Making." The theory attempts to explain how occupational and educational preferences and skills are acquired and how selections of courses, occupations, and fields of work are made. Genetic factors, environmental influences and performance skills are all identified as factors that result in movement along one career path or another.

The social learning theory first describes the individual's life-long learning experiences which result in his/her abilities to affect his/her career more or less favorably. From these learning experiences an individual develops "cognitive and performance abilities and emotional predispositions for coping with the environment, interpreting it in relation to self-observation generalizations, and making covert or overt predictions about future events" (Krumboltz, 1979, p. 29). These abilities are called "task approach skills." Career decision-making skills are described by Krumboltz as "a subset of task-approach skills pertinent to occupational and educational decision-making" (p. 43). Career decision-making therefore involves a set of potentially teachable skills.

The social learning theory of career decision-making informs the instructional methods used by applying reinforcement theory and, more specifically, behavioral self-control methods (Thoresen and Mahoney 1974; Thoresen and Ewart, 1976) to career concerns.

### Decision-Making Models

Decision-making theorists and model-builders (Bross, 1953; Clark, Gelatt, & Levine, 1965; Yabroff, 1969; Thoresen and Ewart, 1976; Super, 1980) have described a set of strategies that, they suggest, represent a good decision-making process. Below is an example of such a prescription for good decision-making, in the form of a seven-step process. These steps serve as a basis for an instructional approach to career decision-making.

- (1) Commitment to engaging in the decision-making process;
- (2) Determination of preferences (values, abilities and interests);
- (3) Generation of alternatives;
- (4) Seeking of information about alternatives;
- (5) Choice, based on comparison of alternatives to preferences;
- (6) Making of plans based on this choice;
- (7) Taking of action toward goals.

These steps suggest desirable behaviors that the career decision-maker should engage in. Although these decision-making steps are presented in a simple, linear format, actual decision-making is a more complex process, for the following reasons. First, as described by many authors (Myers, 1971, Krumboltz, 1979, Super, 1981), career decision-mak-



ing is life-long rather than a one-time event. The above steps are actually cyclical. For example, "taking action toward goals" (Step 7) may consist of job-seeking behaviors that lead to a position. The subsequent experience of this position then provides new information to the individual about his/her skills, values, and interests (Step 2). Further, in the course of everyday living, s/he may become aware of new occupational opportunities (Step 3). This individual is now involved, either formally or informally, in a new decision-making cycle. According to the decision-making model-builders, the more formally or "rationally" the decision-making task is approached, the more information can be collected which, it is assumed, will result in increased chances of a good outcome (i.e., one that is consistent with the individual's needs).

The second, more subtle element in the decision-making model is that not only one major decision, but a series of "mini-decisions" comprise the decision-making process. Decisions are made about specific values, skills and occupations throughout the process, as information is gathered. Any "final decision" at Step 5 is actually a product of this series of mini-decisions which has preceded it. The result of the preceding choices is, hopefully, a manageable amount of information on which to base the career decision.

A final complicating factor in actual decision-making is that the time frame for each decision-making step may vary from individual to individual, as some persons may use "stored information" based on years of past experiences and others may need to seek out such information, thereby slowing down the decision-making process for them (Super, 1981).

Career Indecision: Skill and Information Deficit

Because, as the social learning theory describes, decision-making skills can be learned, they can therefore be taught when prior learning experiences have been inadequate. In many cases, career indecision can be considered to result from a lack of these career decision-making skills in the individual's repertoire, rather than its being a pathological state or a trait of the person. The above behaviors can be translated into the instructional objectives of a social learning-based career decision-making intervention.

In addition to its being seen as a skills deficit, career indecision has also been viewed from a "lack of information" perspective, (e.g. Gelatt, 1962 ). In this view, due to limited learning experiences, the individual may lack information about his/her preferences, about alternatives available, and about the nature of various occupations. This "information deficit" theory, rather than being a competing theory of indecision, is easily integrated into the decision-making model. By learning skills in how to seek such information and subsequently gaining increased knowledge about oneself and the world of work, it is theorized, the individual gets more complete information and, consequently, makes better decisions. An instructional approach to career decision-making can provide the impetus for the gaining of such information, while also teaching the decision-making skills at the same time, for future use. The acquisition of self- and occupational information, to serve as a basis for a future career choice, is one desirable outcome of a career decision-making intervention. In and of itself, the information model can be considered to be inadequate, in that it doesn't provide for actual planning and ac-

tion by the decision-maker, nor does it teach skills that can be used for future career decisions. The charge for career counselors is, then, to teach decision-makers to both find information and to apply that information to decisions, plans, and actions.

Krumboltz (1979, pp. 43-45) suggests social learning-based methods for achieving the above goals in a series of propositions: "An individual is more likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has been positively reinforced for those responses, and if s/he has access to people and other resources with the necessary information." Instruction, reinforcement, modeling, and practice are called for in order to improve career decision-making.

In this review we will examine the research that has been done on the teaching of these career decision-making skills. Although there have been a number of studies on the effectiveness of career guidance interventions in general, many have specifically focused on teaching clients decision-making strategies in a group setting. Here we will generally look at the research that has explicitly studied this type of approach.

#### Information-Seeking Studies

The earliest research which applied a learning-based approach to career decision-making consists of a series of studies which studied instruction in the specific decision-making skill of seeking information. In these studies, occupational information-seeking was taught, reinforced,



and, in most cases, modeled. The desired outcomes were increases in the frequency and in the variety of independent information-seeking activities by the secondary school students who served as subjects.

Krumboltz and Schroeder (1965) and Krumboltz and Thoresen (1964) described the use of "reinforcement counseling," in their studies of 54 and 192 eleventh graders, respectively. In both studies, reinforcement counseling consisted of the counselor giving positive verbal reinforcement for any statements by the subject which showed his/her intent to use some source of information which was relevant to his/her decision-making goal, and "model reinforcement counseling," in which the subject listened to a tape-recorded model being positively reinforced for his/her reports of having used or intending to use various informational resources. In the latter case, the client was subsequently verbally reinforced for remarks imitative of the model and for statements of his/her own concerning information-seeking. A third treatment in each study was a no-contact control group. Krumboltz and Thoresen, in addition to replicating the three treatments of the Krumboltz and Schroeder study, added four additional treatments: group reinforcement counseling and group model reinforcement counseling, and an individual and a group control film discussion (active controls) in order to determine which behavior change technique would best promote information-seeking.

Both experiments found the experimental treatments to be superior to the controls in increasing information-seeking outside of the counseling treatment, at values between  $p < .001$  and  $p < .025$ . The results of the comparison of model reinforcement counseling with reinforcement counseling were not as clear-cut in both studies, and significant

interaction effects were noted: Krumboltz and Schroeder (1965) found reinforcement counseling alone (without modeling) to be significantly more effective ( $p < .025$  for variety and  $p < .05$  for frequency) than the control among female clients, but it was not for males. By contrast, in the same study model reinforcement counseling was more effective than the control among males ( $p < .01$  for variety and  $p < .025$  for frequency) but not for females on frequency of information-seeking, although it was not significantly effective for females on variety of information-seeking. Krumboltz and Thoresen (1964) also noted interaction effects: model reinforcement counseling was more effective than reinforcement counseling among males ( $p < .001$  and  $p < .01$  for frequency and variety), while there was no significant difference among females. The superiority of modeling for males seems to have been due to the fact that only male models were used in both studies.

One final result worth noting is that, on the average, the treatments were equally effective for groups and for individual clients in the Krumboltz and Thoresen study, with two exceptions: model reinforcement counseling was more effective in the group, as opposed to in the individual setting, for males ( $p < .05$ ) and reinforcement counseling for males was more effective in the individual than in the group setting ( $p < .05$ ).

The importance of these two studies lies in their confirmation of the use of social learning principles in career interventions. An instructional approach to the occupational information-seeking aspect of career decision-making seems to be warranted, as demonstrated by the overall superiority of the reinforcement approaches to no treatment.

Although the general effectiveness of the instructional model is

demonstrated by these studies, Thoresen and Krumboltz (1967) subsequently explored the relationship between specific aspects of counselor behavior and client outcomes. Reviewing the tapes from the Krumboltz and Thoresen (1964) study, raters judged the frequency of client information-seeking responses (ISR), and non-information-seeking responses (NISR), counselor reinforcement of ISRS (CR) and counselor reinforcement of NISR's (CRN). The experimenters found that the frequency of counselor reinforcement of client information-seeking was positively and significantly correlated with the total frequency of external client information-seeking (.38 and .23 for two separate interviews). Also, the frequency of student information-seeking responses during the counseling sessions was positively (but not significantly) related to the frequency and variety of their information-seeking outside the interview. The authors call for further study of this result, as it is not clear whether it was the proportion of the interview devoted to information-seeking or the absolute number of responses reinforced that determined the extent of information-seeking behavior. This microanalysis of instruction and student behavior is important if learning-based instructional interventions are to be developed and explicitly communicated to practitioners.

Another result worth noting here is that the correlation between 1) client ratings of the helpfulness of the treatment and 2) frequency of information-seeking behavior was not significant. This is important in that self-reported, global client perception of how a counseling experience assists him/her may not be a valid measure of outcomes, although it is a commonly-used one. These results imply that counselors must use the most direct and observable measures of outcomes possible.

A problem that still remained for researchers after these studies was the relative ineffectiveness of modeling with female clients in the Krumboltz and Schroeder (1965) and Krumboltz and Thoresen (1964) studies. Studies by Krumboltz, Varenhorst, and Thoresen (1967) and Thoresen, Krumboltz, and Varenhorst (1967) specifically addressed this issue.

Focusing only on female subjects ( $N = 56$ ), Krumboltz, Varenhorst, and Thoresen found that subjects who observed female models engaged in more information-seeking behavior than did control subjects who either got no attention at all or who merely were told how and where to get information ( $p < .05$  or better). Thus it was confirmed that female subjects also respond to appropriate models.

Manipulating four independent variables, the sex of the student, the counselor, the student model, and the counselor model, Thoresen, Krumboltz and Varenhorst (1967) used a  $2 \times 2 \times 2 \times 2$  factorial design to determine the effect of sex on frequency and variety of information-seeking during a three-week period after the counseling interview. Male and female eleventh graders from six schools ( $N = 96$ ) were exposed to one combination of male and female counselor, model counselor and model client. The sex of the student model was found to be significant for variety of information-seeking behavior at the .05 level and approached significance for frequency ( $p < .10$ ). Specifically, (1) male students receiving model reinforcement counseling from a male counselor using male models produced more information-seeking behavior than any combination using female counselors or models and (2) female students engaged in more information-seeking behavior when counseled by a male counselor using a model tape containing either all males or females.



The researchers suggest that there may be two explanations for these results: (1) that they are due to the specific characteristics of the two male and two female counselors in the study, and (2) that males may be imbued with more career-related prestige by both males and females (as of 1967, at least) and that therefore they might possess more reinforcing power in discussing career planning activities. The authors conclude that, in our applications of social learning principles to career counseling, we must acknowledge that the model who is effective for one person is not necessarily the best model for another. The results of this study also more generally confirm the results of previous information-seeking studies in that, overall, the experimental treatments were significantly more effective in promoting information-seeking behavior for all subjects than was the inactive control treatment at the .01 level.

The next two studies of information-seeking training examined the model-subject interaction further. Thoresen and Krumboltz (1968) and Thoresen, Hosford and Krumboltz (1970) varied qualities of the model client along the dimensions of alleged athletic accomplishment and academic skill. In the Thoresen and Krumboltz study, model clients were categorized along three dimensions (high to low) of both variables, and subjects ( $N = 72$ ) were similarly identified and paired in all combinations with the models. All models and subjects were male. In the treatments, subjects observed the models discussing the value of information-seeking. It was found that highly skilled athletic models were significantly effective in producing information-seeking among all subjects ( $p < .001$  for frequency and  $p < .01$  for variety), and all other models were not. Thus, subjects imitated high athletic success models but did

not imitate models similar to themselves, nor did they imitate high academic success models. Also, importantly, the high academic subject was more responsive, on the average, to all models ( $p < .05$  for variety, and  $p < .10$  for frequency). This indicates the importance that subject characteristics, in this case academic ability, may play in outcomes.

Thoresen, Hosford, and Krumboltz (1970), in their study of 189 eleventh grade students in four schools, did not confirm the "social power" hypothesis (i.e. the influence of a high prestige model on all subjects) which was implied in the previous study. Although the mean frequency for all subjects exposed to high-academic or high-athletic success models was higher than the mean of those exposed to low-academic- or low-athletic-success models, it was not significantly so. Nevertheless the means for high success subjects exposed to high-success models were in all cases higher than the means of high-success subjects exposed to low-success models. Results point in the direction of a subject success level x model success level x counselor-school (the study was conducted at a number of schools) interaction, which bears further study.

The importance of the information-seeking studies, taken as a group, lies in two dimensions: (1) the research methodology used and (2) the explicit application of social learning principles to career counseling. The methodology serves as a model for good research design, including the use of various control treatments, the replication of treatments, the clearly-defined behavioral outcomes, the objective measurement of the targeted behaviors themselves, and the examination of attribute-treatment interactions. Regarding the application of social learning principles, in each study attempts were made to teach the specific

career decision-making behavior of "occupational information-seeking." The effectiveness of targeting desired behaviors and of the reinforcement and modeling of them were generally demonstrated, as compared to control treatments. This approach contrasts to career counseling which is not grounded in learning theory. For example, in some interventions, information-seeking might be discussed and encouraged, but not explicitly reinforced and modeled. Social learning theory thus serves as a guide for ensuring behavior change.

Social-learning- and decision-making-oriented career counseling is not, however, restricted to teaching information-seeking. The thorough career counselor must ask these further questions: What do decision-makers do with this information? How do they interpret the information in light of their preferences? How do decision-makers decide among options? How can they turn information into appropriate plans and actions? In other words, we must ask: How is a good decision made and how are subsequent actions ensured?

How decision-makers actually make decisions has been researched (Janis and Mann, 1977). How decisions should be made has also been discussed (Gelatt, Varenhorst, Carey, & Miller, 1973; Krumboltz and Baker, 1973; Bross, 1953). What is now needed is close examination of how good decision-making can be promoted. The social learning theory indicates that it can be taught; at the end of their information-seeking study, Thoresen and Krumboltz (1967) suggest that this theory be tested more broadly: "The social procedures to assist persons in solving many kinds of personal, education, and vocational problems" (p. 144); they subsequently call for further research "in laboratory and naturalistic settings" on the whole range of decision-making behaviors needed to increase the chances of satisfactory decisions.

The following studies are those which examine the teaching of comprehensive strategies for career decision-making. Only some of them make reference to social learning principles in their instructions, consciously using reinforcement and modeling, for example. Generally, instructional approaches, using groups, to career decision-making are reviewed here.

Yabroff (1964) reported one of the earliest studies of career decision-making instruction. The author indicated that his study was, in part, a response to Super's (1957) statement that "research in the process of decision-making (educational and vocational) counseling is one of the two great research needs in our field" (p. 219).

In this study, "daily intensive group guidance on vocational and educational planning" (p. 11) was given to three groups of ninth grade students (n = 248) for four weeks. The treatment and control groups had testing, library research, outside speakers, and a specially prepared TV series. No reference was made to the use of social learning principles in the "group guidance."

After the basic treatment, subjects received one of three additional interventions: Group One received one additional week of training, using local probability data (i.e. experience tables based on follow-up studies of local graduates); Group Two received three additional class periods of further instruction in decision-making, using general probability data (from government or other printed materials); Group



There was a control group that received no further treatment. There was no "no-treatment control group" here. Yabroff's primary research interest was in the value of using local probability data for career planning. He also looked at the effects of sex and "ability level" (from an aptitude test score).

Immediately after treatment, students completed a criterion test which measured three standards for a good decision: (1) knowledge about the process of decision-making; (2) awareness of high school and college alternatives, and (3) knowledge of the probabilities involved in these alternatives (i.e. chances of success). In this test there was also a questionnaire which asked for a self-report of satisfaction with the guidance received. Finally, eight weeks following the experiment, high school course choices were analyzed in order to determine the realism of educational plans made after the program (the criterion being chance of success in courses chosen, based on local data). The results confirmed the superiority of the "local data" approach, as Group One scored significantly higher ( $p < .01$ ) at all ability levels than either the "general data" group or the control group on the criteria for a good decision. Group One also expressed significantly more positive feelings about the treatment than did the other groups, although all scored highly on this measure. However, although Group One's self-planned three-year high school program was judged to be more realistic than those of the other two groups ( $p < .05$ ), no significance was found in programs actually signed up for two months later.

Yabroff did not demonstrate the superiority of a "decision-making approach" as compared to other approaches, since there was no alter-

native decision-making treatment nor was there a no-treatment control group. It is also not clear why Group One would show greater knowledge about decision-making, since the basic decision-making training was the same for all three groups.

For our purposes, the importance of this study lies in its being an early instructional decision-making approach to career guidance. Yabroff's measures are of interest also, as they attempt to determine (1) knowledge of good decision-making strategy (a process measure) as well as (2) the appropriateness or "realism" of decisions actually made after the treatment (an objective outcome measure). The eight-week follow-up is also noteworthy, especially in light of the results which revealed a discrepancy between plans and actual behaviors.

In contrast to Yabroff, Ryan (1968) compared a decision-making treatment to a no-treatment condition, as well as to alternative treatments. Her study examined the effects of explicit counselor reinforcement of verbal decision-making responses on community college students' decision-making skills (N = 300). As in the information-seeking studies, social learning principles were intentionally applied in the intervention, but, instead of there being only one type of targeted decision-making behavior, three such behaviors were reinforced in this ten-session treatment: (1) information-seeking, (2) deliberating or considering alternatives and consequences, and (3) deciding. Ryan was also interested in the additional benefits of the use of simulation materials in career decision-making training.

Ryan's study described the decision-making behaviors that were trained for, and the methods used, more explicitly than did the Yabroff

study. Specifically, she asked whether planned cueing and counselor reinforcement of a desired decision-making response (an "active approach" to counseling, as Ryan called it) was superior to less systematic and less "active" vocational interventions in teaching vocational decision-making skills and in increasing knowledge of occupational information sources. (Note that these are process measures, not measures of decisional outcomes.) The desired decision-making response, which Ryan calls "vocational decision-making behavior," was defined in this case as verbal choice-making responses indicating that "subjects had (1) gathered information for use in deciding on a vocational goal, (2) were deliberating about future vocational goals by considering relevant information in terms of possible alternatives and consequences, or (3) had decided on an occupational choice after considering alternatives and consequences" (Ryan, 1968, p. 13). The goal of the treatment was to increase the corresponding behavior by reinforcing decision-making statements.

This treatment, called (1) the "Reinforcement Counseling Group" (RCG) was compared to these conditions: (2) an active control, the "General Counseling Group" (GCG), in which no verbal reinforcement was given for positive vocational decision-making responses and (3) "Individual Counseling" (IC). Additionally, in one condition (4) simulation materials were added to counselor reinforcement. This addition to the basic reinforcement counseling group was designated SRG: in the SRG the students and the counselor worked through the vocational decision-making process by applying the decision-making elements to a fictitious student. A modification of the GCG was (5) a group which emphasized self-exploratory materials (SEG), in which students identified their at-

titudes, abilities, and interests, but did not go through the decision-making elements systematically. The RCG, it was hypothesized, would show superiority to group counseling (GCG) and to the individual counseling (IC); the simulation reinforcement group, in its turn, would be superior to the non-simulation reinforcement group (RCG). These hypotheses are consistent with the social learning theory principles of reinforcement, modeling, and guided practice.

To measure the effect of the treatments on vocational decision-making skills, an Educational and Vocational Inventory was administered as a pre- and post-treatment criterion test; it measured the extent to which the three elements of decision-making were being engaged in by the client, as self-reported. The second major instrument was the Information Inventory, which measured the extent to which respondents were aware of sources of information about themselves and the world of work (both process measures).

The results confirm the social learning hypotheses at the .01 level of significance, with the reinforcement group being significantly superior to the general counseling groups (i.e. the active control) on both engaging in decision-making activities and on knowledge of sources of information. Additionally, as hypothesized, the simulation plus reinforcement group (SRG) was shown to be superior to the reinforcement group and to the other treatments (in that order) on decision-making activities (at the .01 level). However, there were no differences between SRG and RCG on knowledge of sources of information. Taken together, both of the reinforcement conditions (SRG and RCG) were superior (at the .01 level) to the other treatments.



Ryan concludes from these results that the "active approach" (i.e. the social learning-based approach) is superior to less systematic and less active vocational interventions in teaching vocational decision-making skills and in increasing knowledge of information sources. Even better, she indicates, was the addition of simulation materials, in which the student applied the abstract decision-making strategies to fictional decision situations. Ryan concludes that a planned, instructional approach to guidance, one which integrates the different decision-making elements, is superior to providing "segmented guidance services," such as occupational information, testing, and individual counseling. The latter approaches are less comprehensive and less focused on the teaching and maintenance of decision-making skills.

A possible limitation of this, and of most studies reviewed here, is the lack of longer-term follow-up. As was seen in the Yabroff (1964) study, the wisdom of decisions made at a later date (eight weeks in that case) may not be reflected in immediate post-treatment measures of decision-making. On the other hand, it can be argued, as Katz (1975) and Myers (1971) have, that factors beyond the control of the treatment affect real-life decisions over time, and that immediate measures of learned skills are sufficient. Another possible limitation of Ryan's study lies in her choice not to measure subjects' actual decisions. Krumboltz (1979), for one, has argued that it is necessary to assess the quality of subjects' decisions in some way. As we shall see, this has not been universally done.

Like Ryan (1968), Evans and Cody (1969) also used only "process" measures to study a decision-making intervention. Applying social learn-

ing principles, a five-step decision-making model based on the theoretical formulations of Bross (1953) and Gelatt (1962) was taught to sixty eighth-grade students. The effectiveness of a "directive" (i.e. social learning-based) teaching approach was compared to that of a "non-directive" one, and both were compared to a control group. The "directive" approach included instruction, video-taped modeling of a student applying the five-step process in a decision situation, and one-to-one meetings with students in which cues, prompts, and verbal confirmation (i.e. reinforcement) were used to help students apply the process. The "non-directive" group met for the same amount of time, on the same days, and had the same counselors, but they were not exposed to modeling nor to explicit reinforcement of decision-making behaviors. Instead, the counselors reflected the student responses and did not provide direction in the working through of the decisions.

Evans and Cody attempted to measure subjects' ability to apply the complete decision-making strategy to three presented problems. Results indicated that all 30 members of the directive treatment were able to use the strategy before the five-day training was over (as judged by raters), whereas none of the non-directive group were able to do so during this time. In response to problems presented both immediately and thirteen days after training, the directive group was significantly better able to apply the process than were either the non-directive or the control groups ( $p < .05$  in both cases). The researchers concluded that a "directive" approach (i.e. one using learning principles) appears to be more effective than a non-directive one in subjects' learning to use a strategy for decision-making.



Again, as in Ryan's (1968) study, Evans and Cody have only used process measures. Evans and Cody asked for cognitive understanding of the decision-making process, whereas Ryan measured subjects' self-reported decision-making behavior and knowledge of information sources. The assumption underlying Evans and Cody's measurement of the decision-making process is that the learning of good decision-making behavior should result in increased chances of satisfactory decisional outcomes (Gelatt, Varenhorst, Carey, and Miller, 1973). The logic goes that the decision-maker know how to collect more information about him/herself and the environment and will subsequently be better able to anticipate the outcomes of a decision and to plan accordingly. In our review so far, however, this assumption has not been confirmed.

Wachowiak (1972) did measure decisional outcomes, among other criteria, in comparing (1) one-to-one model reinforcement counseling to (2) "traditional counseling," and both to (3) a no-treatment control group. He also studied effects over time on the sixty undergraduate males who were the subjects. There was no group counseling in this study, but the decision-making approach parallels the social learning-decision-making model of interest in this study. The model reinforcement counseling, like Ryan's "reinforcement counseling" and Evans and Cody's "directive" approach, utilized learning principles such as verbal conditioning of desired vocational decision-making responses.

In the first treatment condition, called the "model reinforcement condition," Wachowiak applied imitative learning and reinforcement, as had been done in some of the information-seeking studies, by having the subjects listen to a tape in which the model was systematically rein-

forced by his counselor for making "deliberation" and "decision" statements regarding choice of major. A "decision response" was defined as a verbal statement by a client which indicated that he had decided on a course of action, had selected a major, or had eliminated an alternative with regard to his choice of major; this included verbal expressions of intentions to act at a future date as well as reports of decisions already made or actions already taken. A "deliberation response" was defined as a verbal statement indicating that a client was weighing two or more specific alternatives with regard to choice of major. The counseling consisted of, first, subjects viewing this tape, followed by a discussion in which they were reinforced for making the same type of statements; the second of the two sessions consisted of interest inventory interpretation followed by similar verbal conditioning. The second treatment, "traditional counseling" (also two sessions), had similar content (e.g. interest inventory interpretation, discussion of factors in vocational choice), but did not explicitly apply learning principles; here the counselor did not reinforce any particular response class. Discussion revolved around client characteristics and the requirements of alternative majors.

Among a number of outcome measures, Wachowiak (1972) assessed self-report of certainty and of satisfaction with choice of major. This measure differs from Yabroff's decisional outcome measure in that the latter was an objective assessment of "realism" of educational plans, based on probability of success, with an expectancy table as the criterion. Wachowiak instead used subjective criteria for outcomes; he acknowledged that, although he measured his treatment's impact on decisions, he

did not measure the "wisdom of the content" of decisions themselves in any objective way.

Within this limitation, the researcher found that model reinforcement subjects were significantly more satisfied with and more certain of their choice of major than were the other groups, both immediately ( $p < .05$ ), at six weeks, and at twelve weeks. For example, at twelve weeks the model reinforcement clients were significantly more satisfied ( $p < .05$ ) and more certain ( $p < .01$ ) than the other two groups. The traditional group was also significantly ( $p < .01$ ) more certain and satisfied than was the control group. Interestingly, all treatment conditions showed increases in their average certainty ratings over time.

Wachowiak also used two other measures. One was a developmental measure of "vocational decision-making stage," (the Vocational Decision-making Checklist, or VDC, Harren, 1979), based on Tiedeman and O'Hara's (1963) construct of "progress in decision-making" (with the stages of exploration, clarification, crystallization, and choice). The two treatment groups showed significantly higher scores on choice of major compared to the control ( $p < .01$ ). However, model reinforcement subjects were only slightly, and not significantly, higher on their vocational decision-making stage than the traditional counseling subjects. As can be seen by Tiedeman and O'Hara's formulation, the VDC can be considered a more indirect measure of certainty of choice. From Wachowiak's study, it can be concluded from their "progress in decision-making" that the two treatment groups were moving toward certainty in their choice of major as a result of their interventions.

The last measure was a counseling evaluation. It showed model

reinforcement subjects to be significantly ( $p < .05$ ) more satisfied with counseling than were the traditional counseling subjects immediately after counseling; they were also more satisfied six and twelve weeks after, but not significantly so.

Wachowiak (1972) concluded that a learning-based vocational decision-making intervention produces more than immediate effects. He qualified these results by indicating that treatment outcomes may vary for different individuals. This is a critical point. As Spokane and Oliver (1981) and Fretz (1981) indicate, subject-treatment interactions based on such variables as client goals, motivation, sex, age, ability level, and decision-making style seem to need testing. Wachowiak further qualified his results by noting that he did not measure the "wisdom of subjects' choices," as did Yabroff. Such an objective measure of the quality of the decision is needed, he indicates. It seems important to correlate a self-reported measure such as "decision satisfaction" with an objective measure such as "decision appropriateness."

Smith and Evans (1973) achieved positive results when they compared a five-week (ten session), directive decision-making program with "individual counseling" and a control treatment. Their treatment, like Evans and Cody's (1969), was based on Bross's (1953) decision-making strategy. The experimental treatment, again using learning principles, included lectures, observing model tapes, interpreting interest survey results, occupational information-seeking, and reinforcement of participation in group discussions. Week-by-week topics were: presentation and use of a decision-making strategy, the role of values in career selection, occupational information-seeking, interests and their relationship



to career selection, personal traits, social influences and pressures, and a review of the use of a decision-making strategy.

The same counselors provided the individual counseling treatment, which consisted of two-to-four sessions comprised of interest inventory interpretation, suggested use of occupational information materials (without reinforcement of the behavior), and some discussion of decision-making. The control group consisted of a "no-contact" treatment, except for the pre- and post-test. There were sixty-six walk-in and volunteer freshman and sophomore university students involved, with twenty-two in each type of treatment.

"Progress in decision-making stage" was measured, as in the Wachowiak study, using the Vocational Decision-making Checklist as a pre- and post-test. Movement from "exploration" toward "choice" was considered to be a positive indicator that the treatment was increasing students' clarity about decisions. All except the control subjects also completed the Counseling Assessment Form, which was a twenty-statement instrument designed to evaluate the counseling itself. Results were similar to Wachowiak's: the experimental treatment was significantly more effective at the .01 level over both of the other conditions on both the academic major and occupational scales of the Vocational Decision-making Checklist. Both the experimental and individual treatments were superior to the control treatment, at the .01 level.

Smith and Evans conclude that "a systematic learning experience structured around the strategy for decision-making suggested by Bross (1953) can be employed effectively in a college setting as a model for facilitating ... students' vocational development" (p. 206). They con-

clude that directed activity, such as the counselors' reinforcing of participation, giving assignments and having follow-up activities, appears to be more effective than a less directive approach which only encourages decision-making activities. As in many of the studies reviewed so far, however, no decisional outcome measures were used, nor was there any follow-up over time.

Mencke and Cochran (1974) also found significant positive effects, using behavioral measures of information-seeking and "congruency" between occupational preferences and subjects' S.D.S. codes. Sixty-four male college students were given a one-session, 4 hour workshop. While this treatment was not organized explicitly around a decision-making model, subjects did experience major components of the process, as they assessed their interests, analyzed past experiences, and learned about the life-long career development process. They were also reinforced for taking active responsibility for career decisions, and were encouraged to explore occupational alternatives and set personal goals.

Mencke and Cochran achieved mixed results. They found that their treatment did not affect the three attitudes of: 1) "a sense of responsibility for career decision," 2) "awareness of career decision as a process," and 3) "belief in the importance of considering one's personal attributes in making a career choice;" this they ascribed in part to a lack of construct validity and reliability in their attitude measures. At  $p < .05$ , they did, however, find a significant increase in information-seeking behavior ( $p < .05$ ) and a significant shift toward "congruent" occupations (i.e. those that were compatible with the subjects' measured interests). Thus Mencke and Cochran's subjects demonstrated increased



use of decision-making skills and increased appropriateness of decisions. These complementary measures are both important for assessing group decision-making workshop outcomes. A final measure found treatment subjects to not have increased the number of occupational alternatives being considered. Mencke and Cochran instead found the opposite and they speculate that their subjects were developmentally ready to "commit themselves to a career" (p. 189) at the end of treatment, and thus had reduced the number of options being considered. This reminds us that an increase in "number of occupational alternatives considered" is not a universal measure of success for a treatment, as an increase or decrease can be positive or negative based on client goals and on developmental readiness.

Within measurement limitations, the results noted so far have demonstrated positive results from the decision-making instructional approach to career counseling. However, the results were not similarly positive in a study by Bergland, Quatrano, and Lundquist (1975). This treatment shared common elements with all of the above studies, except for Yabroff's (1964), in that modeling and reinforcement were used in order to teach a decision-making strategy.

Using multiple measures, Bergland, Quatrano and Lundquist compared decision-making training with eighty selected (non-volunteer) male high school students under four conditions: (1) structured group interaction with a counselor as lead, (2) a videotaped models group, (3) a videotaped-models-plus-structured-interaction group, and (4) a wait control group. All three active treatments proposed to teach, demonstrate and reinforce the use of the decision-making strategies of (1) generating

alternatives and evaluating preferences, (2) identifying and obtaining relevant information, (3) organizing and evaluating the information, and (4) processing the information to make tentative choices.

As in many of the treatments in this review, there is strong similarity to other decision-making models here. The first treatment, structured group interaction (no modeling) consisted of students in groups of five actively "listening, talking, writing, and enacting decision-making and information-gathering behaviors through role playing" (p. 30), while also being reinforced for participation. The sequence of the five sessions paralleled the decision-making steps mentioned in this text (p. 11). There were specific assignments to engage in decision-making behaviors, with follow-up in class. The second treatment, the "videotaped models" group, consisted of the subjects viewing four male high school students who were successful academically, athletically, and socially. In the five 20-to-30 minute sessions models presented and discussed content parallel to the five structured interaction sessions. The subjects observed these model sessions and, after each viewing, the counselor went over the major points of the particular videotape. The third group, the "videotaped models and structured interaction" group, combined elements from the first two, with subjects first observing career decision-making behaviors and then having the opportunity to perform them in class. The counselors were two male doctoral students who each led all three kinds of treatments.

The researchers had hypothesized that the students assigned to the three experimental group counseling procedures would be more effective at decision-making than would students assigned to the control group.

However, no significant differences were found among groups on the measures, which included (1) a questionnaire assessing attitude toward planning and engaging in decision-making behaviors, (2) a knowledge and recognition test of how to use and process relevant and reliable information (a process measure) and (3) a simulation test of ability to use decision-making behaviors (another process measure). Attitudes were not different, nor were decision-making skills better learned by the experimental groups.

The researchers concluded that there were "no clear treatment effects" (p. 33); they note that this contrasted to the positive results of Evans and Cody (1969) and Smith and Evans (1973). The authors speculated that the selection of subjects who were not seeking career help, unlike the subjects of the previous studies, confounded their results. They suggested that perhaps some subjects' having already made career choices caused them to put little effort into learning the decision-making skills.

There are some leads here for further study, however: (1) The group which had the most interaction among members was the only group which had a positive trend (pre- to post-) in attitude. This is consistent with Holland, Nagoon, and Spokane's (1981) suggestion that social support or reinforcement from a counselor or other participants is one of four treatment factors that underlie effective career interventions. However, these positive changes in career exploration and decision-making were not linked in this study with increased knowledge of or skill in decision-making, both of which can be considered more direct and objective measures of treatment effectiveness than is attitude. (2) Another research lead lies in the researchers' hypothesis that the modeling-plus-interaction group did not show more positive change on any of the scales

because there was too little time for meaningful interaction after the tape was shown. As in a number of decision-making studies (Wachowiak, 1972; Cochran, Hoffman, Strand, and Warren, 1977; Krumboltz, 1979; Jepsen, 1981), the brevity of an intervention may have been a major cause of disappointing results; Bergland, Quatrano, and Lundquist speculated that the third group (modeling plus interaction) might have otherwise shown the greatest change here.

In a study of the impact of a computer-assisted career decision-making experience "on the choice-making processes of college students" (p. 308), Cochran, Hoffman, Strand, and Warren (1977) similarly have also suggested that the duration of their treatment (three one-hour interactions) may not have been optimal. The computer instruction, in the form of the System of Interactive Guidance and Information (SIGI), provides learning experiences in career decision-making, based on a model developed by Katz (1963). This, like Wachowiak's (1972) study, is reviewed here because it applied a decision-making model, although it consisted of individual (not group) computer-client interaction.

The computer program's intent was to teach the client about career decision-making while leading him/her through his/her own career decision-making process. Specifically, subjects learned about and applied four "programs" (i.e., decision-making steps): (1) identification of work-related values, (2) seeking information on up to 140 occupations, (3) predicting preference for and success in various career paths, based on the previous information achieved, and (4) planning a feasible plan of action, integrating the elements of risk and desirability. It can be



seen that this model parallels the above decision-making models, and also fits easily into the generalized decision-making model which was described at the beginning of this review (p. 11).

As did Wachowiak (1972) and Smith and Evans (1973), Cochran, Hoffman, Strand, and Warren measured "progress in decision-making stage," also using the Vocational Decision-making Checklist, or VDC. And, as in those two studies, significant ( $p < .05$ ) progress in decision-making stage as related to choice of major was demonstrated. However, Cochran, Hoffman, Strand, and Warren did not find similar progress in choice of an occupation, whereas Smith and Evans found significant progress on both of these scales. Cochran, Hoffman, Strand, and Warren attribute the lack of this result to the duration and nature of the treatment; Smith and Evans' treatment consisted of ten group sessions, as compared to three here, and Smith and Evans applied social learning techniques in the group interaction, media presentation and classroom learning experience. Nature and extent of treatment have been targeted by Spokane and Oliver (1981), in their review of vocational interventions, as possible critical factors in the effectiveness of such treatments. More occupational exploration of occupations was also provided for in the Smith and Evans Study.

Another explanatory variable for the lack of results on the occupational scale of the VDC, the authors speculate, following Katz (1963), is that gains on the major scale, and not on the occupational scale, reflect the area of greatest pressure (choice of major) on a late adolescent. They say, "The results suggest that the most proximate choice (college major) is more receptive to the treatment effect than the more distant choice pertaining to vocational entry" (p. 311). Age variables



need to be looked at in the decision-making research.

Cochran, Hoffman, Strand, and Warren caution that there was no control group here. They also call for further study in which randomness is applied in selecting the sample. (Theirs was a "volunteer" population.) Finally, they suggest that individual differences in decision-making stage, age, and sex be studied (i.e. attribute-treatment interactions). They conclude, however, that the program "assisted students in decision-making and in learning skills related to choice of academic major" (p. 312).

The measure of "progress in decision-making stage" was again used in a study by Evans and Rector (1978). Their intervention was more extensive than Cochran, Hoffman, Strand, and Warren's (1977), and, as might be expected, they found significant gains on both the major and occupational scales of the Vocational Decision-Making Checklist. This was a "field study" (no control group) of college students ( $N = 79$ ; 53 males, 26 females) who reported being undecided about academic major or career field. The treatment paralleled that of Smith and Evans (1973).

The goal of the quarter-long credit course was to enable students to use a decision-making strategy and to become knowledgeable about information sources. The emphasis was on teaching the decision-making process and thus on providing the student with transferrable task approach skills, while students also applied the process to work on current decisions. The subjects were taught to integrate information about values, interests, alternatives, occupations, and majors into an explicit decision-making framework. The students were involved in three types of activities each week. One activity consisted of independent assignments,

which included completion of an interest inventory, a reading, identification of occupational alternatives and seeking of information about them on nine separate dimensions, investigation of an academic major, and completion of a project in which the student had to integrate information into the decision-making strategy. This strategy was: (1) prepare a list of alternatives; (2) imagine the consequences of each alternative; (3) consider past, current and projected future experiences in relation to the alternatives; (4) evaluate the consequences of each alternative in terms of its desirability (i.e. using a personal value scale); (5) select an appropriate course of action and pursue it. The second weekly activity was large group meetings (of approximately twenty-four students) in which the assignments were followed up, topics such as career planning, values, and the above model for decision-making were presented, interest inventories were interpreted, and the use of occupational information was supervised. Finally, weekly small group meetings and personal conferences consisted of discussions which related the concepts to the individual's aspirations.

In addition to the aforementioned VDC, two additional measures were used. An "Evaluation Form" was administered, the purposes of which were to assess (1) students' perceptions of their movement toward reaching a decision about academic major or occupation (a subjective decisional outcome measure) and (2) students' perceptions of the helpfulness of the week-to-week tasks of the course. Since there was no control group in this study, measurement was made of pre- and post-course differences in vocational development (i.e., the VDC) using analysis of variance.

