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AUTHOR Thoresen, Carl E.; Ewart, Craig K.
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ABSTRACT

This paper describes and analyzes current research in career development, suggests further issues for investigation, and offers recommendations for research based on social learning theory and self-control techniques which would result in a self-management approach to career decisions. A decision-making model of career choice similar to the scientific method is presented with suggestions for counselor implementation. From the viewpoint of the counselor's role as one of helping clients to engineer their own decisions, some practical knowledge requirements are identified as guides to needed research. The kinds of questions and methods currently pursued in career research are briefly reviewed and their limitations and possibilities are examined. The career development theories of Holland and Super are described along with typical research questions, methods, and overall results. The social learning model of career selection formulated by Krumboltz is outlined with suggestions for counselor implementation and research possibilities. As a conceptual basis for experimental studies on career relevant behavior, a self-control framework is proposed and the four areas of commitment, awareness, environment, and consequences are discussed as each relates to career issues. A discussion of research needs poses questions about self-control techniques which merit further investigation. (NJ)

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Careers, Counseling, and Control

Carl E. Thoresen

and

Craig K. Ewart

Stanford University

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Counselors try to help people commit the unnatural act of making decisions wisely about life's major questions. Selecting a career is one such question. The seemingly simple steps of career decision-making encourage many to see the process of helping others with vocational decisions as far simpler than problems of anxiety, depression, or other more "ambiguous" difficulties. Yet trying to make career related decisions in a systematic fashion can involve stressful and personally threatening experiences--ones that we often avoid by letting things happen and "take their natural course." The stress and turmoil experienced in selecting careers and pursuing vocations have been dramatically portrayed by Studs Terkel (1974) in his book Working. Countless persons interviewed by Terkel presented themselves as adrift in jobs that they somehow got into--jobs that they now find depressing, discouraging, and debilitating. Those not fatalistically resigned to their "career" appear anxious to do something else. But what? And how? What can a person do to change their vocation?

Career choice today is rapidly becoming an on-going, life-long process as people demand greater fulfillment from work, as women re-enter the job market, and as workers discover that there is no longer a need for their skills. Counselors are finding that men and women of all ages need help in making changes for which they are unprepared. Many people (perhaps most) rarely make explicit, systematic choices about how to spend their working

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lives. "Deciding by not deciding" is more norm than exception. Economic factors, family pressures and other environmental influences ("I just happened to be at the right place at the right time . . .") limit opportunities for systematic decision-making. In addition, most persons fail to learn the skills they need to make and to implement career relevant behaviors. The counselor's task is that of teaching: helping persons learn and persevere in new ways of thinking, feeling, and acting. Here as elsewhere in counseling and psychotherapy the problem is to help people function in new and often demanding ways. Clearly more is required than simply telling people what to do (no matter how sage and emphatic the advice) and providing some bits and pieces of career information (computer assisted or otherwise).

The requirements of decision-making are not hard to state: specifying the task, gathering relevant information, identifying alternatives, selecting an alternative, taking action toward a tentative decision. Indeed, the steps involved are closely akin to the scientific method (Platt, 1964; Thoresen, 1969; Thoresen, in press). The empirically oriented scientist often cycles in a controlled, dynamic fashion through the same steps, sometimes converting observations into an alternative stated as a testable hypothesis and then conducting a probe or experiment. Although the basic steps of modern science as a framework for inquiry can be described, the actual sequence of behaviors engaged in by a scientist remain obscure (Feibleman, 1972; Kaplan, 1964). There is far more complexity to science as a human endeavor than the several steps (e.g., observing, experimenting, inferring) enumerated in introductory research textbooks. Similarly there is more to career decision-making than memorizing the steps and gathering up some information.

Besides clarifying the problem situation, two important activities are involved in career decision-making: identifying options and selecting an alternative for further action. Granting the diversity of ways that persons process information and develop inferences (cf. Mahoney, 1974) it is still possible to set forth a logical, systematic sequence of operations for generating and selecting alternatives. Clients can learn this sequence to apply in a wide variety of choice situations (Krumboltz & Baker, 1973). How, in fact, they will later use these activities remains unknown, however. But these activities can be conceived of as basic skills needed to create a personally meaningful product. All artists and craftsmen learn basic skills that set the stage for their unique performance. The same holds true of the basic or the applied scientist (Thoresen, in press). Some basic inquiry skills must be acquired before a creative contribution can emerge. Acquiring basic skills, of course, does not guarantee a fine product; however such skills do serve as necessary prerequisites.

Decision-making involves prediction. That is, the person needs to anticipate possible outcomes of his actions. In general, two kinds of outcome predictions can be made: probability estimates and utility estimates (Mischel & Masters, 1966; Thoresen & Mehrens, 1967). Probability estimates are used in establishing the range of alternatives, and the likelihood of attaining them. Utility estimates predict which alternatives will prove most useful or satisfying. Thus a decision can be represented as a function of the probability and the utility of any given alternative. Together they determine its value. A career decision involves weighing the probability of entering a given occupation ("Do I have what it takes to get through law school?" against its utility ("How much would I enjoy being a lawyer?"

Although a theoretical decision model can be quite explicit, its actual implementation with clients is problematic. Probability estimates of a client's chances of qualifying for a given occupation are not difficult to develop. Current information on particular career openings, together with the academic or other credentials required can be used. A counselor can develop tailored expectancy tables based on the experiences of others relevant to the client (e.g., students in a particular school or college who have gone to law school). Such tables can provide probability estimates which are helpful in predicting future performance (Goldman, 1961; Yabroff, 1969). Thus a university student with a B average could be shown an "experience table" based on the past performance of students from the same institution. The table would provide estimates of getting admitted to a given graduate school, based on such factors as grade-point average, scholastic aptitude, or other qualifications.

The counselor could function primarily as an occupational information specialist, searching out, organizing, and transmitting "objective" data relevant to each client's interests. One limitation, however, with this approach is that clients often fail to recognize and use such information. Subjective expectancies of the clients often disagree with the "objective" information and estimates provided by the counselor (Thoresen & Mehrens, 1967). For example, a premed student with average grades may decide to apply only to prestige medical schools because he or she believes a chance to get in still exists. On the other hand, a more academically successful premed student may greatly underestimate chances of acceptance. Such a student may not believe he has much of a chance against the thousands of other applicants. The counselor must know how to bridge the gap between

a client's expectations and other more objective estimates. There is far more to counseling for career selection than "giving them the facts." Facilitating change in a client's way of thinking and acting calls for knowledge and skills not included in the information-giving model.

The desirability or usefulness of alternatives merits attention. The counselor's task is to help the client decide what needs, interests, or values are possibly involved in a particular career option. What rewards, for example, might a certain occupation provide? Apart from providing information, counselors are often expected to facilitate career decisions by helping clients discover what they value. Interest inventories and occupational value scales are numerous; most of these devices help the counselor assign a client to one or several vocational types or categories. These instruments are sometimes viewed by counselors (and almost always by clients) as providing a kind of "x-ray" view of an individual's vocational personality. They are seen as capable of telling you something about your own career needs and interests that you do not already know. Thus, if I am trying to choose between careers in social work and sales management, feeling equally attracted to both, I might see the results of an inventory as capable of telling me which career I <u>really</u> want to enter, or which "occupational type" I am. If my type is closer to the helping professions (or to business-sales) occupational type, then I should go into that field. I may even assume that this data can be used to predict my future happiness in a given area of work.