As in Smith and Evans' (1973) study, statistically significant

differences ( $p < .01$ ) were obtained for decision-making progress in both the areas of academic major and occupation. Also, more than seventy percent of the students reported being closer to selecting a major (73.3%) and an occupation (70.9%) at the completion of the course. A substantial percentage (29.1%) of students rated the small group sessions as not helpful. This may indicate that a relatively unstructured group is not appropriate for career decision-oriented counseling.

The authors conclude that the decision-making course was a contributing factor in the students' vocational development. Although the lack of a control group should qualify all conclusions, this study points in the direction of more extensive (i.e. longer and/or more comprehensive) treatments being superior to briefer ones: longer treatments in this and in Smith and Evans' (1973) studies produced positive changes in occupational decision-making stage. This was not found to be true in the shorter treatments of Wachowiak, (2 sessions) and Cochran, Hoffman, Strand, and Warren (3 sessions).

Ganster and Lovell (1978) studied the effectiveness of a five-session (fifteen hour) college credit career seminar, using the construct of "career maturity" as a measure.

Career maturity, as measured by the Career Maturity Inventory, or CMI, (Crites, 1973) can be considered to be a measure of both process and outcome, as items related to knowledge of information sources (process), for example, are combined with questions on certainty about occupational choice (outcome). The CMI operationalizes career maturity into four categories: (1) consistency of career choice over time; (2) attitudes about work itself; (3) the involvement and independence of the in-

dividual in the choice process, and (4) the ability of the individual to assess his/her own abilities and personal preferences and to match them with occupational requirements.

Clearly there are elements of what we have defined as "career decision-making skills" in this measure. For example, the CMI Competence Test measures the decision-making skills of "Self-Appraisal," "Occupational Information," "Goal Selection" and "Planning." In this way it measures the learning of a decision-making strategy.

This treatment differs from most of the previously-discussed studies, in that Canster and Lovell's (1978) seminar was not an explicit application of social learning principles, nor was a decision-making strategy taught. Instead the seminar was based on the presentation and use of John Holland's typological theory (Holland, 1973). Activities included small-group interpretation of the Self-Directed Search (Holland, 1979) and instruction in the use of the Dictionary of Occupational Titles (U.S. Department of Labor, 1965). The study is of relevance here because, in effect, the group was led through some of the steps of decision-making, although the process wasn't conceptualized or taught as a decision-making model. The seminar included the decision-making elements of self-appraisal (via the S.D.S., and a "Typological People Assessment"), alternative-generating (via the Occupations Finder of the S.D.S.) and occupational information-seeking (via D.O.T. instruction). Not explicitly included were strategies for choice-making, planning, and action.

Post-test CMI score comparisons between the treatment and the control groups were significant on the Attitude Scale ( $p < .001$ ) in favor of the treatment group. The Competence Test which, as we have noted, es-



entially measures decision-making skills, showed similar significant differences ( $p < .01$ ). The treatment group particularly improved in self-appraisal ( $p < .01$ ), goal selection ( $p < .05$ ), and problem-solving ( $p < .01$ ). They did not show significant improvement on the Occupational Information scale or on the Planning scale.

Based on these results, it can be concluded that Ganster and Lovell's (1978) treatment taught some decision-making skills. The authors exercise a note of caution, however, as the students in the seminar self-selected to get career help, and the control group students did not. The effect of the seminar students' readiness cannot therefore be determined. The authors indicate that their seminar could be improved by including components on occupational information and on planning. It is worth noting that "exposure to occupational information" is another of the four treatment factors that Holland, Fagoon, and Spokane (1981), in a review of vocational research, say underlie effective career interventions. Overall, however, positive effects from Ganster and Lovell's program are indicated. The authors suggest that their approach (i.e. based on the Holland typological model) be compared to other interventions, specifically with those that are eclectic in nature. In this way the components that contribute to success can be identified.

Egner and Jackson (1978) also used part of the CHI (i.e. the Attitude Scale) as one of their measures of a twenty-session decision-making course for eleventh graders ( $N = 334$ , broken into groups of from ten to eighteen). The researchers considered their study to be the first "comprehensive research study related to teaching decision-making skills" (p. 45). The large population size contributed to this comprehensiveness, as did the completeness of the treatment.



Twenty-four groups of urban, suburban, and rural students were explicitly taught career-decision-making skills and applied them to their own occupational choice. Specifically, the curriculum covered three "packets" which, it can be seen, cover most of the decision-making steps previously mentioned: (1) The values packet: Self-assessment of values, abilities and interests; (2) The occupational information packet: Information-seeking on educational requirements, job requirements, and potential rewards of some occupations via print and audio-visual materials and personal interviews with persons in these occupations; (3) The decision point packet: Linking personal preferences to occupations, with recycling for more information when needed. Unlike some of the previous studies, explicit use of social learning principles, such as reinforcement and modeling, was not made in this treatment, although obviously both reinforcement and modeling occur in all such interventions in a less intentional way.

Egner and Jackson's measures were career maturity, as reflected by attitudes (Career Maturity Inventory, Attitude Scale), a written simulation test of decision-making skills (a process measure), and self-reports on the helpfulness of the course. The simulation test asked students to solve presented career decision problems; they were scored on their use of four key decision components from the model: (a) awareness of options, values, and information; (b) alternatives; (c) anticipated actions and outcomes; and (d) action and choice assessment. Scores were determined by a summation of correct decision-making responses to a particular course of action or to the alternatives given in the presented problems.

Although the treatment group as a whole did not improve significantly more (at the .05 level) than did the control group on decision-making skills, four of the treatment groups (out of twelve) did so. (It should be noted that one of the control groups also scored significantly higher on decision-making, however.) The students enrolled in the program did significantly increase their career maturity (attitude scale) scores ( $p < .001$ ).

A series of correlations were done, with the following results: Career maturity was found to be somewhat related to decision-making skills, with a Pearson correlation coefficient of .45. This indicates a relationship between attitude or "motivation" and the learning of career decision-making skills; it is a relationship worth exploring further. Post-test decision-making skill was also correlated with IQ (.54), with Grade Point Average (.48) and with "academic" students (.47). These correlations were significant. Pre-test decision-making skill was also correlated with post-test decision-making skill (.60).

Students enrolled in academic programs scored higher on decision-making on the pre-test than did those in non-academic programs; their change scores (pre- to post-) were not significantly higher than those of "non-academic" program students, perhaps for the very reason that they had had some decision-making skills in their repertoire and therefore had less room to improve. The program was more effective in increasing the career maturity scores of academic students ( $p < .01$ ) than those of non-academic students ( $p < .06$ ). Females also scored higher than males on career maturity ( $p < .001$ ) and decision-making ( $p < .02$ ).

Finally, self-reports of helpfulness indicated that the vast majority of Egner and Jackson's subjects felt they now knew how to (a) see

more occupational choices (62%); (b) go about getting information (73%); (c) recognize their values and use them in making decisions (76%); (d) consider and rank alternatives in accordance with their preferences (68%); and (e) go about making some career decisions (82%). Thirty-three percent reported that they now felt that their original occupational choices may not have been the best for them. This indicates that certainty about occupational choice may not be a good measure, used alone, of positive outcomes of a career decision-making treatment, as less certainty may temporarily occur from the discarding of poorly chosen ("foreclosed") occupations.

Egner and Jackson's comprehensive study points in fruitful directions. The value of teaching decision-making is supported by the significant increase in career maturity scores, although the lack of clear results on the measures of decision-making skills should give the researcher pause. However, career maturity was found to be significantly related to decision-making skills. On another front, this study reminds the researcher of the potential fruitfulness of studying subject-treatment interaction in career decision-making interventions. The correlations of decision-making skill with higher IQ, higher GPA, and with enrollment in the academic program indicate that a decision-making intervention might perhaps be taught differently to different students, with higher academic ability students benefiting more from this type of approach. The findings that females benefited significantly more from the program also deserve further study. Age could be added to the list of subject variables that are worth studying.

Schenk, Johnston and Jacobsen (1979) also used "career maturity,"

as measured by the Career Development Inventory (Super and Forrester, 1972), in their study of a non-credit career decision-making workshop for college students (N = 68). In this six-hour workshop (three weeks, two hours per week), three content areas, which paralleled the areas measured by the CDI, were covered: (1) "planning orientation," which included informing the students of the need for a planning approach and discussion of the critical factors in career decisions; (2) "resources for exploration," in which subjects were informed of available resources for self- and occupational exploration; and (3) "decision-making," in which a decision-making framework (i.e. strategy) was taught and in which the information previously gathered was translated into goals. The control group engaged in self-exploration activities, but did not integrate their self-information into the decision-making framework. As can be seen, decision-making was taught and enacted here, although no social learning principles were explicitly applied.

Significant treatment effects at the .01 level were demonstrated, as the workshop positively impacted all four areas of the CDI (planning orientation, resources for exploration, decision-making, and total score). Thus both attitudinal changes (e.g. about planning) and gains in decision-making skills (increased knowledge of resources and knowledge of a decision-making strategy) were demonstrated. Again, however, the question must be asked: Can it be demonstrated that better actual decisions are related to these gains in "career maturity?" Krumboltz (1979) has said that we must actually measure subjects' decisions as well as the learning of these skills.

Schenk, Johnston, and Jacobsen (1979) also looked at subject-



treatment interactions. They studied the effects of the treatments on subjects with "differentiated vs. undifferentiated" and "consistent vs. inconsistent" codes on Holland's (1973) personality types, as measured by the Vocational Preference Inventory (Holland, 1965). As they had hypothesized, undifferentiated subjects (i.e. those with a small difference between their highest and lowest scores) showed significant increases on the VPI (.01 and .05 levels, depending on the scale of the CDI). The existence of differential effects on particular subjects implies that other relationships between client characteristics (such as sex and age) and career decision-making interventions might bear further investigation.

Subject-treatment interaction was one of two major methodological concerns that Krumboltz (1979) attempted to address in his study of a ninety-minute career decision-making intervention given to college students. The second was the need for decisional outcome measures (as opposed to process measures).

Krumboltz's research question was "to discover whether teaching a systematic 'rational' procedure for making decisions improves the 'quality' of the resulting decisions" (p. 14). His ninety-minute treatment consisted of three segments in which the "DECIDES" model was taught (Krumboltz and Hamel, 1977). The model consists of: (1) Defining the problem; (2) Establishing an action plan; (3) Clarifying values; (4) Identifying alternatives; (5) Discovering possible outcomes; (6) Eliminating alternatives systematically; and (7) Starting action. It can be seen that this model shares commonalities with decision-making strategies in other studies, including the generalized model described on p. 10 (above).

Krumboltz applied social learning principles to his instruction,



as students were given didactic presentations of the model, demonstrations of applying the skills (e.g. in deciding on a book to read), guided practice in the skills, and opportunities to perform them independently. In contrast to most of the previous treatments, Krumboltz's subjects did not apply the decision-making training to their own major/career choices during the sessions; instead, examples and simulations of decisions were used. Half of the sample of 255 students received the experimental treatment; the other half received a "job interviewing" treatment, which was similar to the decision-making training in all aspects except for content.

In addition to a pre-treatment measure of decision-making style, there were two post-treatment measures. The first was a cognitive measure of subjects' knowledge of the DECIDES model, called the Career Decision-Making Skills Exercise, or CDMSAE (College Board, 1977). This measure bears similarity to measures used by Ryan (1968), Evans and Cody (1969), Bergland, Quatrano, and Lundquist (1975), Ganster and Lovell (1978), and Schenk, Johnston, and Jacobsen (1979), in that all of them measure decision-making or problem-solving ability via paper and pencil responses to presented problems or questions. These problems are designed to elicit cognitive knowledge of and/or ability to use good decision-making strategies.

Krumboltz's second measure, the Career Decision Simulation (CDS), is quite different from previous attempts to measure decision-making skills and decisional outcomes. The CDS was designed to represent real-life career decision-making as closely as possible; that is, it was intended to have high face validity. At the same time, Krumboltz sought to have an objective procedure for assigning a numerical value to the out-

come of a subjects' decision, which he called a "degree of goodness" score. Krumboltz indicated that using this type of outcome measure was crucial for evaluating a career decision-making intervention, since "better decisions" are the aim of such treatments. Mere process measures (i.e. the learning of decision-making skills) alone, he indicated, do not demonstrate that good decisions will consequently be made by subjects. While the first measure, the CDMSAE, measured the cognitive learning of that process, the CDS sought to objectively measure the "goodness" of resultant decisions themselves. Krumboltz further pointed out that relying only on measurement of learned decision-making skills is inadequate partially because researchers and practitioners have not satisfactorily defined "what exactly these skills are" (Krumboltz, 1979, p. 13), nor has it been demonstrated which particular strategies are most helpful with which clients. Krumboltz has called decision-making strategies "constructs invented by social scientists to account for inferred processes in the minds of decision-makers" (p. xiv). He has indicated that such strategies can only be evaluated by the outcomes they produce. The "rational" strategy of systematic information collection and comparison, as in the DECIDES model, is suggested by most authors to be the preferred one, as many theorists and counselors have suggested. However, it may be so only for some clients, depending on age, sex, decision-making style (which Krumboltz tried to measure in his pre-test), or on a number of other variables which others can be studied (e.g. academic ability, Holland code characteristics, locus of control). Krumboltz, while not necessarily contradicting Gelatt, Varenhorst and Carey's (1963) dictum that a good decision is one which follows a good decision-making strategy, has said that we must first demonstrate that such a strategy actually results

in good decisions.

How did Krumboltz measure "good decisions"? He acknowledged measurement difficulties, pointing out that career decision-making is not a simple, one-time decision made at a certain age. Rather, as social learning theory shows, career decision-making consists of a series of thoughts and actions which influence each other throughout life; these "thoughts and actions" (i.e. decisions) both cause further learning experiences and are the result of such experiences. The outcomes of these ongoing choices are many and varied; they consist of fields and jobs chosen, entered into, and left throughout the course of a lifetime. Despite the measurement difficulties implied by such a complex process, Krumboltz attempted the objective measure of good decision-making by describing a good decision as one that yields consequences consistent with the values of the decision-maker. This was operationalized via the CDS.

Simply described, in the CDS the subject first determined his/her preferred values. Next s/he sampled a wide variety of information, the amount and types of information explored being recorded so that the strategy used by the subject can be determined. The subject then selected a fictitious occupation which might match his/her chosen values as closely as possible. The decision was scored, based on the closeness of the match between the subject's values and the values inherent in the fictitious occupations. Finally, the subject was paid three to six dollars for participating, with the higher payment being contingent on the "goodness" of the decision.

Other than the self-reports of decision satisfaction and certainty, this is the only study reviewed here, other than Yabroff's (1964), Mencke and Cochran's (1974), and Regehr and Herman's (1981), in which an objec-

tive measure of the appropriateness of the decision was attempted. It is the only study in which consistency with the client's values was used as a measure of the quality of the decision.

No one decision-making strategy was prescribed as the best in the CDS (although, again, the rational strategy is taught). Here the subject can use any decision-making approach s/he chooses and still come up with a good decision. However, the relationship between the strategy used and the "goodness" of the decision was also measured; Krumboltz hoped to indicate thus whether there truly was a superior approach for some or all decision-makers, rather than assuming that the rational strategy is that one.

Krumboltz contrasted this objective approach to measuring decisional outcomes with the subjective method of self-reported decisional certainty and satisfaction seen in other studies (Wachowiak, 1972; Evans and Rector, 1978; Snodgrass and Healy, 1979; Rubinton, 1980). Krumboltz noted that in such immediate self-reports subjects may delude themselves about the quality of their decisions, having no way of knowing how alternative decisions might have turned out. In these studies, subjects do not have enough time to experience the consequences of the decision. Krumboltz therefore proposed that instead the "objective" quality of decisions be measured, as well as decision-making processes used.

Results on the cognitive test of the DECIDES model (the CDMSAE) showed no significant differences between the treatment and the control groups, although there was a slight trend for the experimental group to have higher scores (e.g. 47.6 as opposed to 46.9 for the control group out of a possible 60, for total mean score), none of the mean differences



produced values significant beyond the .25 level. After an analysis of variance was done in order to determine if the training had differential effects as a function of age or sex, one unexpected result was seen: overall, (i.e. for treatment and control group) females did better than males, and older subjects in general did best. However, older males did significantly more poorly.

The overall lack of significant difference between the experimental and the control groups, Krumboltz pointed out, showed that decision-making wasn't taught in his treatment, not that it can't be taught. Krumboltz attributed this to the shortness of the intervention and also indicated that the CDMSAE may not have measured the essential content of what was taught since, as a cognitive measure, it may have assessed knowledge about decision-making, and not actual decision-making ability.

Treatment effects on the behavioral outcome measure (the CDS) were mixed. All treatment groups except for older males (i.e. all females and younger males) did better at  $p < .06$ , which approached, but did not reach, significance, than the controls on the quality of decisions made in the simulation. This only slight positive effect of the training leads Krumboltz to state that "training in rational decision-making was not as effective as might be desired" (p. 215).

The slightly greater sensitivity of the simulation over the knowledge test may be due to the fact that the decision-making curriculum was oriented toward performance, not knowledge. The failure to achieve stronger results, however, may again be due to the brevity of the treatment. This certainly bears major consideration and should be studied further. Krumboltz also stated that the simulation could bear some revising



so that it might more closely reflect real-life career decision-making. However, the use of the CDS is, in Krumboltz's words, a "promising beginning" (p. 216) for an objective, performance-based measure of good decision-making.

A note should be made on the relationship between decision-making style and treatment outcomes. It was hypothesized that "high rational" decision-makers, as measured by the process they had used to choose a job, would make significantly better decisions, on the whole, than other types of decision-makers ("intuitives," "fatalistics," and "dependents"). However, this was found to be only slightly so. Krumboltz concluded, "We failed to find the strong association between rational styles and decision-making success which we had predicted" (p. 221). The only conclusion about decision-making style that was able to be drawn was that subjects whose approach to decision-making was highly consistent with certain non-rational styles (i.e., "intuitive," "dependent," or "fatalistic") did not benefit from the rational training. These results are consistent with predictions as, in Krumboltz's words, "We might expect the intuitive decision-making style to produce poor results in situations as large and complex as career decisions" (p. 221). Intuitive decision-makers actually did worse after the training than did intuitives in the control group; Krumboltz indicated that this may be again due to the shortness of the training, as the intuitives didn't have a chance to learn the rational approach. Similar mixed results on the relationship between decision-making style and treatment outcomes were found on the CDMSAE.

These results may tell us about the possible invalidity of the

construct "decision-making style," as individuals' decision-making style may not be consistent across situations at all. Importantly, factor analysis did not reveal consistent response patterns across decision situations for individuals. Instead, "decision style" varied, depending on the situation (e.g. for choosing a movie, or a book, or a job, etc). Certainly such an important and complex decision as choice of an occupation or a job might require more time and effort at gathering and processing information than the choice of a movie or a book to read; individuals may therefore use different decision-making strategies, depending on the situation.

Looking at both its strengths and its shortcomings, it can be seen that Krumboltz's study suggested important leads for further inquiry. One related to outcome measurement, a second to treatment, and a third to attribute-treatment effects. Regarding outcome measurement, the continued use of a behavioral outcome measure seems to be warranted, as the CDS was more sensitive to treatment effects than was the CDMSAE: experimental females and younger males scored higher on the CDS, whereas there were only age and sex effects on the CDMSAE. However, the lack of even more significant findings on the CDS may be due to limitations of this instrument. Krumboltz pointed out that the total distribution of CDS scores (experimental and control), was heavily skewed toward high scores (higher than would be expected from guessing), which indicated that the CDS itself was teaching all subjects the rational model. He backed this up by noting that the information on the CDS was relatively clear and straightforward (unlike real occupational information, which was often complex and ambiguous)

and that subjects, once they know that a high score is produced by matching their own values with those of their occupational choice, have only to access the information in a systematic manner. Thus, the CDS may not represent the "real-life" task of career decision-making, and therefore may not be a valid test of decision-making skills.

Regarding the treatment, Krumboltz suggests that perhaps the most significant factor in the lack of strong treatment effects was the brevity of the intervention, as was mentioned above. This can only be determined by a replication which utilizes a more extensive treatment, followed by a similar behaviorally-oriented career decision simulation in which both strategy used by the subject and decisional outcomes achieved are assessed. Krumboltz's suggestion about the brevity of treatment is consistent with an observed trend for short treatments to be less effective than more extensive ones. This will be discussed below. Finally, the above-mentioned age and sex effects bear further study.

In general, while Krumboltz's study has shown ambiguous results regarding the effectiveness of teaching systematic decision-making, at the very least it raised important questions about outcome measurement and has provided us with the beginnings of a behavioral measure of effective decision-making.

A more extensive treatment of four one and one-half hour sessions (at one to two week intervals) was given to individuals by Snodgrass and Healy (1979). Their study, in contrast to some of those above, focused especially on the treatment. Their purposes were: (1) to determine whether a well-defined career counseling procedure could be repli-

cated effectively and (2) to generate suggestions for improving the treatment.

In this study, eighteen counselors taught a strategy for making career choices to thirty college undergraduates, in a one-to-one format. Referring to the information-seeking studies (particularly Krumboltz and Thoresen, 1964; Krumboltz, Varenhorst, and Thoresen, 1967; and Thoresen and Hamilton, 1972), Snodgrass and Healy point out that learning and applying a decision-making strategy is a much more complex undertaking than acquiring information. However, they indicate that the steps of a decision-making oriented treatment can be delineated in as explicit a manner as was done in the case of the information-seeking treatments. During Snodgrass and Healy's four-session treatment, the clients learned and applied a five-step decision-making strategy (Goals, Alternatives, Information, Outcomes, Plan). As in other decision-making approaches, clients here gathered and compared information about themselves and occupations, finally coming up with a tentative plan.

Both client outcomes and the teaching process itself were evaluated. Measures (all done pre- and post-) were paper-and-pencil assessments of (1) knowledge of factors and steps in career planning and of sources of information (a process measure); (2) self-report of satisfaction and certainty with career choices (an outcome measure); (3) a test of the ability to solve career problems (the Problem-Solving Scale of the CMI, a measure of whether a process or strategy was learned); and (4) two formative evaluation procedures: counselor self-ratings on each session and client self-report about which counseling procedures were most helpful. Analysis of covariance was used, the pre-test being the covariant

(there was no control group), with the following findings.

There was a significant increase in knowledge of the decision-making strategy and of sources of information ( $p < .01$ ), but subjects did not significantly increase their problem-solving ability. Thus, while the decision-making process was learned, transfer of learning to the problem situations was not shown. "Satisfaction with career choices" was significantly increased ( $p < .01$ ), but "certainty" wasn't. The authors note that this increase occurred across a majority of clients, rather than in the clients of only a few counselors.

The authors point out that the importance of the study lies not in its statistical generalizability, but in its demonstration that counseling procedures can be replicated with positive results. Clients were generally satisfied with the counseling, although they were less satisfied with "learning how to get school and occupational information or in becoming more certain and satisfied with their plans" (p. 215). These components (information-seeking and planning) were not stressed as much as self-assessment and the learning of the decision-making strategy were, although, as noted above, clients did significantly increase satisfaction with their career plans. The authors suggest that future treatments not only teach a decision-making model, but also emphasize information acquisition and methods of increasing one's commitment to a course of action.

Improving the comprehensiveness of a career decision-making intervention is consistent with Thoresen and Ewart's (1976) call for career interventions to follow a "behavioral self-management" model. By this they mean that counselors must incorporate our current understanding of how individuals can control their own behavior into their treatments.



This concept, founded on reinforcement theory, helps the counselor to provide interventions that address "action toward goals" as an important career counseling outcome. In this sense, self-assessment and the learning of the decision-making model are not sufficient outcomes by themselves if enacting good career decisions is a goal of the treatment. We must thus ask of our career interventions, "Is the client taught (and reinforced for) good decision-making behavior, including taking action toward goals?" and "What component(s) must be added to make sure that this is the case?" To their credit, Snodgrass and Healy's intervention did provide a planning sheet, including information needed and time lines for actions, thus reinforcing the client for planning. The authors agree that a further component to "increase commitment to the selected occupational and education goal" should be added. As an example, they suggest that the client be required to justify his/her plans for friends and relatives as a means of increasing commitment. This would be consistent with a behavioral self-management model.

A final note on Snodgrass and Healy's results indicates that the degree of replication achieved by the counselors, as measured by ratings of videotapes and by counselor report, was not considered to be satisfactory; they suggest changes in the counselors' training which would result in consistent presentation of the material.

While this study does not add to our store of outcome measures, nor does it deal with subject-treatment interaction, it is important for (1) its attention to the treatment itself, (2) its use of formative evaluation and (3) its attempt to delineate a replicable treatment. Still needed are designs for measuring the relative value of particular compon-

ents of career interventions, so that the critical treatment components can be specified.

So far in this review, only Egner and Jackson (1978) and Krumboltz (1979) have explored the relationship between sex and decision-making treatments. In the Egner and Jackson study, females benefited significantly more from the treatment, on all measures. Krumboltz's treatment approached significance in its effect on the decision-making ability of all women and younger men, but showed an opposite tendency with older men.

Brenner and Gazda-Grace (1979) have also attempted to determine whether career decision-making treatments may have differential effects on men and women; they have further hypothesized that all-female groups might achieve different results from mixed-sex groups. In setting up their intervention with thirty-two high school juniors, they pointed out that, although women do better academically than men in high school, their occupational aspirations tend to be lower than those of men.

Brenner and Gazda-Grace's nine-session intervention, led by a woman, taught career decision-making based on the College Board's Decisions and Outcomes course (College Entrance Examination Board, 1963), emphasizing sex-role stereotyping in addition to teaching decision-making. The course contained three major components: (1) recognition of personal values, (2) knowledge of relevant information and the ability to use it, and (3) knowledge of an effective decision-making strategy. Group W consisted of eight women, and Group WM and Group C (control group) each consisted of six men and six women.

Only the cognitive realm of decision-making was measured, via a multiple choice pre- and post-test of: (1) the thought given to understanding one's interests, values, or level of schooling desired (i.e. self-report of level of engagement in the process); (2) the extent to which the subject had explored educational and career opportunities that might fulfill perceived interests, aptitudes, and values; and (3) understanding of the decision-making process as it relates to present planning and future careers. All of these, it can be seen, are process measures.

A significant increase ( $p < .05$ ) in "decision-making ability" (based on the total score of the test) was found for the all-women's group. This contrasts with a lack of significant increase for both the mixed group and the control. These sex-related subject-treatment results bear further study; they hearken back to Thoresen, Krumboltz, and Varenhorst's (1967) findings of differential effects of modeling on male and female clients in information-seeking. However, the specific effect of modeling itself in the Brenner and Gazda-Grace study was not determinable, since their intervention did not explicitly teach in a social learning mode. The results seem to have been due to the peer influences in the groups.

Brenner and Gazda-Grace conclude that "women in an all-women's group would be better able to make career decisions than (would) those women in a sexually mixed group" (p.12 ). Further exploration of the nature of the specific reinforcements and of the modeling that contributed to these results is called for. Additionally, as with many of the above decision-making studies, Brenner and Gazda-Grace's conclusions would be strengthened by (1) the addition of an objective measure of decision-

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making ability, and (2) examination of the impact of the course on students' actual decisions.

The effect of attitude on career planning behavior can be important, as the Brenner and Gazda-Grace study indicates. In their treatment, women's attitudes about career were challenged in hopes of increasing motivation to do career planning and reducing self-stereotypes. Young (1979) focused particularly on attitude, assuming, with Super (1953, 1971) and Crites (1971), it to be an important variable in career maturity. Young's study compared a one-to-one counseling procedure which focused on attitudes, called the Value Confrontation procedure (Rokeach, 1973) with a verbal operant conditioning procedure which taught information-seeking behavior. The treatments were given to ninety eleventh-grade males who had reported a negative view of themselves and their own career planning.

Young wished to determine the respective effects of the two treatments on "career planning orientation" (an attitude measure) and on information-seeking behavior, as measured by self-reported exploratory behaviors over a seven-week period. Specifically he asked, "Does the cognitively-oriented value confrontation procedure produce attitudinal change while the reinforcement procedure produces behavioral change, or are these changes outweighed by more general changes?" (p. 3). He also examined attribute-treatment interactions by looking at the effect of the subject's locus of control on treatment outcomes.

Unlike many of these studies, Young's treatment did not attempt to teach a decision-making strategy as such; its importance lies in its comparison of the two very different treatment approaches and, specifi-



cally, in its attention to attitudes as possible influences on decision-making behavior. The value confrontation procedure sought to induce change in values, attitudes, and behavior by helping the clients to become aware of internal value/self-conception inconsistencies. Clients who had previously reported self-dissatisfaction about their career planning were shown the difference between their ranked values and those of "good" career planners. The "reinforcement counseling" treatment also included a similar "dissonance-inducing" presentation of the subjects' career planning orientation (all subjects had a "poor" career orientation compared to their peers). Additionally, in the reinforcement treatment, the counselor verbally and non-verbally reinforced statements which were evidence of vocationally mature responses. The control treatment consisted of a client-centered open-ended interview.

The value confrontation (VC) procedure resulted in significant changes in the frequency of information-seeking behavior for internally controlled subjects, as compared to the reinforcement treatment ( $p = .008$ ) and to the control group ( $p < .001$ ). The three treatments were equally effective for externally controlled subjects on information-seeking, although the authors had hypothesized that the reinforcement treatment would be more effective for externals. Finally, there were no significant overall effects of treatment, locus of control, or interaction on the attitude measure, "career planning orientation."

This study furthers our knowledge of attribute-treatment interactions, as internally-controlled subjects engaged in more information-seeking than did externals, after treatment. From this we can conclude that career decision-making interventions should address the attitudinal



variables which may affect career planning behavior. The author suggests that further research examine the process of change associated with the value confrontation procedure in more depth.

Rubinton (1980) also examined attribute-treatment interactions in studying the effect of subjects' decision-making styles on treatment outcome. While Krumboltz (1979) had studied this variable also, Rubinton attempted to actually link two different interventions with two corresponding major decision-making styles, the "rational" and the "intuitive."

One treatment, called Guided Design (GD), taught a rational, sequential decision-making process. The instruction involved leading students through a written simulation that applied the following decision-making steps: identifying the problem, gathering information, generating alternatives, applying constraints, and narrowing alternatives. Rubinton called this the cognitive, rational approach. In contrast was the program called Decisions and Outcomes (DO), which was "more intuitive or affective" (p. 582). In DO there was no attempt to teach a sequential process of decision-making. Instead, fantasy, values clarification, and "emotional self-awareness" (p. 582) were the basis for the activities.

These programs were given to 120 career-undecided community college freshmen in two experimental groups. There was also an attention-placebo group, and a non-treatment control group. The active groups met once a week for twelve weeks. Decision-making style was determined in the pre-test, using the Assessment of Career Decision-Making - Decision-Styles, or ACDM-DMS (Harren, 1978). Each subject was associated with one of three styles which s/he primarily relied on in making important life decisions; these were called "rational," "intuitive," and "dependent."

For outcome measures, all subjects were given (1) a "Vocational Survey Questionnaire" (Yaegel, 1978) which categorized them according to their expressed degree of certainty of vocational choice and (2) the Attitude Scale of the Career Maturity Inventory (Grites, 1973) in order to determine "the nonintellective attitudinal response tendencies in vocational maturity" (p. 583). These were given pre- and post-treatment. As can be seen, no measure assessed the learning of a decision-making strategy here.

Results indicated that the experimental group subjects significantly increased their certainty scores ( $p < .01$ ). The two experimental groups had almost three times as many subjects in the "decided" categories as did the two control groups. However, on attitude there was a non-significant main effect for treatment ( $p < .01$ ) and a nonsignificant interaction of style and treatment ( $p < .01$ ). Thus the experimental treatments did not significantly affect career planning attitudes.

While decision-making style did not contribute significantly to certainty of vocational choice ( $p < .01$ ) on the attitude scale, there was a significant main effect of decision-making style ( $p < .01$ ). Rubinton accepts the hypothesis that decision-making style contributes significantly to vocational maturity. Specifically, there were significant attitude differences between the rational and the dependent styles ( $p < .05$ ). Post-test means for dependent decision-makers were actually lower than their pre-test means; the opposite was true for the rational style. Thus, decision-making style affected "vocational maturity," while the treatments as a whole did not. Rationals had the most significant pre-post increases with GD (the rational treatment) ( $p < .001$ ) and intuitives with DO (the intuitive treatment) ( $p < .001$ ), indicating a positive

relationship between decision-making styles and the corresponding treatments. None of the rationals or intuitives increased vocational maturity in the no-treatment control group. Thus, the two "effective styles" (as indicated by Rubinton), rational and intuitive, benefited from corresponding assistance. Dependent decision-makers decreased their vocational maturity scores regardless of the group that they were in.

On the certainty ratings, about twice the percentage of rational-style decision-makers (57%) compared to intuitives (36%) were decided about their vocational choice after the intervention. The figure for dependents was 20%. This is consistent with other studies (Greenhaus and Simon, 1977; Harren, 1978) in which the rational style was linked with effective decision-making. However, this assumes that being more certain is a positive measure of treatment effects.

Rubinton concludes that rationals and intuitives can be considered effective decision-makers, since they increased their vocational maturity in all but the no-treatment control group, and dependent decision-makers ineffective, as they decreased their vocational maturity, regardless of the group they were in. The author suggests that modification of the dependent style prior to teaching decision-making skills should be considered. This hearkens back to Young's (1979) study, above, in which treatment of a pre-existing attitude was shown to have a significant positive effect.

A final finding on the certainty scale was that almost three times as many students in the two experimental groups as in the two control groups were in the "decided" categories, although none of the stu-

dents had been decided at all prior to treatment. The effectiveness of a twelve-week career decision-making program for increasing vocational certainty is supported.

Rubinton calls for further research to explore the relationship between decision-making style and the impact of career decision-making interventions, as well as exploration of other personological variables. She also calls for studies of long-term maintenance of the gains of the experimental groups.

Regehr and Herman (1981) also used the Career Maturity Inventory (both Attitude and Competency scales, however) in order to study the effect of an eleven session career decision-making training on ninth graders (N = 80). The students were randomly divided into four classes, two experimental and two control. They were led through exploration of values, interests, abilities, and were taught decision-making skills via case studies, self-assessment activities, and standardized tests.

Because of the age of the subjects, the emphasis was on learning decision-making skills, not on making a decision; the authors state their objective was to "assist students in developing the knowledge, skills, and habits required to respond to the opportunities and expectations of the world of work" (p. 336). The role of vocational developmental stage was thus recognized by Regehr and Herman as a factor that affects both treatment and outcomes. Movement toward a career decision would not have been an appropriate outcome measure for this age group. The effect of age on the nature of the treatment offered and on outcomes expected should be studied further.

Despite the extensive and comprehensive treatment, results in-



licated no significant differences between experimental and control groups in overall career maturity. These results are inconsistent with previous findings on teaching career decision-making, and the authors speculate as to why this occurred. They indicate that it is unlikely that it was due to the content of the treatment, which was similar to Smith and Evans' (1973) successful treatment, nor are the lack of positive findings due to the instruments' reliability. Instead they speculate on (1) the class having met only every six days, which was perhaps insufficient for the hoped-for learning to occur, (2) the active control group having learned career skills in the process of researching occupations in the library (which was their control task), and, (3) perhaps most significantly, the groups' differing on readiness for career guidance; without a pre-test, there was no way to ensure that the two groups were at similar stages of readiness. It is also possible that the Career Maturity Inventory did not measure the skills that the treatment aimed to teach.

Blecharczyk and Fortune (1981), in contrast to the previous study, found their treatment group (n = 35) of Upward Bound students to significantly improve in career decision-making skills, compared to a control group (n = 19). Students in their career decision-making course of twenty hours (over six weeks of one-hour sessions) were taught and experienced an extensive decision-making process.

To test outcomes, the "Career Planning and Decision-Making Student Survey" was used. It measured nine dimensions, including all three categories of measures seen in this review: (1) attitude (i.e. toward career selection), (2) process (e.g. knowledge of steps in decision-



making), and (3) outcome (e.g. career choices made). The survey was given as a pre- and post-test.

The treatment was found to have a significant effect ( $p < .01$ ) when scores were totalled, although no one of the nine sub-scores was found to be significant. In contrast Krumboltz's results, sex and age main effects were not significant. However, the age range was only 14-17. Blecharczyk and Fortune merely report, and do not discuss, their findings any further.

Jepsen, Dustin, and Miars (1981) attempted to contrast two general types of interventions which they saw emerging in career decision-making studies. In one, represented by the information-seeking studies, (e.g. Krumboltz and Schroeder, 1965, and Krumboltz and Thoresen, 1964) that particular decision-making behavior was isolated and trained for, and behavioral techniques were used in the instruction. By contrast, in the other studies reported here the whole range of decision-making strategies, to a lesser or greater extent (depending on the study) were taught; many of this group of studies emphasized the learning of a cognitive process of decision-making. Jepsen, Dustin and Miars have called the first type of intervention "behavioral problem-solving training," as they see it being concerned with the activity involved in career exploration (i.e. generating and testing information about oneself and the world of work). The other they name "cognitive decision-making training" which they describe as the thought involved when applying decision-making principles to career-related problems. For each approach, Jepsen, Dustin and Miars have indicated that there are corresponding outcomes: the behavioral approach results in "career exploration" and the cognitive approach re-

A control group received a "guided field trip." In this study, sixty-six volunteer eleventh graders experienced one of the interventions in a single six-hour session. The "cognitive decision-making training" consisted of a description of decision-making steps, the giving of examples which applied the steps, and the subjects' going through their own decisions, using the steps. The behavioral treatment was organized around the same decision-making steps, but they were never read or described; instead a model described her uncertainty and the decision-making steps she had gone through, exemplifying the proper execution of them. Following that, in a discussion, verbal shaping of correct applications was done, using verbal reinforcement. A control group received a "guided field trip."

Despite Jepsen et al's attempt to distinguish exploratory from decision-making behavior, the major difference in the approaches seems to have been in the method used to teach good career decision-making behavior. The authors describe "exploration" as overt behavior, whereas "decision-making behavior" for them is cognitive. It is interesting to note that Krumboltz (1979) considered decision-making skills to include both thoughts and actions, while Jepsen et al instead attempt to distinguish thoughts from actions in their treatments. However, since, in Jepsen et al's study, a complete decision-making process was taught to both active groups, the distinction here between "behavioral" and "cognitive" really lies in the instructional method used to teach the decision-making process, not in the content of the treatment.

The authors were interested in the effects of each approach on both the "exploration" and "decision-making" outcomes. They hypothesized that the behavioral group would score higher on exploration and the cognitive group on decision-making measures. To determine this, all groups were measured by four instruments four weeks after the treatment. The first three measured exploration: (1) the "Information Search Survey" was a self-report of information-seeking behavior which was based on Krumboltz and Thoresen's (1964) instrument. (2) The Extent of Planning Scale from the Career Development Inventory (Thompson and Lindeman, 1982) measured how much time the subject had given to thinking about and implementing career-relevant activities. (3) The "Career Information Request" (an objective measure) consisted of counting the number of requests a subject made for information.

The other set of scales, in two parts, assessed the cognitive dimension of career decision-making: one part required the subjects to recognize decision-making principles or to apply them to case vignettes; the other asked subjects to describe their post-high school plans, and raters categorized their responses into two scales: (a) number of reasons for their top three choices and (b) number of outcomes anticipated from the first choice plan. It can be seen that these two scales attempted to measure the quality of subjects' decisions in an objective way. The "exploration" instruments attempted to measure the learning of and/or engaging in the decision-making process, whereas the "high school plans" measure addressed decisional outcomes.

At  $p < .05$  there were no significant differences among any of the treatments. However, the two active treatments, as opposed to the control

group, did prove superior in career exploration at the .07 level. As in a number of previous studies, and particularly as in Krumboltz's (1979) study, an otherwise well-designed study which asked important questions and utilized comprehensive measures failed to show significant results, possibly due to the brevity of the treatment.

The importance of this study lies in its attempt to determine the contributions of specific treatment components to career intervention outcomes. Like Snodgrass and Healy (1979), and Rubinton (1980), Jepsen et al sought to describe how differential treatments, "behavioral problem-solving" versus "cognitive decision-making," contributed to outcomes. While the cognitive teaching of a decision-making strategy and behaviorally oriented instruction in seeking information were isolated here, one might speculate that both, and not one or the other, seem appropriate in a comprehensive decision-making intervention, especially in light of the undifferentiated results seen here.



Group career decision-making interventions have had positive impacts on three types of outcomes: decision-making skills, actual decisions, and attitudes. In the first case, career decision-making seems to be comprised of a set of teachable skills. Strong positive results on learning a cognitive decision-making strategy, or parts of one, were found in Ryan (1968), Evans and Cody (1969), Ganster and Lovell (1978), Schenk, Johnston, and Jacobsen (1979), Snodgrass and Healy (1979), Brenner and Gazda-Grace (1979), Young (1979), and Blecharczyk and Fortune (1981). Secondly, and more importantly perhaps, group career interventions seem to positively affect decisions themselves, either by improving their quality and/or by increasing certainty and/or satisfaction about occupational choice. This can be seen in the studies by Wachowiak (1972), Smith and Evans (1973), Mencke and Cochran (1974), Cochran, Hoffman, Strand, and Warren (1977), Evans and Rector (1978), Snodgrass and Healy (1979), Rubinton (1980); other studies (Krumboltz, 1979 and Jepsen, Dustin and Miars, 1981) showed positive, but not significant, trends which favored the effect of career decision-making treatments on decisions. Finally, career-oriented attitudes were also significantly improved in studies by Ganster and Lovell (1978), Egner and Jackson (1978), Schenk, Johnston and Jacobsen (1979), and Blecharczyk and Fortune (1981).

These conclusions parallel those of previous reviewers. Fretz's (1981) comprehensive review of the evaluative literature for career interventions suggests that the "myriad, diverse interventions result in small



yet consistently detectable gains" (p. 77). Spokane and Oliver (1982) analyzed 52 career intervention studies and confirmed this. When they looked specifically at group interventions they found, using a "meta-analysis" procedure for twenty-three studies, that "the outcome status of the average client receiving group/class vocational interventions exceed that of 87% of untreated control" (p. 15). Spokane and Oliver also found the "effect sizes" to be larger for group interventions than for individual interventions, in which treatment subjects exceeded 81% of the control. A note of caution is added by Holland, Spokane and Magoon (1981) who, in another review of career interventions, note the strong tendency to find beneficial effects because of the average client's knowing "so little about career decision-making ... that a small amount of new information and support make a difference" (p. 285).

#### Research Needs

From these reviews, future research needs begin to emerge. Spokane and Oliver (1982) indicate that the beneficial effects of vocational interventions have so far provided only the most general information. They call for a study of differences among treatments (i.e. study of treatment parameters). Following Rosen and Proctor (1981), Spokane and Oliver distinguish outcomes that are only generally related to the treatment ("effects") and outcomes which derive directly from specific therapeutic inputs ("effectiveness") (p. 23).

A related major gap in the literature is suggested by Holland, Magoon and Spokane (1981) in their review of research: "The general fail-

ure to find different effects for different treatments demonstrates a large hole in our understanding of client-treatment interactions" (pp. 285-286). They call for "more analytical and less shotgun evaluation" (p. 286). Fretz (1981) specifically asks whether the positive results that have been noted only indicate "great impact for some participants but nothing for others" (p. 77). He has strongly called for countering the "client uniformity myth" by consideration of client attribute-treatment interactions (ATI's).

Specified below are some of the research questions that stand out, although, as Spokane and Oliver (1982) point out, "It is not likely that any specific study will be able to meet all of the guidelines" (p. 25). Research questions about the impact of career decision-making interventions fall into three categories: treatment parameters, outcome measures, and attribute-treatment interactions.

#### Treatment Parameters

These questions about treatments emerge from the above review: What are the critical components of a decision-making intervention? Are some decision-making skills more important than others? Specifically, is teaching self-assessment and information-seeking sufficient, or must strategies for choosing, planning, and/or taking action be included? What is the most effective way to teach career decision-making? Should treatments attempt to impact attitudes? Are social learning (i.e. behavioral) methods superior to non-social learning methods?

Studies varied in the method of presenting a career decision-making treatment. Some (Ryan, 1968; Evans and Cody, 1969; Wachowiak, 1972;

Bergland, Quatrano, and Lundquist, 1975; Krumboltz, 1979; Young, 1979; Jepsen, Dustin and Miars, 1981) made reference to social learning, or "behavioral," principles in their teaching technique, using reinforcement, modeling and various follow-up techniques to promote learning and to ensure action toward goals. Most of the treatments made explicit reference to teaching a rational decision-making strategy. In one study (Rubinton, 1980), the rational approach was contrasted with an "intuitive" intervention (i.e. one which did not describe and apply a rational decision-making framework).

In the most general terms, the two treatment issues of (1) duration and (2) comprehensiveness emerge as needing further study. Regarding duration, brevity seems to be a problem. Spokane and Oliver (1982) address the duration issue in their "meta-analysis" of vocational interventions. They speculate that their finding group interventions to be superior to individual treatments was due to groups' longer duration, in part: "Group interventions employ more intensive treatments -- i.e., average more sessions and/or involve a larger number of hours ..." (p.16). In our review, we were able to informally note a related trend: although it has not been subjected to statistical analysis, briefer treatments seemed to be less impactful than longer ones. Specifically, mixed or unsatisfactory results were found in studies involving: five sessions (Bergland, Quatrano, and Lundquist, 1975), three sessions (Cochran, Hoffman, Strand, and Warren, 1977), and three sessions (Krumboltz, 1979). Both Cochran, Hoffman, Strand and Warren and Krumboltz speculate that a more extensive treatment may have led to improved outcomes.

Of course, duration in and of itself does not make a successful

treatment. More comprehensive treatments seem to produce superior outcomes also. As Spokane and Oliver speculate (1982, p. 16): "Group treatments may also be more comprehensive than individual treatments, and employ strategies that other forms of treatment do not ...". However, more is not necessarily better. Holland, Magoon, and Spokane (1981) note the failure to produce greater treatment outcomes by merely putting similar or diverse treatments together (Miller and Cochran, 1979; Takai and Holland, 1979; Talbot and Birk, 1979). Holland, Magoon, and Spokane indicate, therefore, the need to develop "integrated treatment chains that are more beneficial than the individual links" (p. 286). Again, explicit analysis of the contribution of specific program components is needed.

Such components have been suggested. Holland, Magoon, and Spokane (1981) have described five treatment components that seem to be shared by divergent treatments, and which, they suggest, would constitute an "ideal" intervention: (a) occupational information organized by a comprehensible method and easily accessible to a client; (b) assessment materials and devices that clarify a client's self-picture and vocational potentials; (c) individual or group activities that require the rehearsal of career plans or problems; (d) counselors, groups, or peers that provide support; and (e) "a comprehensible cognitive structure for organizing information about self and occupational alternatives" (p. 298). Another guideline for a comprehensive treatment is the above-mentioned (p. 10) seven-step decision-making model.

The speculation that the above components would provide comprehensiveness needs to be demonstrated. We must again ask: "Which components are more important than others for which outcomes?" Snodgrass and



Healy (1979) and Jepsen, Dustin, and Miars (1981) have attempted to study the contributions of particular treatment components. Snodgrass and Healy (1979), for example, recommended increased emphasis on corresponding treatment elements when they found that clients received little help in learning how to get occupational information, in learning how to make plans, or in becoming more certain and satisfied with their plans. Few treatments reviewed here have explicitly addressed the decision-making behaviors of "making plans" and of "ensuring action." These should be tried and studied. From the slight evidence above, Holland, Magoon, and Spokane (1981) suggest that researchers and practitioners move ahead with developing more potent treatments by incorporating the influential characteristics of past treatments. Comprehensive and intensive (i.e. of longer duration) treatments might be especially emphasized. Preciseness, however, requires that we must analyze (1) how comprehensive they must be, (2) which components contribute to what outcomes and (3) how "intensive" these interventions should be.

### Outcome Measures

How should the effectiveness of a career decision-making treatment be measured? By the learning of a decision-making strategy? By improvement in the quality of decisions? By changes in attitude? Should "behavioral" measures (e.g. simulation, observation) be used to determine learning of a decision-making strategy, or are "cognitive" measures sufficient? Should the quality of decisions be measured objectively, or are subjective reports of decisional certainty and satisfaction sufficient?

In the above studies of career decision-making interventions,



four categories of measures have emerged; they are they that: (1) measure the learning of a decision-making process, or some part of it, (2) examine decisional outcomes, such as the consistency of resulting decisions over time, (3) measure attitudes, and (4) evaluate the treatment.

1. Process. Katz (1975) has recommended that researchers measure the acquisition of career decision-making skills (or "process"), and not be responsible for long-range decisional outcomes. Many researchers have measured skill acquisition. In the information-seeking studies (Krumboltz and Schroeder, 1965; Krumboltz and Thoresen, 1964; Thoresen and Krumboltz, 1967; Krumboltz, Varenhorst and Thoresen, 1967; Thoresen, Krumboltz, and Varenhorst, 1967; Thoresen and Krumboltz, 1968; Thoresen, Hosford, and Krumboltz, 1970), as in some of the decision-making studies (Mencke and Cochran, 1974) both self-reported and observed frequency and variety of occupational information-seeking were used as measures. No attempts were made to measure the goodness or badness of subjects' later decisions. The assumption in only using process measures has been that learning how to seek information (or knowing a rational decision-making strategy) will lead to improved decisions (i.e. more satisfactory results will be likely). Researchers who studied more complete decision-making treatments also measured information-seeking, although it was most frequently combined with either outcome or attitude measures: Ryan (1968), Young (1979) and Jepsen, Dustin, and Miars (1981) each used self-report behavioral measures of decision-making activities engaged in, although Jepsen et al added an objective measure of this.

Many researchers attempted to measure knowledge of a complete decision-making strategy, either via "knowledge tests" (e.g. naming

sources of information about self and occupations), or via the presenting of problems which required subjects to apply appropriate decision-making strategies. These included Yabroff's (1964) "cognitive test of three decision-making behaviors," Ryan's (1968) knowledge test of sources of information about self and the world of work, and Evans and Cody's (1969) test of ability to use a decision-making strategy when presented with problems. Other measures of decision-making skills also included Bergland, Quatrano, and Lundquist's (1975) "knowledge" and "ability" tests of how to use relevant and reliable information and how to apply decision-making behaviors, and Ganster and Lovell's (1978), Snodgrass and Healy's (1979), Regehr and Herman's (1981), and Blecharczyk and Fortune's (1981) use of the CMI Competence test. The CMI Competence test measures the subject's skill in assessing abilities and preferences and in matching them with occupational requirements. Other knowledge measures included Egner and Jackson's (1978) "problem-solving test" of subjects' ability to use four key decision-making components and Schenk, Johnston, and Jacobsen's (1979) use of the Career Development (CDI) Inventory. The CDI measures information possessed by the subject and his/her knowledge of how to integrate information and good decision-making strategy into decisions. Krumboltz's (1979) knowledge test measures seven decision-making steps through a behavioral simulation of subjects' ability to use good decision-making behaviors. Other career decision-making knowledge tests include Snodgrass and Healy's (1979) knowledge of a career decision-making strategy, Brenner and Gazda-Grace's (1979) cognitive test of decision-making, and Jepsen et al's test of subjects' ability to apply decision-making principles to case vignettes.

2. Outcome. In contrast to attempts to test subjects' knowledge of good decision-making strategies, the following researchers measured the effect of interventions on a subject's decision itself; these we will call "outcome" measures. They can be divided into two groups, subjective and objective measures.

The subjective measures of decisional outcomes are far more numerous: various "certainty" and/or "satisfaction" measures (i.e. regarding choice of a major or of an occupation), as self-reported, were used by Wachowiak (1972), Evans and Rector (1978), Snodgrass and Healy (1979) and Rubinton (1980). A number of studies (Wachowiak, 1972; Smith and Evans, 1973; Cochran, Hoffman, Strand, and Warren, 1977; Evans and Rector, 1978) used a measure of "progress in decision-making" which, while it is a developmental measure of sorts, does measure a subject's degree of certainty about choice of a major and an occupation; this, then, can also be considered a subjective measure of the effect of an intervention on a subject's decision.

Attempts at an objective measure of the quality of decisional outcomes have been less numerous. In this review, four were noted: Yabroff (1964) used expectancy tables to judge "probability of success" of subjects' course choices; Zener and Schmuelle (1972) have described a method for measuring appropriateness of occupational choice, using an "agreement index" to estimate the agreement between a person's current "considered occupational alternatives" and the code resulting from the S.D.S.; Mencke and Cochran (1974) measured congruency between subjects' occupational preferences and their S.D.S. codes; Jepsen, Dustin, and Miars (1981) had raters judge subjects' post-high school plans according

to number of reasons for their top three choices and the number of outcomes anticipated from the first choice plan. The quality of decisions has been difficult to measure, so much so that Janis and Mann (1977), in their comprehensive treatment of the psychological decision-making process, concluded that "we have no dependable way of objectively assessing the success of a decision ..." (p. 11). They have suggested that we instead measure the procedures used by the decision-maker, as has been attempted by "process" measures.

3. Attitude. A third group of measures can be labeled "attitude." These attempt to look at subjects' motivational states or their predispositions toward career planning. Mencke and Cochran (1974) tried to measure attitudes about "responsibility for a career decision," "belief in the importance of considering one's attributes in making a career choice," and "awareness of career decision-making as a process" (p. 188). "Attitude toward planning" was measured by Bergland, Quatrano and Lundquist (1975). Ganster and Lovell (1978), Egner and Jackson (1978), Rubinton (1980), Blecharczyk and Fortune (1981), and Regehr and Herman (1981) used the Career Maturity Inventory, Attitude Scale, as one of their measures; this scale measured involvement in choice, orientation toward work, independence in decision-making, preference for vocational choice factors, and conceptions of the choice process. The Career Development Inventory (1972) was used as an attitude measure by Schenk, Johnston, and Jacobsen (1979) and by Young (1979). Finally, locus of control, which we include here as an attitude measure, was looked at by Wachowiak (1972), Cochran, Hoffman, Strand, and Warren (1977) and by Blecharczyk and Fortune (1981).



4. Treatment Evaluations. Although we have already described the major research measures used to study the effects of career decision-making interventions on subjects, it should be added that a number of studies (Yabroff, 1964; Smith and Evans, 1973; Evans and Rector, 1978; Egner and Jackson, 1978; Snodgrass and Healy, 1979) also evaluated the pedagogy itself via self-reported ratings of "helpfulness" or "satisfaction with the treatment." Evans and Rector and Snodgrass and Healy asked subjects to evaluate specific aspects of the intervention; Snodgrass and Healy compared these evaluations to actual outcomes on subjects. We have discussed the importance of studying treatment components above, under "Interventions."

From this review of outcome measures, it can be concluded that a variety of measures should be used in evaluating career decision-making interventions.

#### Attribute-Treatment Interactions

Do the effects of career decision-making treatments differ, depending on characteristics of the subject? Specifically, what is the effect of age on decision-making? Should treatments differ, depending on the age of the subject, with treatments for younger subjects being oriented toward teaching decision-making skills and exposing them to occupational information, and treatments for older subjects aiming at closure on choices? What about sex? Academic ability? Pre-existing attitudes (e.g. locus of control)?

Five subject attributes have been looked at in the above studies: sex, age, academic ability level, decision-making style, interest



type (Holland code), and locus of control.

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(1) Age. Most of the studies reviewed did not isolate the age factor. Instead, most looked at a relatively uniform group of either high school or college students. Mencke and Cochran's (1974) study hints at the importance of age or "readiness" in career development. They expected that their treatment would expand the number of occupational alternatives being considered by subjects, but they found the opposite. They attributed this to their subjects' (mostly college juniors and seniors) being developmentally ready to make commitments to a smaller range of occupations.

Developmental theories (Ginzberg, Ginsberg, Axelrod, and Herma, 1951; Super, 1957) indicate the need for a study of age as an indicator of "readiness" for career decision-making. As "developmental tasks" (Super, 1973) may differ among age groups, so perhaps should career decision-making intervention outcomes. Regehr and Herman (1981), for example, put emphasis on the learning of decision-making skills and not on the making of a decision for their ninth grade subjects. They therefore didn't measure "certainty" and/or "satisfaction" as did studies which dealt with older subjects.

Other researchers found various age differences: Krumboltz (1979) discovered that while older subjects in general did best on his two measures, a two-way interaction was also found, with older males achieving significantly less in decision-making. Blecharczyk and Fortune (1981), working with adolescents, found no age difference on attitudes or on decision-making skills. However, their age difference was small (14-17). They, like Regehr and Herman (1981), working with young subjects, aimed their treatment and measures at the decision-making process,

not on decisional outcomes. It would seem that further study of age differences, especially comparing adolescents and adults, is needed.

(2) Sex. Studies of sex differences revolve around two themes: the different effects of modeling and the importance of sex role-related material in the treatment, particularly for women.

Thoresen, Krumboltz, and Varenhorst (1967) found the sex of the model to be significant, with both males and females engaging in more information-seeking when exposed to a male model. A somewhat contrasting result was found by Brenner and Gazda-Grace (1979), with women in an all-woman group led by a woman scoring significantly higher in decision-making than those in a mixed group led by a woman; sex-role stereotyping was included in these treatments also. In ten years women seem to have responded more to a female leader and to peer influences. Two studies did not examine the sex of the leader or the composition of the group, but also found sex differences: Krumboltz (1979) found that females scored higher on decision-making and made better decisions after treatment than did older males. Egner and Jackson (1978) similarly found females to benefit more than males, on some measures, from a career decision-making treatment. The continuing growth in career awareness among women indicates the need to study this variable.

(3) Academic Ability. Mixed or no significant results were found on the variable of academic ability. No significant relationship between academic ability and decision-making skill was found by Yabroff (1964). Egner and Jackson (1978) showed mixed results on this relationship, with "non-academic" subjects increasing decision-making scores, but "academic" groups increasing career maturity. Certainly, with many career

decision-making interventions requiring verbal skills, this factor would continue to be fruitful for study.

(4) Decision-Making Style. Mixed results again have been found here. Both Krumboltz (1979) and Rubinton (1980) report some superiority for a rational style, and a corresponding inadequacy for a dependent decision-making style. However, Krumboltz questions the very construct of decision-making style, as he found style not to be consistent across situations in his pre-test. Career decision-making interventions frequently mix "rational" and "intuitive" elements, and attempts to categorize either the treatments or the subjects as belonging to one or the other category may not reflect the nature of either.

(5) Personality Type (Holland Code). As might be expected, those with an "undifferentiated" code (which can partly be read as "undifferentiated occupational interests") benefited more from group career guidance than did already "differentiated" subjects on all measures. This was found in a study by Schenk, Johnston, and Jacobsen (1979). This was also true for those with "inconsistent" codes. For both groups, clarification of occupation-related interests seems to occur.

(6) Locus of Control. Introversion-extroversion were found to be significant in only one study. Young (1981) found that internals did more information-seeking after the value confrontation treatment, although no difference was seen on career planning orientation. Young's three different treatments did not affect externals differentially, despite his expectation of the opposite.

Wachowiak (1972) found introversion-extroversion to be non-significant and Jepsen, Dustin, and Miars (1981) found introversion-extro-

version to play no role in the effectiveness of two contrasting interventions, although they had expected to see differences.

As a whole, the studies of career decision-making instruction are encouraging. Nevertheless, our original research question has not been fully answered: "Will teaching decision-making skills result in more appropriate decisions?" From this review of the literature, major sub-questions remain, including: (1) the contribution of particular program components to outcomes, (2) the development of appropriate outcome measures, and (3) the impact of subject attributes (e.g. age, intelligence, motivation) on treatment outcomes.

Regarding the first, we need information on the value of specific treatment elements. Contrasting treatments should be compared, as should similar treatments. In the latter case, one treatment may leave out specific elements, while the other includes them. Both formative evaluation techniques and outcome measures should be used to indicate the superiority of one approach over another. Both Fretz's (1981) and Spokane and Oliver's (1982) reviews strongly call for this research direction.

Secondly, there have been difficulties in defining appropriate outcome measures for vocational interventions. Spokane and Oliver (1982), Oliver (1981), and Fretz (1981) recommend that at this time a variety of subjective and objective measures be used to evaluate outcomes; this is because career decision-making interventions impact on a number of attitudes and behaviors. Generally, decision-making skills and the quality of subject decisions are both important outcome measures.

The final issue, that of attribute-treatment interactions, has

not had the attention that authors such as Krumboltz (1966) indicate that it deserves. The question to be asked here is "What interventions work with which clients?" Fretz (1981) and Spokane and Oliver (1982) have suggested a number of client attributes that ought to be examined. Age, sex, and academic ability particularly stand out for further study.

The following study sought to address each of these three major research needs.



## C H A P T E R    I I I

### M E T H O D O L O G Y

#### Hypotheses

The overall questions of this study were:

1) Can individuals be taught a systematic career decision-making process?

2) Does this instruction result in more appropriate decisions for the decision-maker?

3) What is the effect of the comprehensiveness or the brevity of the career decision-making training?

4) Is training in rational decision-making differentially effective, depending on the age, sex, and/or reading level of the subject?

These questions were translated into the following research hypotheses:

(1) There will be no significant differences on post-measures of certainty about occupational plans among three comparable groups of community college students, one receiving a complete systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(2) There will be no significant differences on post-measures of satisfaction with occupational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Ques-

(3) There will be no significant differences on post-measures of certainty with educational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(4) There will be no significant differences on post-measures of satisfaction with educational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(5) There will be no significant differences on post-measures of variety of occupational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(6) There will be no significant differences on post-measures of variety of educational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(7) There will be no significant differences on post-measures of

number of occupational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(8) There will be no significant differences on post-measures of number of educational plans among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(9) There will be no significant differences on post-measures of the number of occupations considered among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(10) There will be no significant differences on post-measures of the association between number of options desired and number of options being considered among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Career and Educational Plans Questionnaire.

(11) There will be no significant differences on post-measures of knowledge of decision-making strategy among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the

third a control treatment, as measured by the Decision-Making Scale of the Career Development Inventory (Thompson and Lindeman, 1981).

(12) There will be no significant differences on post-measures of the appropriateness of occupational choices among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Index of Similarity (Zener and Schnuelle, 1976) and the Self-Directed Search (Holland, 1973).

(13) There will be no significant differences on post-measures of frequency of information-seeking among three comparable groups of community college students, one receiving a systematic decision-making course, another a partial systematic decision-making course, and the third a control treatment, as measured by the Vocational Information-Seeking Behavior Inventory (Young, 1981).

(14) There will be no significant differences in gain scores on pre- and post-measures within the treatment group on the following measures:

- a) certainty about occupational plans
- b) certainty about educational plans
- c) satisfaction with occupational plans
- d) satisfaction with educational plans
- e) variety of occupational plans
- f) variety of educational plans
- g) number of occupational plans
- h) number of educational plans
- i) number of occupations considered
- j) knowledge of decision-making strategy
- k) appropriateness of occupational choices
- l) frequency of information-seeking



(15) There will be no correlation between decision-making skills, as measured by the Decision-Making Scale of the Career Development Inventory (Thompson and Lindeman, 1982), and the appropriateness of decisions, as measured by the Self-Directed Search (Holland, 1973), and the Index of Similarity (Zener and Schnuelle, 1976).

(16) There will be no significant differences on all measures among subjects of differing ages, sexes, and reading levels.

All post measures were given immediately after treatment.

### Subjects

Subjects for all groups consisted of thirty-nine community college students who volunteered to complete a twenty-session (25 hour) and a ten-session ( $12\frac{1}{2}$  hour) group career decision-making course. There were between ten to sixteen subjects in each group, ranging in age from fifteen to fifty-one. See Table 1. All were students at a rural, commuter, open-admissions community college. This college, which was founded in 1962, has an enrollment of 1400 students, 40% males and 60% females. The average age of the students is about 23. Associate degree programs are offered in the two broad categories of Liberal Arts and Career Programs. The latter include specific curricula in Engineering Technology, Nursing, Media Communications, Recreation Leadership, Early Childhood Education, Criminal Justice, Accounting, and Data Processing. The college is located in a one-building campus on the outskirts of a town of 19,000 people. Students are from a wide range of academic abilities.

Subjects selected their specific class section based on convenience in their time schedule. The course was announced via an attach-



TABLE 1

Age, Sex, and Reading Level

Group	Age (Mean)	Sex		Reading Level	
		Male	Female	Mean	Range
Control Treatment <sup>a</sup>	26.07	4	9	63.6	12-144
Shorter Treatment <sup>b</sup>	29.50	4	6	70.00	47-99
Longer Treatment <sup>c</sup>	22.56	2	14	64.5	45-95

<sup>a</sup><sub>n</sub> = 13<sup>b</sup><sub>n</sub> = 10<sup>c</sup><sub>n</sub> = 16

TABLE 2

Comparison of Pre-Test Dependent Variables  
Group

Measure	Control <sup>a</sup>	Shorter <sup>b</sup>	Longer <sup>c</sup>	SD	SS	MS	F	SIG.
Occ. Cert.	3.60	2.60	2.88	1.53	5.45	2.73	1.25	.32
Occ.Sat.	3.60	3.20	3.50	1.53	.89	.44	.18	.83
Ed.Cert.	3.20	3.50	3.38	1.59	.46	.23	.09	.91
Ed.Sat.	3.90	3.80	3.69	1.53	.28	.14	.06	.94
Var.Occ.Pl.	1.20	.80	.81	.77	1.11	.56	.93	.40
Var.Ed.Pl.	1.30	1.50	1.06	.69	1.21	.61	1.29	.28
No.Occ.Pl.	1.40	.90	.81	.93	2.26	1.13	1.35	.27
No.Ed.Pl.	1.60	1.50	1.19	.84	1.22	.61	.86	.43
No.Occs.	3.30	2.50	2.44	1.41	5.10	2.55	1.30	.28
D.M.Skills	14.40	13.75	14.33	2.61	7.95	3.98	.57	.57
Appropriate- ness	4.00	3.60	3.31	1.82	2.73	1.37	.40	.67
Info.Seek.	8.67	9.30	8.62	6.09	3.04	1.52	.04	.96

<sup>a</sup><sub>n</sub> = 10<sup>b</sup><sub>n</sub> = 10<sup>c</sup><sub>n</sub> = 16

ment to the master class schedule, by announcements to faculty advisers, and via written recommendations which resulted from a Career Certainty and Satisfaction Questionnaire, which was administered at registration. There were three scheduled times for the class to meet: Monday and Wednesday 2-3:15, Tuesday and Thursday 9:30-10:45, or Tuesday and Thursday 12:30-1:45. Even though subject selection was not random, each group was comparable, as there were no obvious reasons for a subject to choose a particular section other than time schedule convenience. Since 1980, informal assessment of students' reasons for selecting a particular section indicate that they do choose on this basis. Comparison of pre-test scores showed there to be no significant differences among groups on any measures. See Table 2.

Subjects were representative of undecided community college students who volunteered for a group career decision-making course. Local evidence (McAuliffe, 1983) has shown that career decision-making course enrollees to be less decided and less satisfied with their educational and career plans than the general population of students: in a local study (McAuliffe, 1983) career decision-making course students ( $n = 71$ ) had a mean of 5.46 on a self-report questionnaire of career certainty and satisfaction; the general student population ( $n = 881$ ) scored 7.01 on the same questionnaire (on a scale of 0 to 10). The zscore of -7.05 was significant at the .01 level.

#### Design

A quasi-experimental design was used, specifically a pre-post control group design (Campbell and Stanley, 1963).

There were two experimental treatments and a control group. One group received a "comprehensive" treatment (25 hours) in which a complete decision-making strategy was taught and utilized. A second group received a "partial" treatment ( $12\frac{1}{2}$  hours) which covered only part of the decision-making model. A third group acted as a "wait control" group prior to its receiving one of the experimental treatments. In addition to comparisons being made among groups, gain scores were also assessed within groups.

Independent variables were age, sex, and reading level. Dependent variables were: certainty about educational plans, satisfaction with educational plans, certainty about occupational plans, satisfaction with occupational plans, number of occupational plans, variety of occupational plans, number of educational plans, variety of educational plans, number of occupational options, knowledge of decision-making, appropriateness of decisions, and information-seeking behavior.

There was no random selection of subjects, but subjects were representative of undecided students volunteering for a career decision-making course. (See Tables 1 and 2, p. 95 above, for discussion.)

### Materials

#### (a) The Treatments.

A. Longer Treatment (LT) (Comprehensive Approach). See Appendix A for a description of the complete intervention. The general goals of this 10-week, 25-hour course were (1) to teach career decision-making skills and (2) to enable the student to make specific, immediate, and appropriate career and educational plans. The scope of the course ranged from "making a commitment to engage in decision-making" through "taking ac-

tion toward goals." Both the teaching of decision-making skills, for future use, and the working on students' current decisional needs were covered. Seven "decision-making steps" were taught, in the following order:

- 1) Developing commitment to engage in the decision-making process;
- 2) Assessing personal preferences;
- 3) Generating options;
- 4) Seeking information about options;
- 5) Making choices;
- 6) Making plans;
- 7) Taking action.

The above steps were taught in this sequence. The first step, commitment, preceded any other decision-making activities, as recommended by Thoresen and Ewart's (1976) application of behavioral self-control concepts to career decision-making. Assessing personal preferences took the form of generating values, skills, and interests from paper-and-pencil exercises, fantasy activities, and interest inventories. This step occurred here for two reasons. First, skills assessment can be a confidence-building activity and thus it is addressed early in the process. Second, personal preferences provide a means of choosing among options (Step 3); when cast against these preferences, some occupational alternatives can be kept or cast aside, even at this early stage of decision-making. Logically, after options are generated, accurate information needs to be gathered about the nature of these occupations; thus Step 4 followed. When data had been assembled about the individual's needs and the options available, a weighing of the pros and cons of each constituted the "making

choices" stage. When either a tentative or a more solid decision has been made, explicit plans (Step 5) should follow. These plans depend on the nature of the decision, whether it is to continue exploring, to pursue a specific field, or to look for a particular type of job.

The class met in a carpeted, well-lit academic classroom which had movable desks. Both the chalkboard and the overhead projector assisted the instructional process. The classes took place during regular day class hours and were scheduled in regular time slots.

Instructional techniques included in-class and at-home self-assessment exercises, small group discussions, out-of-class informational interviewing, interest inventory interpretation, independent reading about occupations and short lecture presentations on the decision-making model. A workbook, developed locally, accompanied the course (See Appendix B). The course and the materials were based on the decision-making models of Gelatt, Varenhorst, Carey and Miller (1963), Katz (1963), and Krumboltz and Baker (1973). In-class and workbook activities were taken from a variety of sources, especially from Figler (1974) and from Bolles (1982). The intervention evolved to its present form from an initial presentation as a non-credit workshop in 1976. It was tested out by this researcher for seven years at both a university and at a community college. The form of the course reflected these developments: e.g. more occupational information-seeking had been added, attention had been given to participants' age differences (in the form of individualized assignments and grouping students by age for some discussions).

The course was taught by counselor/instructors who were staff members of the college. All had a master's degree in counseling or in an



B. Shorter Treatment. This was the partial form of the Longer Treatment (above). It covered Steps One through Four of the decision-making model in 10 sessions or  $12\frac{1}{2}$  hours, over 5 weeks. The same methods and instructors were used. The course concluded with occupational information-seeking. The decision-making steps of choosing, making plans, and taking action were left out, and information-seeking was covered less completely (e.g. only one information interview, as opposed to two in LT, were required); also, there was little group follow-up on information found by subjects. This intervention ended with the unit on information-seeking; little attention was therefore given to the process of making a choice and of ensuring plans that lead to action.

Having a course, such as ST, based on self-assessment and on information-seeking paralleled some traditional approaches to career guidance, with the client receiving such information about him/herself and about occupations; in these approaches little focus has been on how to use this information for a decision. The longer treatment provided group support for decision-making and planning. ST, of course, also provided group support. This shorter version was lacking one of the four dimensions from Holland, Magoon, and Spokane's (1981) "components that constitute an ideal intervention," that is, "individual or group activities that require the rehearsal of career plans or problems" (see p. 78, above).

The importance of follow-through on actual student treatment components involving 1) choice-making, 2) planning, and 3) taking action had not been demonstrated up to this point. Only mention of these steps was made in ST, with no explicit application of them in the treatment.

Less time was also spent in ST on occupational information than in LT. Thus the importance of the comprehensiveness and the duration of career decision-making treatment was assessed.

(b) Independent Variables.

A. Reading Ability. As both treatments required verbal skills, it was important to note if reading ability was related to differential outcomes. Egner and Jackson (1978) found academic ability to be a significant factor in career intervention outcomes. As a measure of reading ability, the Nelson-Denny Reading Test (ND) (Brown, Nelson, and Denny, 1976) was used. This is a test of vocabulary and comprehension; its intent is to serve predictive, screening, and broadly diagnostic purposes.

Test-retest reliability for the Vocabulary section of the ND ranges from .82 to .91 and for the comprehension test from .68 to .78. Content validity has been addressed by the selection of material from college-level courses. Items were developed and selected initially on two- and four-year college students, graduates, and faculty. Its validity as a predictive instrument has been tested by showing that Nelson-Denny scores are somewhat predictive of overall G.P.A. (.397 zero-order correlation). It should be noted, however, that high school rank was found to be a better predictor (.532 of G.P.A.). The Nelson-Denny has been even more predictive of biology grades (.463) than it has been of G.P.A.; the test authors have noted that the latter course requires a large amount of book reading.

B. Age. The work of developmental theorists (Ginzberg, Ginsberg, Axelrod and Herma, 1951; Super, 1957) have indicated that readiness for career choice is related to an individual's developmental stage, in

which age is a major factor. For example, eighteen-year-olds are considered to be in an exploratory stage, in which trial experiences are appropriate; thirty-year-olds may be in an establishment stage, in which commitment to an occupation is more likely. Krumboltz's (1979) social learning theory of career decision-making considers learning experiences to be key factors in readiness to make good career decisions; age should be related to the number and quality of career-related learning experiences an individual has been exposed to. Thus, in both the developmental and the social learning views, readiness for various certainty levels of career aspiration, preference, and choice (Crites, 1969) should vary with age. The potential for differential outcomes for subjects of different ages was thus targeted for study.

C. Sex. Two factors have made sex an independent variable worth studying. First, historical differences in male and female attitudes toward career can affect motivation, readiness, level of information, and the nature of career plans between the sexes. Secondly, females have tended to score higher than males on measures of verbal aptitude; this intervention relied on verbal skills. For both of these reasons it was speculated that this intervention might affect the sexes differentially.

(c) Dependent Variables

The following dependent variables were measured: (1) certainty about occupational plans, (2) satisfaction with occupational plans, (3) certainty about educational plans, (4) satisfaction with educational plans, (5) number of occupational options considered, (6) specific occupational plans, (7) specific educational plans, (8) appropriateness of post-treatment occupational choice, (9) cognitive decision-making skills,

and (10) information-seeking behavior. The first seven were measured by the Career and Educational Plans Questionnaire (CEPQ). "Appropriateness" (number 8) was measured using the Self-Directed Search (Holland, 1979) and the Index of Similarity (Zener and Schnuelle, 1976). Cognitive decision-making skills were measured by the Decision-Making Scale of the Career Development Inventory (Thompson and Lindeman, 1982). Information-seeking behavior was measured by an adaptation of the Vocational Information-Seeking Behavior Inventory, or VISBI (Young, 1981). See Appendices C, D, and E for copies of the instruments.

A. Educational and occupational certainty and satisfaction. A locally-developed questionnaire, The Career and Educational Plans Questionnaire (CEPQ), Appendix C) was the instrument for these variables. Four questions asked for self-reported levels of (1) certainty about educational plans, (2) satisfaction with educational plans, (3) certainty about occupational plans, and (4) satisfaction with occupational plans. Each question was on a six-point scale (range of 0-6). The CEPQ had been developed over a period of three years. The certainty and satisfaction questions were modeled after similar ones by Dressel and Matteson (1950), Hoyt (1955), Hewer (1959), Healy (1973), Melhus, Hershenson, and Vermillian (1973), Wachowiak (1973), Westbrook (1974), Barak, Carney, and Archibald (1975), Zener and Schnuelle (1976), Snodgrass and Healy (1979), O'Neil, Ohlde, Barke, Gelwick and Garfield (1980), and Atanasoff and Slaney (1980).

In the process of developing the questionnaire, the questions were submitted to a panel at a state university which consisted of a faculty member and doctoral-level students in counseling. Feedback from this group resulted in the following definitions of each important term



being added to the questionnaire:

Certain: to be assured in your mind and in your actions.

Satisfied: to be fulfilled about a need or want; contented.

Occupational plans: anticipated program of action about specific work fields.

Educational plans: anticipated program of action about courses, academic major, or schools.

The decision was made to utilize a six-point scale in order to counter the tendency for subjects to give a mid-range answer. From an original two, the four questions were developed in order to separate educational plans from occupational plans and to differentiate certainty from satisfaction. The questionnaire was pilot-tested by this researcher on six different groups of community college students for three semesters (Spring, 1982-Spring, 1983).

Westbrook (1974) assessed validity for the certainty questions by finding that students who applied for career counseling also scored high on uncertainty about occupational and educational goals. Similarly, students who enrolled in the Career Decision-Making Course at Greenfield Community College during four semesters (1981-1982) showed significantly less certainty and satisfaction than did the general student population for each semester (McAuliffe, 1983). Combining the two original five-point scales, career decision-making students averaged 5.46 on the scale of 0 to 10 and the general population had a mean of 7.01, with the higher-score indicating greater certainty and satisfaction. These results were statistically significant at .01. Thus, this questionnaire has distinguished undecided students, as evidenced by their enrollment in a career decision-making course, from decided students. This constitutes one ass-



essment of the full validity of the questionnaire.

Reliability has been assessed as follows: Shepherd (1972) reported high test-retest correlations of .89 and .91 over a two-week period for occupational and educational certainty measures, respectively. Barak, Carney, and Archibald (1975) found occupational and educational decidedness (i.e. certainty) items to be highly related to each other; correlations ranged from .650 to .745 prior to a career decision-making treatment and .716 to .802 after treatment. For satisfaction measures, Hoyt (1941) found a test-retest reliability of .94 for "satisfaction with career planning." Hoyt's question is similar to that on the CEPQ.

B. Number of Occupations. (Question 16 of CEPQ) The number of different occupations that subjects were considering were counted, using the Dictionary of Occupational Titles classification system (first three digits) to identify distinct occupations from mere synonyms for the same occupations. An independent judge verified the classification of occupations.