Information about my vocational type may be of little use to me if my "membership" in no way enhances my perceived enjoyment of one occupation over another. Standard interest inventories are generally helpful in counseling only to the extent that they actually tell clients more than they already

know about their ability to enjoy a given line of work. Results of standard tests and inventories have yet to demonstrate this result. The enjoyment of an occupation is determined by a host of personally subjective and specific environmental factors, some of which are contemporary to the work environment. It is more difficult to predict vocational satisfaction from a few simple indicators (e.g., responses to inventory items) than it is to predict career entry from level of formal education, social-economic status or equivalent data. The counselor must be able to help the client define conditions of "success," "meaning," and "enjoyment" in his own life and to explore the possibilities for fulfilling these conditions in various kinds of work. The counselor must go well beyond the information-and-testing role suggested by the objective requirements of the simple decision model (Thoresen & Mehrens, 1967). Career selections involves self-exploration and personal changes in behavior; a counselor must be able to facilitate these activities.

Engineering Decision Behaviors

Roughly stated, the counselor's job is one of helping persons personally and socially "engineer" their own decisions. In effect, the counselor teaches the client to clarify problem situations and make tentative choices and, most importantly, to act on his decision. Counseling involves teaching clients to approach life in a way that is new, demanding, and possibly threatening. Thus counselors find themselves in need of practical knowledge about how to help clients:

1. To clarify the nature and scope of the decision they must make and the goals they seek to achieve.
2. To commit themselves to undertaking and persevering in a personal and environmental exploration.

3. To acquire a more accurate understanding of their needs, interests, abilities.

4. To change self-attributions and beliefs, along with inaccurate stereotypes.

5. To restructure their environment to help them engage in desirable behaviors.

6. To evaluate and maintain progress in the direction of personal goals.

The information needed to answer these questions can be provided by well-designed research. It may be helpful at this point to review briefly the kinds of questions and methods currently being pursued in career research with an eye to their limitations and possibilities.

Existing Vocational Theories and Research: Current and Choice

Career decision making is one of those gardens of human activity in which theories blossom and grow numerous but produce little fruit. Attempts to explain vocational behavior have increased in quantity and sophistication during the last twenty years (Osipow, 1968). Even so, this theoretical diversity is not apparent at the level of empirical investigation; one or two major orientations appear to predominate.

In terms of the sheer number of studies, John Holland's vocational typology currently inspires the most research activity. The Self-Concept theories of Donald Super and others (Super, 1963, 1979) account for much of the remaining effort. A recent review (Mitchell, Jones & Krumboltz, 1975) of empirical studies reported in the five-year period from 1969 through 1974 illustrates this fact. A search of approximately 600 books, monographs, dissertations, and other sources identified 45 empirical studies of psychological factors that influence career decisions. Nearly half of these

studies (48%) investigated Holland's theory, while a second major orientation (17%) reflected the self-concept approach. The remaining third of the investigative effort represented a variety of theoretical viewpoints. Vocational research continues on lines sketched by Osipow in his thorough review (1968). Such a review, together with others (Bailey & Stadt, 1973; Borow, 1973; Crites, 1969), obviate any need to characterize the theoretical literature here. For the moment let's focus on how much the current research tells us about how to do effective career counseling. In this section we will look at the two theories that are generating the most empirical research activity, and will attempt to indicate their practical contributions and limitations.

Holland's Types

John Holland (1973) provides the counselor with a plausible and appealing vocational typology. His system identifies six major "vocational types" or clusterings of vocational preferences: the Intellectual (Investigative), Artistic, Social, Enterprising, Conventional, and Realistic (Mechanical). A person's type is indicated by his or her responses to Holland's (1965) Vocational Preference Inventory (VPI). The approach is fundamentally empirical. Holland makes it clear that his system shows how people differ in their responses to his inventory; he does not try to explain the origin of these differences. The six orientations are set forth as an empirical observation. This approach is not without theoretical presupposition, however, in that it is based on an enduring trait conception of personality. An individual's responses on the VPI are treated as direct and additive signs of underlying personal dispostions (traits) which presumably do not vary greatly over time or across situations. For example, the more mechanical

interests you endorse on the test, the stronger your Realistic orientation (trait) is thought to be. If you score higher on this category than on any other, then you might be advised to consider jobs that require you to work with things more than with ideas or people. Because you checked more mechanical items (Realistic) than people items (Social) you are thought to have a strong and enduring preference for things over persons.

Holland (1973) makes the interesting suggestion that the six major vocational orientations (VPI types) are not all equally consistent with one another; a given vocational preference can be viewed as closer to some VPI categories than to others. The six types are depicted as forming the corners of a hexagon; moving about the perimeter one passes from Realistic to Intellectual, Artistic, Social, Enterprising, and Conventional (which is again adjacent to Realistic). Recent interpretative material presented with scores of the Strong Vocational Interest Blank uses this format (Campbell, 1974). VPI types that are adjacent on the hexagon are thought to be consistent with one another, while those diametrically opposed are deemed mutually inconsistent. In this scheme, a person would find it somewhat easier to reconcile interests in the Intellectual career domain (e.g., biological research) with a Realistic career pereference (engineering) than with an interest in work that falls in the Enterprising category (e.g., sales person).

Typical Questions and Methods. Most of the research on Holland's theory (roughly half of the empirical work reported) pursues one or more of the following questions and methods:

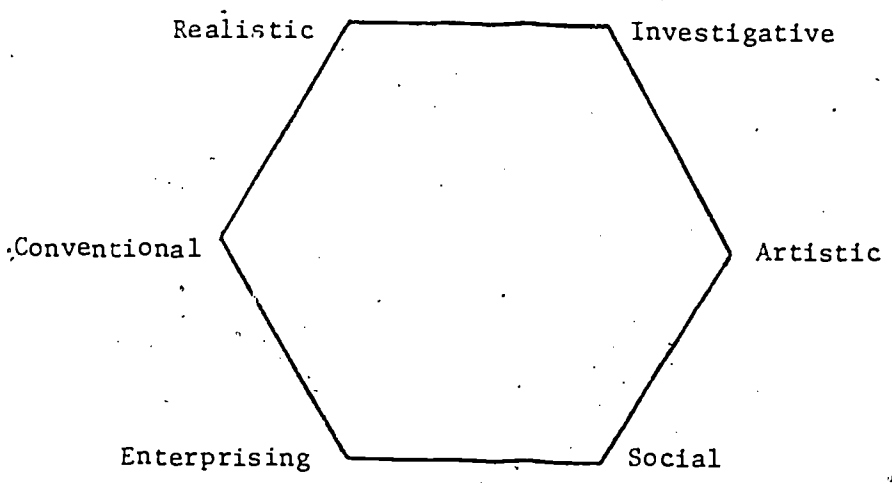

Figure 1. Relationships Among Types. Holland's hexagonal model for defining the relationships among VPI types. The shorter the distance between any two types, the greater their similarity is thought to be. (Adapted from Holland, 1973.)

1. Question: Does a person's VPI type (a) tend to agree with the VPI type of the job the person currently holds? (b) predict the VPI type of a person's future job?

   Method: Test the concurrent and predictive validity of the typology by measuring the correlation between students' VPI types and (a) the VPI type of their current majors, or (b) the VPI type of the job they seek after graduation.

2. Question: Do certain personality characteristics or traits tend to go with certain VPI orientations?

   Method: Correlate student responses to the VPI with their responses to a battery of personality tests and rating scales.

3. Question: Does a person whose dominant career interests fit "inconsistent" VPI types (e.g., illustrating vs. accounting) tend to be less stable or happy in his or her chosen vocation than a person with "consistent" interests?

   Method: Correlate students' VPI consistency measures with the frequency with which they change majors or report that they are dissatisifed with their field of study.

4. Question: Are people happier or more "stable" in their work in settings where their own VPI type is consistent with the VPI types of most people around them?

   Method: Correlate measures of student-environment VPI congruence with tendency to change majors or report dissatisfaction.

The overall results of these types of studies can be characterized as follows:

1. There is a significant association (in very large samples of college students) between student VPI type and the VPI types of their majors and the jobs they hope to get after they finish college. This relationship may not hold, however, when samples are broadened to include students of lower as well as of high academic ability (Hauselman, 1972) or when the researcher samples college graduates (Hughes, 1972). In such cases, factors such as differences in aptitude or social-economic status may become more decisive than one's vocational preferences.
2. No clear pattern of personality traits has emerged in relation to the six VPI types. Osipow (1968) claims some basis for grouping Social, Conventional, and Enterprising types compared to Intellectual and Realistic types on the basis of certain general personality traits associated with each group. In general, however, it seems that an individual's VPI type is not a good indicator of other personality characteristics measured by standard paper and pencil tests. In some cases, virtually no relationship has been found (Folsom, 1971).
3. The "consistency" of a person's dominant vocational interests has been found to be significantly related to measures of stability and satisfaction in academic settings (Holland, 1968). Inconsistent or negative findings have been reported by other investigators (Werner, 1969). VPI consistency failed to predict job satisfaction in a sample of employed males in their twenties and early

thirties (Hughes, 1972). In this last group, the consistency between a person's VPI orientation and the VPI type of job he actually held was not associated with report job satisfaction.

4. The degree of congruence between an individual's VPI type and the VPI types of other persons in the work environment has been found to be positively associated with academic achievement and "good conduct" in high school students (Dayton & Uhl, 1966). Holland reports that students in universities having a wide array of VPI types are more likely to change their majors and to report satisfaction with their choice than are students in schools having a more homogeneous VPI profile (Holland, 1968).

In sum, Holland has achieved an empirically based and intuitively appealing scheme for grouping career interests, a system that has stimulated considerable research. His theory and the studies it has inspired have not been directed at the practical needs of the career counselor. It would be unfair, however, to criticize these efforts on the grounds they they do not tell us much about how to help people make decisions, since this research has not been directed at such issues. Nevertheless, by examining some limitations of the theory and of the methods used to test it, we can gain a better idea of what kind of research we need if we are able to answer some practical questions.

Some Limitations. In terms of current counseling needs, the Holland typological approach encounters several major difficulties. In the first place, characteristics of the samples typically used by Holland to test the theory limit the practical applications of the results. The counselor who is trying to help men or women "engineer" a career change in mid-life will

need information that applies to working adults. Most of the research supporting Holland's theory has been done with college or high school students. The typology may reflect the typical structure of American academic institutions more than it reflects the real world of work. An additional difficulty for practical interpretation arises from the fact that studies of the VPI have used very large samples. Statistically, significant results reported in such investigations should not necessarily be considered clinically significant nor applicable to individual cases or small groups.

A second major limitation results from an exclusive dependence on correlational techniques. Unless experimental investigations of cause and effect relationships in career choice are undertaken, we learn little about the conditions of vocational development and change. How do career orientations develop. How difficult are they to alter? What experiences have the greatest impact on our choices and on our ability to enjoy the work we have chosen? Our inability to answer such questions severely limits the effectiveness of counseling. If we knew more about the causes of career interests and the kinds of influences that make them change or stay the same over the years, then we might know more about how to help people select, develop, and maintain satisfying careers. A vocational typology can help us classify vocational learnings but it does not tell us how to develop them into a career.

The Case of Jessica: An Enterprising Type. Consider Jessica, a recent college graduate with a major in economics. Jessica's VPI profile fits the Enterprising type: she likes to sell people on her ideas, aspires to leadership and social status. After considering a number of career alternatives she finds herself attracted to two major options. One possibility is to get

a degree in business administration and pursue a career in management. The second alternative is to study journalism with a view to writing about social and political issues. A business career would be more in line with Jessica's past interests and experiences, and is consistent with her VPI type. But Jessica's experiences as an economics major have made her aware of problems women face in a male-dominated field. She feels that as a writer she might help change people's attitudes toward women in business and industry. An interest in writing belongs to the Artistic category; it seems inconsistent with an Enterprising orientation. Should a counselor warn Jessica that she will be unhappy as a writer? Actually, the fact that Jessica enjoys persuading people and has strong verbal skills may predict success in journalism. In actual counseling it is necessary to focus on specific skills and job functions; VPI categories are too general to be of much help in individual cases.

Most new jobs demand that one learn new skills and attitudes. The functions of a business executive (e.g., administering, persuading) fit in the Conventional and Enterprising VPI categories, while the functions of the investigative writer or reporter (e.g., organizing and communicating information) belong more to the Intellectual and Artistic VPI types. The business executive and the writer seem to stand opposite each other on the hexagon. On the level of specific skills, then, does this mean that Jessica will find it much harder to perform and to enjoy the data gathering of the reporter (Intellectual) than the routine administrative duties (Conventional) of the business manager? In other words, is it easier to acquire the attitudes and skills needed to enjoy functions of a job type adjacent to your

own on the hexagon than to take on and enjoy the functions of a job type diametrically opposed to yours? Although Holland's theory seems consistent with this assumption it may not specify it. If I am counseling a successful engineer (Intellectual-Realistic) who wants to develop a new career as an industrial consultant (Enterprising), what can the existing VPI research tell me about how to help my client? Again, neither the theory nor the research it has fostered addresses this problem. Information relevant to these questions would be very useful to the counselor, but to obtain such knowledge an experimental as opposed to a strictly correlational approach is needed. Perhaps an important limitation of Holland's theory is that it does not seem to encourage such efforts.

Do Types Predict Choices? In the final analysis, much of the practical usefulness of the typology rests upon its power to predict future choices and satisfactions. Holland's (1968) own conclusion is that within large samples VPI type predicts students' actual vocational choice after graduation at better than chance levels, but is only half as effective as the student's own prediction. The best single predictor of the career that the student will choose is the student. Even the extensively developed and researched Strong Vocational Interest Blank does not give a more accurate prediction of future jobs a person will hold than does the person's own directly stated opinion (Dolliver, 1969). Further, evidence cited earlier (Hughes, 1972) suggests that the amount of agreement between the VPI category of the job a client eventually chooses and the client's own VPI type may bear little relation to the amount of satisfaction he or she experiences in the job.

Perhaps we should not expect very high predictive yields from a vocational typology. In recent years personality research and studies of aptitudes have seen a growing recognition among investigators that assessment techniques must take account of considerable stituational variability in what people feel, think, or do (Block, 1968; Cronbach, 1975; Mischel, 1968). Characteristics of persons such as interests are not expressed in identical ways over time and across situations (Insel & Moos, 1974); some trait researchers have tried to account for this fact by hypothesizing various "moderator" variables such as sex or intelligence of subject or characteristics of the setting in which a trait is assessed (Kogan & Wallach, 1964). Unfortunately the yield of moderator variable research has been very meager; individual variability still persists causing generalizations to be sharply limited.