Although this question has been used as an outcome measure by a number of researchers (Zener and Schnuelle, 1972; Redmond, 1973; Mencke and Cochran, 1974; Krivatsy and Magoon, 1976; Cooper, 1976; Slaney, 1978; Talbot and Birk, 1979; Lawler, 1979; and Atanasoff and Slaney, 1980), it was not clear that either more or fewer occupations should be considered a positive indicator of career counseling outcomes. Thus this question was somewhat exploratory. It was speculated that age might be a factor here, as a subject in an exploratory stage might need to increase options and one in a later stage might find the opposite to be desirable.

Client goals in this area were assessed by asking whether the

subject wished to increase or decrease the number of options s/he was considering. This question was a response to Krumboltz's (1966) suggestion that counseling research consider unique goals for each client; Oliver's (1978) review of career counseling outcome studies indicated that very little research has responded to this charge.

C. Appropriateness of Occupational Choice. The basic assumption here, that individuals are better suited for some occupations than for others, was measured by Question 17 on the CEPQ, which asked for current "first occupational choice." Subjects' measured "Holland codes" were then compared to the corresponding code of this first choice occupation. The Holland code is a grouping of three of the six possible personality types/work environments that John Holland (1973) has developed. This code was measured by the Self-Directed Search, or SDS (Holland, 1979).

The S.D.S. is a "self-administered, self-scored, and self-interpreted vocational counseling tool" (Holland, 1971, p. 3). An individual answers a total of 228 questions on "Activities," "Competencies," "Occupations" and "Self-Estimates." These questions are followed by directions on scoring, graphing, and interpreting responses. The individual merely adds up his/her responses in each of the six "Personality/Work Environments" categories, qualities and interests. Holland labels these six groupings of personal qualities and interests as "Realistic," "Investigative," "Artistic," "Social," "Enterprising," and "Conventional." The individual then uses his/her top three personality/work environments (called the "three-letter code") to locate suitable occupations. "Suitable" is defined as a correspondence between a work environment and a personality type.

For the purposes of this research, only the summary codes were calculated, and no further attempts to match these with occupations were made. Thus it was not used as a guidance tool, and contamination of the research results was avoided. The S.D.S. was given at the end of the course.

Validity. Much research has gone into the construct validity of the S.D.S. Crites (1982) notes, however, that "used conservatively, the codes have great clinical value - people seem to correspond to the descriptions of their three-point codes given in the S.D.S. Manual and the Occupations Finder" (p. 90). There is some evidence for the "moderate predictive validity" of the S.D.S. (Holland, 1979, p. 47) although a stated occupational daydream has been found to be even more predictive than the S.D.S.

Reliability has been established via internal consistency estimates for the various parts of the inventory. They range from .67 to .91 for samples of 2000-6000 college freshmen. Retest reliabilities indicate that the summary codes have a reliability coefficient of .75 for college freshmen, with a time interval of 7-10 months.

An adaptation of The Index of Similarity (Zener and Schnuelle, 1976) provided a numerical table for comparing subjects' codes with the code of their first occupational choice. (See Appendix D.) This index was scaled so that the greater the similarity between the subject's code and his/her occupational choice, the higher was the score. Scores ranged from 0 to 7.

This score was a direct measure of the decisional outcomes of the intervention, as has been strongly called for by Krumboltz (1979). Appropriateness, sometimes called "realism," of choice has been used as an outcome measure by Hoyt (1955), Hewer (1959), Yabroff (1961), Gonyea (1962), Wright (1963), Pool (1965), Hewer (1966), Westbrook (1967), Hanson and Sander (1963), Pilato and Myers (1975), Krivatsy and Magoon (1976), Krumboltz (1979), and O'Neil, Ohlde, Barke, Gelwick, and Garfield (1980).

Other methods used to measure appropriateness of choice have included judges' comparison of occupational choice with school grades (Yabroff, 1961), comparison of simulated occupational choice with stated values (Krumboltz, 1979), judges' ratings of "number of reasons given for number of outcomes anticipated from occupational choice plan" (Jepsen, Dustin and Miars, 1981), and judges' ratings of realism of vocational plans, based on S.A.T. scores, interest inventory results, achievement test, grades, extracurricular activities, parents' occupations, and health (Hanson and Sander, 1973). The present study's use of measured Holland Summary Codes was a fairly objective method of determining appropriateness, in that no judges' ratings were used. Its validity and "objectivity" rested on the validity of the three-letter code as a measure of appropriateness of occupational choice.

#### D. Variety and Number of Occupational and Educational Plans.

Questions 14 and 15 on the CEPQ asked for specific steps in the subjects' current occupational and educational plans. To measure variety of plans, trained judges, who consisted of Master-degree-level college counselors, trained by this researcher, coded these steps into the seven steps of the decision-making model: 1) Making a commitment to planning, 2) Assessing



personal preferences, 3) Generating options, 4) Seeking information about options, 5) Making choices, 6) Making plans, and 7) Taking action. A score of from 0 to 7 was assigned for each question, based on judges' ratings of the number of different decision-making steps included in plans. For example, "I'm looking at different college programs suited to my needs" translated into "Generating Options" (Step 3). Similarly, "Writing to several schools" was "Seeking Information" (Step 4). See Appendix E for Judges' Worksheet. Reliability was assessed by having a second independent judge rate the variety of plans.

Number of plans was measured by counting the absolute number of activities listed by the subject.

E. Information-Seeking Behavior. This behavior was measured by the Vocational Information-Seeking Behavior Inventory, or VISBI (Young, 1981). (See Appendix F.) This behavioral self-report inventory asked subjects to report the number of exploratory behaviors initiated in three general areas: talking to others, seeking out and using materials, and going to places.

The VISBI is a version of the information-seeking inventories developed by Krumboltz and Schroeder (1965) and Krumboltz and Thoresen (1964). Others who have used information-seeking as a measure have included Thoresen, Krumboltz and Varenhorst (1967), Thoresen, Hosford, and Krumboltz (1970), Borman (1972), Thoresen and Hamilton (1972), Samaan and Parker (1973), Mencke and Cochran (1974), Krivatsy and Magoon (1976), Cooper (1976), Zytowski (1977), and Atanasoff and Slaney (1980). All of the above researchers have asked for similar self-reported frequency and variety of information-seeking. Increased information-seeking is assumed



by researchers to lead to improved decisions; Barak, Carney, and Archibald (1975) found an increase in information-seeking behavior to be significantly correlated with an increase in decidedness.

Reliability. Phone calls to a random subsample ( $n = 16$ ) of persons named as having been contacted by the subject showed 93.56% to be verified as reported (Young, 1981).

F. Decision-Making Skills. The Decision-Making Scale of The Career Development Inventory or CDI, (Thompson and Lindeman, 1981) was used as a cognitive measure of decision-making skills. The purpose of the CDI is to assess career development and vocational maturity, which is the readiness to make pre-occupational and vocational decisions. The Decision-Making Scale (DM) consists of twenty items in which the subject is asked to pick the best course of action for each career planning or decision-making situation. Thus the subject is asked to apply principles of decision-making to these presented situations. The assumption here, as it is with vocational information-seeking behavior, is that subjects who can solve the presented career problems "are more capable of making wise decisions about their own careers" (Thompson and Lindeman, 1981, p. 2). The DM scale measures knowledge gained in the course in the areas of: knowing one's skills, values, and interests, of seeking information, of weighing evidence, of planning, and of taking action. The twenty situations of the DM scale have these decision-making steps embedded in them. Students had to judge the most appropriate response from a choice of five. Thus the DM scale was intended to help determine whether a subject could apply deci-

sion-making principles to concrete career situations.

Validity. In his review of the inventory, Hilton (1982) says that "the test designers have defined some realistic problems which collectively have validity" (p. 120). Hilton notes that it is difficult to validate a measure of career maturity. He points out that we are left with, first, expert judgment. In this case, the theoretical model of career maturity that has been developed by Super and Overstreet (1966) and Jordaan and Heyde (1979) serves as the basis for the items. This theory continues to be tested via the Career Pattern Study; evidence on the theoretical model has been collected over the years from the Career Pattern Study, by Gribbons and Lohnes (1963, 1969), Asis (1971), Vriend (1968), Willstach (1966), Crites (1973), and Super (1974). Thus the model of career maturity has been subject to research; the items on the test parallel this model. The Decision-Making Scale (DM) itself "seeks to measure knowledge and application of decision-making principles to career decisions" (Thompson and Lindeman, 1981, p. 16). Content validity was considered to have been established by the authors, as experts considered the items to be related to the model. The same basic decision-making constructs that were to be taught in LT and partially in ST were viewed as the basis for the DM scale.

Construct validity is the extent to which an instrument measures a well-defined educational or psychological construct; if the instrument has construct validity, then it should exhibit predictable characteristics; for example, it should have a positive (or negative) relationship with

valid measures of other constructs. Multivariate analysis has shown the following to be so for the CDI: First, scores on DM increase with age, from 98.9 for freshmen through 108.4 for seniors, as should be expected. This is based on 1,826 undergraduate students from thirteen colleges, including groups that differ in region, size of institution, major field, year, and sex. Secondly, sex differences are large on the DM scale: In all cases females have higher scores, as might be expected, as females generally score higher on cognitive tests, which are associated with verbal ability (Thompson and Lindeman, 1982). Third, significant differences on the DM scale were also found among subjects from various major fields in an expected direction. Finally, factor analysis shows that two factors, attitudinal and cognitive, emerge from the five scales of the CDI, with DM loading on the cognitive factor, as expected. The CDI has also been related to aptitude and achievement; this is detailed in the Technical Manual (Thompson and Lindeman, 1981).

Reliability is referred to as "how consistently an instrument performs as a measuring device" in the CDI User's Manual (Thompson and Lindeman, 1981, p. 14). Using Cronbach's alpha coefficients, the DM scale has an overall internal consistency of .62 for college students. The authors suggest that this is large enough for analyzing group differences, but they caution its use for individual counseling. They note the standard error of measurement (SEM) for each scale. The DM scale has an SEM of 12.1, meaning that judgments should not be made on scores less than about 12 points different in either direction.

A final measure of reliability is stability over time. The authors say that "data from previous forms of the CDI ... strongly suggests

that CDI scores are highly stable over periods of up to six months" (Thompson and Lindeman, 1981, p. 15).

#### Data Analysis

The hypotheses were tested via t-tests and Analysis of Variance. An alpha ( $\alpha$ ) level of .05 was chosen as a determiner of significance.

Procedure

The study proceeded as follows:

(1) The career decision-making course was announced via posters and notices to faculty advisers; low scores on the "Career Plan Certainty and Satisfaction Questionnaire," given to all new students at registration, signalled advisers as to a student's readiness for the course. Recommendations from the questionnaire were based on the two six-point questions being combined; a combination score of six or less (i.e., out of a possible twelve) on the level of career certainty and satisfaction indicated recommendation into the career decision-making course.

(2) Students voluntarily registered for any of three sections of the course, based on convenience in their time schedule. As noted on p. 96, there were three different times of day to choose from. Based on an informal survey of subjects, time of day (i.e. lack of conflict with other classes) was the reason students chose a particular section of the course.

(3) The partial treatment was given during the first five weeks of the semester. The comprehensive treatment was given during the second ten weeks. The wait control group received no treatment until the second ten weeks of the semester. Pre- and post-tests were given at the time of the first and last class for each comparison group. Follow-up questionnaires were sent five weeks after the semester ended to the longer treatment and ten weeks after to the shorter treatment.



## CHAPTER IV

### RESULTS

Both between-groups post-test scores and within-groups pre-post scores (change scores) were compared. Analysis of variance and the t-test were used to test the significance of the results.

In general, results revealed the Longer Treatment (LT) to have had a higher mean score than the Control (CT) on ten of eleven hypothesized directional measures (excluding number of occupations), although on only two hypothesized measures was there statistical significance. The Shorter Treatment (ST) scored higher than CT on nine out of eleven measures, although statistical significance was reached on only one for ST.

On gain scores, LT had significant gains on five out of the same eleven measures, with non-significant gains on five others. ST had significant gains on three measures, with non-significant gains on seven out of the eight others. CT had no significant gains, with scores decreasing or remaining the same on seven out of eleven measures.

#### Certainty about Occupational Plans

Hypothesis 1: There will be no significant differences on post-measures of certainty about occupational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

As Table 3 shows, mean scores on the scale of one to six were: CT: 3.69; ST: 3.90 and LT: 4.27. With 2 degrees of freedom, the observed F ratio was .64 and it was non-significant. The null hypothesis is not

TABLE 3

Results of Post-Test Analysis of Variance Across All Groups on Measures of Certainty, Satisfaction, Plans, Occupations, Decision-Making Skills, Appropriateness of First-Choice Occupation, and Information-Seeking

Measure	Group											
	Control <sup>a</sup>		Shorter <sup>b</sup>		Longer <sup>c</sup>		SS	DF	MS	F	SIC	
	X	SD	X	SD	X	SD						
Occ.Cert.	3.69	1.37	3.90	1.45	4.27	1.28	2.37	2	1.19	.64	.53	
Occ.Sat.	4.08	1.12	4.00	1.33	4.93	.96	7.22	2	3.61	2.88*	.07	
Ed.Cert.	4.08	1.26	3.90	1.45	4.73	1.22	5.06	2	2.53	1.51	.24	
Ed.Sat.	4.31	1.38	4.50	1.27	4.33	1.35	.24	2	.12	.07	.94	
Var.Occ.Pln.	.92	.76	1.10	.88	1.33	.90	1.19	2	.59	.82	.45	
Var.Ed.Pln.	1.00	.58	1.30	.68	1.07	.59	.55	2	.27	.73	.49	
No.Occ.Pln.	1.15	.99	1.20	.92	1.67	1.05	2.22	2	1.11	1.12	.34	
No.Ed.Pln.	1.23	.73	1.60	.84	1.40	1.06	.77	2	.39	.48	.62	
No.Occs.	3.69	2.18	3.90	1.80	2.93	1.44	6.79	2	3.40	1.04	.37	
D.M.Skills	14.69	2.06	14.78	2.30	14.93	2.66	.42	2	.21	.04	.96	
Appropriate-ness	3.60	2.12	4.10	1.79	3.50	1.45	2.26	2	1.13	.36	.70	
Info.Seekings	5.50	4.17	13.89	10.45	10.17	4.49	370.69	2	185.34	4.33**	.02	

\*  $p = .07$   
 \*\*  $p = .05$

<sup>a</sup>  $n = 13$   
<sup>b</sup>  $n = 10$   
<sup>c</sup>  $n = 16$

rejected.

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Hypothesis 14a: There will be no significant pre-post differences within the treatment groups on certainty about occupational plans, as measured by the Career and Educational Plans Questionnaire.

As seen in Table 5, change scores were non-significant for CT, but they were significant for ST ( $p = .04$ ), LT ( $p = .004$ ), and for ST and LT combined ( $p = .001$ ). Hypothesis 14a is rejected.

#### Satisfaction with Occupational Plans

Hypothesis 2: There will be no significant differences on post-measures of satisfaction with occupational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

Mean scores on the scale of one to six were: CT: 4.08, ST: 4.00 and LT: 4.93. T-tests (see Table 4) revealed significant post-test differences between CT and LT ( $p < .05$ ) and between ST and LT ( $p < .05$ ). The null hypothesis is therefore rejected.

Hypothesis 14b: There will be no significant differences within the treatment groups on satisfaction with occupational plans, as measured by the Career and Educational Plans Questionnaire.

It is shown in Table 5 that there were no significant pre-post changes for CT nor for ST, but that there was significant change for LT ( $p < .01$ ) and for ST and LT combined ( $p < .01$ ).

#### Certainty about Educational Plans

Hypothesis 3: There will be no significant differences on post-measures of certainty about educational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

Mean scores on the scale of one to six were: CT: 4.08, ST: 3.90, and LT: 4.73. The F-ratio of 1.51 with 2 degrees of freedom was non-significant. Therefore, the null hypothesis is not rejected.

TABLE 4  
Results of Post-Test  $t$ -Tests Between Groups on Measures of Certainty, Satisfaction, Plans, Occupations, Decision-Making Skills, Appropriateness of First-Choice Occupation, and Information-Seeking

Measure	Control <sup>a</sup>						Control <sup>b</sup>						Control <sup>c</sup>						
	Shorter		Longer		Combined ST & LT		Shorter		Longer		Combined ST & LT		Shorter		Longer		Combined ST & LT		
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Occ.Cert.	3.69	1.38	4.27	1.28	26	1.14	3.79	1.38	3.90	1.45	21	.35	3.79	1.38	4.12	1.33	36	.93	
Occ.Sat.	4.08	1.12	4.93	.96	26	2.18*	4.08	1.16	4.00	1.33	21	.15	4.08	1.12	4.56	1.19	36	1.21	-2.04*
Ed.Cert.	4.08	1.26	4.73	1.22	26	1.40	4.08	1.26	3.90	1.45	21	.31	4.08	1.76	4.40	1.35	36	.71	-1.55
Ed.Sat.	4.31	1.38	4.33	1.35	26	.05	4.31	1.38	4.50	1.27	21	-.34	4.31	1.38	4.40	1.27	36	.70	.31
Cert./Sat. (Continued)	16.15	4.78	19.38	5.48	27	1.67	16.15	4.78	16.30	3.92	21	-.08	16.15	4.78	18.19	5.08	37	1.20	1.54
Var.Occ.Plans.	.92	.76	1.33	.90	26	1.29	.92	.76	1.10	.68	21	-.52	.92	.76	1.24	.88	36	1.10	-.64
Var.Ed.Plans.	1.00	.98	1.07	.99	26	.30	1.00	.98	1.30	.68	21	.26	1.00	.98	1.16	.62	36	.77	.91
Ho.Occ.Plans.	1.15	.99	1.67	1.05	26	1.33	1.54	.99	1.20	.92	21	-.11	1.15	.99	1.48	1.01	36	.95	-1.14
Ho.Ed.Plans.	1.23	.73	1.40	1.06	26	.49	1.23	.73	1.60	.84	21	.61	1.23	.73	1.48	.76	36	-.82	.50
Ho./Var.Plans. (Continued)	4.31	2.56	7.38	8.16	27	1.30	4.31	2.56	5.20	2.78	21	-.80	4.31	2.56	6.54	6.63	37	-1.16	-.81
Ho. Decs.	3.69	2.18	2.93	1.44	26	1.10	3.69	2.18	3.90	1.80	21	-.24	3.69	2.18	3.32	1.63	36	.60	1.49
Var./Var	1.17	.39	1.60	.52	20	2.28*	1.17	.39	1.44	.53	19	1.39	1.17	.39	1.53	.51	29	2.00*	-.65
Appropriateness	3.60	2.12	3.50	1.45	22	-.14	3.60	2.12	4.10	1.00	18	-.57	3.60	2.12	3.75	1.60	32	-.23	.91
Info.Seeking	5.50	4.17	10.17	4.49	22	2.64*	5.50	4.17	13.09	10.45	19	2.51*	5.50	4.17	11.76	7.64	31	-2.62*	1.11

\*  $p < .05$   
<sup>a</sup>  $n = 13$   
<sup>b</sup>  $n = 10$   
<sup>c</sup>  $n = 16$

TABLE 5  
Results of Within-Groups Change (Gain) Scores on Measures of Certainty, Satisfaction, Plans, Occupations, Decision-Making Skills, Appropriateness of First-Choice Occupation, and Information-Seeking  
GROUP

Measure	C <sup>a</sup>			S <sup>b</sup>			I <sup>c</sup>			ST & LT <sup>d</sup>								
	Pre	Post	Diff	r	t	Sig.	Pre	Post	Diff	r	t	Sig.	Pre	Post	Diff	r	t	Sig.
Cert.Occ.	3.60	3.60	0	.90	0	1.00	2.60	3.90	1.4	.38	3.40*	.04	2.76	4.12	1.36	.38	4.24	.000
Sat.Occ.	3.60	3.90	.30	.83	1.15	.38	3.20	4.00	.8	.11	3.14*	.21	3.36	4.56	1.20	.17	3.29	.00
Cert.Ed.	3.20	3.80	.60	.78	1.96	.08	3.50	3.90	.4	.04	2.80**	.01	3.36	4.40	1.04	.35	3.02	.00
Sat.Ed.	3.90	3.90	0	.79	0	1.00	3.80	4.50	.7	.70	2.33*	.05	3.68	4.40	.72	.31	2.12*	.04
Cert./Sat (Overall)	19.31	16.15	3.15	.71	1.43	.18	13.10	16.20	3.20	.33	3.73**	.00	13.31	18.19	4.88	.44	4.65	.00
Var.Occ.Pln.	1.20	1.10	-.10	.55	-.36	.72	.80	1.10	.3	.28	2.26*	.04	.80	1.24	.02	.31	2.48*	.02
Var.Ed.Pln.	1.30	1.00	-.30	0	1.15	.28	1.50	1.90	-.2	.29	-1.00	.34	1.07	1.16	.08	.43	.53	.60
Ho.Occ.Pln.	1.40	1.30	-.10	.44	-.26	.80	.90	1.20	.3	.12	2.98**	.01	.84	1.48	.64	.27	2.98	.001
Ho.Ed.Pln.	1.60	1.10	-.50	.1	-1.63	.14	1.50	1.60	.1	.25	.61	.55	1.32	1.48	.16	.39	.78	.44
Plans (Overall)	-	-	-	-	-	-	4.70	5.20	.50	.15	1.72	.45	3.88	6.54	2.35	.19	1.84	.08
Ho.Occs.	3.30	4.00	.70	.71	1.35	.21	2.50	3.90	1.4	.60	3.10*	.01	2.44	3.32	.88	.27	2.46*	.02
Hoec/Few.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Occ.Deslr.	1.1	1.17	.10	.67	1.0	.72	1.44	1.44	.2	.60	1.51*	.00	1.11	1.53	.42	.33	3.62	.002
DM Skills	14.40	14.70	.30	.07	.36	.72	13.75	14.88	1.13	.75	1.19	.29	14.13	14.91	.78	.67	1.68	.11
App/Choice	4.00	3.44	-.56	.51	-.78	.46	3.60	4.10	.50	.42	.30	.27	3.46	3.75	.29	.56	.89	.38
Freq.Info. Seeking	8.67	4.22-4.44	-.83	-.4, .21**	.83	.003	9.30	13.89	4.59	.18	.64	.13	9.08	10.17	1.55	.18	.64	.54

\* p < .05  
 \*\* p < .01  
 \*\*\* p < .001  
<sup>a</sup> n = 10  
<sup>b</sup> n = 10  
<sup>c</sup> n = 15  
<sup>d</sup> n = 26  
 } Not measured for control



Hypothesis 14c: There will be no significant pre-post differences within the treatment groups on certainty about educational plans, as measured by the Career and Educational Plans Questionnaire.

Change scores for CT and ST were non-significant ( $p = .08$  and  $.17$  respectively), but were significant for LT ( $p < .01$ ) and ST and LT combined ( $p < .01$ ). The null hypothesis is rejected.

#### Satisfaction with Educational Plans

Hypothesis 4: There will be no significant differences on post-measures of satisfaction with educational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

Mean scores on the scale of one to six were CT: 4.31, ST: 4.50 and LT: 4.33. With 2 degrees of freedom, the F-ratio was .07. This was non-significant and the null hypothesis is not rejected. See Table 3.

Hypothesis 14d: There will be no significant pre-post differences within the treatment groups on satisfaction with educational plans, as measured by the Career and Educational Plans Questionnaire.

#### Variety of Occupational Plans

Hypothesis 5: There will be no significant differences on post-measures of variety of occupational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

On the scale of 0 to 7, mean scores were .92 for CT, 1.10 for ST, and 1.33 for LT. The F-ratio was .82 with 2 degrees of freedom and it was non-significant. The null hypothesis is not rejected.

Hypothesis 14e: There will be no significant pre-post differences within the treatment groups on variety of occupational plans, as measured by the Career and Educational Plans Questionnaire.

Change scores were significant for LT ( $p < .05$ ) and ST and LT combined ( $p < .05$ ), but non-significant for CT and ST. The null hypothesis is rejected. See Table 5.

### Number and Variety of Educational Plans

Hypothesis 6: There will be no significant differences on post-measures of number and variety of educational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

On the scale of 0 to 7, CT had a mean of 1.00, ST had 1.30 and LT had 1.07. The F-ratio was .73 with 2 degrees of freedom and was non-significant. The null hypothesis is not rejected. See Table 3.

Hypothesis 14f: There will be no significant pre-post differences within the treatment groups on number and variety of educational plans, as measured by the Career and Educational Plans Questionnaire.

The change scores were non-significant for all groups, and the null hypothesis is not rejected. See Table 5.

### Number of Occupational Plans

Hypothesis 7: There will be no significant differences on post-measures of number of occupational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

CT had a mean of 1.15, ST had 1.20, and LT had 1.67. This was non-significant, with an F-ratio of 1.12 and 2 degrees of freedom. Therefore, the null hypothesis is not rejected. See Table 3.

Hypothesis 14g: There will be no significant pre-post differences within the treatment groups on number of occupational plans, as measured by the Career and Educational Plans Questionnaire.

As seen in Table 5, change scores were significant for LT ( $p < .01$ ) and ST and LT combined ( $p < .001$ ), but not for CT or ST. The null hypothesis is rejected.

### Number of Educational Plans

Hypothesis 8: There will be no significant differences on post-measures of number of educational plans among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

As seen in Table 3, the mean scores were 1.23 (CT), 1.60 (ST), and 1.40 (LT) with an F-ratio of .48 and 2 degrees of freedom. This was non-significant and the null hypothesis is not rejected.

Hypothesis 14h: There will be no significant pre-post differences within the treatment groups on number of educational plans, as measured by the Career and Educational Plans Questionnaire.

Change scores were non-significant for all groups, as seen in Table 5. The null hypothesis is not rejected.

#### Number of Occupations Considered

Hypothesis 9: There will be no significant differences on post-measures of number of occupations considered among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire.

As seen in Table 3, the mean scores were 3.69 (CT), 3.90 (ST), and 2.93 (LT), with an F-ratio of 1.04 and 2 degrees of freedom. There was no significance. The null hypothesis is not rejected.

Hypothesis 14i: There will be no significant pre-post differences within the treatment groups on number of occupations considered, as measured by the Career and Educational Plans Questionnaire.

As seen in Table 5, both ST and ST-LT combined had significant gains ( $p < .01$  and  $p < .05$ ) respectively. Changes were non-significant for CT and LT. The null hypothesis is rejected.

#### Appropriateness of Occupational Choice

Hypothesis 10: There will be no significant differences on post-measures of appropriateness of occupational choice among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire and the Index of Similarity.

On a scale of 0 to 7, CT had a mean of 3.60, ST had 4.10, and LT had 3.50. The F-ratio was 1.13, with 2 degrees of freedom. The null

hypothesis is not rejected as there was no statistical significance. See Table 3.

Hypothesis 14j: There will be no significant pre-post differences within the treatment groups on appropriateness of occupational choice, as measured by the Career and Educational Plans Questionnaire, and the Index of Similarity.

As seen in Table 5, there were no significant change scores for any group. The null hypothesis is accepted.

#### Knowledge of Decision-Making Strategy

Hypothesis 11: There will be no significant differences on post-measures of knowledge of decision-making strategy among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Decision-Making Scale of the Career Development Inventory (Thompson and Lindeman, 1982).

and

Hypothesis 14k: There will be no significant pre-post differences within the treatment groups on knowledge of decision-making strategy, as measured by the Decision-Making Scale of the Career Development Inventory.

The DM Scale of the CDI was found to be not reliable, with a KR 20 reliability coefficient of .53 on the pre-test across all groups, and .39 on the post-test. See Table 6. This inter-item inconsistency made further analysis of cognitive decision-making skills meaningless. It is possible that this scale is not homogeneous enough, or that the items are inadequate for measuring decision-making knowledge. Some items did not discriminate decision-making knowledge from lack of knowledge, as evidenced by the rate of correct answers across all subjects ranging from 5.7% on one item to 94.3% on three others. See Table 7.

While no further analysis is appropriate, it should be re-



TABLE 6

KR-20 Reliability Analysis for Cognitive Decision-Making Scale:

<u>PRE - TEST</u>					
<u>Reliability Coefficients</u>					
<u>Question</u>	<u>Mean if Item Deleted</u>	<u>Variance if Item Deleted</u>	<u>Item Total Correlation</u>	<u>Squared Multiple Correlation</u>	<u>Alpha if Item Deleted</u>
1	13.400	7.012	-.160	.552	.578
2	13.486	6.257	.142	.607	.526
3	13.314	6.398	.149	.780	.523
4	13.343	6.408	.126	.625	.527
5	13.200	6.459	.265	.552	.514
6	13.257	6.785	.034	.617	.547
7	13.429	5.840	.353	.503	.484
8	13.343	6.526	.068	.685	.537
9	13.686	6.987	-.153	.724	.585
10	13.343	6.879	-.099	.466	.563
11	13.200	6.400	.316	.610	.509
12	13.543	6.079	.206	.334	.513
13	13.371	5.887	.369	.801	.484
14	13.429	5.664	.439	.723	.466
15	13.543	5.608	.415	.609	.468
16	13.543	5.844	.308	.521	.491
17	14.086	6.787	-.008	.633	.540
18	13.714	5.975	.246	.721	.504
19	13.286	6.210	.280	.600	.504
20	13.200	6.341	.367	.712	.504

RELIABILITY COEFFICIENTS

20 ITEMS

ALPHA = .53318

<u>POST - TEST</u>					
<u>Reliability Coefficients</u>					
<u>Question</u>	<u>If Item Deleted</u>	<u>If Item Deleted</u>	<u>Total Correlation</u>	<u>Multiple Correlation</u>	<u>If Item Deleted</u>
1	12.973	4.794	-.006	.484	.410
2	13.000	4.500	.132	.583	.378
3	12.946	4.719	.027	.341	.401
4	13.054	4.330	.198	.521	.359
6	12.892	4.821	-.015	.405	.406
7	12.946	4.664	.064	.655	.393
8	12.946	4.830	.046	.585	.416
9	13.405	4.581	.024	.579	.411
10	13.135	4.453	.100	.670	.387
11	12.946	4.553	.140	.477	.377
12	13.000	4.389	.200	.530	.361
13	12.919	4.465	.237	.648	.359
14	13.216	4.285	.168	.491	.366
15	13.297	3.881	.372	.732	.297
16	13.216	4.452	.086	.630	.392
17	13.703	4.992	-.150	.422	.433
18	13.162	4.417	.112	.620	.384
19	12.973	4.305	.281	.385	.343
20	12.865	4.620	.210	.495	.372

RELIABILITY COEFFICIENTS

19 ITEMS

ALPHA = .38558



TABLE 7

Decision-Making Scale:  
Percent Answered (Pre-Test)<sup>a</sup>

Item	R e s p o n s e			
	1	2	3	4
Pre 1	20.0	2.9	<u>74.2</u> *	2.9
" 2	<u>65.7</u>	0.0	0.0	34.3
" 3	<u>82.9</u>	0.0	17.1	0.0
" 4	2.9	17.1	0.0	<u>80.0</u>
" 5	0.0	2.9	<u>94.3</u>	2.9
" 6	8.6	<u>88.6</u>	0.0	2.9
" 7	17.1	0.0	11.4	<u>71.4</u>
" 8	2.9	17.1	<u>80.0</u>	0.0
" 9	<u>45.7</u>	5.7	14.3	34.3
" 10	<u>80.0</u>	8.6	11.4	0.0
" 11	5.7	0.0	0.0	<u>94.3</u>
" 12	40.0	0.0	0.0	<u>60.0</u>
" 13	5.7	8.6	8.6	<u>77.1</u>
" 14	8.6	14.3	<u>71.4</u>	5.7
" 15	<u>60.0</u>	0.0	8.6	31.4
" 16	5.7	34.3	0.0	<u>60.0</u>
" 17	0.0	48.6	<u>5.7</u>	45.7
" 18	14.3	<u>42.9</u>	8.6	34.3
" 19	5.7	8.6	<u>85.7</u>	0.0
" 20	5.7	<u>94.3</u>	0.0	0.0

<sup>a</sup> n = 35

\* Underlined items are the correct answer.

ported that treatment subjects showed non-significantly greater gains on this scale than did controls (1.19 points for both LT and ST, .30 for CT). Also, results approached significance in relation to reading level on both pre- and post-tests ( $p = .09$  and  $.08$ , respectively), with high reading level subjects achieving the highest scores. See Table 13.

#### Frequency of Information-Seeking

Hypothesis 12: There will be no significant differences on post-measures of frequency of information-seeking among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Vocational Information-Seeking Inventory.

As seen in Table 3, CT had a mean of 5.50, ST had 13.89, and LT had 10.17. Thus the null hypothesis is rejected. This was significant between CT and LT ( $p < .05$ ), between CT and Combined Treatment groups ( $p < .05$ ), and between CT and ST ( $p < .05$ ).

Hypothesis 14: There will be no significant pre-post differences within the treatment groups on frequency of information-seeking, as measured by the Vocational Information-Seeking Behavior Inventory.

Treatment groups had no significant changes in information-seeking, as indicated on Table 5. The null hypothesis is not rejected. There was a significant change for CT, in a negative direction ( $p < .05$ ).

#### Occupational Alternatives Desired versus Alternatives Gotten

Hypothesis 13: There will be no significant differences on post-measures of occupational alternatives desired versus alternatives gotten among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Questionnaire.

Tables 8a to 8d present the comparison of occupational alternatives desired and occupational alternatives gotten. A chi-square test was used for this hypothesis. Chi-square is a test of statistical significance

## TABLES 8a - 8b

Number of Alternatives Desired (Pre-Treatment)  
by Number Gotten (Post-Treatment)

Table 8a

C O N T R O L

	Desired More	Desired Fewer	Desired Same	Total
Got More	4	1	0	5 50%
Got Fewer	3	0	0	3 30%
Got Same	2	0	0	2 20%
Total	9 90%	1 10%	0 0%	

<u>Raw Chi Square</u>	<u>Df</u>	<u>Sig</u>
1.11	2	.57

Table 8b

S H O R T

	Desired More	Desired Fewer	Desired Same	Total
Got More	4	2	0	6 60%
Got Fewer	0	0	0	0 0%
Got Same	3	1	0	4 40%
Total	7 70%	3 30%	0 0%	

<u>Fisher's Exact Test</u>
.67

Number of Alternatives Desired (Pre-Treatment)  
by Number Gotten (Post-Treatment)

Table 8c

L O N G E R

	Desired More	Desired Fewer	Desired Same	Total
Got More	6	0	1	7 43.8%
Got Fewer	3	0	0	3 18.8%
Got Same	6	0	0	6 37.5%
Total	15 93.8%	0 0%	1 6.3%	

<u>Raw Chi Square</u>	<u>Df</u>	<u>Sig.</u>
1.37	2	.50

Table 8d

COMBINED TREATMENT GROUPS

	Desired More	Desired Fewer	Desired Same	Total
Got More	10	2	1	13 50%
Got Fewer	3	0	0	3 11.5%
Got Same	9	1	0	10 38.5%
Total	22 84.6%	3 11.5%	1 3.8%	

<u>Raw Chi Square</u>	<u>Df</u>	<u>Sig.</u>
1.74	4	.78

which helps the researcher to determine whether a systematic relationship exists between two variables. In this test, first the cell frequencies which would be expected if there were no relationship between the variables are calculated, given the existing row and column totals. Then these expected cell frequencies are compared to the actual values found.

As seen in Table 8a through 8d, there was no significant relationship between number of occupations desired and number achieved after treatment. The null hypothesis is therefore not rejected.

#### Relationship between Appropriateness and Decision-Making Skills

Hypothesis 15: There will be no significant difference on post-measures of the relationship between appropriateness and decision-making skills among three groups of community college students, one receiving a longer career decision-making treatment, another a shorter treatment, and the third being a no-treatment control, as measured by the Career and Educational Plans Questionnaire, the Index of Similarity, and the Decision-Making Scale of the Career Development Inventory.

Table 9 presents the data from a multiple regression analysis of the relationship between post-test Appropriateness of Occupational Choice and other pre- and post-test variables. Multiple regression is a statistical technique through which one can analyze the relationship between a dependent or criterion variable and a set of independent or predictor variables. Here we have treated all other variables, including decision-making skills, as possible predictors of appropriateness.

In response to the stated hypothesis, no analysis was appropriate, as the test of decision-making skills was found to be unreliable. This is described above.

#### Unhypothesized Relationships

Relationships other than the hypothesized ones were explored, with the following results:



TABLE 9

## Relationship between Post-Test Appropriateness and Other Post-Test Variables

(Multiple Regression Analysis - All Groups, including Control)

		Post-Test			VARIABLES IN THE EQUATION		
		VARIABLE	B	STD ERROR B	F/	SIGNIFICANCE	
Multiple R	.89479	Cert.Occ. (Post 21)	-.40798906E-02	.55252159	.54525359E/04		
R Square	.80065	Var.Occ.Plms. (Post 25)	-3.0787974	1.2347196	6.2176398/.994		
Adjusted R Square	.60130	Info.Skg. (Post 32)	.16317280E-01	.39217169E-01	.17311832/.030		
Std. Deviation	1.12001	No.Occs. (Post 29)	-.18121337	.17945524	1.0196901/.685		
Analysis of Variance	DF	Sat.Ed. (Post 24)	1.7815899	.39338862	20.510294/.334		
Regression	11.	More/Fewer Des. (Post 30)	.93300048	.64632367	2.0838364/.001		
Residual	11.	Var.Ed.Plms. (Post 26)	-1.3728418	.76778799	3.1971157/.177		
Coeff of Variability	30.7 Pct	No.Ed.Plms. (Post 28)	.23397616	.54604934	.18360286/.101		
Sum of Squares	Mean Square	Sat.Occ. (Post 22)	.91669362	.48030146	3.6426766/.677		
55.41874	5.038	Cert.Ed. (Post 23)	-1.7010925	.45262406	14.124744/.083		
13.79866	1.254	No.Occ.Plms. (Post 27)	3.1622973	1.0731802	8.6828067/.013		
		Constant	.79649828	1.7444150	.20848271/.657		

### 1) Appropriateness and other Measures

As seen in Table 9, over 80% of the variance in post-test appropriateness was explained by the other post-test measures. This overall equation was significant at  $p = .015$ . This means that the post-test items, taken as a whole, explain 80% of the variance in post-test appropriateness. This was not true for pre-test items.

### 2) Correlations between Certainty and Satisfaction Measures

It was also found, although not hypothesized (see Table 10), that there were strong correlations between the following variables for all subjects (i.e. including the control group): post-test certainty and post-test satisfaction with occupational plans (.82), post-occupational certainty and educational certainty (.57) and post-educational certainty and satisfaction (.80). Satisfaction with occupational plans and with educational plans were not found to be related (.13).

There was a somewhat weak negative relationship between post-test appropriateness of first choice occupation and having a larger number of occupational options (-.31). This was not true on the pre-test (-.04).

There was some positive relationship between pre- and post-test appropriateness of occupational choice (.58).

There was a slight (.51) positive correlation on the pre-test between desiring fewer occupational alternatives and having done more information-seeking.

### Age, Sex and Reading Level

Hypothesis 16: There will be no significant difference for all dependent variables among subjects of different age, sex and reading level.



Age

As seen in Table 11, younger subjects scored significantly higher in pre-test variety of occupational plans ( $p < .05$ ), pre-test information-seeking ( $p < .05$ ) and post-test satisfaction with occupational plans ( $p < .05$ ). Significance was approached, but not reached on younger subjects' post-test certainty about educational plans ( $p = .07$ ). This includes the control group.

Sex

As seen in Table 12, females had significantly more post-test occupational plans than males ( $p < .01$ ); this included the control group. Significance was approached, but not reached ( $p = .08$ ) on females having higher post-test cognitive decision-making skills scores.