Super's Concept

Self-concept theories (Super, 1963) account for a sizable portion of career decision research activity. Self-concept theorists assume that people have global conceptions of themselves, their abilities, and interests, which they express or "implement" through their work. Job choice is determined by a person's idea of himself, an idea that is reasonably stable yet subject to change over time. Self-concepts are elicited by means of standardized self-descriptive instruments; Q-Sorts and adjective checklists are commonly used. People are often asked to indicate adjectives that describe themselves as they really are, or as they would ideally like to be. These self-descriptions are then correlated with actual job choice, with the person's description of their "ideal" job, their reported job satisfaction or level of occupational attainment.

The following are some questions and results of self-concept research:

1. Question: Does the need to implement a self-concept cause a person to choose a career that suits his or her abilities?

   Method: Correlate people's self-esteem ratings with how they rate their own competence in their chosen vocation.

2. Question: Do people tend to implement their self-concepts by choosing roles that match the way they view themselves?

   Method: Measure the correlation between the descriptions people give of their personalities using an adjective checklist, and the descriptions they give of their jobs on the same instrument.

3. Question: Are people happier when their self-concept (self-esteem) matches the view they take toward their work role than when evaluations of self and one's work do not agree?

   Method: Correlate measured consistency between people's self-descriptions and their descriptions of the jobs they hold with their self-reported levels of job satisfaction.

Results of such investigations suggest the following:

1. Higher self-esteem is often, but not always, associated with higher levels of self-reported job skills (Greenhaus, 1971; Hughes, 1972; Mansfield, 1973).

2. People in different occupations do differ somewhat in the adjectives they choose to apply to themselves. For example, high school science teachers, engineers, ministers, and business managers use slightly different "vocabularies" to describe themselves (Hunt, 1967).

Also, college students tend to see themselves as more similar to people in jobs they prefer than to people in jobs they dislike (Ziegler, 1970).

3. People who report higher skill levels tend to be happier in their work than less skilled people, and occupational prestige has been found to be related to job satisfaction for people who are low in self-esteem (Greenhaus, 1971).

Self-Concept: Cause or Effect? Self-concept researchers have shown that there is often a significant association between the way in which people view themselves and the work they currently are performing. These associations show that there can be an important relationship between the work one does and one's sense of personal identity. A question this research does not resolve, however, is the causal link between self-descriptions and job choices. As one self-concept researcher notes, the simple observation that self and occupational concepts are significantly related does not prove that self-concepts determine occupational choice (Hunt, 1967). Self-descriptions may be as much the consequence of occupational choices or achievements as their cause; what people do in their work may determine how they view themselves. Self-perception research suggests just this kind of consequence: perceptions of myself come from observations of my actions (Bem, 1972). Do people select careers in which they are likely to do well because they hold themselves in high esteem (thus implementing positive self-concepts) or is the high self-esteem measured by the adjective checklist a consequence of the fact that they have chosen jobs in which they perform well?

Assume, for example, that we see medical students and practicing physicians using some of the same words to describe themselves. We note that

these words differ from some of the adjectives that business students and corporate executives often use to characterize their own personalities. How do we account for this? Do people who see themselves as "kind," "compassionate," "patient," and "exact" implement these concepts in medical careers while persons viewing themselves as "bold," "persistent," and "innovative" seek to express these self-evaluations in business occupations? Or do medical students tend to see themselves as "compassionate" and "dedicated" because they are trying hard to become good doctors and these are qualities doctors should possess? Do people in business call themselves "innovative" merely because they find they are forced to spend much of their time on the job thinking up new ways to get ahead of the competition?

In vocational counseling it is important to know how self-concepts develop and whether they undergo much change over time. Can inaccurate self-concepts be altered? If so, how? Recall Jessica's situation. Her responses to a self-descriptive adjective checklist are more similar to responses given by business executives than to those of professional writers. A counselor tries to help her interpret the practical significance of this fact. If self-concepts reflect relatively enduring dispositions to feel and act in certain ways, then perhaps she will be more likely to enjoy a business career. However, if one views self-concepts as more malleable, as consequences of current experiences and influences, then the counselor might place less emphasis on the checklist responses. Instead, the counselor may suggest some specific actions that Jessica might take in order to find out more about her interests or to develop her skills. Jessica's self-view would be expected to change as a function of new work experiences and feedback in whatever career she chooses. If Jessica wants to become a writer,

how can a counselor help her develop the self-attitudes and skills she will need to enjoy this work and to do it well? Again, the question is how to engineer a choice. In this case, how can Jessica be helped to change her self-concept in the direction she desires?

Few, if any, researchers in the career decision field are devoting efforts to solving this problem. Personality and social psychologists, however, have conducted explorations of the relations between performance feedback and a person's attitudes toward themselves (e.g., Bem, 1972; Rotter, 1974). Again, an experimental as opposed to an exclusively correlational research approach has been necessary. Subjects, for example, may be asked to predict their performance on a series of tasks; changes in expectancies of success on future tasks are related to positive or negative feedback regarding one's performance over the course of successive trials. Results of such studies suggest that self-concepts are changed as a result of feedback, but that this change is mediated by a number of other factors, such as achievement orientation or fear of failure (e.g., Atkinson & Feather, 1966; Heckhausen, 1969). Also, changes on one task sometimes generalize to others, thus suggesting that overall self-concepts may be altered by specific success or failure experiences.

Self-concepts (self-esteem) have been shown to play an important role in human behavior (e.g., Hannum, Thoresen, & Hubbard, 1974). Further, what is termed self-concept can be directly modified by specific training in self-instructions, reattributions, and cognitive restructuring (e.g., Goldfried & Goldfried, in press; Mahoney, 1974; Meichenbaum, 1974). The responses people give to check lists are not simply and directly related to what they do or feel about career choices. Much self-concept research highlights the

fact that people are capable of viewing themselves in many different ways, depending on the situation in which they find themselves. The self-concepts that people express to others have been shown to change with the setting in which they are elicited, with the person who requests the self-description, and with the perceived consequences of the self-revelation (e.g., Jones, Gergen, & Davis, 1962). Current self-concept research in career decision-making does not take these factors into account. At best, this research does a reasonably good job of telling us what we already know: that self-concepts and work roles tend to be related. But it does not help us untangle the complex network of causal interactions between self-estimates and occupational feedback that influences career choice and satisfaction.

Some Limitations and a Few Possibilities

Let us try to summarize some major areas needing research. From what has been said thus far, it should be clear that we will not solve the practical problems in career counseling by continuing to ask the same kinds of questions using correlational methods that currently prevail. Instead, several major changes of focus are needed.

1. Whom are we trying to help?

Most of the career research reviewed above was conducted with student samples. This fact reflects realities of convenience and need for the researcher (Thoresen, 1969). Student samples are the easiest to obtain and much counseling is directed at helping students select academic majors and first careers. With changing attitudes toward work, including the concept of continuing career development and change, and the re-entry of women into the world of work outside the home, there is a growing need to help post-college-age persons make good career choices. Thus, future research should

take account of a wider range of clients, including women, minorities, and adult career-changers.