Reading Level

As seen in Table 13, high reading level subjects had significantly higher pre-test decision-making skills ( $p < .05$ ). Significance was also approached on post-test decision-making skills ( $p = .08$ ), in the same direction.

In contrast, high reading level subjects had significantly lower variety ( $p < .01$ ) and number ( $p < .05$ ) of occupational plans on the pre-test than low reading level subjects, but high reading level subjects had significantly higher ( $p < .05$ ) post-test variety of educational plans. The number of low reading level subjects was only 4, however.

TABLE 11

Analysis of Variance for Age

Measure	P R E - T E S T				P O S T - T E S T					
	a		b		Younger		Older		F	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
Occ.Cert.	3.04	1.49	2.92	1.66	4.08	1.32	3.77	1.42	.83	.45
Occ.Sat.	3.57	1.44	3.23	1.74	4.68	.99	3.85	1.34	5.95	4.74***
Ed.Cert.	3.48	1.53	3.15	1.72	4.56	1.04	3.77	1.64	5.35	3.29*
Ed.Sat.	3.74	1.60	3.85	1.46	4.48	1.29	4.15	1.34	.91	.53
Cert.Sat.	16.38	8.72	13.15	5.11	18.50	5.00	15.54	4.61	76.01	3.20
Var.Occ.Plns.	1.13	.76	.54	.66	2.71	5.55***	1.24	.49	.86	1.21
Var.Ed.Plns.	1.13	.76	1.46	.52	.91	1.95	1.04	.73	.31	.84
No.Occ.Plns.	1.22	.90	.62	.87	3.01	3.79**	1.52	1.08	1.68	1.72
No.Ed.Plns.	1.35	.93	1.46	.66	.11	.15	1.32	.90	.41	.51
No.Occs.	2.87	1.63	2.38	.87	1.95	.98	3.52	2.06	.39	.11
DM Skills	13.77	2.62	14.77	2.59	8.11	1.19***	14.40	2.06	13.01	2.80
More/Fewer	1.13	.34	1.23	.60	.08	.41	1.43	.51	.11	.45
Approp.	3.27	1.64	4.08	2.00	5.28	1.63	3.76	1.79	.17	.06
Info.Skg.	10.63	6.75	6.23	3.88	149.49	4.48***	10.05	7.21	16.22	.31

DF = 1 in all cases

\* p = .08

\*\*\* p = .06

\*\*\*\* p < .05

a  $\bar{n}$  = 23

b  $\bar{n}$  = 13



TABLE 12

## Analysis of Variance for Sex

Measure	P R E - T E S T				P O S T - T E S T							
	a		b		MALE		FEMALE		F			
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD				
Occ.Cert.	3.44	1.24	2.85	1.61	2.37	1.01	3.78	1.39	4.03	1.35	.45	.24
Occ.Sat.	3.44	1.24	3.44	1.65	.00	.00	3.89	.93	4.55	1.21	3.02	2.25
Ed.Cert.	3.33	1.41	3.37	1.67	.01	.00	4.11	1.67	4.34	1.37	.38	.21
Cert.Sat.	11.70	7.97	15.00	7.85	10.71	.17	18.10	7.13	17.31	4.20	4.64	.18
Var.Occ. Plns.	.67	.71	1.00	.78	.75	1.28	.67	.71	1.28	.84	2.55	3.86**
Ed.Sat.	3.78	1.09	3.78	1.67	.00	.10	4.33	1.00	4.38	1.40	.01	.01
Var.Ed.Plns.	1.22	.44	1.26	.76	.01	.02	.89	.60	1.17	.60	.55	1.53
No.Occ.Plns.	.67	.71	1.11	.97	1.33	1.58	.67	.71	1.59	.98	5.81	6.74***
No.Ed.Plns.	1.22	.44	1.44	.93	.33	.47	1.00	.71	1.52	.91	1.84	2.43
No.Occs.	3.11	1.67	2.55	1.48	2.08	.31	4.00	2.18	3.28	1.69	3.60	1.10
DM Skills	14.00	2.33	14.19	2.73	.21	.03	13.63	1.19	15.14	2.33	14.35	3.11*
More/Fewer	1.11	.33	1.19	.48	.04	.18	1.25	.46	1.43	.51	.20	.82
Approp.	3.56	2.01	3.58	1.79	.00	.00	3.25	1.67	3.85	1.76	2.17	.72
Info.Skg.	8.89	6.41	8.83	6.11	.03	.00	10.89	10.07	8.96	5.97	24.40	.46

DF = 1 in all cases

\* p = .09

 $a \bar{n} = 9$ 

\*\* p = .06

 $b \bar{n} = 27$ 

\*\*\* p = .01

TABLE 13  
Analysis of Variance for Reading Level

Measure	P R E - T E S T						P O S T - T E S T									
	Low <sup>a</sup>		Medium <sup>b</sup>		High <sup>c</sup>		Low <sup>a</sup>		Medium <sup>b</sup>		High <sup>c</sup>		SS	MS	F	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD				
Occ.Cert.	3.20	1.48	2.90	1.73	2.67	1.66	.93	.46	1.41	3.46	1.56	4.22	1.09	3.25	1.63	.84
Occ.Sat.	3.80	1.30	3.50	1.35	3.56	1.88	.31	.16	.82	4.31	1.81	4.22	1.30	1.83	.91	.65
Ed.Cert.	3.60	1.95	3.00	1.63	3.56	1.33	1.91	.96	.96	4.46	1.51	3.67	1.41	3.87	1.93	.97
Ed.Sat.	3.80	2.17	3.60	1.43	4.33	1.32	2.63	.54	1.15	4.46	1.33	4.11	1.54	1.00	.50	.51
Cert.Sat.	14.40	6.54	18.31	11.18	14.11	4.54	113.22	56.61	9.07	16.69	4.23	16.22	3.99	69.66	34.83	1.24
Var.Occ.Pln.	1.20	.45	1.00	.67	.22	.44	4.14	2.07	.96	.85	.55	1.22	.83	.96	.48	.92
Var.Ed.Pln.	.80	.45	1.20	.79	1.56	.53	1.88	.94	.58	1.08	.28	1.33	.71	1.92	.96	3.73
No.Occ.Pln.	1.40	.89	1.10	.88	.22	.44	5.68	2.84	.96	1.15	.90	1.44	1.01	.45	.23	.25
No.Ed.Pln.	1.40	1.14	1.00	.67	1.89	.78	3.74	1.87	.96	1.38	.87	1.67	.87	2.33	1.16	1.50
No.Occes.	3.80	2.17	2.60	.97	2.33	1.00	7.30	3.65	1.83	2.92	1.71	4.11	1.45	16.07	8.04	2.99
DM Skills	13.60	1.67	12.90	3.00	15.67	1.73	37.73	18.87	.96	14.25	2.18	15.89	1.45	18.67	9.34	2.86
More/Fewer	1.00	0	1.10	.32	1.00	0	.06	.03	0	1.11	.33	1.33	.50	.35	.17	1.09
Approp.	3.20	.84	3.00	2.00	4.33	1.94	9.16	4.58	1.40	3.50	1.29	4.10	1.83	4.69	2.34	.68
Info.Skg.	9.00	5.70	10.56	6.21	4.71	2.56	138.16	69.08	2.60	11.00	14.31	9.58	5.70	56.61	28.31	

DF = 2  
 \* P = .08  
 \*\* P = .07  
 \*\*\* P < .05  
 \*\*\*\* P < .01

a. n = 4  
 b. n = 13  
 c. n = 9

Follow-Up

While no statistical significance tests were run on the follow-up data, some trends are worth noting. See Tables 14 and 15, and Figures 1 to 8. LT (n = 11) showed higher certainty and satisfaction scores in a five-week follow-up than ST (n = 5), and continued to increase on all of those measures except for satisfaction with occupational plans, which suffered a .13 decline (on a scale of one to six). The number of occupations being considered declined from 2.93 to 2.50. LT's information-seeking behavior maintained itself during the five weeks after the course, going from 8.62 contacts on the pre-test to 10.17 on the post-test, to 10.30 on the follow-up. ST's declined from 13.89 to 5.00, but the n of 5 and the 10-week time span from end-of-course to follow-up measurement make this statistic of limited use. LT also continued to increase the number of plans, and had more plans than ST. By contrast, LT's appropriateness essentially stayed the same (a decline from 3.5 to 3.2, on a scale of zero to eight), as did ST's.

TABLE 14  
Means for Pre-Test, Post-Test and Follow-Up

Measure	Group								
	Control		Shorter		Longer				
	Pre	Post	Follow-up <sup>a</sup>	Pre	Post	Follow-up <sup>b</sup>	Pre	Post	Follow-up <sup>c</sup>
Occ. Cert.	3.60	3.69	-	2.60	3.90	3.20	2.88	4.27	4.50
Occ.Sat.	3.60	4.08	-	3.20	4.00	4.00	3.50	4.93	4.80
Ed.Cert.	3.20	4.08	-	3.50	3.90	3.80	3.38	4.73	5.20
Ed.Sat.	3.90	4.31	-	3.80	4.50	4.00	3.69	4.33	5.50
Var.Occ.Plans	1.20	.92	-	.80	1.10	0.00	.81	1.33	1.36
Var. Ed. Plans	1.30	1.00	-	1.50	1.30	1.00	1.06	1.07	1.36
No. Occ. Plans	1.40	1.15	-	.90	1.20	0.00	.81	1.67	1.36
No. Ed. Plans	1.60	1.23	-	1.50	1.60	.80	1.19	1.40	1.55
No. Occs.	3.30	3.69	-	2.50	3.90	2.30	2.44	2.93	2.50
Appropriateness	4.00	3.60	-	3.60	4.10	3.90	3.31	3.50	3.20
Info. Seeking	8.67	5.50	-	9.30	13.89	5.00	8.62	10.17	10.30

<sup>a</sup> No follow-up conducted, due to control group receiving treatment.

<sup>b</sup> n = 5

<sup>c</sup> n = 11

TABLE 15

Percent Scoring "Somewhat" or "Very" Certain  
on the Certainty and Satisfaction Scales

	CT <sup>1</sup>		ST <sup>2</sup>		LT <sup>3</sup>	
	Pre	Post	Pre	Post	Pre	Post
Occ. Cert.	30	30	10	50	25	67
Occ. Sat.	40	40	20	40	31	80
Ed. Cert.	30	30	50	50	31	73
Ed. Sat.	40	50	30	60	38	53
				Follow-up*		Follow-up**
				60		82
				60		82
				60		82
				40		82

<sup>1</sup>n = 10 for CT

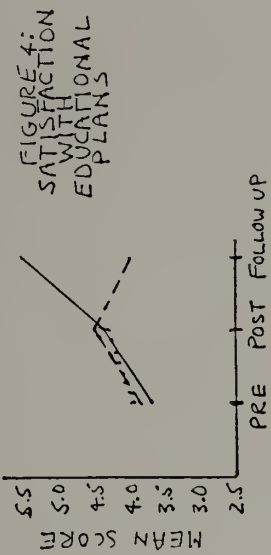
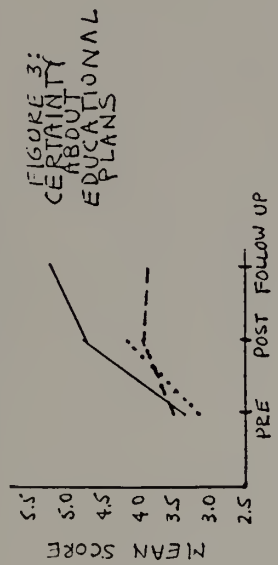
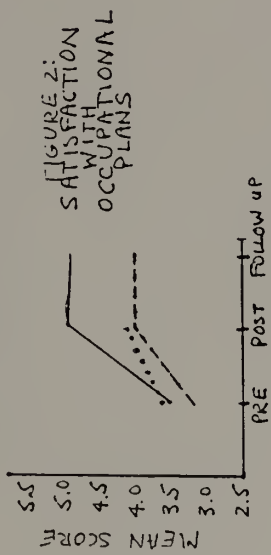
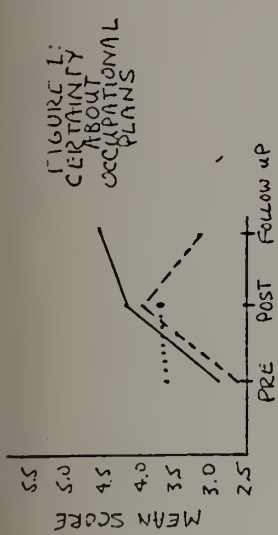
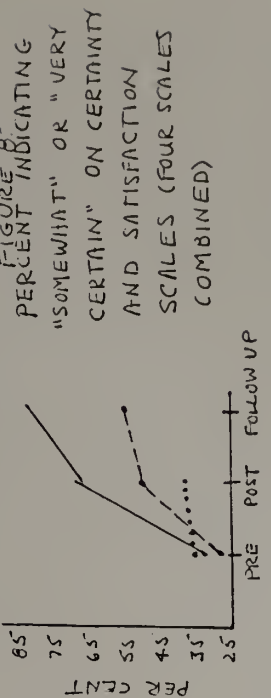
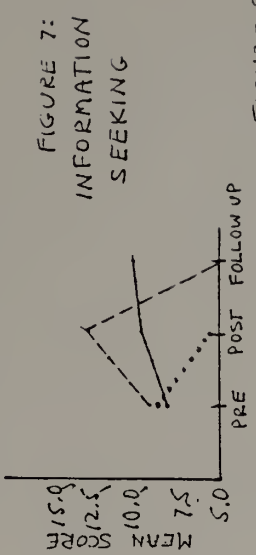
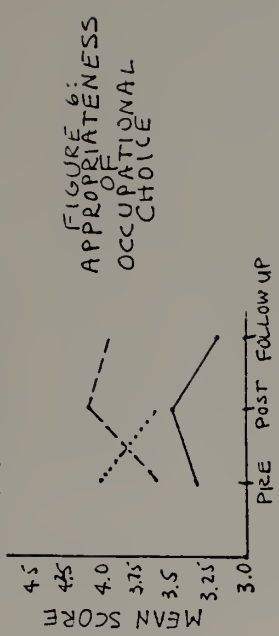
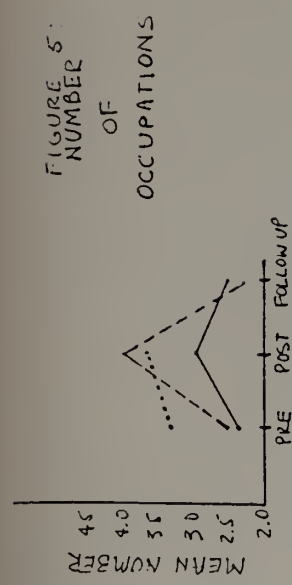
<sup>2</sup>n = 10 for ST, unless otherwise noted

<sup>3</sup>n = 16 for LT, unless otherwise noted

\*n = 5

\*\*n = 11





..... CONTROL      - - - - - SHORTER TREATMENT      \_\_\_\_\_ LONGER TREATMENT

FIGURES 1-8: COMPARISON OF TREATMENTS ON CERTAIN VARIABLES

## C H A P T E R     V

### DISCUSSION

#### Summary of Results

The purpose of this study was to assess the effects of group career decision-making treatments on community college students. Three groups were compared: a longer treatment (LT), a shorter treatment (ST), and a no-treatment control group (CT).

#### Post-Test Comparisons

##### Treatments vs Control

Students in the longer treatment (LT) group scored significantly higher than the control group (CT) on two hypothesized post-test measures: "satisfaction with occupational plans" and "frequency of information-seeking," and significantly lower on "number of occupational alternatives desired" (a non-hypothesized measure).

For the shorter treatment (ST), only one outcome, "frequency of information-seeking," was significantly greater than any for the CT. On all other measures, the differences were non-significant.

Altogether, LT scored higher than CT on ten of eleven hypothesized outcome measures in which higher scores can be assumed to be desirable. Eight of these higher scores were non-significant, however. The exceptions to the trend favoring LT was CT's non-significantly higher score on "appropriateness of first-choice occupation," also non-significant. ST scored higher than CT on nine of the same eleven post-test measures. The exceptions were "satisfaction with occupational plans" and "certainty about educational plans," in which CT scored higher, non-significantly. On change scores, CT had no significant increases, while LT had five and ST had three.

Shorter vs. Longer Treatment: Post-Test

LT scored significantly higher than ST on "satisfaction with occupational plans." Otherwise, the differences were non-significant. Without reference to statistical significance, each scored higher than the other on five of the ten directional measures.

Change (Gain) ScoresControl Treatment

There was one significant change for CT: "frequency of information-seeking" was significantly less at the end of the five-week control period.

Shorter Treatment

For ST, there were significant gains on three hypothesized measures ( $p < .05$ ): "certainty about occupational plans," "satisfaction with educational plans," and "number of occupations being considered."

Longer Treatment

LT showed significant gains on five hypothesized measures: certainty about occupational plans ( $p < .01$ ), satisfaction with occupational plans ( $p < .01$ ), certainty about educational plans ( $p < .01$ ), variety of occupational plans ( $p < .05$ ), and number of occupational plans ( $p < .01$ ). In an unhypothesized outcome, LT also, significantly, desired fewer occupations ( $p < .01$ ), compared to expressed desires on the pre-test.

Treatment Groups Combined

Combined ST and LT showed significant gains on seven hypothesized measures: certainty about occupational plans ( $p < .001$ ), satisfaction with occupational plans ( $p < .01$ ), certainty about educational plans ( $p < .01$ ), satisfaction with educational plans ( $p < .05$ ), variety of occupational plans ( $p < .001$ ), number of occupational plans ( $p < .001$ ), and num-

ber of occupational alternatives being considered ( $p < .05$ ).

### Non-Significant Outcome Measures

The following measures showed no significance for any group, either on between-group post-test comparisons or on within-group change scores: variety of educational plans, number of educational plans, cognitive decision-making skills, and appropriateness of occupational choice.

### Certainty and Satisfaction

The use of certainty and satisfaction measures is based on the assumption that increased certainty about and satisfaction with occupational plans is desired by most career counseling clients. Spokane and Oliver (1982) have made a case for utilizing what the client requests as outcome criteria. It should be noted, however, that increased certainty is not necessarily universally desirable as an immediate outcome of career counseling. Appropriateness of choice should be measured as a complement to certainty, in order to avoid certainty being equated with foreclosure.

### Certainty about Occupational Plans

Three trends indicate that the group career decision-making treatment had a positive effect on students' certainty about occupational plans: (1) the significant increase in both ST and LT's certainty about occupation and (2) the positive, but non-significant, direction in favor of both treatment groups vs CT's post-test occupational certainty scores, and (3) the fact that 67% of LT subjects were "somewhat" or "very" certain after

treatment, compared to 25% being so before.

The lack of statistically significant differences between CT and the treatment groups on post-test certainty (number 2, above), may have been due to the timing of the measure, which was on the last session of the course. While the trend favored both treatment groups over CT, it is possible that the further exploration that many students engage in after the formal termination of the course might have led to even greater certainty. The significant increase (gain score) in certainty within treatment groups indicates that certainty had increased. However, marked post-test differences between the treatment groups and the control group may only be noticeable after some time has passed. Future research should use follow-up measures, perhaps after a few weeks, in order to see if information-seeking continues and if certainty increases.

LT had higher occupational certainty scores than ST. The lack of significance in this, however, requires caution in interpreting LT-ST differences. The longer treatment does provide more opportunity for "closure," in that the information gathered is used for in-class decision-making activities. Increased certainty might therefore be expected more for LT than for ST.

Another theoretical explanation for these mixed, yet generally positive, results is related to the concepts of "readiness" (Super, 1983) and individual time-frames for decisions. It seems that some subjects are not ready to move toward certainty in the five or ten-week period that the courses cover. Instructors reported that some students had decided on a specific occupation by the end of the course, others narrowed their choices to a more general field, while, in contrast, still others opened



up more occupational alternatives as a result of the treatment, that is, they became less certain. Further research should link subjects' pre-treatment readiness with post-treatment level of certainty. Super (1980) has described the individually varying time-frames for decisions, specifically in relation to the role of "stored information" that some clients can tap into during a decision-making process. The individual with less "stored information" (i.e. fewer learning experiences) may have to engage in more extensive direct and/or vicarious information-seeking during the career decision-making process, therefore taking more time to reach "certainty."

Although one could speculate with developmental theory (Super, 1957, 1963) and social learning theory (Krumboltz, 1979) that increasing age provides the person with more stored information, there were no significant age differences on post-treatment certainty about occupational plans. This lack of difference, it is speculated, may be in itself due to differences in the sample: younger career counseling clients ( $n = 27$ ) may be generally less "trait-indecisive" (Van Matre and Cooper, 1984) than older ones ( $n = 9$ ), and instead be more "state-undecided." This speculation is based on the developmental stage of younger clients and on age differences favoring younger clients on a number of measures (see Section VII, below, for discussion of age differences). This indecisiveness of older subjects may reduce the quicker movement toward certainty that might otherwise be expected from older subjects, who have more experience to draw on. Further examination of age differences, using attitudinal measures, would elucidate this. Measures of "indecisiveness" need to be tested (Van Matre and Cooper, 1984).

A possible practical implication of the mixed results on occupational certainty is that a one-to-one follow-up session might be arranged for all group career decision-making interventions, in order 1) to encourage continued exploration, 2) to provide assistance in weighing the pros and cons of the information gotten, and 3) to help the student consider any affective issues that may interfere with his/her decisions. The combination of independent post-intervention exploration and one-to-one counseling which helps move the client toward decisions may increase certainty about plans. To encourage this continued exploration (and subsequent increased certainty), the intervention itself should require subjects to specify their exploration (e.g. information-seeking) plans. Further research should examine the role of one-to-one follow-up in encouraging post-intervention exploration and in subsequently increasing certainty.

#### Satisfaction with Occupational Plans

"Satisfaction" was measured as a complement to "certainty," in order to avoid the simplistic assumption that certainty, by itself, was a positive outcome. It was hoped that "dissatisfied certainty," "satisfied uncertainty," "satisfied certainty" and "dissatisfied uncertainty" might be distinguished from each other. For example, satisfaction with some uncertainty might be considered a positive condition for an individual, depending on other factors such as age, attitude toward career, and knowledge of the career planning process. To cite a specific instance, in this study at least two subjects, both older females, were uncertain about occupational plans (with a rating of one out of a possible

six) but satisfied with the current state of these plans (with ratings of five out of six on satisfaction). Their educational plans were more certain, but were still of an exploratory nature.

Despite these distinctions, certainty and satisfaction were found to be closely associated. There was a post-test correlation of .82 between them on occupational plans and one of .80 on educational plans (see Table 10).

The significant differences, favoring LT ( $p < .05$ ), found between CT and LT and between ST and LT on occupational satisfaction, combined with the significant pre-post change for LT ( $p < .001$ ), but not for CT and ST, is an indication of the longer treatment's positive impact on satisfaction with occupational plans. The significant increase for LT on both occupational certainty and satisfaction and the strong correlation between those two measures indicates that "satisfied certainty" may have been the result of LT. It is perhaps most defensible to say, at least, that LT has a positive impact on the affective state of satisfaction with occupational plans, regardless of the level of certainty.

Improved satisfaction with occupational plans must, however, be tested in terms of the realism or appropriateness of those plans. The absence of a demonstrated relationship between satisfaction with occupational plans and appropriateness of occupational choice requires the researcher to further explore the meaning of "satisfaction" as a measure, as satisfaction with inappropriate or unrealistic plans is not desirable. It seems that satisfaction with occupational plans takes on more meaning when combined with other measures. We must answer such questions as, "Is the client satisfied with and certain of his/her plans?" "Is s/he

satisfied with realistic plans?" "Is s/he satisfied and engaged in actions which will help him/her enact those plans?" As Oliver (1979) and Fretz (1981) have pointed out, multiple outcomes should be measured in career guidance, including both subjective and objective measures.

### Certainty about Educational Plans

Only LT significantly increased educational certainty ( $p < .01$ ) on the pre-post comparison. This indicates that LT may positively affect students' certainty about courses, majors, and schools. This should be treated cautiously, however, as there were no significant post-test differences between CT and LT (nor between CT and ST and between ST and LT). ST actually had a non-significantly lower mean score on the post-test here than CT.

Certainty about educational plans can be distinguished from certainty about occupational plans. As seen on Table 10, the two measures do not have an especially strong positive correlation (.32 on pre-test and .57 on post-test). This disparity between occupational and educational plans may be due to readiness and/or age differences between the two measures: it might be sufficient for younger clients to be certain only about their educational plans, in order that they might use education for further exploration or for general training which eventually may lead to greater occupational focus. Thus, a nineteen year-old may appropriately feel certain only about a plan that includes a broad range of liberal arts electives, with occupational choice being less certain. Of course, this could also be true for the older student returning to school. In contrast, the need to identify the relationship between educational and occupational plans may be greater for some clients than for others. For them,

certainty about both would be desirable. Thus the weakness of the correlation between occupational and educational certainty may be due to the variation in client needs for coincident certainty about both. A career counselor would be well-advised to note this difference in client needs and to help set differential goals with each client regarding these two types of plans. The increase from a .32 correlation on the pre-test to .57 on the post-test between those two types of plans might indicate the treatments' effect on converging educational and occupational plans, although the post-test also included the control group.

The lack of significance for ST on educational certainty may speak to the absence of a planning dimension in that treatment. ST's less comprehensive nature leaves the students off at a more exploratory stage than does LT.

#### Satisfaction with Educational Plans

Only subjects in ST showed a significant gain on this measure ( $p < .05$ ); LT did gain, but non-significantly. Interpretation of this result must be cautious, therefore, due to the single piece of evidence of a treatment effect. This significance is also only at the  $p = .045$  level; the corresponding absence of a significant gain on educational certainty for ST, which is highly correlated with educational satisfaction (.80), cautions the researcher about the danger of making a Type I error here. On the other hand, post-test comparisons among groups showed both treatment groups to have non-significantly higher educational satisfaction scores than CT, and both ST and LT to increase their educational certainty scores, while CT remained the same.



Satisfaction with educational plans may be independent of the treatment. It may be somewhat independent of occupational plans, as indicated by a lack of strong correlation between occupational certainty and educational satisfaction (.32) and occupational satisfaction and educational satisfaction (.13). In practice it might be well to have separate information-seeking and planning activities for occupation and for education.

#### Certainty and Satisfaction: Summary

It can be said that LT increases occupational certainty and satisfaction and educational certainty, while ST increases occupational certainty and educational satisfaction, and the control treatment increases none of the four measures.

The trend showing LT to have (non-significantly) higher scores than ST on both certainty measures indicates the possible positive impact of LT's comprehensiveness on career certainty. The LT curriculum's more extensive information-seeking and the inclusion of decision-making, planning, and action components in LT seem to have more impact on certainty than does an intervention (ST) that does not treat them as fully.

Finally, the high correlation between post-test occupational certainty and satisfaction and post-test educational certainty and satisfaction indicates a convergence of these two after treatment. The correlation was weak in the pre-test. Since one of the goals of treatment is to increase certainty and satisfaction with occupational plans, this correlation is a very positive sign.

Plans

LT significantly increased variety and number of occupational plans. There were no significant post-test differences between the treatment groups and the control, however, on this measure. There was no significance at all on number and variety of educational plans.

The method of measuring subjects' actual plans by breaking them down into number and variety was questionable, as raters reported finding "variety" to be parallel to "number" of plans in most cases. The correlations were: .96 (pre-var. and no. occ. plans), .79 (pre-var. and no. ed. plans), .96 (post-var. and no. occ. plans), and .80 (post-var. and no. ed.plans). The construct of "variety" did not seem to distinguish stated plans from each other. Most plans were of the "Taking Action" type (e.g. "to take courses in ...") and the "Information-Seeking" type (e.g. "to read about ..."). The other five decision-making steps were rarely represented in subjects' stated plans. "Number of plans" seems to be the most useful as an outcome measure, of the two. In the future a more directive question might be utilized, with direct links between decision-making steps and plans established, such as "Name any plans you have in the following areas: 1. Motivating yourself to make a commitment to the career decision-making process. 2. Identifying your skills, values and/or interests. 3. Generating options..."

Another explanation for the general lack of variety in subjects' stated occupational plans is that most of the decision-making steps were covered in the course, and subjects may not have needed further plans in those areas (e.g. in "making a commitment to decision-making" or in "self-

assessment").

The general assumption behind the "plans" measure is that planning behaviors may be indicative of a subject's engaging in follow-up activities that would lead to good career decisions in due time. It also has value as a more objective, behavioral measure. This measure is one of the "process" measures, such as information-seeking and cognitive decision-making skills, in which subjects' knowledge of and use of the decision-making process are measured. The process measures complement the closure-oriented "outcome" measures, such as certainty and appropriateness of occupational choice. They reflect the balance in the treatment between teaching the decision-making process while actually moving students toward appropriate choices. The teaching of the decision-making process, it is hoped, provides an alternative to a potential premature emphasis on closure around a choice. It was theorized that an increased number of plans would indicate the possible enacting of the decision-making process, as a result of learning these skills, and the movement toward becoming an "active decision-maker" in attitude and behavior. It was theorized that closure would consequently be reached later for many subjects, as a result of their acting on such plans as information-seeking, further self-assessment, generating more options, and comparing and contrasting options. LT's significant ( $p < .01$ ) increase in number of occupational plans is therefore worth noting. The LT subjects were planning to do more about career decision-making after the treatment.

ST's not having a significant increase in number of occupational plans is a possible indicator of the truncated process they experienced. Lacking activities around making choices (i.e. weighing alternatives) and

planning, ST's subjects had not developed more explicit plans. With the assumption that plans lead to action (an assumption that should be checked by further research), LT subjects, as a group, seem to be more "active decision-makers" than ST or CT subjects.

"Increased plans" perhaps should not be considered desirable outcomes by themselves. Actions which lead to satisfactory and appropriate career choices are the ultimately desirable outcome of career counseling. Nevertheless, plans-as-indicators of changed behavior and attitude should continue to be measured and should continue to be explicitly included in a treatment since, as Clarke, Gelatt and Levine (1965) have pointed out, satisfactory outcomes are not guaranteed by a good decision-making process, due to external variables beyond the control of the decision-maker. Further research should study the link between 1) number and type of plans and 2) other outcomes such as the appropriateness of the eventual occupational choice.

The lack of significance on "educational plans" may have been due to the limitations of the measure itself. While, logically, plans for occupations and those for education seemed to be separable, in practice many subjects treated them in the same way. "Occupational plans" was asked first on the questionnaire; when "educational plans" were asked for, the answer was frequently, "same as above." Because of this, future researchers might consider using only occupational plans as a measure of planning behavior.

Another somewhat contradictory explanation for the lack of significance on number of educational plans can be made, assuming that the measure was valid. Occupational and educational plans, while informally ob-

served to be similar, were only mildly correlated (.40 for pre-test and .44 for post-test, all groups included). For this reason, they might be treated separately. The treatments may not have impacted educational plans because these plans may be, for many students, impervious to a career decision-making treatment. The treatments' lack of impact on educational plans was also seen in the "satisfaction with educational plans" measure, discussed above.

An explanation of this is that plans for courses may frequently be made based on factors other than occupational ones, such as college requirements, personal interest, and exploration. Similarly, plans regarding what school or college to attend may be affected by location, size, and cost as much as by occupational considerations. The only type of educational plan, as defined here, that may be more impacted by a career decision-making treatment may be choice of major. Perhaps for these reasons, a career decision-making treatment seems not to impact educational plans. Practitioners should point out the relationship between occupational and educational plans, however, as the latter frequently result from the former. The .40 correlation between number of occupational and educational plans may be partly an indicator of this relationship between the two.

This somewhat experimental measure bears further study. The counting of subjects' expressed plans is somewhat objective, as it measures the covert behavior of planning. The link between good "planning" behavior and better decisions must be demonstrated in future research, however. The current assumption is that having more plans indicates an active attitude about decision-making and increased subsequent actions which result in better information for an informed decision.



Number of Occupations Considered

Clients in the short treatment significantly increased the number of alternatives they were considering and had a larger mean number of occupations (3.69) at the end of treatment than did those in LT (2.93), although non-significantly so. This trend parallels the content of each course, as ST did not attempt to move students toward a reduction in the number of alternatives, whereas LT did. LT required the decision-maker to engage in a narrowing-down process, whereas ST instead encouraged the expansion of alternatives, did not allow for the gathering of much information on those alternatives, and did not provide for a thorough assessment of the pros and cons of each alternative. ST's having more alternatives should imply a more exploratory stage of decision-making, as Mencke and Cochran (1974) surmised when they observed subjects to reduce the number of alternatives after their treatment. LT subjects seem to have been moved closer to a decision, as supported by their significantly higher certainty scores.

As may be seen from these results, "number of alternatives being considered" cannot be interpreted in a unilateral manner as an outcome measure. As Oliver (1979) points out, neither an increase nor a decrease on this measure is clearly desirable for all clients. An increase in number of career options may be desirable for clients who are in an exploratory stage, while a decrease may be preferable for those at a later stage. While age might be expected to be an indicator of decision-making stage, there were no age differences on this measure.

An attempt was made in this study to discover whether there was

a relationship between 1) the pre-treatment desire for more or fewer occupations and 2) the actual post-treatment increase or decrease in number of occupations. No significant relationship between these two was found for the treatment group, although the trend favored a correspondence between treatment subjects' desired and actual number of alternatives.<sup>1</sup> The lack of significance, however, may have been due to the subsuming of individual goals to the group curriculum. All treatment subjects were guided through the same steps in the process. This may not have allowed for individual needs in the area of expanding or narrowing occupations to be expressed, as all students were assigned to expand their list of alternatives in both treatments. The group differences between ST and LT on number of occupations illustrate the effects of the group approach to treatment. ST, which ended at the stage when alternatives were being expanded, wound up with a larger number ( $\bar{X} = 3.7$ ) than LT ( $\bar{X} = 2.9$ ) who had been exposed to a process for narrowing alternatives. Thus individual preferences for more or fewer alternatives may have somewhat succumbed to the curriculum.

These results indicate that practitioners should be aware of individual subject differences in decision-making stage. The instructor should remind students that each of them may need to spend more or less time on a particular decision-making task if h/she needs to, such as in expanding alternatives further, or conversely, in narrowing them down by information-seeking and weighing pros and cons.

<sup>1</sup>Ten treatment subjects (i.e. combined LT and ST) desired more and got more, only two desired fewer and got more, and three desired more and got fewer (i.e. ten got what they wanted, five didn't). This was six, zero and three for LT and four, two and zero for ST. For CT, four desired more and had more, three desired more and had fewer, and one desired fewer and had more (i.e., four got what they wanted, four didn't).

In an unhypothesized area, the treatment did have some effect on number of alternatives desired. LT subjects, overall, wanted fewer occupational alternatives on post-test than did controls ( $p < .05$ ). LT's change score was also significant as they desired fewer occupations, pre- to post-test. This was not true when ST and CT were compared. It seems that LT subjects, having become exposed to a large number of alternatives, and having done some information-seeking on those alternatives, were satisfied they had covered a sufficient range of choices and now wished to narrow down this array of occupations. Control subjects hadn't had a chance to expand on their career possibilities and ST subjects were not finished with this task. It can be concluded that LT subjects had sufficiently covered the decision-making step of "exploration of as many choices as possible" that Clark, Gelatt, and Levine (1963) describe as necessary for good decision-making.

In practice, a career decision-making treatment must be careful to acknowledge individual differences in "goals for treatment" and therefore allow some individualization of content. This can be done, for example, by allowing some subjects to work on expanding their list of alternatives, while others are encouraged to narrow their choices by further information-seeking and weighing the pros and cons of each alternative.

#### Appropriateness of Occupational Choice

On this measure, treatment subjects did move in the direction of more appropriateness, and controls did the opposite, although these re-

sults were not significant. Additional evidence reveals a trend favoring the influence of the treatment on appropriateness. A regression analysis showed 80% of the variance in post-test appropriateness being explained by all the other post-test items. This was significant on the post-test ( $p < .05$ ) but not on the pre-test. This may be an indication that the treatments affected appropriateness in that higher and lower scores on other measures corresponded to higher and lower scores on appropriateness on the post-test. This slight evidence of a possible treatment effect warrants further exploration. It will be important to discover whether subjects' improved certainty, satisfaction, etc. are accompanied by more appropriate occupational choices.

The absence of clearer and more significant results on appropriateness may have been due to two possible factors. First, the use of the Holland code as a measure of appropriateness, although recommended by Oliver (1979) as a potentially "objective" outcome measure, may not have been adequate. Each "Holland type" includes many interests, abilities, and values, but the individual is globally identified only by the three letter code. Because of this, specific distinguishing characteristics of individuals and of occupations are lost when the three-letter code is used for measurement purposes. Additionally, when the three-letter code is used as an ordinal list, as it was here, the relative strength of each of the types is not accounted for. The Self-Directed Search (Holland, 1979), and the corresponding Occupations Finder, does not acknowledge differences in strength between each letter, although individuals' codes differ in the relative importance of each of the letters comprising it. The relative strength of each of the letters of the code is considered by



Holland to be important (Holland, 1971). He has shown, for example, with the "rule of seven," that a seven-point difference either way on the SDS on a particular personality type is not significant. Thus the placement of the letters in the three-letter code, and even the choice of some of the letters that comprise the code, are arbitrary in some cases. This arbitrariness can lead to potential misrepresentation of the relationship between subjects' interests and the occupation they've chosen, since points are gained or lost in the Index of Similarity (Zener and Schnuelle, 1976), based on the parallel between the subject's code and the code of their occupation. More subtle distinctions, which depend on the relative strength or weakness of a subject's interests, cannot be made.

The Holland code, while most valuable for career exploration purposes, and perhaps for individual assessment of the consistency of occupational preferences (Holland, 1979), therefore does not provide a specific enough measure of appropriateness when only the three-letter code is given a point value from an index.

The use of other measures of appropriateness is recommended. More specific measures of subject characteristics, such as abilities, could be utilized and combined with such interest measures as the Holland code to determine appropriateness of occupational choice. A second way of assessing appropriateness might be to compare a subject's occupational choice with his/her similarity to others in the chosen occupation, as measured by the Strong-Campbell Interest Inventory (Strong and Campbell, 1981). A third possible measure of appropriateness might be the comparison of first choice occupation with the subjects' choice of and satisfaction



with occupation some time later. A fourth measure worth considering is Krumboltz's (1979) simulation method of determining the congruence between an occupational choice and a subject's ability to identify the values that go with that occupation. Finally, "number of reasons" for a stated occupational preference (Jepsen, Dustin, and Miars, 1983) might be included in a comprehensive assessment of appropriateness.

A second explanation for the lack of significant treatment effects on appropriateness of occupational choice may be related to the stage of decision-making that students were in by the last class, and to the timing of the measurement. It may have been premature to use "first choice" occupation, as both ST and LT subjects were generally still engaged in exploration at the end of treatment. This was indicated by the average number of occupations still being considered at the end of the course (ST = 3.7, LT = 2.9). It is further confirmed by the negative correlation between appropriateness and having a larger number of occupational options (-.31); the more occupations being explored the less likely a first choice would be appropriate. It is clear that many subjects did not yet have a "first-choice occupation," and that if they were still in an exploratory stage, a forced "first choice" was less likely to be appropriate. It may have been unrealistic to ask subjects to name one preferred occupation at this time. "Appropriateness" might instead be measured some time after the course ends, as subjects were still investigating the nature of some occupations on the last day of the course. If measurements must be made on the last day of the career decision-making course, then the full array of occupational alternatives that subjects are

considering should be coded for appropriateness. The five- or ten-week teaching of a career decision-making process may not bring enough clients to a single meaningful occupational choice; the information-seeking that students continue to engage in after the course may lead to the narrowing down to a field or occupation, which then should be measured for appropriateness.