2. Sample size: How large?

In most cases, career decision researchers employ samples numbering in hundreds or even thousands of subjects. While extensive sampling has the advantage of allowing the investigator to report low magnitude correlations that would not reach statistical significance with a smaller number of subjects, results to date are of little use in real-life counseling. In a very large sample, one simply does not have the degree of control or immediacy of observation possible with a smaller number of subjects. Research capable of producing specific information of greater relevance to counseling must make more use of carefully constructed mixed analysis of variance designs along with intensive, single-subject experimental studies (Thoresen, 1969; Thoresen, in press). Smaller, more carefully planned designs using stratified random assignment and multiple regression analyses could give researchers a much better opportunity to observe the factors whose interactions may influence career decisions. Especially needed in the early stages of the scientific cycle of inquiry are intensive, single case studies devoted to problems of the observation and measurement of individual career behaviors (Lackenmeyer, 1969). These "short-run empirical studies" (Cronbach, 1975) can reveal a great deal of information about how cognitive and emotional behaviors influence career aspirations, decisions, and satisfactions.

3. Traits and situations

As noted above, current research on vocational typologies and self-concepts does not sufficiently account for the complexity of individual

behavior. The relationship between self-attitudes and overt behavior is complex; how people feel about themselves and how they behave varies considerably with the situation in which they find themselves. Researchers need to consider the various situations in which individuals live, work, and make choices. Knowledge of ways in which situational factors influence a person's self-attitudes and occupational decisions could enable counselors to help their clients analyze and restructure their environment to help themselves develop and maintain the life style of their choice. Behavioral self-control techniques, to be discussed later, can provide the necessary bases for self-analysis and environmental change.

4. To categorize or to change?

Most career research tends to show, for large groups, what self-statements are associated with what other self-statements at a better than chance level. This kind of information gives us few clues about how to help people make real-life decisions and to enact them. What experiences help people discover what they want in life and permit them to commit themselves to moving toward their goals? We need to know what personal and environmental events tend to facilitate the decisions of individual clients. An experimental approach that seeks out causal factors through systematic control and observation could contribute much to our understanding.

A Social Learning Model of Career Selection

Krumboltz (1975) offers a comprehensive theory based on a social learning theory model of human behavior. The theory recognizes career preferences, occupational skills, and the individual's selection of courses, occupations, and fields of work as a composite of many past and present experiences, as

well as the anticipation of future experiences. These experiences are composed of four general factors, each of which interacts to influence the other factors over time. Thus, the person's behavior relevant to career decision-making is shaped by several variables over time in ways not yet understood. Four major factors have been identified: (1) genetic endowment and special abilities, (2) environmental conditions and events, (3) specific learning experiences, and (4) a set of "task approach" skills. Table 1 illustrates some of the characteristics of these four factors. The advantages of Krumboltz's social learning rationale are at least twofold. First, the theory suggests the means by which client self-attitudes and behaviors are acquired, maintained, and changed. Understanding how career attitudes and choices are formed could permit the counselor to help clients take an active role in changing the direction of their lives. Second, the theory relates directly to a social learning perspective for self-managed change. Career decision-making requires a variety of effective self-control competencies, from controlling the common impulses to simply avoid doing much of anything about careers to rearranging one's social environment to encourage task-relevant behaviors, such as preparing for final exams or maintaining one's commitment in a challenging apprenticeship program.

Instrumental Learning. Under the Learning Experiences factor, Krumboltz notes two basic types: instrumental and associative. An instrumental learning experience is one in which a person "acts on the environment in such a way as to produce certain consequences" (p. 16). Self- and career attitudes can be understood as resulting in part from our past actions and their consequences (e.g., comments from people we respect, direct results of the action

Table 1

Social Learning Analysis: Factors Influencing Career Decisions

A. "Environmental" Factors

(These factors influence the individual but are generally beyond his or her control, at least in any immediate sense. They are not amenable to change through counseling.)

1. Genetic Endowment and Special Abilities

   - Race
   - Sex
   - Physical characteristics
   - Intelligence
   - Music and art abilities
   - Muscular coordination

2. Environmental Conditions and Events

   - Number and nature of job opportunities
   - Number and nature of training opportunities
   - Social policies and procedures for selecting trainees and workers
   - Rate of return for various occupations
   - Labor
   - Natural
   - Technological
   - Social
   - Educational
   - Family and neighborhood structures

B. "Psychological" Factors

(These processes and skills determine a person's thoughts, feelings, and actions. Counselors try to help clients understand and change these "inner influencers.")

1. Learning Experiences

   - Instrumental learning experiences
   - Associative learning experiences

2. Task Approach Skills

   - Problem solving skills
   - Performance standards and values
   - Work habits
   - Perceptual and cognitive processes

Adapted from Krumboltz, 1975

itself, its impact on others, etc.). The consequences of our acts are also determined by the context or situation in which we act (e.g., where we are, with whom, what prior beliefs or preconceptions we bring to the situation).

Recall Jessica's dilemma (journalism or business). Her growing interest in a writing career, a change that is difficult to explain within the framework of a static vocational typology, is readily understandable. A series of situational analyses of Jessica's career-relevant actions and their outcomes in various settings would be enlightening. We would note what things Jessica does that are relevant to her career interests (e.g., writes an economics paper, contributes to class discussions, reads a woman's account of sex biases) and examine the consequences of these actions. We might find that her paper received an A and many enthusiastic comments from the professor, that her male classmates ignored or belittled her remarks in a discussion and that the woman who wrote the interesting article is well respected by a number of her professors. We might help Jessica estimate her enjoyment and satisfaction of possible future careers by performing additional situational analyses. What specific actions would she perform in the job and what would be their probable outcomes? Counseling would involve teaching Jessica to notice and evaluate her reactions and those of others to certain behaviors in past and current situations. She could then use this knowledge to guide her choices.

Associative Learning. The second kind of learning experience is associative. In this type, the focus is on the person's reactions to external events or stimuli. ". . . two events are paired in time or location such that the learner associates a previously neutral situation with some emotionally positive or negative reaction" p. 18). In this way, we acquire certain stereotypes about careers, e.g., "All bankers are cautious,"

"Artists are rebellious," "Engineers are practical." Holland's Vocational Preference Inventory and much self-concept research attempt to draw out a person's vocational stereotypes and to show patterns among them (e.g., people who want to become military officers tend to dislike fashion designers). Such preconceptions become a problem when they limit the range of career alternatives a person can consider or explore with any enthusiasm ("If you're not a doctor, you're just second rate," "There's the real world of business and the ivory towers of professors"). Jessica, for example, may hesitate to investigate a career in writing because her parents have frequently commented on the lamentable political biases and lack of personal integrity "among all journalists." Where such stereotypes seem to be a barrier to career exploration, knowledge of how they are formed may help the counselor suggest ways to the client of altering irrational beliefs, emotional reactions, and prejudices.

A comprehensive discussion of Krumboltz's social learning theory is not possible here (cf. Mitchell, Jones, & Krumboltz, 1975). The theory seems relevant to the needs outlined above in that it (1) views career selection and decision-making, including attitude formation, as a life-long process characteristic of persons of all ages, races and cultural backgrounds, (2) can be tested empirically with individuals and small groups, (3) suggests specific techniques for understanding and implementing client changes, and (4) presents a causal analysis of career attitudes and choices that is amenable to experimental exploration.

Behavioral Self-Control

Behavioral Self-Control is becoming a popular topic in psychological theory and practice; recently it has begin to inspire much discussion and

research. The number of published experimental case studies and controlled group experiments dealing with self-management has increased dramatically. Several textbooks on self-control have appeared recently (e.g., Goldfried & Merbaum, 1973; Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974; Watson & Tharp, 1972), and the popular literature is also starting to reflect interest in behavioral self-control (e.g., Mooney, 1974).

Self-control can be defined as those cognitive and external processes that a person engages in to bring about specific changes in his or her behavior (Thoresen & Coates, in press). Behavior is used here to include internal, covert actions (e.g., positive self-statements, imagery rehearsal of external actions) as well as external, overt actions (e.g., speaking assertively to others, rearranging one's time schedule). Self-control is not viewed as a dichotomous category distinct from something called external control (cf. Rachlin, 1974) but as a part of a continuum of varying proportions of self-generated and environmental factors. Thus it is not a question of having self-control or not, as if it were a personality trait. Instead it is a matter of how much and what kind of self-controlling behaviors can a person exercise in particular situations. Self-control, like personality, is more of a "situation specific" phenomenon (Mischel, 1974, 1975).

The reciprocal, and thus recycling influence of the person's actions influencing his environment and, in turn, the person's being influenced by that environment is crucial in understanding self-control (Bandura, 1974). Self-control should not be conceived of as some exclusive, "little man inside" homunculus that gets manifested in willpower or a drive to achieve (cf. Thoresen & Mahoney, 1974). Instead, self-control should be viewed as a series of specific learned actions that a person uses to regulate and alter certain behaviors.

As a conceptual framework, the self-control approach provides a number of promising insights into ways of helping persons solve and prevent many of these "problems of living," such as selecting a career and finding satisfaction in one's vocation. The selecting or changing of a career as well as experiencing satisfaction in it is more complicated than the personality type-career type matching or self-concept implementation studies suggest. An effective "career-decider" must develop and sustain many diverse behaviors over time. Such behaviors are the means a person uses to engineer selection and satisfaction. Specifically, these behaviors involve analyzing the environment; committing oneself to take action and maintain action; identifying and altering faulty perceptions, beliefs, and attributions; trying out new ways of acting; and restructuring the environment to promote change and foster encouragement. Clearly such actions require a great deal of self-control.

Although the logical steps of making career decisions wisely have been articulated for some time (e.g., Krumboltz & Baker, 1973), controlled studies of how to implement those actions have not been carried out. How, for example, can a counselor help an adolescent learn and actually enact the sequence of behaviors used in seeking and processing information, clarifying short-term and long-term personal goals, and managing time in order to explore career options? What are the personal skills needed by a person to engage in the ongoing process involved in career decision-making?

Major Concepts and Techniques

A tentative self-control framework has been proposed which can provide a conceptual basis for experimental studies on career-relevant behavior (Thoresen, 1975). The framework divides self-control phenomena into

four broad areas: commitment, awareness, environment, and consequences. Table 2 presents these four areas along with some examples of questions relevant to each area. We shall briefly discuss each area as it relates to some career issues.

Table 2

Four Basic Tactics with Examples of Self-Control

Tactic 1. Commitment (Developing and Sustaining Motivation)

a. Assess what you attribute your behavior to.
b. Explore your beliefs about your ability to change.
c. Find out how often you engage in positive self statements and receive encouraging comments from significant others.

Tactic 2. Awareness (Observing One's Behavior)

a. Notice what you say to yourself about problem situations.
b. Determine under what circumstances you currently engage in the behavior you want to change.
c. Notice how frequently you currently engage in the behavior you want to change.

Tactic 3. Environment (Rearranging Situations and Environments)

a. Establish a supportive environment: Teach family, friends and/or associates how you would like them to help.
b. Modify the stimuli or cues that evoke the behavior you want to change.
   - external: Rearrange your physical environment.
   - internal: Alter undesirable internal cues such as thoughts and images.
c. Develop a contract which specifies goals, behavior needed to attain those goals, and consequences for success and failure.

Tactic 4. Consequences (Evaluating and Arranging Positive and Negative Consequences)

a. Self-reward (Positive Consequences)
   - covert: Plan positive thoughts to follow successful actions.
   - overt: Plan to give yourself or have someone give you a reward for success (e.g., playing golf on Saturday, a gift, etc.)
b. Self-punishment (Negative Consequences)
   - covert: Plan negative thoughts and/or images to follow undesired actions immediately.
   - overt: Withhold a selected pleasant activity (e.g., watching your favorite TV show) or take away something you have (e.g., fine yourself 10 points each time an undesirable behavior occurs).

Commitment

This first area includes the person's attitudes, beliefs, and conceptions--what might be called the cognitive ABC's--relevant to self-change. What, for example, does the client believe about his own abilities and skills in academic type work? What are the client's self-attributions about his problem of constantly avoiding choices and shying away from new experiences? Does the person's conception of himself as someone who "never really gets off the ground" relate to his getting involved actively in career selection activities? The initial focus on commitment behaviors recognizes the need to clarify and make explicit what traditionally has been called motivation. Rather than conceptualizing motivation as a static prerequisite for change, it is viewed as developing and building commitment behaviors slowly over time. For example, helping clients recognize and alter irrational beliefs and distorted stereotypes of themselves and career areas serves as one step in creating commitment.

Awareness

Awareness is closely related to commitment. Gaining knowledge of one's actual behavior in specific situations often helps clarify and alter misperceptions and faulty beliefs (e.g., "I never . . ." or "I always . . ." statements are modified by specific frequency data). The term self-observation, sometimes referred to as self-recording or self-monitoring, characterizes the way awareness is translated into operational terms. The person learns to discriminate (notice), count, chart, and evaluate certain actions, some of which may be thoughts or images. For example, a client may notice and record the number of times she reads, writes, discusses, or thinks about three possible career options (e.g., medicine, psychiatric nursing, or social work). A dissatisfied middle-aged accountant who is starting to think about

changing careers may observe the frequency and intensity of his tension headaches or depressing moods. A high school senior may establish a self-contract in which she agrees to spend at least 15 minutes each day on career alternatives. As part of her self-control program she observes and records the number of minutes spent each day on a chart posted in her bedroom by her desk. Becoming more aware through systematically observing your own behaviors can provide the kind of data that fosters commitment as well as sets the stage for knowing what to alter in your environment.

Environment

This strategy, more technically referred to as stimulus or situational control, is concerned with physical, social, and cognitive events. As the examples in Table 2 suggest, the focus is on changing the particular features of the environment to help persons in their efforts to change. Hence a procrastinating housewife, wanting at last to convert into action her often expressed intentions of exploring part-time job possibilities, may alter her environment by placing a three by five index card by the telephone to cue her to call the Women's Career Center. A high school junior might negotiate a verbal (or written) self-contract with his counselor for reading at least twenty minutes each day about careers in forestry management, sporting goods sales, and respiration therapy. Such a contract or agreement would specify positive as well as negative consequences for completing the task. An industrial business manager confronted with a disruptive stream of personnel problems may rearrange his work schedule to be in his office in the morning, a time when he finds it easiest to listen empathically and offer constructive suggestions. He might also learn to rearrange his own internal environment in potentially stressful situations by cueing himself subvocally with self-instruction to "relax," "remain calm," "take a deep breath." Friends, spouses, and siblings, of course, represent

the most significant features of a person's social environment. As Table 2 points out, these persons can learn to provide support and encouragement for self-change. "If you're not part of the solution, you're part of the problem" aptly captures the import of arranging the social environment to support self-change. The ongoing actions required of an effective career-decider can be encouraged and maintained by systematically planning environments.