This measure, which is essentially of the "goodness" or "quality" of a decision, should always be included in a study of a career decision-making treatment, as it is the ultimate aim of teaching decision-making.

#### Knowledge of Decision-Making Strategy

Teaching cognitive decision-making skills is part of the effort to provide the career decision-maker with useful behaviors after the treatment is over, as it is assumed that understanding the decision-making process will lead to engagement in it. This study, however, has not answered the questions about teaching such skills: Is cognitive understanding of decision-making associated with more active engagement in decision-making behaviors? Is cognitive understanding of decision-making associated with appropriate decisions?

The decision to use the Decision-Making Scale (DM) of the Career Development Inventory (CDI) (Thompson and Lindeman, 1982) was made because the validity and reliability of the instrument had been confirmed by its authors. The content of the questions also seemed to cover the decision-making strategies taught in the treatment. A further advantage of the DM was its use of vignettes which require the student to extract deci-

sion-making principles. However, the unreliability of the DM in this study (see Tables 6 and 7) left further analysis of cognitive decision-making skills meaningless.

Nevertheless, the goal of teaching and of measuring decision-making skills should continue, unless research should fail to confirm a connection between these skills and good career decisions. The potential importance of teaching decision-making skills (Katz, 1966; Clark, Gelatt, and Levine, 1963) lies in two areas: 1) Not all clients achieve closure on an occupational choice by the end of a treatment; the emphasis on teaching decision-making skills helps move both the counselor and client away from a potentially premature emphasis on closure and 2) individuals will make job and/or occupational decisions throughout their lives, and good decision-making skills may, it is suggested, be valuable for a long time after an intervention has ended. In this study, many subjects were still engaged in the "narrowing down" process at the end of treatment. It was hypothesized that a subject's having cognitive decision-making skills would lead to continued, more thorough exploration, after the treatment was over. As is the case with all prescriptive decision-making models (Gelatt, 1962; Hinton, 1962; Katz, 1958), more complete exploration is considered to increase the likelihood of good outcomes (Clark, Gelatt, and Levine, 1963; Jepsen and Dillard, 1977). The potential importance, however, of teaching cognitive decision-making skills is still undemonstrated.

The measurement problem for cognitive skills may lie in the failure to link decision-making principles to actual decision-making. Katz (1976) and Super (1983) each recommend that we study the principles ap-

plied by a subject as s/he engages in a simulated, or a real, decision-making task. Katz's Simulated Occupational Choice (1976) and Krumboltz's Decision-Making Simulation (1979) are examples of this. In the present study, the DM Scale, even if it had proven to be reliable, may not have accurately assessed subjects' ability to apply the decision-making principles to their actual situations, which is really the goal of a career decision-making intervention.

Further research is needed in this area, as half of the studies reviewed for this research failed to produce significant changes on cognitive decision-making skills in treatment groups. Even if decision-making skills are shown to be teachable, the link between such skills and improved decisions must be demonstrated. This linking was attempted in this study by examining the relationship between subjects' decision-making skills and the appropriateness of decisions but it was not successful because of the unreliability of the decision-making scale. Krumboltz (1979) did not find a relationship between subjects' cognitive decision-making skills and the quality of their actual decisions. For future research, it is suggested that a follow-up comparison of end-of-treatment decision-making skills and subjects' occupational plans (e.g. appropriateness, completeness, number of plans) might be made, in addition to utilizing a simulation to link decision-making principles to actual decisions. Until we know whether decision-making knowledge is associated with clients' achieving satisfying and productive work, we won't know whether teaching the prescriptive decision-making process itself is important.



### Frequency of Information-Seeking

The somewhat ambiguous results on this measure are due to the contrast between (1) both treatment groups having significantly greater post-test information-seeking scores than the control, and (2) there not being significant pre- to post gains by either treatment group, although they had non-significant gains. The seeming superiority of the treatment groups' post-test scores may be more due to the control group's significant reduction ( $p < .01$ ) in information-seeking behavior, but not significantly. The increase for treatment groups, when combined with the control group's decrease, is some indication of a possible treatment effect.

An explanation for the control group's reduction in occupational information-seeking may be activities related to the beginning of the semester. Although, theoretically, they were motivated to seek information (having signed up for a later treatment), they perhaps nevertheless found other obligations interfering with occupational information-seeking. ST subjects, during that same five-week period, non-significantly increased the same behavior, while LT subjects also did so, during a different part of the semester. However, the importance of this contrast between control and treatment is limited by 1) the lack of significance in ST's and LT's gains and 2) by the fact that some information-seeking was a required assignment of the course. In the five-week follow-up, LT's level of information-seeking maintained, which indicates that some independent behavior was occurring. That occupational information-seeking is teachable has been already demonstrated by other researchers (Krumboltz and Thorsen, 1964; Krumboltz and Schroeder, 1965). That increased occupational



information-seeking occurred as a result of this treatment is less clear, although the results are in a positive direction.

As one of the most objective outcomes that can be measured, information-seeking should continue to be examined as long as we are in this early stage of studying group career development interventions. Increased information-seeking is an indication of positive movement toward "active decision-making" behavior, which is a goal of the treatment.

### Age

Some possible differences between younger and older career counseling clients emerged from this study. The trend favored younger students on most measures. Younger subjects had significantly ( $p < .05$ ) higher pre-test scores on variety of occupational plans and on information-seeking. They also were significantly higher on post-test satisfaction with occupational plans and they had significantly higher ( $p < .05$ ) pre-test frequency of information-seeking. Additionally, younger subjects had non-significantly higher scores on all four (pre- and post) certainty measures.

What underlying factor(s) might indicate such age differences? One speculation is that younger clients in general may be more "developmentally undecided" and that older clients, in general, may instead be "indecisive" (Van Matre and Cooper, 1984). A higher percentage of older clients may be characterized by the higher anxiety, lack of confidence, and other affective factors associated with "indecisiveness." Younger clients, as a group, may represent a broader range on these traits with many only

needing information and methods for deciding, and not an attitudinal intervention.

On the other hand, some of these age findings may be due to developmental differences and not to the above-described "undecided" versus "indecisive" difference. Younger subjects' being significantly more satisfied with occupational plans while not being more certain may, in the developmental interpretation, be due to their satisfaction with relative uncertainty.

One should be careful about this interpretation for a number of reasons: 1) An attitudinal measure should be utilized to clarify the possible "readiness" differences between age groups; 2) There is no measure of "undecided" vs "indecisive" yet (Van Matre and Cooper, 1984); 3) Individuals within each age group fit into each "decidedness" category, i.e., there are certainly indecisive younger clients and undecided older clients.

Future researchers should study the characteristics of younger vs. older career counseling clients. Besides attitude measures, the consistency and differentiation of different age groups' Holland codes might provide information about age differences. Older clients would perhaps be less consistent and less differentiated in their code, if the trend in this study holds true.

Some implications for practice can be suggested. Different treatment emphases may be indicated for younger versus older clients: 1) Some age-related treatment differences in this intervention are consistent with developmental and social learning theory, such as leading younger clients through more hands-on occupational exploration, (e.g., reading, looking at lists of occupations), while allowing older clients more opportunity to self-generate their abilities, and having them brainstorm occupational

alternatives, in each case using their more extensive experience. 2) If older clients generally prove to be "indecisive" as well as "undecided," then treatment should be oriented toward attitude change. For example, discussions of past achievements and individual acknowledgement of skills might be confidence-builders to be emphasized in the treatment. 3) Recognition of individually different time frames needed for making a decision, based on such a factor as "stored information" (Super, 1980) versus "information-to-be-sought" may be incorporated into the curriculum. Olders may wish to put the decision-making process into a shorter time frame; consequently, more closure-oriented activities may need to be provided for older students.

Recognition of age differences in readiness and in information seems to be warranted by these results. While some treatment suggestions are offered above, further study is required to demonstrate more clearly if certain treatment components should be applied to specific age groups.

### Sex

The two slight indications of sex differences, that is, females' significantly higher number of post-test occupational plans than males' number of plans, and their non-significantly ( $p=.08$ ) higher post-test cognitive decision-making skills score, parallel the very small amount of research on sex differences for group decision-making treatments. Both Egner and Jackson (1978) and Krumboltz (1979) found females to score significantly higher on cognitive decision-making skills (for Krumboltz, females only scored

higher than older males).

Not much can be made of the results on decision-making skills at this time, however, without some guiding theory about sex differences on this measure. We can only ask: Are these due to readiness differences between the sexes, which result in greater gains for females on certain measures? Do females' generally higher verbal scores on standardized tests parallel the ability measured by the cognitive tests? Further analysis of pre-post gain scores for treatment groups, by sex, might be instructive. This study did not examine gain score differences. Thoresen, Krumboltz, and Varenhorst (1967) and Brenner and Gazda-Grace (1979) did find treatment differences on information-seeking and other measures by sex. They, however, also varied the counselor and the gender make-up of the treatment group.

Based on the lack of pre-test differences, males and females who report for career treatment seem to be similar, for example, in their level of certainty and satisfaction about plans and in the appropriateness of the occupation they are considering at that time.

Attitude measures are needed, such as "work salience" (Super and Nevill, 1982), to determine whether the importance of work for males and females differs, and whether that affects planning. Finally, there should be a closer look at sex and age interaction effects, such as those Krumboltz (1979) found.

#### Reading Level

A trend found high reading level subjects scoring higher on both

pre- and post-test cognitive skills. This might be expected, as the cognitive skills required for this knowledge test correlate to reading ability. The unreliability of the cognitive test mitigates against any conclusions being drawn here. The small number ( $n = 4$ ) of lower reading level subjects also qualifies these findings. Reading ability and other cognitive or academic abilities warrant further study, as group career decision-making interventions on the college level may require different instructional techniques based on academic ability. The general lack of significant differences on reading level may indicate that reading ability may not be a factor in group career decision-making outcomes. Other measures of academic ability, such as cognitive complexity and critical thinking might be tried. Reading may not be as big a factor in the career decision-making process as these others.

#### Attribute-Treatment Interactions: Recommendations

Instructors' perceptions of client differences in readiness for the career intervention led to the study of the attributes of age, sex, and reading level. The early stage of our understanding of attribute-treatment interactions suggest that practitioners mix the types of instructional activities to suit varying learning styles and developmental needs and provide for individualization, until we can match these client attributes and treatment components better. Much more study of attribute-treatment interactions is still needed, as global group interventions may not suit all clients. Researchers should continue to study potential predisposing factors such as types of occupational interests (with the specu-



lation that some types may respond to activities differentially).

Some age differences emerged in this study. However, nothing in these results indicates major outcome differences based on sex or reading level. Now that the generally positive results of group career decision-making interventions are beginning to be demonstrated, more ATI research should be conducted.

#### Correlations among Measures

The relationship among items was explored in a limited way. Fretz (1981) has suggested that we pursue this in case we find that we can combine related measures, possibly resulting in a few good measures of career decision-making outcomes. It would generally be better to measure fewer outcome variables than have been measured here, as a large number of variables always increases the chance of spurious statistical significance due to chance. The use of many outcome variables is also cumbersome in terms of analysis and presentation of results to practitioners. Researchers should look for a smaller number of factors underlying some of the measures. While factor analysis was not used in this study, correlations on some items suggest a relationship among them.

Certainty and satisfaction about occupational plans were highly correlated on the post-test, but not on the pre-test. This indicates a convergence of these two important measures after treatment. However, there is no indication that the measures should be combined, since they were not correlated on the pre-test. They still seem to measure two distinct domains, both of which are important. Educational and occupational

plans seem to be even more distinct, as there were no strong correlations among them. They therefore should continue to be measured separately.

The high correlations between actual educational and occupational plans suggest that many subjects treated them as the same. Plans should be measured by a single question about "occupational and educational plans" or "career plans," using a global definition of career. There were no other noteworthy correlations.

#### Longer versus Shorter Treatment

The results give tentative support for the superiority of the more comprehensive career decision-making group (LT) over the less comprehensive one (ST). This confirms a trend favoring longer treatments seen in the review of the literature done for this study and discussed by Sherry and Staley (1984) in a recent study.

LT, as might be expected, produced more certainty than ST. LT had a significant ( $p < .01$ ) pre-post gain in educational certainty, whereas ST did not. Additionally, LT's increased occupational certainty was significant at the .01 level, and ST's, while also significant, was only at the .05 level. LT had higher absolute post-test certainty scores than ST, but they were non-significant. These trends, which are in an expected direction, combined with significantly higher "satisfaction with occupational plans" of LT, indicate that the longer and more comprehensive treatment is the more desirable treatment for moving students toward appropriate closure (i.e. "satisfied certainty") on occupational choice. This statement should be qualified by the lack of significant

gains, for either group, on appropriateness of occupational choice. The possible measurement problems on the latter outcome may be an explanation for this.

Further tentative evidence that LT moves students toward occupational choice is LT's having fewer occupational options after treatment than ST. This statistically non-significant difference indicates that, when ST ends, subjects are involved largely in occupational exploration, whereas LT subjects, in general, have narrowed their focus more. A follow-up measurement is needed to determine whether this is true after time has passed.

In the area of "plans," LT had, non-significantly, more occupational and more educational plans than ST. The LT curriculum included a planning activity, whereas ST did not. This emphasis on planning is related to the behavioral self-control (Thoresen and Mahoney, 1974) concept of "ensuring behavior," which is described as applying counseling methods to increase the chances that intentions are followed by actions.

Preliminary results from the follow-up show a positive trend for LT. See Table 14. All four of the certainty and satisfaction mean scores were higher for LT than for ST on the follow-up, and LT had a higher percentage of fives and sixes on certainty and satisfaction. For example, 81% of LT subjects were in this category on each certainty and satisfaction measure; ST scores ranged from 40% to 60% on the same four measures on the follow-up. In a future study, a more extensive follow-up might give better evidence on the crucial questions of post-treatment maintenance of behaviors and movement toward choice.

At this point it can be said that LT's superior certainty and

satisfaction with occupational and educational plans, and smaller number of occupational options indicates that LT is superior to ST in moving clients toward closure. Why this is the case can at least partially be ascribed to LT's superior coverage of two of the essential components of an effective career treatment (Holland, Spokane, and Magoon, 1982). These are 1) exposure to occupational information and 2) cognitive rehearsal of vocational aspirations (i.e. the explicit statement of plans). On the first, the importance of occupational information in moving clients toward occupational choice has been strongly argued for (Fredrickson, 1984). Future research should study the relative importance of written versus oral occupational information. The "informational interview," with its potential for role modeling and reality-testing, needs to be explored as a major information-seeking activity. Treatments which utilize one or the other should be compared. In general, more work (Fretz, 1981) is needed on comparisons of the distinct content domains, such as self-information, developing commitment to career planning, learning decision-making skills, weighing and eliminating alternatives, and the aforementioned planning. Further determination of the minimum number of sessions needed to help most students is also needed.

While we can say the above differences favor the effects of LT over ST, we do not know whether the additional time is worth the superior outcomes of a longer career decision-making course. Where cost is not a major issue, LT seems to promise more in moving clients closer to occupational choices. It is likely that a longer treatment is more useful in helping to promote clients' career development.

Follow-up

Although a follow-up data collection was not included in the original research design, some data were collected on ST and LT five weeks later. A trend showing a continued increase in certainty and satisfaction for both LT and ST after five to ten weeks suggests that further movement toward a decision may occur after treatment is over. See Table 14. This has been observed informally by counselors and is confirmed by these very preliminary indicators. This can be explained by the continuing of information-seeking after treatment (see Table 14 and Figure 7) by subjects' using that information to evaluate their options.

A full follow-up study, using all measures, should be done. In this way the maintenance of attitudinal, behavioral, and cognitive changes can be assessed, as well as their relative contribution to subjects' movement toward closure.



This study confirms the trend (Spokane and Oliver, 1982) indicating generally favorable results from group career decision-making intervention. Evidence for this statement from this study includes:

1) the combined Treatment Groups (TG) scoring higher on all eleven post-test measures in which a higher score is considered desirable (i.e., not including "number of occupations"). See Table 4.

2) LT scoring significantly better than CT on three post-treatment measures: satisfaction with occupational plans, frequency of information-seeking, and desiring fewer occupational options (a non-hypothesized measure).

3) ST scoring significantly higher than CT on one post-treatment measure: frequency of information-seeking. See Table 4.

4) LT and ST each scoring higher (not necessarily significantly) than CT on ten and nine out of the eleven post-treatment measures, respectively. See Table 4.

5) significant pre-post gains for the combined treatment groups on six outcome measures: certainty and satisfaction with occupational and educational plans, variety of occupational plans, number of occupational plans, and fewer occupational options desired (non-hypothesized). See Table 5.

6) significant gains for LT on five measures: certainty and satisfaction with occupational plans, certainty about educational plans, variety and number of occupational plans, and fewer occupations desired. See Table 5.

7) significant gains for ST on three measures: certainty about occupational plans, satisfaction with educational plans, and fewer occupations desired. See Table 5.

8) no significant gains for CT. See Table 5.

9) the continuing trend toward increased certainty and satisfaction with plans by LT five weeks after treatment. See Tables 14 and 15.

In order to discover the relationship between specific interventions and outcomes, a longer treatment (LT) and the shorter treatment (ST) were compared. The results give some tentative support for the superiority of the more comprehensive approach (LT), especially in the area of increasing certainty and satisfaction and reducing the number of occupational options being considered. However, the evidence is not strong enough for cost-benefit statements favoring the longer treatment to be made.

Specific practical recommendations include: 1) providing one-to-one counseling opportunities as part of the treatment, 2) including information-seeking as an extensive component in all treatments, 3) assessing clients' "readiness" (i.e. attitudes), 4) providing attitudinal interventions during the treatment, 5) individualizing components of the treatment, due to differential client readiness and goals, and 6) encouraging clients to make explicit follow-up plans as a consequence of the intervention.

Suggestions for Research

Some of the following suggestions parallel those suggested by Fretz (1981) and by Oliver (1978):

1. Analyze the contribution of specific treatment components. In this study, the trend favoring a longer treatment was ascribed to the latter's comprehensiveness. Specific outcomes were identified with elements in the treatment, as with LT's superior certainty, greater number of plans, and smaller number of occupations being considered. However, the relative importance of each of the treatment components still needs study.

One method for determining this would be to measure all outcomes after each component is applied, although this approach might be contaminated by the cumulative effect of each component.

A superior approach might be to drop a component from one condition, while leaving it in another condition, and then to compare the effects on each outcome measure.

2. Examine the interaction between client attributes and differential treatments. Studying the relationship between client characteristics and treatment elements builds on the first suggestion (above). In addition to demographic differences (e.g., age and sex), individual clients may vary on levels of information (based on having more or less experience), on confidence (indicating the need for such an activity as skills identification), readiness to make a decision (needing encouragement to decide via choice-making activities) and on the importance of making plans and being encouraged to take action (due to conflict or confi-

dence issues). These may be important in determining treatment emphases. Fretz (1981) has provided a thorough list of client attributes that might be studied.

The age effects seen in this study should be examined further, perhaps by assigning subjects by attributes to different groups. For example, two different information-seeking units, one using more "stored information," such as in the brainstorming technique, and the other taking a more elementary, didactic approach, might be presented to each age group. The same can be done with the skills identification component, which may depend on a certain level of experience (age). In this way the speculation that younger and older clients need, for example, differential levels of occupational information-seeking or different approaches to skills identification, could be tested.

3. Utilize as many outcome criteria as participants' time and researchers' resources allow, drawing from different types of behavioral, cognitive and attitudinal measures. Career counseling outcomes are multidimensional (Oliver, 1978). This study utilized thirteen different outcome measures, including subjective (self-reported certainty and satisfaction) and objective (number of plans), cognitive (decision-making skills) and behavioral (information-seeking), direct (number of occupations) and indirect (appropriateness as indexed by Holland code) ones.

One major type of outcome which was underrepresented in this study was attitudinal, although both Oliver (1978) and Fretz (1981) classify self-reported certainty and satisfaction as attitudinal. "Work salience," "locus of control," indecisiveness, confidence about abilities, and anxiety about career are examples of attitudes that should be measured.

Attitude measures might reveal sex differences which were not significant on any measures in this study. They also might increase our understanding of the age differences that were noted here. Specifically, indecisiveness should be examined by age, to determine whether the speculation that older clients, as a whole, may be more indecisive than younger ones is well-founded.

4. Study the relationship among measures. The goal of this recommendation is to eventually determine whether a single variable can be used in place of a number of others. Although using a large number of outcome criteria is desirable at this exploratory research stage, a smaller number of measures would be preferable for purposes of simplifying the description of results.

Correlations among dependent variables for this study are shown in Table 10. Suggestions have already been made, above, about combining "number" and "variety" of plans in order to make one measure. Educational and occupational plans also showed a relatively high correlation on both the certainty and satisfaction measures. However, it is not recommended that they be combined at this point, due to observed age differences on each, distinctions between the two made by some clients, and distinct treatment goals that separate educational and occupational plans. Important questions about the relationship among other variables remain, such as, "Is knowledge about a rational decision-making process related to the appropriateness of occupational choice?"

5. Specific study should be made of choice-making activities. While information-seeking and interest measurement have been studied extensively, interventions aimed at facilitating choice-making have not. In practice,



this is also frequently a weak area. A past assumption has been that, once interests have been measured, and information has been sought, choice-making was relatively automatic. Is a further choice-making intervention helpful? Activities which help clients, for example, to weigh the pros and cons of their choices and to compare options to preferences should be studied for their relative contribution to desired outcomes. The same should be done for "planning" activities.

6. Measure decision-making skills via a definer of decision-making competency, not just an indicator of such (Krumboltz and Hamel, 1982). A definer of decision-making competency would be one that requires subjects to apply decision-making skills to actual decisions, such as Katz, Norris, and Pears' (1977) Simulated Occupational Choice or Krumboltz's (1979) Decision-Making Simulation. These test the application of these skills, compared to cognitive tests of decision-making concepts. The disadvantage of the "definer" measures are that they are somewhat unwieldy to use.

7. In the area of attribute-treatment interaction, more study of the relationship between academic and/or verbal ability and group career interventions should be made. We know that traditional academic subject matter requires prerequisite skills; the possibility that career intervention outcomes are associated with academic skill level should be explored. Differences in vocational aspiration, based on reading level, have been shown by Winer, Wilson, and Pierce (1984). The small N in each reading level group in this study warrants further study of this attribute.

8. A follow-up should be done. Yabroff (1964), one of the few researchers to do a time-lag follow-up, found end-of-treatment changes not to last.

In this study, the five-week follow-up revealed a positive treatment trend for some measures. A number of questions might be answered by a follow-up: Does a longer treatment's inclusion of "planning" and "action" components make a difference, as the behavioral self-control model (Thoresen and Mahoney, 1974) indicates they might? Are decision-making skills monitored and/or practiced (e.g., information-seeking)? Follow-up is especially important because career decision-making behavior should be continuing for many clients, as certainty was not reached by all at the end of treatment.

9. Continue to measure "appropriateness" of occupational choice, as it is an outcome (as opposed to process) measure and is the major goal of treatment for many clients. More specific measures than the Holland Code approximation used in this study should be utilized. For example, the relationship between a client's skills, values, interests, and number of stated reasons for an occupational choice might be compared to his/her chosen occupation to reveal an "appropriateness" score. Katz, Norris, and Pears' (1977) and Krumboltz's (1979) simulations address this, but they only use values as a criterion for a "good decision."

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APPENDICES

Manual for Career Decision-Making and Planning CourseGeneral Outline

The career decision-making and planning program follows these decision-making steps:

- |                       |                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (Commitment)          | (I) Recognizing and defining the decision situation, including developing motivation; this step is called "Commitment" in the behavioral self-control literature. |
| (Self-Assessment)     | (II) Assessing personal preferences (self-observation generalizations). This step loosely parallels the "Self-Monitoring" step in behavioral self-control.        |
| (Generating Options)  | (III) Identifying alternatives; this and the next step are generally parallel to the behavioral self-control notion of "Awareness of the Environment."            |
| (Seeking Information) | (IV) Seeking information about alternatives.                                                                                                                      |
| (Choosing)            | (V) Comparing information with preferences and selecting an alternative.                                                                                          |
| (Planning)            | (VI) Setting goals and making plans.                                                                                                                              |
| (Action)              | (VII) Taking action.                                                                                                                                              |

This program is intended for young adults and adults of both sexes who have basic reading and writing skills.

The intervention below is spelled out in detail. This should enable it to be replicated by others. It should be taught in about twenty sessions, in about twenty-five hours. We will describe the activities sequentially, keeping to the decision-making steps named above. The instructor need not adhere to these steps rigidly, as some may be begun while others are still in progress.

UNIT I

INTRODUCTION, OVERVIEW, AND ESTABLISHING COMMITMENT

(a) Activity: Assessing Expectations and Establishing Learning Goals.

Participants should introduce themselves, state their reasons for being in the course, and describe their current career planning concerns. Instructor then describes the goals and methods of the course and reviews the rationale for active career decision-making: achieving self-determined goals. Address motivational issues. Assign appropriate readings.

Purposes: To provide anticipation of consequences, as an incentive for course participation behavior.

To promote accurate expectations regarding the process of making one's own decisions once the decision-making behaviors are learned.

(b) Activity: Lecturette on Decision-Making.

- Describe two major components of career decision-making:
  - (1) Knowing preferences (i.e. self-assessment of S.O.G.'s) and
  - (2) knowing where to apply them (i.e. environmental option);
- Describe the specific decision-making steps; discussion of decision-making steps should occur throughout the course as participants go through each step.
- Discuss possible outcomes from using such a decision-making strategy. Some examples:
  - avoiding limitations on choice because of unknown options.

- avoiding leaving out crucial self-information (e.g. choosing an occupation because of aptitude, but failing to assess one's interest in and values related to that type of work).
- avoiding acting on incomplete information about an alternative.
- failing to take action on a decision in a timely and appropriate fashion.
- Assign readings on decision-making.

Purposes: To provide a cognitive framework of "schema" for future learning. A schema is defined as an abstract structure that provides an organization for a person's knowledge, and sets up anticipatory cognitions. It thus has incentive value. This schema of decision-making steps will put specific upcoming activities in context.

## UNIT II

### ASSESSMENT OF PREFERENCES (SELF-OBSERVATION GENERALIZATIONS OR S.O.G.s)

The overall purpose of all of the self-assessment unit, which is equivalent to the self-monitoring phase in behavioral self-control, is to generate as complete and accurate a list of self-observation generalizations as possible. S.O.G.'s are conclusions career planners make about themselves after observing their actions and comparing them to the performance of other people or to some internalized standards they use to judge their own performance. Interventions based on social learning theory should stimulate career deciders to develop more accurate and extensive self-knowledge. There are parallels between many of these concepts and both trait-factor and self-concept theory. Social learning theory's emphasis on accurate and extensive self-knowledge corresponds



in many ways to Super's concern with the well-integrated self-concept. Holland suggests that the adequacy of occupational choice is based on the adequacy of both self-knowledge and occupational knowledge. He too defines self-knowledge as the amount and accuracy of information an individual has about him/herself. He specifically suggests that knowledge of one's preferred work environments is related to persistence in efforts to implement a choice (i.e. it serves as an incentive for engaging in career self-management behaviors, as well as to work satisfaction). This is consistent with the concept of reinforcement as described in social learning theory.

Further relationships between social learning theory and self-assessment activities will be described below.

Note that this unit on self-assessment precedes the occupational information-seeking activities. There are two reasons for this. The first relates to the large number of potential occupations that can be researched. To make this a manageable task, occupational information-seeking should be selective. The self-observation generalizations can serve as filters for determining which occupations should be researched. Preceding information-seeking with self-assessment can also serve an incentive function. Occupational information should be relevant to the personal domain. Thus the career information-seeker can generate options based on his/her knowledge of his/her preferences and, this approach says, the client will be more motivated to find out about these occupations, with the knowledge that they may fulfill some of his needs (i.e. they may be potentially reinforcing).

(a) Activity: Choosing Preferred People Types/Work Environments

Instructor should ask participants to choose, in order, the top three types of people they'd prefer to associate with, if they had to choose. These personality types are based on Holland's proposal that each individual to some extent resembles some combination of six personality types and that they seek environments which allow them to express corresponding abilities, attitudes, and values, and take on agreeable problems and roles. After participants have chosen their top three, in order, they should note the particular attributes of each of those groups that appeal to them. They should note these in the workbook for future reference, and they should also note their top three choices for later comparison with the interest inventory.

Instructor should briefly describe the theory behind the Holland typology.

Instructor should mention the emphasis on self-assessment of S.O.G.'s. (See below for rationale.)

Purposes: To begin, in a general way at first, to establish knowledge of personal preferences. Since Holland has linked his personality types to particular occupations, this information will be used later in the "linking" process (i.e. linking preferences to occupations). See Unit III.

To introduce the self-assessment activities with a generally reinforcing activity, one which provides immediate information.

To reinforce the notion of active, "self-controlled" career choice by demonstrating that the participants already

have preferences that can be named and linked to work environments.

### Rationale for Self-Assessment

Note: Self-assessment as opposed to counselor-, test-, friend- or parent-assessment) of S.O.G.'s is utilized in this intervention, although tested information will also be utilized as a source of possible S.O.G.'s. There are two reasons for the emphasis on self-appraisal.

The first refers to the very remembering of the information for future use. Ivey and Simek (1980, p. 78) point out that "Studies in short- and long-term memory reveal that nothing is stored in the brain unless it is emotionally meaningful." Because the career development process involves life-long decision-making, it is important that relevant S.O.G.'s be available as conscious information when decisions are needed.

The second rationale for using self-appraisal is based on the theory that this type of information about one's behavior is more likely to be acted upon than externally-presented information. Severinsen (1973) says that self-assessed information may be more easily integrated into the self-concept than externally-derived information. He notes that cognitive dissonance theory (Festinger, 1962) shows that data which is contrary to a strongly held belief can be persistently denied or distorted. It is possible that some externally-derived information will be rejected by the individual and therefore not acted upon. Self-assessment (called "self-monitoring" in behavioral self-control terms), being rooted in actual experiences the individual has had, cannot be easily denied.

It should be noted that externally-derived information may be a helpful complement, however, adding important data that the individual may not derive from self-assessment, but which may nevertheless be true. Whether this information is integrated into the person's thinking and acting depends on whether the client has been helped to connect it to prior learning experiences. For example, the counselor might ask, regarding a tested trait on an interest inventory, "Do you see this in yourself?" or "Why do you suppose you scored so strongly in \_\_\_\_\_?"

Thus, we are concerned with the relevance of preference information to a client. If this information can be integrated into the person's thinking about him/herself (his/her "self-concept" in Super's terms, or his/her "construct system" in Kelley's (1955) terms), s/he will be more likely to act on it in appropriate ways, which is one of the goals of this course.

In sum, self-assessment is (1) more likely to be "emotionally meaningful" and subsequently to be stored in long-term memory and (2) is relevant to the client's experience of his/her past behavior and is less likely to be denied.

(b) Activity: Writing and Presenting Life Activities Worksheet

This worksheet should be filled out in order to generate prior learning experiences. Jones & Gelatt (1976, pp. 74-75) suggest that interventions which teach career planners how to analyze the personal impact of past learning experiences be provided. The worksheet format provides a structure for remembering these experiences. Individuals should write in any activities they remember from their past in short

phrases. "Achievements" (i.e. particularly reinforcing learning experience in which the individual's behavior resulted in positive consequences) will be generated from this.

During a class session, in small groups, participants might share these brief autobiographics as a "get-acquainted" activity and in order to have them practice good listening skills for later use.

Purposes: To provide a basis for self-monitoring of achievements, which are concrete learning experiences from which more abstract S.O.G.'s will result.

To teach basic small-group listening skills, pointing out the roles of "Focus Person" and "Active Listeners"; small groups will be used later in the "linking" process (see UNIT III, Activity).

Activity: Generating Achievements

Participants should review their "Life Activities" and, from these, should name all "achievements" they can. An achievement is defined as an activity or a series of activities in which the individual emits behavior which has positive consequences in the environment (e.g. a service rendered, a product made). It is broadly defined for participants as something "you did, did well, and were proud of." There is great latitude and individual variation in what different individuals name as achievements. As long as they were the active agent, and preferably if it is not too broad (e.g. "getting through sixteen years of schooling"), it can be defined as an achievement.

Participants should narrow their achievements to 5-7 of their



most satisfactory ones. Some participants may need to write a detailed paragraph which describes the achievement chronologically, in order to remember the experience more fully, so that they may generate S.O.G.'s from it.

Purposes: To promote the generating of accurate S.O.G.'s by basing them on experience. Jones & Gelatt (1976) suggest that career deciders be asked to examine their self-perceptions closely to determine if they are grounded on reliable bases or on inadequate, insufficient, or inappropriate information. Basing S.O.G. identification on life activities, specifically on achievements, is one attempt to ensure that the S.O.G.'s are accurate. (This can be contrasted to merely handing participants a list of skills and asking them to name their best and preferred skills).

To provide cognitive reinforcement by having individuals recognize past accomplishments. Remembering the incentive function of reinforcement (Bandura, 1977), this should provide incentive ("hope") for engaging in active career decision-making. Depending on the individual's level of self-confidence in relation to career, this can be a very important activity.

To generate detailed information on past overt and covert behaviors emitted by participants, which will be later broken down into self-observation generalizations about "transferrable skills."

Activity: Lecturette on Skills

Based on the work of Fine and others, the concept of transferrable skills has emerged as a means of characterizing the requirements of occupations (D.O.T., 1965, 1978) and as a way of describing a type of S.O.G.

Introduce three general types of skills with appropriate examples.

Describe the relationship between skills, career choice, and career success.

Activities: Skills Identification

(1) Participants should generate all the skills (can be called "talents") they feel they currently have. Share this at the beginning of a session as a "warm-up" activity.

(2) Instructor should ask for one participant to name an achievement, and the participant should describe it in detail as the instructor lists what the person did. Instructor should ask the group to name any skills they perceive were needed for the doing of this achievement.

(3) This activity can then be done in small groups with each participant writing out an achievement and each playing the role of facilitator (previously modeled by instructor). Lists of skills can be generated for each participant. If there is not time, this activity can be eliminated.

(4) Each participant should list all achievements in the skills grid and should name all skills they used in each achievement, with the help of the suggested skills listed.

Purposes: To generate specific self-observed transferrable

skills.

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To reinforce clients' confidence in their employability by identifying, and particularly by having others identify, their skills.

Activity: Skills Patterns

In order to reduce the skills generated to a manageable number and to engage participants in active decision-making, participants should look for patterns (or clusters) of skills among those that they have observed from their achievements. They should also make decisions about which clusters of skills they most wish to use in their future (i.e. which skills do they enjoy using the most). They should make a forced choice of the top five (or whatever number) they wish to most use. They should then name instances when they demonstrated these skills. See Appendix B for detailed directions.

This activity merges skills with interests and values, as participants choose preferred skills, i.e. those that meet the criteria of their values and interests.

Participants, now armed with increased awareness of some S.O.G.'s and increased vocabulary of S.O.G. words, can begin the process of decision-making at the self-assessment level.

Purposes: To illustrate and begin to practice the necessary decision-making in career choice. Here some skill clusters must be eliminated from consideration (at least for now). This is a beginning way to show that decisions do not provide the decision-maker with perfect solutions which meet all of his/her

needs. Decisions consist of the best choice among all choices, under the circumstances. At this point the instructor may wish to discuss the "minimax" principle in decision-making: getting the most while giving up the least.

To develop a manageable list of the most important skill clusters.

To reinforce participants' belief in their skills, by having them name instances when they were used.

#### Activities: Clarifying Personal Values

Values are a particular type of S.O.G. Values originate in learning experiences which cause us to develop generalizations about what is important to us. We call these generalizations "values." Super defines them as "qualities desired by people in their activities, life situations, and acquisitions" (1970). Prior (1979) defines them simply as "what is wanted, what is desirable or preferable." Katz (1963) distinguishes values from interests and needs: he describes needs as basic motivating forces (e.g. "food," or secondarily "to be approved of"). Values, he says, are the "characteristic outer expressions and naturally influenced manifestations of (these) needs." They are defined teleologically, or in terms of the satisfying goal or desired state (i.e. the reinforcement) sought. For example, one's value might be "to achieve a high social status" or "to do work that is inherently interesting." Since values inform our actions (i.e. the behavior we emit in order to reach our goals), they are important factors in occupational choice. Values are the build-

ing blocks in many career decision-making interventions. They fit into the social learning theory of career decision-making as S.O.G.'s which describe potential work reinforcers. If values are not able to be realized in work, that work is more likely to be unsatisfying. The previous concept of "preferred skills" also brings in an element of values, as these are the skills the individual would like to use in a chosen occupation.

For operational purposes, this intervention includes a series of discrete values activities. Each activity can be done in-class or at-home. If time does not allow, some can be eliminated. It is suggested that p. 11 of the Workbook, "Which Job Would You Take First?" and pp. 12-13 "Work Values" be the minimum values activities included. The instructor should lead a discussion after each activity, first evoking different individuals' difficulties or lack thereof in deciding on values. The instructor should ask individuals how they know this about themselves (i.e. what learning experiences verify it), and s/he should finally have participants summarize their most important values via the "Prioritizing Grid" for use in the linking process.

Purpose: Similar to purpose of Skills Identification (i.e. to continue to generate S.O.G.'s) which serve as "motivators" for career choice, as "direction pointers," and as criteria for choosing among options.

Activity: Developing the Personal Composite

Using the questions in Bolles, participants should describe, as best they now can, their (1) geographical preference; (2) any special



knowledge they have (from hobbies, special training, etc.); (3) preferred types of people (from Activity b, UNIT I); (4) their top values and/or work goals; (5) their preferred working conditions; and (6) preferred salary and level of responsibility. To Bolles' six categories are added a seventh one, that of the top skill clusters named in Activity, p. A-11.

These seven pieces of S.O.G. information should be listed on the Personal Composite Sheet.

Purposes: To provide a cognitive "picture" by summarizing S.O.G. information. All "traits" are listed in order that they might indicate some career direction. Most of this material has been generated from self-assessment, based on prior learning experiences. It should therefore be available cognitively for decisions that the individual is likely to act on, according to our theories on the value of self-assessment.

Trait-factor elements are, of course, present as information on "traits" (S.O.G.'s) is compared to occupations, but, besides aforementioned differences in the assessment process, a "one-time match" is not attempted. Instead, using decision-making theory, this information will be included in one of a series of decisions the individual will make about training to engage in, occupations to try out, etc. No one occupation will be the "right" one, but, using available information, the individual will attempt to make the best decisions under the circumstances (the circumstances being personal preferences and environmental constraints and opportunities).

To further distinguish the approach from traditional trait-

factor-oriented guidance, the concepts and skills involved in decision-making are being taught for use in lifelong career decision-making (see definition, p. 5, above).

UNIT IIIGENERATING ALTERNATIVES

The purpose of this unit is to provide the link between self-generalizations and environmental options ("the world of work"). The importance of this and the next unit lies in Harris and Wallin's (1978) and Malett, Spokane, and Vance's (1979) demonstrations that a person's career aspiration can be manipulated by the type and amount of occupational information s/he is exposed to. This unit begins with the participants' own generation of occupational ideas, based on knowledge about their own preferences. Lists of occupations and interest inventory information provide additional information from which a more concise list of alternatives should be drawn.

Since it has not been determined that any one source of occupational information can cover all options, a number of activities are provided in the hope that the potential decision-making pitfall (Gelatt, 1973) of not being aware of one's alternatives is avoided.

Participants should be reminded of this step in decision-making, and it should be put in the context of all of the decision-making steps as one of the objectives of the program is to teach decision-making as a task-approach skill.

Activity: Occupational Daydreams

A variety of means can be used to generate environmental alternatives. Begin one session by having participants write down all occupational daydreams they may have had in their lives, especially in the last five years or so. They should each present their daydreams and, in

small groups, the skills, values, and interests that may underlie these occupations may be generated. Related occupations may also be considered.

Purpose: To enable participants to start with their own occupational ideas, which are sometimes based on accurate S.O.G.'s. At other times they may be based on others' suggestions, and may have an inadequate informational basis. This can be pointed out by asking participants why they've thought of these occupations.

To reinforce participants' "Independent decision-making behavior" by starting with their own occupational ideas. If they have underestimated their skills, or overestimated the environmental constraints for any occupation, or vice versa, these issues can be worked on, information can be given, etc. in order to avoid disregarding occupations worthy of consideration.

Activity: Brainstorming a Master Career Exploration List

After completing the "Personal Composite" which is an up-to-date statement of a variety of career-related S.O.G.'s, each participant has the opportunity to be given occupational suggestions by the group. The "focus person" describes his/her S.O.G.'s completely, the "active listeners" listen, and then relate any occupational ideas (including known job openings, persons to contact, particular places, possible schooling, as well as occupations) that are suggested by the S.O.G.'s. Each focus person should be given the opportunity to ask clarifying questions about the ideas. The instructor should point out that this is one other way to link self-assessment with occupations. Participants should note both new ideas and repeated patterns. Ultimately the career decider will decide

which ideas to seriously pursue.

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Purpose: To provide a direct link between self-assessment and occupations. Theoretically, some of these ideas should have great cogency for the individual, coming as they do from his/her self-statements.

To add regionally idiosyncratic and specific occupational ideas to the list of alternatives. This helps avoid some of the generality of occupations found in standard print media and in interest inventories. Also, local opportunities may be brought up at this point.

To confirm the application of transferrable skills to occupations.

This approach is partly a response to some suggestions in the literature. Weinrach (1979, p. xv) has said that "information is only valuable when it is relevant, accurate, and integrated into the counseling experience." Katz, Norris, and Pears (1976), noted earlier, have also stated this ("Occupational information should be relevant to the personal domain"), pointing out its motivational function in engaging clients in career exploration. Pritchard (1962) proposed this form of "linking"; "self-exploration and occupational exploration should become more fully correlative processes ...  
"Bridges between individual counselors and vocational life must ... be largely self-created, not 'found' in predetermined, generalized classification systems." While the rationale for this approach seems sound, its value must be demonstrated. At



this point it is, at the least, a recommended complement to other methods of generating options.

To continue to provide social reinforcement (i.e. support) among group members for continuing to engage in the sometimes difficult, isolated career decision-making task. Participants also model career decision-making behavior for each other.

Activity: Expanding Career Research Ideas

On their own, participants should peruse lists of occupations, listing those that they might consider. The instructor should remind participants that this is a preliminary list. These should be added to a "master career exploration list." Lists such as those in the Index to the Occupational Outlook Handbook and in the Guide for Occupational Exploration can be used as stimuli. Some "narrowing down" might occur here as participants read through the brief descriptions in the O.O.H. (using the information already generated from the self-assessment).

Purposes: To continue the alternative-generating process, as well as to begin some information-seeking, and, finally, to illustrate the smaller decisions that make up career decision-making. Some choices continue to be made, as alternatives are considered and either kept or discarded.

To limit the alternatives to be researched to a manageable number. Norman and Bobrow (1975) say that each individual has a limited capacity for information, and s/he must allocate his/her cognitive resources among the various items that compete for attention. A limited list of alternatives, as with

the limited list of transferrable skills, should be more manageable.

Activity: Generating Alternatives from the Strong-Campbell Interest Inventory and from the Holland Codes

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Present the Occupations Finder (Holland, 1978) to each person and describe the meaning of the Holland codes. Have them utilize their self-assessed preferred Holland codes (see Activity a, UNIT I) to explore possible occupations. At this time the Strong-Campbell Interest Inventory (Strong and Campbell, 1977) can be distributed and the "General Occupational Themes," which are also the Holland codes, can be described. Participants should note their top codes here; the instructor should answer questions about them. Using both their self-assessed codes or the codes from the SCII, participants should examine the suggested occupations in the Occupations Finder and should add any that they might consider looking into to their "Master Career Exploration List." They should also note themes common to the suggested occupations (e.g. working with your hands). The instructor can discuss why certain themes seem to be strong for certain individuals, asking them to examine past learning experiences for clues. It is important that the themes correspond somewhat to the individuals' S.O.G.'s; otherwise it is less likely they will act on this information (see p. 60 above, for discussion of this).

At this time the Strong-Campbell Interest Inventory can be fully described. The instructor should encourage participants to actively question why certain themes stand out. Confirmation of previously-determined S.O.G.'s should predominate.

At the end of this activity, participants should add any occu-

pations they wish to explore to their Master Career Exploration List.

Purposes: Generally, (1) to confirm already-chosen trial occupations, and (2) to present new possibilities for exploration, but, again, ones that are hopefully relevant to the personal domain.

To add additional sources of alternatives. In the social learning theory of career decision-making, career choice is seen as being influenced by environmental conditions and events.

For some individuals there are limited opportunities in the environment (e.g. lack of role models in the family and the community) to become aware of occupational options. The career self-management intervention addresses this potential deficit by increasing awareness of options from which to choose.

Jones & Gelatt (1976) suggest that, based on the social learning theory of career decision-making, "many interventions can aim at increasing the nature and number of educational and vocational options available to ... career decision-makers " (p. 67).

Pitz and Harren (1980) address this issue of options, although they do it from the point of view of decision-making theory; they describe the individuals' being unaware of all of the alternatives available as a problem in decision-making theory.

Even though all other steps might be followed for good decision-making, left-out options can never be included in the process.

Pitz and Harren say we currently have no way of ensuring that all relevant options have been generated. The previous activities represent an attempt to cover as many alternatives as pos-

#### UNIT IV

#### OCCUPATIONAL INFORMATION-SEEKING AND COMPARISON OF INFORMATION WITH S.O.G.'s

For many individuals, information about occupations may be incomplete and inaccurate, as their everyday experience provides limited information. A conscious attempt to both increase awareness of occupational options and to understand the nature of these options is called for by this environmental limitation. Print information in books and pamphlets is one vehicle for such information-seeking. A potentially more powerful mode for information-getting is modeling (Bandura, 1977). Krumboltz (1964) has specifically applied observational learning concepts to occupational information-seeking behavior. Observational learning (i.e. modeling) has been demonstrated to be an effective and efficient way for humans to acquire complex behaviors (Bandura, 1977), such as language, and it also serves a motivational function. We will describe these processes below (pp. 85-86).

In this unit, "intentional exploration" is being promoted. Jordaan (1963, p. 77) proposes that "exploration which is intentional, cognitively guided, systematic, and of the hypothesis-testing type is more likely to increase a person's understanding of himself and the world of work than other kinds of exploration, such as incidental and accidental exploration."

Why this may be the case can be explained by both Kelley's construct theory (see p. 62, above) and by social learning theory. Both

the incentive and informational functions of reinforcement are brought to bear as occupations which have already been discovered as potentially reinforcing (i.e. they offer potential for the expression of S.O.G.'s) are the ones which are explored. Thus, the individual is "testing hypotheses" in this process, such as "I've determined that using leadership skills is important to me. Management seems to offer opportunities to use these skills. Let me check this out." Using cognitive (symbolic) processes, individuals thus may anticipate reinforcers in work. This will hopefully motivate continued active career planning behavior.

Our approach, using Jordaan's terms, is also systematic and cognitively guided in that specific questions to be asked about occupations are framed, specific information-seeking assignments are given, and only "occupations potentially relevant to the personal domain" are explored.

During this unit, some options will be discarded as information is gotten and compared to the individuals' S.O.G.'s (i.e. "smaller" decisions are ongoing during the longer career decision-making process).

Activity: Lecturette on Occupational Information-Seeking, Appendix, p.29)

Point out the importance of having complete, accurate, and up-to-date information for the decision-making process (Gelatt, 1973). Remind participants of the place of this step in the overall decision-making process.

Describe the two sources to be used in information-seeking: print and people. Emphasize the value of in-person information-seeking (e.g. information-interviewing) for (1) the modeling it provides and (2) the up-to-date, local information that can be gotten from in-person contacts.



Describe the sources of print information. Demonstrate with an example, using the Occupational Outlook Handbook, an occupational pamphlet, or another source.

Describe the "five questions" to be asked about final occupations. Assign participants to seek information on a specified number of their final occupations. Point out that they should consciously compare what they find out about each occupation with what they know about themselves and eliminate obviously undesirable options.

Purposes: To provide a cognitive framework for information-seeking (as a step in the decision-making process).

To enable participants to eliminate some options by acquiring preliminary information about them and recognizing obvious disparities between their S.O.G.'s and the reinforcers provided by the occupation.

To teach occupational information-seeking as a task approach skill which can be maintained for future decision situations.

To reduce the risk of career deciders' using incomplete or inaccurate information in decision-making. Pitz and Harren (1980) point out that decision-makers frequently tend to give excessive weight to some information, such as that which is readily available. For example, a friend or family member may encourage an individual to enter a field which s/he describes as having a "lot of opportunities." The individual may act on this potentially inaccurate and incomplete information partially because it is readily available.

Setting up an assignment for participants to use a variety of sources and to answer specific questions should promote more complete information being used for decisions.

Activity: Generating Contacts for Field Research

After preliminary exploration in books such as the Occupational Outlook Handbook, each individual should name three occupations which they now would like to explore further. As the decision-maker knows now, these occupations should provide opportunity for reinforcing enough of his/her S.O.G.'s in order to be examined more closely.

At this time, using the whole group, potential interviewees (i.e. people currently employed in the fields of the focus person's interest) should be named for each participant.

Other sources of interviewees should be described: Ask friends, use the Yellow Pages, etc. The whole group can help with names of people and places.

Purpose: To provide further specific contacts, for the purpose of promoting observational learning about particular occupations and obtaining more specific information about positive and negative aspects of work in this field. Haase, Reed & Winer (1979) point out that most occupational materials currently in use present positive, or at best, neutral content, and that presenting only positive information does not promote "cognitive differentiation" on the part of career deciders. Bodden (1970) has shown that the more differentiated a person's cognitive construct system, the more appropriate is his/her vocational choice. The goal of the field interview is for the

participant to get as full a picture as possible of that occupation, including the negative aspects of it. While this cannot be assured, the suggested questions to be asked during the interview raise the issues.

Activity:

Describe the goals and methods of "interviewing for information." Discuss ways of making contact, of the interviewee introducing him/herself, and acting in the interview. Go over potential questions.

Do a behavioral rehearsal (role play) of an information interview.

Assign participants to interview a given number (usually two) of persons from their list of trial occupations and to provide a written report on each one.

Purpose: The information interview, as described above, adds the observational learning dimension to occupational information-seeking. Modeling produces learning principally through its informing function. As Bandura describes, "During exposure observers acquire mainly symbolic representations of the modeled activities which serve as guides for appropriate performances" (1977, p. 24). In the case of the informational interview, performance is not so much our concern (at least immediately). Instead, we are concerned with information acquired for decision-making purposes. Ultimately the decision-maker may adopt the modeled behavior by choosing the occupation. Bandura could be describing the role of modeling in the career

decision-making process in this statement:

Social learning theory distinguishes between acquisition and performance because people do not enact everything they learn. They are more likely to adopt modeled behavior if it results in outcomes they value than if it has unrewarding or punishing effects. (p. 28)

"Outcomes they value" will be the decision-maker's perception of how this occupation and particular role may satisfy his/her S.O.G.'s. The written report encourages this critical examination ("evaluative reaction"), in Bandura's terms.

The questions that are suggested for the interview itself bring in the "attentional process which determine features of the behavior that will be the significant ones attended to by the interviewee" (Bandura, 1977, p. 24 ).

UNIT VDECISION-MAKING

Super (1957, 1963) has pointed out that decisions can be more or less tentative and exploratory. Krumboltz (1976) has shown that individual decisions are part of a series, each of which influences future decisions, as each decision leads to new learning experiences which lead to new decisions, etc. Thus, career decision-making is a cyclical (see Appendix, p. 5) and a lifelong process. At this point some participants will be ready to make occupational decisions of a very specific nature; others will make decisions to explore particular options further, either via direct and instrumental learning experiences or via further vicarious occupational information-seeking. Factors such as the individual's developmental stage (i.e. some younger participants may not feel ready to choose an occupational direction until some focused exploration via field work, jobs, courses, further interviews, reading, etc. has occurred).

Despite this variation in decisional readiness, each participant should be able to outline what his/her next steps in career self-management should be. The program will end with individual goals, plans, and action steps specified.

Activity: Evaluating Trial Occupations

After information has been gotten for up to five trial occupations, either from reading or interviews, each of these occupations should be set against the decisional criteria outlined in the Evaluation Table. This process helps the decision-maker (1) to determine whether his/her S.O.G.'s can be satisfied in this occupation, (2) to examine



his/her level of information about the occupation (s/he should also be able to answer the 5 questions (Appendix, p. 30) about each), and (3) consequently to determine what information is still needed.

The Evaluation Table should be done either during the session or at home. Each participant should state to the group what his/her current decisional situation is.

Point out that this is Step Five in the decision-making model: "Weigh alternatives in terms of how they meet your preferences, and choose."

Purposes: This activity will help move some participants from vocational preference to vocational selection (Osipow, 1974).

The greater the amount of information the client has the easier it will be for him/her to make a good decision. At this point, they who have achieved accurate and extensive information about their S.O.G.'s and about occupations should be able to make decisions regarding a direction.

Activities: Lecturette on (1) Risk-Taking and Deciding; (2) Deciding

Brief lecturette on risk-taking in decision-making. Point out that most career decisions are made under some combination of risk and uncertainty. Our information gathering (of S.O.G.'s and about occupations) has reduced the uncertainty.

Discuss strategies and point out that one doesn't necessarily get everything one wants in a decision: there is a point at which you decide by accepting what you'll give up to get something else. Ginzberg (1952) originally described this process as "compromise" (more recently

changing it to "optimization"). Since one of the aims of the course is to enable the individual to engage in focused activity toward a career goal, it is important to point out that the time comes in which the decider must give something up.

Have the participants fill out the "Decision-Making Worksheet." Point out that they may not be ready to choose an occupation at this point. For some of them, the information gotten by comparing occupations on the Evaluation Table and the Decision-Making Worksheet may indicate specific exploratory steps to be taken next.

Purposes: To teach the task approach skill of using a decision-making strategy.

UNIT VIMAKING PLANS AND TAKING ACTIONActivity: Force Field Analysis and Self-Managed Action Plan

After immediate goals and (if possible) long term goals are formulated (to be done during the session individually, in writing), they should be shared in the group. The "next steps" should be decided on and contingencies set for their completion.

Briefly explain the principle of reinforcement. Have them set dates for engaging in and completing action plans, and establish rewards for doing so. For example, the action plan worksheet can be exchanged by class members, and one can agree to call the other on the specified date to see if the plans are being carried out.

If a participant has had or anticipates difficulty in carrying out a plan, the Force Field Analysis can be undertaken in order to name the contingencies that are holding the person back and to plan activities to overcome them.

Purposes: To set environmental contingencies for completing action plans and overcoming obstacles.

To teach basic concepts of behavioral self-management.

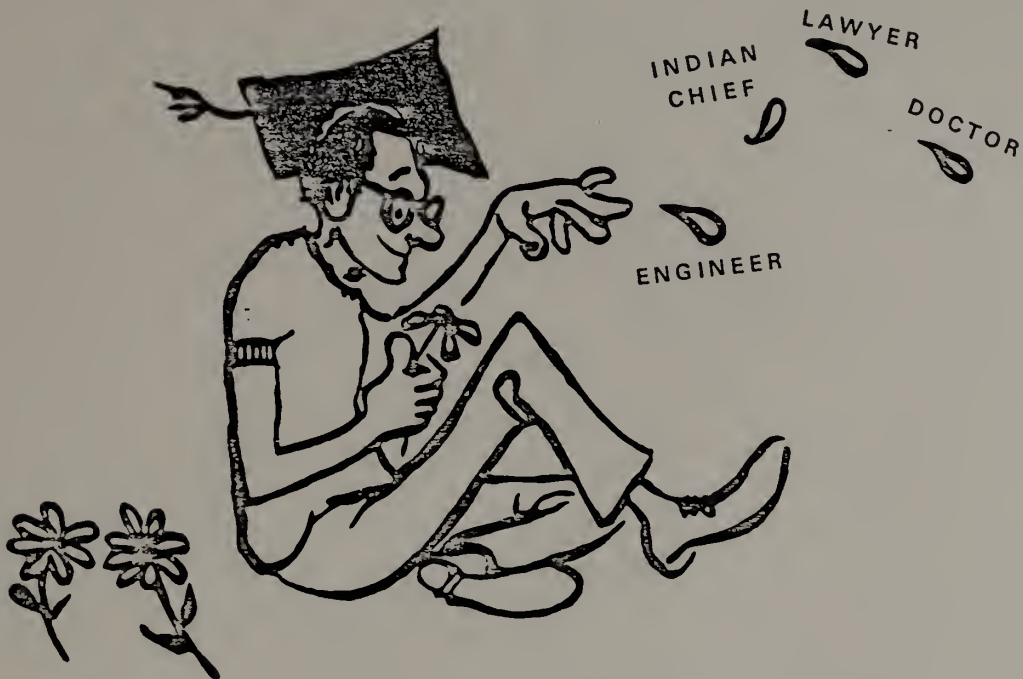
We apply the four-stage model of self-management (Thoresen and Ewart, 1976): developing commitment, self-monitoring, restructuring environments, and evaluating consequences. In the process we teach these self-management skills for future use.

Since taking action is the crucial final step in good decision-making, we end the program with the teaching of self-

management skills, so that participants will engage in career planning behavior after the program is over. A recommended follow-up is to have a session some weeks in the future in order to reinforce continued career planning behavior.

# CAREER DECISION-MAKING WORKBOOK

4th edition



Garrett McAuliffe  
Suzanne McGowan

GREENFIELD COMMUNITY COLLEGE



## COURSE OBJECTIVES

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"Career Decision-Making and Planning" is a course which is designed

1. to teach decision-making skills, and
2. to enable the student to develop specific action plans, either for further focused exploration or for implementation of a career goal.

Since readiness for making specific career plans varies from student to student, depending on such factors as age and prior experience, not all students will have specific career plans at the end of this course. Some will have narrowed their interests to a few major areas, others will have expanded their list of possible occupations, and others will have decided to move in a specific direction.

## COURSE MATERIALS

Required:     The Quick Job-Hunting Map (Beginning Version)  
                  by Richard Bolles

or

The Quick Job-Hunting Map (Advanced Version)  
                  by Richard Bolles

Note:       Younger students (e.g. under 25) should choose the beginning version; older students (e.g. over 25) should choose the advanced version.

Students who purchase What Color Is Your Parachute? will find that the advanced version of the Quick Job-Hunting Map is included in this book.

Recommended:   What Color Is Your Parachute?  
                                  by Richard Bolles

                  and  
(on reserve)       Three Boxes of Life  
                                  by Richard Bolles

The Inventurers  
                                  by Janet Hagberg and Richard Leider

Expectations:   The course is graded Credit (CR) or No Credit (NC).  
To achieve credit, students must: a) attend class regularly--only two absences will be excused; b) hand in the student workbook which will be collected at midterm and at the completion of the course; and c) conduct an occupational interview.

## ASSIGNMENTS

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- I. Making a Commitment to Begin Active Decision-Making
- A. Read the first half of Chapter 5 in What Color Is Your Parachute? and do page 7 in workbook.
  - B. Do "Your Goals" and "Commitment" on pages 4 and 5.
  - C. Read and do the assignment from The Inventurers on page 6.
  - D. Do pages 8 and 9 in the workbook on decision-making.
  - E. Do page 11 -- "What Do You Want To Be?"
- II. Assessing Your Skills, Values, and Interests
- A. Do "Preferred People/Environments" on page 12.
  - B. Skills
    - 1. Fill out your "Life Activities Worksheet", page 13.
    - 2. Do "Generating Achievements", pages 14 and 15.
    - 3. Complete the Skills Inventory in your Quick Job Hunting Map.
    - 4. Find your Skills Patterns and Priorities using pages 16-18.
  - C. Values
    - 1. Do "Which Job Would You Take First?", page 19.
    - 2. Do "Rating Satisfactions from Work", pages 20 and 21.
    - 3. Complete page 22 after the class exercise on a Fantasy Work Day.
    - 4. Complete your "Values List" on page 23 and do The Prioritizing Grid in the Quick Job Hunting Map.
- III. Generating Options
- A. Read page 24, "A Word About Options", and do all the activities.
  - B. Do the "Interest Inventory" on pages 25-28 and "Twelve Occupational Interest Clusters", pages 29-31.
  - C. Complete the Strong Campbell Interest Inventory and turn it in.
  - D. Group brainstorming (in class).
  - E. Occupations Finder
  - F. Look back at "What Do You Want To Be?" (page 11) and list any of those occupations that interest you on page 32, "Occupational Options."

IV. Information Seeking

- A. Read about selected occupations in:
  - 1. Occupational Outlook Handbook.
  - 2. Dictionary of Occupational Titles.
  - 3. Pamphlets in the "Career Corner" of the Learning Center.
  - 4. Read "Narrowing Down....." (page 33)
- B. Complete pages 34-36 for three occupations you have read about.
- C. Conduct Informational Interviews for selected occupations.
  - 1. Read pages 37 and 38 for directions on interviewing.
  - 2. Also read the last four pages of QJHM and the last half of Chapter 6 in Parachute, starting with "Interviewing for Information Only."
  - 3. Complete your interview and write it up, using the evaluation form on page 39.

V. Choosing

- A. Complete the "Occupational Comparison Table" on page 40.
- B. Read "How to Change Your Life" (on reserve in the library) and answer the questions on page 41.
- C. Read "Risk-Taking and Strategies for Decision-Making", pages 42-43.

VI. Making Plans

- A. Do "Action Plans" on page 44.
- B. Do "Action Plan Worksheet" on page 45.
- C. Complete the "Course Evaluation" on page 46.

YOUR GOALS

What are your goals for this course? (i.e. What would you like to know and/or be able to do as a result of this course?) Be as specific as possible.

Signature \_\_\_\_\_

My signature above indicates my agreement to participate fully in HUD 109. This includes attendance and timely completion of all assignments in order to pursue the goals I stated above.

Date \_\_\_\_\_







PARACHUTE READING ASSIGNMENT

Read Chapter 5 of What Color Is Your Parachute? (on reserve in library) up to Practical Exercise #1. After reading, answer the questions below.

1. True or False: Everyone should learn to do "career planning." \_\_\_\_\_  
Discuss in 2-3 sentences.

How should one go about deciding on and planning for a career?  
(a few sentences)

2. True or False: It is best to do career planning when you are out of work. \_\_\_\_\_ Why or why not?
3. What is a good answer to someone who says, "I don't have time to do career planning", or "I'm not motivated to do career planning"?
4. What are the four (4) things that any career and life planning that is worth its salt should do? It should make you more aware of your ..... (finish sentence).

Have you ever made a poor decision? Try to think right now of one poor decision you have made. Maybe you will think about the worst decision you ever made or your most recent poor decision or some "secret" poor decision. In any event, think about the poor decision now.

Why do you consider it a poor decision?

When most people say a decision is poor, they mean the result was not what they wanted. "It didn't turn out the way I thought it would." "The outcome wasn't good." "Things didn't happen right."

Good decision-making will minimize the possibility of getting an unfavorable outcome, but it cannot eliminate the possibility. The best protection you have against an undesired outcome is a good decision.

One of the first lessons in decision-making is to learn to make the distinction between a poor decision and a poor outcome, or a good decision and a good outcome--or the distinction between a decision and an outcome.

A decision is the act of a person in choosing, selecting, and deciding among several possibilities based on his judgments.

An outcome is the result, consequence, or aftermath of that person's act or decision.

The important difference is that a person has direct control only over the decision, not the outcome. If you make a good decision, it will not guarantee a good outcome, because you cannot control the outcome. However, learning how to make good decisions will increase your chances of getting good outcomes. So, what is good decision?

A good decision, as defined here, is one in which the skills of decision-making are used to choose the alternative that is best according to the decision-maker's preferences. It requires the application of certain skills; for example, the ability to clarify values, to acquire appropriate information, and to assign probabilities.

In other words, the "goodness" of a decision is based on how it is made, not on how it turns out. You evaluate the decision when it is made, not later, when the consequences are known. For example, imagine that today you are going to participate in a lottery. A fair coin is to be tossed, and you are to call heads or tails. If you call the toss correctly, you win \$50.00; if you don't, you win nothing. You decide to call heads. The toss is tails. Was yours a poor decision? Why?

(Turn to page 9 and answer the questions)

DECISION-MAKING\*

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Read page 8, "What Is A Good Decision?" and then answer the questions below.

Can you recall some recent decisions you have made? Please list these decisions.

1.

2.

3.

Were they good or poor decisions? What made them good decisions? Poor decisions?

1.

2.

3.

What might be an accurate definition of a good decision?

\*This exercise is taken from the book entitled Decisions and Outcomes.  
Gelatt, Varenhorst, Carey, and Miller, College Entrance Examination Board,  
1973.

DECISION-MAKING STEPS

How would you choose a movie?

How would you decide on a spouse?

Would you use the same methods to choose an occupation, or would you treat that decision differently? Listed below is a "strategy" for making important decisions. It is a step-by-step approach that people frequently use when the stakes are high. You probably use elements of these steps already when you make decisions. A bad decision frequently leaves out one or more of the following steps.

1. Commitment to engage in the decision-making process.

Sometimes this only happens after a "crisis" has occurred. It is perhaps best to begin decision-making before a major change in your life circumstances occurs; that is, it is important to recognize when a change is coming up. Reminder: Not to decide is to decide, in a sense. Have you ever "not decided" (postponed a decision) in the past?

2. Self-Assessment.

Identify what is important to you. This means considering your personal values, skills, and interests.

3. Generating Alternatives.

Some possibilities are "stored" (you already know about them), whereas others have to be discovered through research.

4. Information-Seeking.

With a list of possible alternatives in hand, a process of weighing begins, and some alternatives will be eliminated.

5. Choosing.

This is not as final as it may sound. Instead, it involves exploring specific options further or making a tentative action plan. Choosing is a matter of comparing options with each other to determine which satisfy most of your needs.

6. Planning.

Name action steps to reach the goals you have chosen.

7. Action.

Do it! Continue also to evaluate the outcomes of the plan and modify it accordingly. As you enact your plans, further "critical decision times" will be reached and will require new decisions.





PREFERRED PEOPLE/ENVIRONMENTS

Below are six types of people. Imagine you had to spend time with three of these groups. Perhaps you are being held hostage for three weeks and will have to spend a week with each of three groups. Which group would you first choose to spend time with? Circle the words that appeal to you. Now choose your second group. Do the same with your third. Circle the words as before.

R

Rugged, robust, practical; people with good physical skills, may have trouble expressing themselves in words or communicating their feelings to others. They like to work outdoors and with tools. Prefer things rather than ideas or people. Prefer to work with machines, objects, plants, or animals.

I

Tend to prefer scientific activities. Are task-oriented; not as much interested in working around other people. They like to observe investigate, analyze, and solve problems. Enjoy solving abstract problems and need to understand the physical world. Prefer to think through problems rather than act them out.

C

People who like to work with data. They have numerical or clerical ability. They like to carry things out in detail. They prefer to carry out instructions. Like ordered activities. See themselves as conventional, stable, well-controlled, and dependable. Less interested in problems requiring physical skills or intense relationships with others.

A

Artistically-oriented. Innovative and use intuition. These people like to work in unstructured situations, using their imagination or creativity. They like to be in situations where there is opportunity for self-expression. Prefer to work alone; have a need for individualistic expression. Have some unconventional ideas.

E

These people like to influence, persuade, perform, lead, or manage. They like to work for organizational goals or for economic gain. They have a good way with words. They like to sell and lead. Are impatient with precise activities or with work involving long periods of intellectual effort. Are energetic, adventurous. They like some power, status, and material wealth.

S

People who like to work with people for the purpose of helping, informing, training, curing or enlightening them. They are skilled with words. They prefer to solve problems by discussions with others. They like attention. They are sociable, responsible and concerned with the welfare of others.

Put your top five (5) words on page 23, the "VALUES LIST."

LIFE ACTIVITIES WORKSHEET

Write in the left column all the "eras" in your life, starting around junior high. You define the "era" by the main activity you were engaged in at the time (e.g. school, particular job). Then put in all the activities, subjects, jobs, etc., that you had during that era. The purpose of this activity is to jog your memory about past experiences. Put in anything and everything you can think of; nothing you have done is unimportant. You may have to leave some boxes blank.

"ERA"	PAID WORK	UNPAID ACTIVITIES	EDUCATION-RELATED	LEISURE/HOBBIES	FAMILY/FRIENDS
EXAMPLE 1972-74 Junior High	-paper route -delivery person (summer)	-president of conservation club	-liked History, shop-carpentry	-ran track -piano lessons	-biking w/friends -camping trip w/family



EXAMPLES OF ACHIEVEMENTS  
(from previous classes)

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Taking care of a garden  
Improving my basketball game  
Completing English courses  
Leading a Scout troop  
Camping trip  
Writing and publishing a poem  
Buying own car  
Building a trellis  
Landing a jump in skating  
Making tournament hockey team  
Volunteering on local committee  
Losing weight  
Doing environmental photography  
Managing nursing care home  
Designing a kitchen  
Traveling across the country  
Getting first job  
Learning to speak before people  
Immigrating to America  
Developing a household budget  
Cooking a gourmet meal  
Working as a cashier  
Restoring a car

3. (Optional) Your next step is to take your top seven achievements and write a detailed description of what you did to make your achievement happen. List what you did, chronologically, in detail (see pages 6-7 of QJHM for further directions).
4. Now go to the Quick Job-Hunting Map. Write five to seven titles for those achievements at the top of the Skills Inventory. Follow the directions in the QJHM for filling out the Skills Inventory.



SKILLS PATTERNSDirections:

1. (Optional) Cut out the pages of the Skills Grid in the Quick Job-Hunting Map and arrange to photocopy the opposite side of each page (if necessary). Spread them out in front of you. Now you have an "aerial view" of all of your skills.
2. Going back over all the skills that have been colored in at least once, ask yourself, "Do I like using these skills today?", and, "Do I want very much to use these skills in the future?" If the answer is "yes", circle and color in the particular skills you enjoy and want to use.
3. Look at all your skills again. What does this show you? In order to determine the major patterns of your skills, on the next page list all the skills you've circled in color.
4. Read through your list, looking for patterns or "clusters" of skills. Do you have a number of skills listed that seem to fall into a group? Put all of your skills into these "clusters". Some clusters may have many skills in them, others may have few.
5. Give each cluster a title of your own choosing; you may use one of your skills as a title, or you may use one of the titles in the Quick Job-Hunting Map. A title may consist of a number of skills with slashes (/) in between.

Examples: "performing/demonstrating/leading"  
"using hands/creating visual objects"  
"writing skills"

You now have a list of predominant SKILLS PATTERNS.

MY PREFERRED SKILLS

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SKILLS PRIORITIES

1. Look at your Skills Clusters. Choose the five that are most important to you. You may wish to combine some clusters at this point.
2. Copy each of your five skill cluster titles onto an index card.
3. Put the cards in front of you on a desk. Arrange them in order of which skills you MOST enjoy, which ones "next most", etc., so that they are in descending order of preference for you. Number them in order of preference.
4. Complete each card separately, using the following procedure:
  - a. Look at your MOST ENJOYABLE skill cluster card. Find the corresponding section in the skills grid.
  - b. Look at the specific skills listed within the cluster. Which two or three or four do you MOST enjoy? Again, change the descriptions to most reflect your abilities.
  - c. Write these individual skills, in order of preference, on the 3x5 card with the cluster title, as shown below:
 

Cluster Title  
 1. Skill  
 2. Skill  
 3. Skill
  - d. On the back of the card, write down at least one example of your use of the skills in this cluster. These examples may or may not be one of your seven achievements. Write the most convincing examples of your ability. How would you persuade me to believe you CAN DO and HAVE DEMONSTRATED this skill cluster?

This step may seem repetitious, BUT it is important because it represents your substantiation of your strengths (skills). Given the evidence of experience, you will BELIEVE you have these skills. It is also the best preparation possible for convincing a prospective employer that you possess these skills.
5. Note your top skill clusters, and the skills under them. Think of jobs you've had. How many of these skills did you use in each job? These clusters may be a good measure of how satisfied or dissatisfied you've been, and why.

\*\*\*\*\*

VALUES: WHICH JOB WOULD YOU TAKE FIRST?

1. Below are listed five (5) job ideals which carry with them certain values that are commonly found in the world of work. Rank the job ideals in descending order of relative appeal to you (1=best; 5=least), using each number only once. Be honest with yourself. Would you really reject the secure but dull job?

Rank

- \_\_\_\_\_ a. Secure: a job which you can be assured of always having. The work has stability, and you will receive steady, predictable raises. It is possible to build some excitement in the job, but it would take a lot of effort and initiative.
- \_\_\_\_\_ b. Exciting: but very risky job; you're never sure from one month to the other whether your job or the financial health of the organization will sustain itself; you learn a great deal in this job and are always meeting an exciting challenge.
- \_\_\_\_\_ c. Prosperous: a job where you can earn a lot, attain quite a bit of recognition, and have a great deal of power and responsibility for decisions; however, there is little free time to spend with your family or on activities you are interested in.
- \_\_\_\_\_ d. Free Time and Fringes: the pay is adequate but not spectacular, and you set your own working hours. You are expected to travel a lot. The job takes a lot of initiative since you are more or less your own boss and are not closely supervised.
- \_\_\_\_\_ e. Independence: this job requires a great deal of time structuring. There will be certain responsibilities but a lot of choice in how, when, and where these are taken care of. No pension plan or social security, and no financial rewards for the job per se, though financial needs will be met by another family member. Tendency toward job obsolescence over your lifetime, but possibilities for creativity unlimited for those who can handle structuring much time and who are self-directed.
2. Using your top two choices, write down the key words which describe your most important work values. Transfer these words over to page 25 where you find the Values List.

VALUES: RATING SATISFACTIONS FROM WORK

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1. The following list describes a wide variety of satisfactions that people obtain from their jobs. Look at the definitions of these various satisfactions and rate the degree of importance that you would assign to each for yourself, using the scale below:

- 1 = Very important in my choice of career
- 2 = Reasonably important
- 3 = Not very important
- 4 = Not important at all

\_\_\_\_\_ Help Society: Do something to contribute to the betterment of the world I live in.

\_\_\_\_\_ Help Others: Be involved in helping other people in a direct way, either individually or in small groups.

\_\_\_\_\_ Public Contact: Have a lot of day-to-day contact with people.

\_\_\_\_\_ Work with Others: Have close working relationships with a group; work as a team toward common goals.

\_\_\_\_\_ Affiliation: Be recognized as a member of a particular organization.

\_\_\_\_\_ Friendships: Develop close personal relationships with people as a result of my work activities.

\_\_\_\_\_ Competition: Engage in activities which pit my abilities against others where there are clear win-and-lose outcomes.

\_\_\_\_\_ Make Decisions: Have the power to decide courses of action, policies, etc.

\_\_\_\_\_ Work under Pressure: Work in situations where time pressure is prevalent and/or the quality of my work is judged critically by supervisors, customers or others.

\_\_\_\_\_ Power and Authority: Control the work activities or (partially) the destinies of other people.

\_\_\_\_\_ Influence People: Be in a position to change attitudes or opinions of other people.

\_\_\_\_\_ Work Alone: Do projects by myself, without any significant amount of contact with others.

\_\_\_\_\_ Knowledge: Engage myself in the pursuit of knowledge, truth and understanding.

\_\_\_\_\_ Intellectual Status: Be regarded as a person of high intellectual prowess or as one who is an acknowledged "expert" in a given field.

\_\_\_\_\_ Artistic Creativity: Engage in creative work in any of several art forms.

\_\_\_\_\_ Creativity (general): Create new ideas, programs, organizational structures or anything else not following a format previously developed by others.



- \_\_\_\_\_ Aesthetics: Be involved in studying or appreciating the beauty of things, ideas, etc.
- \_\_\_\_\_ Supervision: Have a job in which I am directly responsible for the work done by others.
- \_\_\_\_\_ Change and Variety: Have work responsibilities which frequently change in their content and setting.
- \_\_\_\_\_ Precision Work: Work in situations where there is very little tolerance for error.
- \_\_\_\_\_ Stability: Have a work routine and job duties that are largely predictable and not likely to change over a long period of time.
- \_\_\_\_\_ Security: Be assured of keeping my job and a reasonable financial reward.
- \_\_\_\_\_ Fast Pace: Work in circumstances where there is a high pace of activity, work must be done rapidly.
- \_\_\_\_\_ Recognition: Be recognized for the quality of my work in some visible or public way.
- \_\_\_\_\_ Excitement: Experience a high degree of (or frequent) excitement in the course of my work.
- \_\_\_\_\_ Adventure: Have work duties which involve frequent risk-taking.
- \_\_\_\_\_ Profit, Gain: Have a strong likelihood of accumulating large amounts of money or other material gain.
- \_\_\_\_\_ Independence: Be able to determine the nature of my work without significant direction from others; not have to do what others tell me to.
- \_\_\_\_\_ Moral Fulfillment: Feel that my work is contributing significantly to a set of moral standards which I feel are very important.
- \_\_\_\_\_ Location: Find a place to live (town, geographical area) which is conducive to my life style and affords me the opportunity to do the things I most enjoy.
- \_\_\_\_\_ Community: Live in a town or city where I can get involved in community affairs.
- \_\_\_\_\_ Physical Challenge: Have a job that makes physical demands which I would find rewarding.
- \_\_\_\_\_ Time Freedom: Have work responsibilities which I can work at according to my own time schedule; no specific working hours required.

2. Now choose the four or five work values that are most important to you. These will probably be the ones you assigned 1's or 2's to, as being reasonably important or very important. Then transfer these words over to page 23, where you'll find your Values List.

Example: Recognition  
Creativity  
Help Others  
Independence





### A WORD ABOUT GENERATING OPTIONS

A good decision, by definition, is a choice between at least two alternatives. The more alternatives you know, however, the better! Our next task is to generate as many alternatives as possible, so that you are not heard later exclaiming, "I wish I had known....." Now you will know, as best you can, and reject or accept possible options.

### EXPANDING OCCUPATIONAL ALTERNATIVES

1. Scan the Index to the Occupational Outlook Handbook (OOH). It is available in the college library and in your local library (most likely). List any and all occupations of interest to you on page 32 of this workbook.
2.
  - a. Do the "Interest Inventory" (pages 25-27) and look at the "Twelve Occupational Interest Clusters" (pages 29-31). Circle the 3-5 clusters that are of most interest to you.
  - b. Turn to the appropriate pages for each work group in the Guide for Occupational Exploration (GOE) available in the Learning Center. List any of the occupations in that work group which might interest you on page 32 of this workbook.
3. List all occupations from the group brainstorming activity that seem worth checking into onto page 32 in this workbook.
4. List occupations that interest you from the Strong-Campbell Interest Inventory and/or from the Occupations Finder (yellow booklet), onto page 32.