Consequences

Much of what a person does and will do is influenced directly (or indirectly) by the effects or results of his actions. Consequences experienced immediately or anticipated in the future can be engineered by the person to encourage self-change. An impressive variety of pleasant events can serve as positive consequences to increase certain actions while a host of negative or aversive experiences can provide discouraging consequences to reduce behavior. Table 2 suggests that consequences may be cognitive or external to the person.

Too often a client is routinely expected to labor long and hard in career-relevant actions without providing immediate step-by-step support and encouragement. The tedious tasks of gathering accurate and reliable information, for example, on career options is not likely to continue for long unless the person enjoys something in return for his efforts. The painstaking work of sifting and sorting through information on careers and and carefully weighing it against personal values, experiences, and abilities will remain a rarely performed endeavor unless positive consequences are provided. Clearly, if clients are to learn to view career decisions as somewhat "tentative" (i.e., as life-long inquiries in which one engages repeatedly over time), they must be taught how to arrange consequences so as to encourage and support their long term efforts.

Current Limitations

Unfortunately, self-control theory has at present outstripped its empirical data base. Most controlled studies have been concerned with selected clinical problems of adults (e.g., obesity) or a limited range of children problems (e.g., disruptive classroom behavior). Further, a preponderance of published reports have been analogue studies; college students not experiencing a problem in a clinically significant fashion have often been subjects in laboratory settings. To date no published studies using self-control processes with career behaviors have been reported. Still, existing data is promising and provocative (Thoresen & Mahoney, 1974; Thoresen & Coates, in press). There is every reason to believe that self-control processes have direct and immediate relevance to theory and research in career decision-making and vocational development.

Table 3 provides an example of how self-control processes have been used to establish a multi-component intervention program for children and adolescents. The topic, weight reduction, is not directly germane to careers, yet many of the same components could be employed in a training system to teach career decision-making.

Table 3

Self-Control Weight Reduction Program
for Children and Adolescents

Observing Actions (Discriminating, Counting, Evaluating)

1. Commitment/Cognitive Environment: Contracts are established to promote adherence; weight-relevant cognitions and maladaptive self-thoughts are identified and modified through the use of self-instruction training. Self-attribution training to replace inappropriate belief systems and to build commitment to slow but steady reduction.

Table 3 (Continued)

2. Self-Monitoring: Record quantity and quality of food consumed, eating situations, weight, selected cognitions, social behaviors.

Planning Environment

3. Family Involvement: Sessions conducted in the home, supplemented with appropriate reading material, modeling, and guided practice; specific steps outlined; contractual agreements and contingency arrangements negotiated.

   a. Support: Family trained in two specific procedures: offer praise for adherence to program objectives; never offer person food at or between meals. Juvenile trained to identify and reinforce helpful family behaviors.

   b. Stimulus Control: Entire family establishes regular eating times and location; family reduces rate of eating, food served on smaller plates, food platters not kept on table.

   c. Nutrition: Meals prepared in accordance with protein, vitamin, and caloric needs of dieter; restricted foods kept out of the house or in inconspicuous places.

   d. Negotiation Skills Training: Reduce family conflict; permit development and implementation of strategies to promote weight loss program.

4. Nutrition: Juvenile instructed in the basics of food metabolism and caloric values; importance of balanced diet; foods from various categories (highly recommended, recommended, restricted) identified; plans for eating these foods outlined; lists made and kept in conspicuous place; juvenile assists with shopping responsibilities.

5. Stimulus Control: Juvenile separates eating from other activities; eats more slowly; places high calorie foods in inconspicuous places.

6. Physical Exercises: Juvenile encouraged to participate in initially nonstrenuous and pleasurable exercise; perhaps combined with family or peer involvement programs.

7. Social Skills Training: Training in appropriate social skills to reduce isolation, provide substitute activities, relieve boredom, depression, anxiety.

8. Peer Involvement Program: Therapist meets with one or two peers identified by client; possible use of small counseling groups.

   a. Peer Support: Praise for progress and encouragement to continue in weight loss program.

Table 3 (Continued)

b. Stimulus Control: Peers would avoid eating with client at inappropriate times and places; would not offer client food.

c. Tutoring, Modeling, and Buddy System: Assist juvenile in finding alternative activities during times of temptation; model appropriate behaviors.

9. Relaxation Training: Identify and learn to use activities to reduce stress; combine with cue-controlled relaxation.

Arranging Consequences

10. Phase I--Training: Exposure to film or live models demonstrating appropriate self-reinforcement for habit change; therapist reinforcement of client habit change; parent daily reinforcement of client habit change.

11. Phase II--Self-Reinforcement: Gradual transfer of reinforcement administration to client; reinforcement for matching therapist and parent evaluations; social praise; complete self-administration and evaluation of reinforcement.

Maintenance: Maintain family and peer support, administration of self-reinforcement, use of cognitive environment; schedule meetings at lengthened intervals; focus client attention on specific strategies on a weekly basis during followup; phone calls, postcards, surprise meetings held with therapist or significant others on variable interval schedule.

12. Role Playing/Covert Rehearsal: Practice alternative responses to difficult eating and interpersonal situations. Combine with abbreviated problem-solving training.

Adapted from Coates and Thoresen, 1975.

Using Self-Control Techniques with Jessica

Behavioral self-control methods relevant to Jessica's dilemma can be seen as an extension of the general social learning model of career decision-making sketched earlier (Krumboltz, 1975). These techniques are directly linked to a major field of psychological theory and research (Bandura, 1969; Thoresen & Mahoney, 1974) and, in this way, provide an ongoing basis for revision and improvement based on a broad range of scholarly work.

Jessica's attempt to develop a career orientation using a self-control program could be enhanced by improving her skills in commitment, awareness, environment, and consequence, the four factors described in Table 2. The counselor could help Jessica develop a general commitment to the decision-making process as well as more specific commitments to particular changes. Self-awareness in the form of both quantitative and qualitative information about past and present thoughts, feelings, and external actions might help Jessica establish the general objectives she would need to guide her career search. The information search itself, as well as her own efforts at self-discovery, could be encouraged and supported by environmental planning and restructuring. Additional support for these efforts could also come from scheduling various self-rewards. It should be noted that the four major areas of self-control would not necessarily be pursued in counseling for all persons in the same sequence discussed here.

In general, the early focus in counseling would center heavily on issues of self-awareness and commitment, while later emphasis would tend to shift to specific techniques for achieving established goals, such as task approach skills, environmental structuring, and self-reward methods. However, as long as counseling continues, new awareness and commitments would tend to emerge, thus counseling must remain flexible process, calling for tentativeness and timing by the counselor. In Table 4, we present some specific self-control actions that Jessica might take in her efforts to select a career. These examples are only suggestive, yet they illustrate how self-control could be used.

Table 4

Jessica's Use of Self Control Techniques: Some Possible Examples

I. Commitment

A. Jessica makes general commitment to career decision-making process.

1. Writes brief, vivid description of:

a. Life as it will probably be if she makes no decision at all.

b. Life as it could possibly be if she makes a wise choice.

2. Discusses descr.ptions with counselor.

3. Writes self-contract to explore:

a. What she enjoys and dislikes most about her present life (classes, activities, subjects, etc.).

b. What things she does best and what she does least well.

c. What things she has enjoyed in the past and what achievements have been most meaningful.

d. What are her career-relevant skills and personal qualities, as well as specific habits or behaviors that may hinder attempt to decide wisely.