### INTEREST INVENTORY

Beside each numbered statement mark "L" if you might like that activity  
 "D" if you are indifferent or don't know  
 "0" if you might dislike it  
 These statements are not to be thought of as suggestions for your future work.

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	L ? D		L ? D		L ? D
1. Draw comics for a newspaper	---	25. Paint pictures of famous people	---	49. Make sounds for a T.V. show	---
2. Write books	---	26. Play a musical instrument	---	40. Do artwork	---
<hr/>					
3. Perform operations on people	---	27. Fix medicines for a doctor's prescription	---	51. Study the human body	---
4. Tell people what their illness is and give medical help	---	28. Help scientists in a laboratory	---	52. Examine drugs in a laboratory	---
<hr/>					
5. Be a boss at a plant nursery	---	29. Raise worms to sell to fisherpeople	---	53. Work outside with plants and animals	---
6. Grow plants	---	30. Trim bushes	---	54. Raise chickens for food to eat	---
<hr/>					
7. Be an airport guard	---	31. Teach in a police school (academy)	---	55. Protect people	---
8. Give car speeding tickets	---	32. Drive a police car and protect people	---	56. Protect money in a truck "armored car"	---
<hr/>					
9. Build houses	---	33. Fix airplane engines	---	57. Put bricks together to make walls	---
10. Plan how roads and bridges will be made	---	34. Fix radios and television sets	---	58. Fix and put locks in doors, etc.	---
<hr/>					
11. Put toys together in a factory	---	35. Put magazine racks together	---	59. Sew labels on clothes	---
12. Make sure knitting is done right at a factory	---	36. Check bottles at a factory to make sure they are okay	---	60. Make watches on an assembly line	---
<hr/>					
13. Write down what your boss is telling you at a meeting	---	37. Keep written record of bus schedules	---	61. Type address on envelopes	---
14. Check typewriting for mistakes	---	38. Work at a telephone operator's switchboard	---	62. Be a bank teller	---
<hr/>					
15. Sell things door-to-door to people	---	39. Sell cars	---	63. Sell houses	---
16. Work in a store selling things	---	40. Sell office equipment	---	64. Sell life insurance	---
<hr/>					
17. Serve food in a cafeteria	---	41. Help hotel guests get taxis	---	65. Show people their tables as restaurants	---
18. Take food into hotel rooms when people order it	---	42. Sell gas and oil at a gas station	---		---
<hr/>					
19. Teach disabled people work skills	---	43. Teach a blind person to read "braille" with his hands	---	66. Work in a day care center for children	---
20. Care for older people	---	44. Take care of people who can't take care of themselves	---	67. Help people who are mentally retarded	---
<hr/>					
21. Be a boss in an employment office	---	45. Buy supplies/things for a large company	---	68. Write up job duties for people	---
22. Develop tests for teachers	---	46. Read and ask questions about the economy and write about it	---	69. Give the U.S. census questions to people	---
<hr/>					
23. Play professional sports	---	47. Jump from a plane with a parachute	---	70. Ride a bucking bronco (horse) in a rodeo	---
24. Start a horse race	---	48. Drive in a car race	---	71. Dive from a high dive	---

01 \_\_\_\_\_

02 \_\_\_\_\_

03 \_\_\_\_\_

04 \_\_\_\_\_

05 \_\_\_\_\_

06 \_\_\_\_\_

07 \_\_\_\_\_

08 \_\_\_\_\_

09 \_\_\_\_\_

10 \_\_\_\_\_

11 \_\_\_\_\_

12 \_\_\_\_\_



	L ? D		L ? D		L ? D	
72. Sing songs in front of people	---	93. Set up the stage for a play	---	114. Fix an old art piece	---	250
73. Lead an orchestra	---	94. Write music	---	115. Write T.V. commercials	---	01
74. Work in a laboratory to find diseases	---	95. Be a biologist	---	116. Be a doctor	---	
75. Do chemical experiments on chemical problems	---	96. Be a dentist	---			02
76. Be a tree doctor	---	97. Raise fish to sell	---	117. Feed animals in a zoo	---	
77. Train guide dogs for people without sight	---	98. Raise fur animals to make fur coats	---	118. Raise vegetables to sell	---	03
78. Guard campgrounds	---	99. Be a detective for the police	---	119. Be a parking officer	---	
79. Join the National Guard	---	100. Figure out the reason for a fire starting	---			04
80. Put floors in houses	---	101. Work with (electronics) electrical things	---	120. Learn how to use machine at a school	---	
81. Draw plans for bridges, machines, etc.	---	102. Fix cameras	---	121. Fix furniture	---	05
82. Work on a factory assembly line	---	103. Look at newly-made rugs to see if they were made right	---	122. Separate fruit by size	---	06
83. Put letters in a file cabinet	---	104. Be a secretary	---	123. Keep written records in books	---	
84. Keep people's time cards	---	105. Work on an adding machine	---	124. Work a hand calculator	---	07
85. Sell car club membership	---	106. Sell things over the phone	---	125. Get ads for newspapers	---	08
86. Sell food from a food truck	---	107. Be a restaurant waitress/waiter	---	126. Seat people in theaters	---	09
87. Teach children who are retarded to read	---	108. Plan exercises for people who are disabled	---	127. Teach people what to do with their free time	---	
88. Teach kindergarten children	---	109. Be a nurse	---	128. Take a person to the doctor	---	10
89. Be the boss at a social service agency	---	110. Teach high school	---	129. Hire and fire people at work	---	
90. Be the boss of a bank department	---	111. Be a boss	---	130. Be a college professor	---	11
91. Teach people to ride a surfboard	---	112. Walk on a high wire	---	131. Be a manager for a baseball team	---	
92. Ride race horses in a race	---	113. Swing on a trapeze at the circus	---	132. Be a juggler	---	12

	L ? D		L ? D	
133. Be an art teacher	---	151. Be a motion picture director	---	
134. Be a radio announcer	---			01 ___
135. Go on a complete tour through a health clinic	---	152. Take a class in (physics) science	---	02 ___
136. Be a milk (dairy) cow farmer	---	153. Go on a tree nursery tour	---	
137. Raise dogs or cats	---			03 ___
138. Be a building safety officer	---	154. Help a group of people protect people without pay	---	04 ___
139. Paint houses	---	155. Fix a water faucet	---	
140. Build things out of wood	---			05 ___
141. Fold handkerchiefs at a factory	---	156. Iron clothes with steam	---	06 ___
142. Keep records of payments	---	157. Type or write papers	---	07 ___
143. Sell stoves, refrigerators, etc.	---	158. Be a traveling salesperson	---	08 ___
144. Deliver newspapers to people	---	159. Take care of people's coats and hats at a restaurant	---	09 ___
145. Help people who are mentally ill for free	---	160. Do work for free at the Red Cross	---	10 ___
146. Help someone get in and out of a wheelchair	---			
147. Be a club treasurer who keeps records of the money	---	161. Be the boss at a community group	---	11 ___
148. Take a law class about business	---			
149. Fly an airplane	---	162. Play golf for a living	---	12 ___
150. Get people to play for your sports team	---			

1. Add up all the "L's" for each of the twelve (12) sections by counting across for each category on each page (i.e. on each page so many for section 01, so many for 02, etc.)
2. Now place the totals below and add up the totals for each category, 01 through 12.
3. Now go to the "Twelve Occupational Interest Clusters" (pages 29-31). Looking at your highest scores (above), choose the top 3-5 occupational clusters.

TWELVE OCCUPATIONAL INTEREST CLUSTERS

- I. If you have not done the Interest Inventory, follow the directions below. Otherwise, go right to the clusters which your responses to the "Interest Inventory" have signaled as appealing to you.
- II. INDICATE your preference (on a gut level) for each of the following work groups by rating each on a scale of 1 to 5. Five (5) means "not interested in this type of pursuit at all". One (1) means "these are very appealing types of work". Remember, you are not choosing an occupation at this point. You are just expressing a reaction to various interest areas. "Where do your 'tropisms' lie?" (See page 88 of Parachute)

1. \_\_\_\_\_ ARTISTIC An interest in creative expression of feelings or ideas. You can satisfy this interest in several of the creative or performing arts fields. You may enjoy literature. Perhaps writing or editing would appeal to you. You may prefer to work in the performing arts. You could direct or perform in drama, music, or dance. You may enjoy the visual arts. You could become a critic in painting, sculpture, or ceramics. You may want to use your hands to create or decorate products. Or you may prefer to model clothes or develop acts for entertainment.
2. \_\_\_\_\_ SCIENTIFIC An interest in discovering, collecting, and analyzing information about the natural world and applying scientific research findings to problems in medicine, the life sciences, and the natural sciences. You can satisfy this interest by working with the knowledge and processes of the sciences. You may enjoy researching and developing new knowledge in mathematics. Perhaps solving problems in the physical or life sciences would appeal to you. You may wish to study medicine and help humans or animals. You could work as a practitioner in the health field. You may want to work with scientific equipment and procedures. You could seek a job in research or testing laboratories.
3. \_\_\_\_\_ PLANTS AND ANIMALS An interest in activities to do with plants and animals, usually in an outdoor setting. You can satisfy this interest by working in farming, forestry, fishing, and related fields. You may like doing physical work outdoors, such as working on a farm. You may enjoy animals. Perhaps training or taking care of animals would appeal to you. You may have management ability. You could own, operate or manage farms or related business or services.

4. \_\_\_\_\_ PROTECTIVE An interest in using authority to protect people and property. You can satisfy this interest by working in law enforcement, fire fighting, and related fields. You may enjoy mental challenge and intrigue. You could investigate crimes or fires. You may prefer to fight fires and respond to other emergencies. Or you may want more routine work. Perhaps a job in guarding or patrolling would appeal to you. You may have management ability. You could seek a leadership position in law enforcement and the protective services.
5. \_\_\_\_\_ MECHANICAL An interest in applying mechanical principles to practical situations using machines, hand tools, or techniques. You can satisfy this interest in a variety of jobs ranging from routine to complex professional positions. You may enjoy working with ideas about things (objects). You could seek a job in engineering or in a related technical field. You may prefer to deal directly with things. You could find a job in the crafts or trades, building, making or repairing objects. You may like to drive or to operate vehicles and special equipment. You may prefer routine or physical work in settings other than factories. Perhaps work in mining or construction would appeal to you.
6. \_\_\_\_\_ INDUSTRIAL An interest in repetitive, concrete, organized activities in a factory setting. You can satisfy this interest by working in one of the many industries that manufacture goods on a mass production basis. You may enjoy manual work--using your hands or handtools. Perhaps you prefer to operate or take care of machines. You may like to inspect, sort, count or weigh products. Using your training and experience to set up machines or supervise other workers may appeal to you.
7. \_\_\_\_\_ BUSINESS  
DETAIL An interest in organized, clearly defined activities requiring accuracy and attention to details, primarily in an office setting. You can satisfy this interest in a variety of jobs in which you can attend to the details of a business operation. You may enjoy using your math skills. Perhaps a job in billing, computing, or financial record-keeping would satisfy you. You may prefer to deal with people. You may want a job in which you meet the public, talk on the telephone, or supervise other workers. You may like to operate computer terminals, typewriters, or bookkeeping machines. Perhaps a job in record-keeping, filing, or recording would satisfy you. You may wish to use your training and experience to manage offices and supervise other workers.



8. \_\_\_\_\_ SELLING An interest in bringing others to a point of view by personal persuasion, using sales and promotional techniques. You can satisfy this interest in a variety of sales jobs. You may enjoy selling technical products or services. Perhaps you prefer a selling job requiring less background knowledge. You may wish to buy and sell products to make a profit. You can also sell business negotiations, advertising, and related fields found under other categories in the Guide.
9. \_\_\_\_\_ ACCOMMODATING An interest in catering to the wishes and needs of others, usually on a one-to-one basis. You can satisfy this interest by providing services for the convenience of others, such as hospitality services in hotels, restaurants, airplanes, etc. You may enjoy improving the appearance of others. Perhaps working in the hair and beauty care field would satisfy you. You may wish to provide personal services, such as taking tickets, carrying baggage, or ushering.
10. \_\_\_\_\_ HUMANITARIAN An interest in helping people with their mental, spiritual, social, physical or vocational concerns. You can satisfy this interest by work in which caring for the welfare of others is important. Perhaps the spiritual or mental well-being of others concerns you. You could prepare for a job in religion or counseling. You may wish to help others with physical problems. You could work in the nursing, therapy, or rehabilitation fields. You may like to provide needed but less difficult care by working as an aide, orderly, or technician.
11. \_\_\_\_\_ LEADING-  
INFLUENCING An interest in leading and influencing others by using high-level verbal or numerical abilities. You can satisfy this interest through study and work in a variety of professional fields. You may enjoy the challenge and responsibilities of leadership. You could seek work in administration or management. You may prefer working with technical details. You could find a job in finance, law, social research, or public relations. You may like to help others learn. Perhaps working in education would appeal to you.
12. \_\_\_\_\_ PHYSICAL  
PERFORMING An interest in physical activities performed before an audience. You can satisfy this interest through jobs in athletics, sports, and the performance of physical feats. Perhaps a job as a professional player or official would appeal to you. You may wish to develop and perform special acts such as acrobatics or wire walking.

Now look in the Guide for Occupational Exploration in the Learning Center. Read about each "interest area". List any of the related occupations that you might wish to look into further onto page 32 of this workbook.

OCCUPATIONAL OPTIONS

This space is set aside for you to list career ideas. All potential occupations should be written below.

NARROWING DOWN BY SEEKING INFORMATION

1. In order to narrow your list on page 32, read about those occupations in the Occupational Outlook Handbook or in the Dictionary of Occupational Titles in the library. Eliminate some of the occupations by crossing out those that no longer appeal to you. Narrow down your list to between five (5) and fifteen (15) occupations that you "might consider."

Assignment:

2. For at least three of your "might consider" occupations, find out more by
  - a) reading in the OOH
  - b) reading a pamphlet in the Learning Center
  - c) reading a book in the library
  - d) talking to someone who knows about the field.
 For each of the three occupations, fill out an "Occupational Information Seeking" form (pages 34-36). Of course, you can and should read about more than three occupations.

Below are some general guidelines for the next step in the decision-making process, which is.....

OCCUPATIONAL INFORMATION SEEKING

To learn about what the "world of work" has in store for you, you should try to anticipate the possible outcomes of your decisions. This can be done by seeking accurate answers to the five key questions on the "Occupational Information Seeking" forms (pages 34-36).

READ

1. One beginning way to do this is to read about occupations (see Chapter 6 of What Color Is Your Parachute? for more on this).
2. The Occupational Outlook Handbook is a good place to begin.
3. The pamphlet file in The Learning Center is a too-frequently undiscovered source of information.
4. Specialized materials (e.g. the Art Career Guide) on occupations are in the GCC library (see list).
5. The best source of print information on occupations is the University of Massachusetts Career Resource Library, located in the Berkshire House just across from the Southwest high-rise dorms and open M-F 8:30 am--5:00 pm. Just name some occupations of interest, and the librarian there will point you in the right direction.

After all the self-assessment you've done, don't cut this crucial step short!

TALK TO PEOPLE

By far the best way to find information is by interviewing people who are currently working in fields that interest you. See pages 37-38 for this.









INFORMATIONAL INTERVIEW

"Students spend four or more years learning how to dig data out of the library and other sources, but it rarely occurs to them that they should also apply some of that same new-found research skill to their own benefit--to looking up information on companies, types of professions, sections of the country that might interest them."

Professor Albert Shapero  
University of Texas at Austin  
Management Department

1. Choose an occupation that you would like to investigate further. It is important that you select something about which you are enthusiastic, because you should be talking to people who share this enthusiasm.
2. This informational interview is to be person-to-person with people off campus. You should talk to at least one person previously unknown to you who is in a position of responsibility and who is involved in doing what you selected. In the meantime, spend as much time as you can talking to anyone and everyone about this enthusiasm. You are not looking for a job, but are gathering information to assist you in making decisions about what you think you would enjoy doing at some point in the future.
3. Whom will you interview? How can you get in to see the right person? Suggestions: Begin by talking to someone who can refer you to another, who can refer you to another, etc., until you find the person you want to talk to. This can be called a "chain of referrals." Read "Interviewing for Information Only" in Chapter 6 of What Color Is Your Parachute? for a good description and pep talk on informational interviewing. Read pages 120-130 of The Complete Job Search Handbook (in the Learning Center).

QUESTIONS AND GUIDELINES FOR INFORMATIONAL INTERVIEWING

You should spend some time planning the questions you want to ask, because you will probably have a limited amount of time for the interview. Each interview will be different, but writing out your questions in advance will help to organize your thoughts and prepare you to make the best use of your time.

From each person, be sure to get the following basic information:

1. a. Name
- b. Title (or occupation)
- c. Employer
- d. Address
- e. Phone Number
- f. The name of at least one other "contact" to speak with in the field.

2. The following is a list of questions you should consider for discussion:

- \* - What do you actually do in a typical day?
- What are your duties and responsibilities?
- \* - What are the basic skills required in this job from your point of view?
- What are the current problems yet unsolved (or needs, theories, innovations, controversies) in the field in general? In what ways are you/organization affected?
- \* - What are the opportunities for advancement?
- \* - What suggestions would you make to someone who is interested in this occupation?
- What other jobs are closely related to what you do?
- \* - How did you get into this line of work?
- Do persons typically come to this job right out of school, or are there other jobs they often have first?
- How much competition is there for this kind of job? Is the field overcrowded or starved for talent?
- What is a typical starting salary?
- \* - Are there seasonal pressures or low points, or is the work load steady throughout the year?
- \* - Are there jobs that persons typically go on to after some years in this position?
- If someone is reasonably successful in this field, how much might they be earning after five years of experience?
- \* - What is the best and worst thing about this job? (i.e. What do you like and dislike?)
- Can you take vacations any time, or are there certain times of the year that vacations are taken?
- \* - If you had it to do over again, would you follow this line of work? Is there anything you would do differently?
- \* - If people fail to do this job well, what are the most common reasons?
- How much of your time is spent working alone? How much with other employees? How much with the public?
- How are people typically hired for this kind of position?
- How would you characterize the level of stress or pressure in this job?
- Can one work part time at this job? For only part of the year?
- How closely is someone doing this kind of work supervised?
- \* - Would you recommend anyone else I might talk to?

You can use the space on this page for keeping notes on your interview.

\*If you only have time for a few questions, these are the ones to ask.

EVALUATION OF INFORMATIONAL INTERVIEW

1.     Data:   a) Name of Person Interviewed  
              b) Title or Occupation  
              c) Employer  
              d) Address  
              e) Name of one other contact in the field
  
2.     What did you learn from the experience in general?
  
3.     What positive impressions do you now have about this area of work?  
          (Think in terms of yourself--your values, interests, skills, and  
          goals.)
  
4.     What negative impressions do you now have about this area of work?  
          (Again, evaluate in terms of yourself--as above question.)
  
5.     How did this interview help to clarify your own career objective? If  
          it did not, why not?

OCCUPATIONAL COMPARISON TABLE

You have already been informally choosing and rejecting occupations in the process of exploring alternatives. Now you should list all the occupations that you will might consider by writing them in at the top of the grid below.

Then respond to each of the statements on the left side of the table by writing in a plus (+) on the table if the statement is true for you, a minus (-) if it is not true for you, and a question mark (?) if you don't know or need to find out.

TRIAL OCCUPATIONS:	1.	2.	3.	4.	5.	6.
My five transferrable skill clusters are _____, _____, _____, _____, _____ and I can use enough of these in this type of work to be satisfied.						
My weaknesses and shortcomings will not be a problem in this occupation.						
My friends, parents, relatives, and/or teachers think I can succeed at this job.						
The types of people I prefer and my preferred working conditions can be met in this work.						
My most important values include _____, _____, _____, and _____, and I can realize enough of these in this type of work.						
I know how people in this occupation live on and off the job. I find this is a life-style that is congenial.						
I can imagine being in this occupation for a long time.						
I am willing to obtain the knowledge and training necessary to qualify (I know where to get the necessary training/experience to enter this occupation.						
I can afford the time and money to obtain the necessary training and knowledge.						
I know about typical entry level jobs in this field.						
I have reality-tested myself for this work and find that the results are positive.						
I am aware of the supply and demand situation for this kind of work, and it is okay, or it doesn't scare me off.						
I have talked personally with several people who do this kind of work.						





### RISK-TAKING AND STRATEGIES FOR DECISION-MAKING

Most decisions involve some risk in terms of possible outcomes. Knowing the personal importance of various outcomes determines the degree of risk a person is willing to take to achieve them. A mother probably would take high risks to save her baby's life and lower risks to arrive at an appointment on time.

Few human decisions are made under conditions of certainty, and most probably are made with a combination of some risk and uncertainty. The conditions under which all decisions are made can be divided into four classifications:

Certainty. Each choice leads to one outcome known to be certain. For example, if a person decides to jump into a full swimming pool, she/he knows there is a 100 percent chance of getting wet.

Risk. Each choice leads to several possible outcomes with known probabilities. For example, when a person decides to flip a coin to make a choice, it is known that there is a 50 percent chance of getting heads and a 50 percent chance of getting tails.

Uncertainty. Each choice leads to several possible outcomes with unknown probabilities. For example, when the astronauts first landed on the moon, there were several possible results but no one knew the exact chances of each outcome occurring.

Combination. Combination of risk and uncertainty. For example, when a person decides to apply to a selective college, she/he cannot be certain of admission but can use data to make an estimate of the chances of being offered admission.

### STRATEGIES

A strategy is a plan for making a decision on the basis of values, objectives, information, and risks. Without a strategy for choosing, the decision-maker merely decides at random, which in itself may be a personal strategy. In this sense, there is no such thing as "no strategy."

Choosing and using a strategy is an individualized art that can be learned. Some people use certain strategies consistently and others use a different strategy for each decision they make. Several commonly used strategies are discussed below.

The Wish Strategy. "Choose what you desire most." A person chooses what she/he wishes would happen. This strategy suggests that she/he select the course of action (make a decision) that could lead to the most desirable result, regardless of risk or cost or probability. In a horse race the choice would be the "long shot." It is easy to use this strategy. Someone only needs to know what she/he desires most (her/his objective) and to have some information about the outcomes. It is not necessary to know the probabilities (e.g. job opportunities).

The Safe Strategy. "Choose the most likely to succeed." This strategy suggests that a person select the course of action that has the highest probability of being successful. In a horse race, the choice would be the favorite. It is a little more difficult to use this strategy. A decision-maker needs to know her/his objective and to have some information about possible and probable outcomes. At the same time she/he is required to be somewhat more specific about her/his objective and needs to investigate information about additional alternatives and their probabilities.

The Escape Strategy. "Choose to avoid the worst." This strategy suggests that a person select the course of action that is most likely to avoid the worst possible result. It is sometimes called the "minimax" strategy because it minimizes the maximum disaster. It "escapes" misfortune. It is relatively easy to use this strategy. A person merely needs to know a little bit of information about outcomes and what she/he considers the worst outcome.

The Combination Strategy. "Choose both the most likely and most desirable." This is a combination of the wish and safe strategies. This strategy suggests that someone select the course of action that has both high probability and high desirability (sometimes called highest expected value). Although this strategy seems the most logical and reasonable, it is the most difficult to apply. It presents several problems to the decision-maker:

It requires knowing personal values and stating objectives clearly.

It requires knowing alternatives and having the ability to predict possible results.

It requires ability to estimate probabilities or the likelihood of something happening.

It requires the ability to rank the desirabilities or to designate the relative value of something.

Effective decision-making requires that the decision-maker be willing to accept the responsibility for the results of her/his decision. When a person exercises her/his power, control, and freedom, she/he must be responsible for what happens.

ACTION PLANS

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As a result of doing the "Occupational Comparison Table" (page 40), what must you do to explore further or to enact a plan for a decision? How do you change the ?'s you listed?

1.

2.

3.

Look back at your goals for the course (page 4 of this workbook). Compare them to the plans you named above. Have your original goals been met? \_\_\_\_\_  
Do you wish to change your original goals? \_\_\_\_\_ If so, what are some new goals (or a new goal) for you?

Should your action plans be changed in any way in light of your goals?

ACTION PLAN WORKSHEET

Objectives

WHAT IS TO BE DONE?

- |    |    |
|----|----|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |

HOW WILL I DO IT?

- |    |    |
|----|----|
| 1. | 4. |
| 2. | 5. |
| 3. | 6. |

WHEN WILL I DO IT?

- 1.
- 2.
- 3.

POSSIBLE OBSTACLES

- 1.
- 2.
- 3.

HOW WILL I OVERCOME OBSTACLES?





APPENDIX C  
CAREER AND EDUCATIONAL PLANS QUESTIONNAIRE

Name \_\_\_\_\_

Age \_\_\_\_\_ Sex \_\_\_\_\_

Please answer the following questions honestly. In answering them, you should refer to the following definitions of terms used below:

Certainty - to be assured in your mind and in your actions.

Satisfied - fulfilled about a need or want; contented.

Occupational plans - anticipated program of action about specific work fields.

Educational plans - anticipated program of action about courses, academic major, or schools.

1. How
- certain
- are you about your current
- occupational
- plans?

1.	2.	3.	4.	5.	6.
very uncertain	somewhat uncertain	slightly uncertain	slightly certain	somewhat certain	very certain

2. How
- satisfied
- are you about your current
- occupational
- plans (or lack of plans)?

1.	2.	3.	4.	5.	6.
very dissatisfied	somewhat dissatisfied	slightly dissatisfied	slightly satisfied	somewhat satisfied	very satisfied

3. How
- certain
- are you about your current
- educational
- plans?

1.	2.	3.	4.	5.	6.
very uncertain	somewhat uncertain	slightly uncertain	slightly certain	somewhat certain	very certain

4. How
- satisfied
- are you about your current
- educational
- plans (or lack of plans)?

1.	2.	3.	4.	5.	6.
very dissatisfied	somewhat dissatisfied	slightly dissatisfied	slightly satisfied	somewhat satisfied	very satisfied

5. List any
- steps
- you have in mind regarding your
- occupational
- plans.

---



---

6. List any
- steps
- you have in mind regarding your
- educational
- plans.

---



---

7. List all of the occupations you are considering right now.

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8. Would you like to be considering more or fewer occupations than you currently are?  
Please check the appropriate answer.

More \_\_\_\_\_ Fewer \_\_\_\_\_

9. Name the occupation that would be your first choice right now.

---

APPENDIX DScale Used for Describing Similarity between  
SDS Summary Code and Any Other Three-Letter Code

Verbal Description	Chance Expectancy	Index
No letters are the same	.500	0
One letter matches another letter	.333	1
Two letters of SDS summary code match any two letters in the other code (e.g. RIC, IER)	.250	2
1st letter of SDS summary code matches first letter of other code (e.g. RIC, REA)	.167	3
First two letters of each code are the same, in any order	.156	4
All three letters of SDS summary code match letters of other code in any order (e.g. RIC, ICR)	.125	5
1st and 2nd letters of SDS summary code match 1st and 2nd letters of other code (e.g. RIC, RIE)	.033	6
Letters and order exactly the same	.008	7

Note: Cases which fit more than one category are given the scale value of the highest category.

APPENDIX EJUDGE'S WORKSHEET

GROUP \_\_\_\_\_

## I. Questions from the CEPQ:

14. List any steps you have in mind regarding your occupational plans.

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15. List any steps you have in mind regarding your educational plans.

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II. Directions to Judges:

Based on the questions above from the completed CEPQ's you have, mark below the number of different types of plans each student has listed. Using the following seven types of plans, categorize each step the student lists as one of these seven. The steps are:

1. Making a commitment to engage in decision-making.
2. Assessing one's skills, values, and interests.
3. Generating options.
4. Seeking information about options.
5. Choosing among options.
6. Making plans.
7. Taking action.

An example of each step follows:

1. "Rewarding myself for reading about occupations".
2. "Taking a skills test in order to determine my abilities".
3. "Looking through lists of occupations".
4. "Talking to a lawyer about his/her work".
5. "Weighing all the evidence in order to decide".
6. "Listing my next steps, in order".
7. "Going to \_\_\_\_\_ to apply for a job".



I. List your rating for Variety of Occupational Plans (Question 14) for each student:

<u>STUDENT</u>	<u>SCORE</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

II. List your rating for Variety of Educational Plans (Question 15) below for each student:

<u>STUDENT</u>	<u>SCORE</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

III. List below the Number of Occupational Plans (Question 14) for each student:

<u>STUDENT</u>	<u>SCORE</u>
1	
22	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

IV. List below the Number of Educational Plans (Question 15) for each student:

<u>STUDENT</u>	<u>SCORE</u>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

VOCATIONAL INFORMATION-SEEKING BEHAVIOR INVENTORY

Section A

Directions for Student: This inventory asks you about things that you have done during the LAST FIVE WEEKS. Read each question. Carefully think about your answer. Your cooperation is greatly appreciated. Please be careful and thoughtful in making your answers. Thank you

	<u>YES</u>	<u>NO</u>
Have you Talked with Any of the Following People about Their Occupation in <u>THE LAST FIVE WEEKS</u> ?	_____	_____
1. Persons <u>now working</u> at the types of occupations you are thinking about? If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____
2. Persons who <u>have worked</u> at the types of occupations you are considering? If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____
3. Persons who <u>know about</u> the types of occupations you are thinking about, even though they have never worked at these occupations? These are people other than those mentioned in #1 and 2. If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____
4. Have you asked for information from counselors, teachers or other college officials about the types of educational programs or occupations you are thinking about during this time? If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____
5. Have you asked for information from parents, other relatives, close friends or neighbors about the types of educational programs or occupations you are considering during this time? If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____
6. Are there <u>any other</u> persons from whom you have gotten information about the types of occupations or educational programs you are thinking about during this time? If you answered "Yes", with how many? _____ Name the person(s) _____.	_____	_____

Now add the numbers you have written above, in the space provided below. In other words, what is the total number of people to whom you have talked?

Your TOTAL for Section A is \_\_\_\_\_

Go on to SECTION B

SECTION B

- |                                                                                                                                                                                                                                                                                                                     | YES   | NO    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 7. Have you written to any place in the LAST FIVE WEEKS for information (pamphlets, bulletins or catalogues) on occupations <u>or</u> on colleges, universities or other schools where you could get training and education in an occupation?<br>If you answered "Yes", how many? _____<br>Name one example: _____. | _____ | _____ |
| 8. Have you looked at or read any books, magazines, bulletin board posters or pamphlets about the occupations you are thinking about during this time?<br>If you answered "Yes", how many? _____<br>Name one example: _____.                                                                                        | _____ | _____ |
| 9. Have you looked at or read any information about the occupations other other than the ones you are considering during this time?<br>If you answered "Yes", how many? _____<br>Name one example: _____.                                                                                                           | _____ | _____ |
| 10. Have you bought, borrowed or checked out of the library any reading materials about the types of occupations or the schools you are considering, although you may not have read this material yet?<br>If you answered "Yes", how many? _____<br>Name one example: _____.                                        | _____ | _____ |
| 11. Have you watched or seen any TV programs, fair exhibits, or movies heard any radio programs about the occupations that interest you during this time?<br>If you answered "Yes", how many? _____<br>Name one example: _____.                                                                                     | _____ | _____ |

Once again, add the numbers you have written in. What is the total number of things you have done under SECTION B in the last FIVE WEEKS?. Write this number in the space provided below.

Your TOTAL for SECTION B is \_\_\_\_\_  
\_\_\_\_\_

Go on to SECTION C

SECTION C

	<u>YES</u>	<u>NO</u>
Have you Visited or Made Plans to Visit any of the Following Places in the <u>LAST FIVE WEEKS</u> ?	_____	_____

12. Have you made any visits to jobs to see what the types of occupations you are considering are like? \_\_\_\_\_

If you answered "Yes", how many? \_\_\_\_\_

Name one visit you made: \_\_\_\_\_

13. Have you made any definite plans to make on-the-job visits to see what the types of occupations you are considering are like, but have not made these visits yet? \_\_\_\_\_

If you answered "Yes", how many? \_\_\_\_\_

Name one definite plan: \_\_\_\_\_

Once againk add the numbers you have written in. What is the total number of visits you have made or planned to make under SECTION C and record below.

Your TOTAL for Section A is \_\_\_\_\_

Now add up your total numbers for SECTIONS A, B, and C. Write the number below.

TOTAL for all SECTIONS is \_\_\_\_\_

APPENDIX G  
 DECISION-MAKING SCALE OF THE  
 CAREER DEVELOPMENT INVENTORY

C. DECISION-MAKING

What should each of the following students do? Choose the *one best* answer for each case.

41. E.R. took some tests that suggest some promise for accounting work. This student says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of person who likes variety. I think a traveling job would suit me fine." E.R. should:
- disregard the tests and do what he or she wants to do.
  - do what the tests say since they know best.
  - look for a job that requires accounting ability but does not pin one to a desk.
  - ask to be tested with another test since the results of the first one are probably wrong.
42. J.D. might like to become a computer programmer, but knows little about computer programming, and is going to the library to find out more about it. The most important thing for J.D. to know now is:
- what the work is, what one does on the job.
  - what the pay is.
  - what the hours of work are.
  - where one can get the right training.
43. A.M. is very good with skilled handiwork and there isn't anybody in the class who has more mechanical aptitude or is better at art. A.M.'s best grades are in math, but A.M. likes all of these things. What should A.M. do?
- Look for an occupation that will use as many of these interests and abilities as possible.
  - Pick an occupation that uses math, since there is a better future in that than in art or in working with one's hands.
  - Decide now on one of these activities because of ability or interest, and then pick an occupation that uses that kind of asset.
  - Put off deciding about the future and wait until interest in some of these activities declines.
44. L.F. seems not to care what kind of work is available on leaving college as long as it is working with people. If this is what this student cares about, he or she is likely to make a bad choice because:
- this kind of work usually requires a postgraduate degree.
  - employers usually hire people with definite interests and objectives.
  - people look down on those who work with people because such work usually doesn't pay as well as technical work.
  - occupations in which one works with people can be very different from each other in the abilities and interests that are needed.
45. R.A. had good grades in high school, he wants to go to college, and his parents approve of his going to college, but he has no occupational plans. What is the best next step for R.A.?
- Delay college until occupational plans emerge.
  - Choose a college major that is very difficult.
  - Choose a college where exploring several majors is encouraged during the first two years.
  - Find out about graduate and professional school requirements.
46. A.K. can't decide whether to become an air-conditioning and refrigeration technician or an engineer. In making the choice, to which of the following should A.K. pay the most attention?
- How much money A.K. wants to earn.
  - How much education and training A.K. is likely to be able to get.
  - What A.K.'s parents would prefer.
  - Which occupation people respect most.



47. E.B. has excellent grades and very high scores on all ability tests, but has no educational or vocational plans. What is the best advice to give to E.B.?
- Arrive at a definite goal as soon as possible.
  - Not to be concerned about a goal or a plan because success is almost certain.
  - Concentrate on selecting the right college major.
  - Find out when important choices will have to be made and get the needed information.
48. An uncle has just told T.H. that his company is always looking for actuaries, pays them well, and keeps them on the payroll even in bad times. T.H. is interested and wants to learn more about the occupation. What is the most important thing for T.H. to learn?
- Where else actuaries work.
  - How much training is required.
  - What is the work actuaries do.
  - What actuaries really are paid.
49. L.M. has good school grades and looks forward to majoring in physics and going on to graduate school. What is the best advice for L.M. about first-year courses?
- Be sure to schedule the best math and physical science courses.
  - Get all the lab courses possible.
  - Take a light load to get good grades.
  - Allow time for a part-time job to learn what physicists do.
50. M.J. is considering becoming either a research chemist or a lawyer. In choosing between the two, which of the following should be given the most weight?
- Whether M.J.'s ability in science and grades in science courses are good enough.
  - Whether M.J. can afford to go to graduate school.
  - Whether M.J. can get admitted to graduate school.
  - Whether M.J.'s friends think the choice is a good one.
51. After careful thought, E.K. has decided on graduate work in business after a college major in economics. However, choosing between majors in accounting and in marketing remains a problem for E.K. In exploring this problem, what should be given most weight?
- The difference in training time required by the two majors.
  - The chances of being admitted for training in the major.
  - Which major requires more work.
  - Which major best fits E.K.'s abilities and interests.
52. J.F. is the best all-around artist in the class, winning art competitions consistently. But academic subject matter comes hard to J.F., who will probably graduate in the bottom fifth of the senior class. Which is the most realistic educational plan for J.F.?
- Seek admission to a university where one can combine art and regular college subjects to earn a Bachelor of Fine Arts.
  - Forget about any education beyond high school.
  - Forget about art and concentrate on college preparatory subjects.
  - Seek admission to an art school where poor academic grades will not be a handicap.
53. L.D. wants to be a newspaper reporter. Which of the following paths might lead to becoming a qualified newspaper reporter?
- Working full-time on a newspaper and continuing education on a part-time basis.
  - Earning a bachelor's degree in Journalism.
  - Taking a liberal arts degree first, followed by a graduate degree in Journalism.
  - Any of the above.
54. B.D.'s interest in and skill at helping others have become the most important part of B.D.'s self-picture. Which occupation should B.D. probably *not* be considering?
- Nurse's aide.
  - Recreation worker.
  - Sales person.
  - Teacher's aide.
55. R.R. gets B's in math and science but is failing first-year college English and getting a D in a history course. Which occupation makes the most sense for R.R.?
- Engineering technician.
  - Veterinarian.
  - Civil engineer.
  - Science and math teacher.

56. R.J. has high ability, excellent grades, and the money to go to college. R.J.'s only clear future goal is to make a great deal of money. What should R.J. do?
- A. Pursue a career in medicine because that's where the money is.
  - B. Arrive at an appropriate vocational goal and the money will take care of itself.
  - C. Change goals because wanting a lot of money is not a good thing.
  - D. Find out what wanting to make a lot of money really means.
57. A.S. has good aptitude test scores but made poor grades in high school. The school counselor had advised A.S. not to go to college because of the chance of failure. A.S. thinks that is not a problem, wants to go ahead with college, and has been admitted to a non-selective college. What should A.S. do?
- A. Forget about college and seek a satisfying job.
  - B. Repeat basic courses in order to make a good start.
  - C. Take a regular course if the program is not too demanding.
  - D. Get private tutoring in the weak subjects.
58. A French professor thinks C.G. has exceptional talent in French and encourages C.G. to think about majoring in it not only in college but also in graduate school. What is the best first step to take?
- A. Find out what advanced and postgraduate courses French majors take.
  - B. Talk to a counselor about what kind of information is needed and how to get it.
  - C. Find out about graduate school requirements for studying French.
  - D. Investigate the demand for French teachers.
59. If the goal someone has set is realistic and reasonable, the most important thing is:
- A. to stick to it no matter what happens.
  - B. not to be influenced by what other people think of the choice.
  - C. to have good plans for achieving it.
  - D. to forget about all other possibilities.
60. The reason why a person should try out different courses and activities is that:
- A. it looks good on transcripts and in letters of reference.
  - B. it helps in the discovery of interests and abilities and strengths and weaknesses.
  - C. it helps in getting more respect from friends.
  - D. it is more satisfying to be active than idle.