B. Jessica makes specific commitments (after finding that she has certain problems):

1. Reduce fear of asking professors for help in getting information about careers.

2. Stop procrastinating; spend more time in library reading relevant books on journalism.

3. Change her negative stereotypes about writers.

4. Learn to express her views more effectively when working with males.

II. Awareness

A. Jessica self-observes her past and current career-relevant thoughts, feelings, and external actions.

1. Writes a work autobiography describing past activities, their outcomes and her personal feelings about them.

Table 4 (Continued)

2. Observes systematically for two weeks own thoughts and feelings about when she is happiest and most depressed.

3. Observes herself coming to counseling session unprepared and embarrassed because she was afraid to request an appointment with a journalism professor.

III. Environment

A. Jessica arranges her external environment to support her career search and self-change efforts.

1. Arranges to meet once a week with several other female students to discuss what they have learned about themselves and their career interests during the past week.

2. Plans to spend 30 minutes per day at a particular desk in library reading room researching careers.

3. Places a stimulus cue (card) in each of her notebooks as reminders to research careers in library.

4. Arranges (with help of counselor) to observe models of effective self-assertion and interview behaviors.

5. Plans to increase time spent with one of her more assertive female friends.

B. Jessica arranges her internal environment to support her efforts.

1. Makes a list of "nervous" and "depressive" thoughts about herself and the future.

2. Writes a counterstatement for each thought and rehearses these new thoughts twice a day for 10 minutes each time.

3. Learns deep muscle relaxation skills from her counselor and practices them twice daily.

4. Uses relaxation skills just prior to approaching professors for information.

5. Makes a list of things about journalism that she admires and each day devotes time to these thoughts while doing something she enjoys.

IV. Consequences

A. Jessica arranges positive consequences for accomplishing desired changes.

Table 4 (Continued)

1. Agrees to give herself five points each day for 30 minutes of career reading toward a new back-pack for summer camping (150 points).

2. Buys a cup of her favorite Viennese Mocha at the campus coffee shop each time after talking to a professor about her interests.

3. Plays a favorite record while she relaxes or thinks positive thoughts about her future; immediately removes the records and leaves the room if negative thoughts intrude.

C. Jessica arranges negative consequences for undesired thoughts and actions.

1. Imagines herself receiving a rejection notice from a graduate school every time she finds herself procrastinating.

2. Arranges to contribute $1.00 to her most hated political cause whenever she fails to arrange her weekly appointment with a professor.

Some Needed Research

Let us look at some research needs mentioned earlier. First, we need to know more about how to help people make career changes throughout their lives. Career researchers should devote more attention to people who are past their late teens and early twenties. Within a social learning and self-control framework, we have suggested that career selection requires the mastery and exercise of certain cognitive and social skills. Seldom do persons at present acquire such skills. Indeed, they may not know they need such skills until they start looking for work. The waste in human hopes and counselor effort might be prevented if people were taught how to make and engineer decisions earlier in their lives. In addition to research with older groups (career-changers) investigations are needed of methods to teach decision skills to children in the primary grades (Russell & Thoresen, in press). "Later and earlier" might well be a watchword for selecting age groups for future studies.

Second, we have called attention to the low yields for counseling practice from current research on vast student populations. Almost all career research is vulnerable to criticisms that Eisner (1972) has leveled against research in education:

1. Failure to distinguish between statistical and practical (e.g., educational) significance.
2. Tendency to ask only those questions that fit a particular research paradigm (e.g., correlational).
3. Neglect of long-term changes and other effects.
4. Artificial focus on the individual apart from the natural environment.
5. Brevity or superficiality of treatment interventions.

These considerations and others mentioned earlier lead us to argue for intensive research designs: controlled descriptive and experimental case studies of single persons over time (Thoresen, in press). In addition more carefully planned mixed and stratified group designs are needed along with greater attention to person-environment relationships. Specifically, we would like to see more longitudinal studies of individual school children and adult career-changers in which several carefully chosen cognitive and social variables are systematically explored. Data from such studies would provide the base from which hypotheses could be generated and then tested using mixed factorial designs, regression analyses coupled with large scale correlational explorations. The major objective would be to get closer to individuals, to the personal, anecdotal reality of clients themselves and to build our theories out of these encounters in a systematic way. As we gradually learn more about how the characteristics and behavior

patterns of individuals respond to specific "real-life" situations and environments, we may be able then to develop more lasting generalizations (Cronbach, 1975).

Some questions about self-control techniques that merit investigation include the following:

Commitment

- Do persons who view themselves as capable of making many changes in their environment commit themselves to decision-making more readily than those who see themselves as capable of making fewer changes?
- If there is a difference in this respect, what are the implications for counseling strategies?
- What kinds of commitment are there and do they differ in terms of their ability to encourage sustained effort?
- What is the difference in outcomes between a verbal and a written commitment (contract)?
- Are contracts between a counselor less effective than one with a close friend?

Awareness

- What techniques are most effective for teaching people (especially children) to observe systematically what they think, feel, or do on a daily basis?
- How much do self-observing techniques themselves contribute to self-change (i.e., will the simple act of observing the number of times one makes a decision over the course of several days help a person become more decisive about his or her career)?

Environment

- How can observational learning and guided practice be used to teach children to make explicit decisions both at home and in school?
- What kinds of stimulus control (e.g., cueing) methods work best for people of different ages, cultures, or work/living settings?
- How can social support systems (e.g., peers) be utilized to encourage and maintain career choice activities in different settings and at different ages?

Consequences

- What patterning of self-rewards or punishments is most effective?
- How do certain situations interact to influence reinforcement patterns?
- What is the relative efficacy of tangible (material) as opposed to intanglibe consequences?
- Under what conditions is self-reward more or less effective than self-punishment in maintaining career search activities?

As can be seen, the questions can be very general or highly specific. The specificity of our questions depends on how the information will be used in a given instance.

For now, the best long-term approach would be to develop multi-component educational programs to teach self-control skills in career decision-making in specific settings or to certain client groups (e.g., elementary schools, adult career changers). These programs should be evaluated in terms of changes in specific client behaviors. Initially, we would try to discover if the total ensemble of techniques in the self-control training

program had a significant effect (in a personal as well as statistical sense). If the program achieved promising results, the next step would be to assess the relative merits of its various components by means of carefully planned factorial designs.

Career choice is a deceptive metaphor: it calls to mind a single moment of decision rather than an ongoing process. For many, counseling for career decisions means helping someone decide where to get hired. We have "impaled ourselves on an inadequate construct" to cite Kelly's (1955) apt phrase. The tragic consequence for far too many persons of existing work in career development has been a wasteland of broken hopes and barren lives (Terkel, 1974).

It is time to take a broader view of the career problem, to stop playing the matching game (e.g., personality types with job titles) and to undertake the more challenging task of teaching people how to become architects of their lives. Responsibility to our clients includes initiating them into the builder's art--those survival skills found useful in fashioning a way of life of which work is a significant part. It is as if we were preparing people to build their own houses in a time of rapid change; teaching them how to create practical and pleasing means of shelter that would be durable yet flexible to accommodate changing needs. We believe that social learning theory and self-control research can provide the materials from which sturdy careers can be built. It's time to get to work!