INCREASING VOCATIONAL INFORMATION SEEKING BEHAVIORS OF HIGH SCHOOL STUDENTS

by

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ABSTRACT

Title of Dissertation: Increasing Vocational Information Seeking Behaviors of High School Students

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Dissertation directed by: Professor Richard Hill Byrne

Purpose

This study was an outgrowth of previous research which investigated reinforcement techniques used to increase the frequency of vocational information seeking behaviors (VISB). Based on the Larramore (1971) finding that subjects (Ss) intended but did not always carry out the suggested vocational information seeking behaviors (VISB), it became apparent that additional research was required to increase the actual performance of certain career seeking behaviors. This research was designed to evaluate the reinforcing effects of the Self-Directed Search (SDS, Holland, 1970) and contingency contracts on the frequency of VISB performed by high school Ss. It was assumed that the administration of the Self-Directed Search (SDS) followed by a contingency contract would increase the performance of a greater number of VISB than the administration of the SDS alone.

Procedure

The experiment required: (1) Administration of a pretest which measured the current VISB of all 360 high school Ss. (2) Administration of treatment one (SDS and Vocational Guidance Questionnaire, VGQ I) to one group of 120 experimental Ss, and the administration of treatment two (SDS, VGQ I, and contingency contracts), to another group of 120 experimental Ss and, (3) Administration of a posttest which measured the number of VISB actually performed by the 360 high school Ss included in the experiment.

The criterion measures were: intended and actual VISB, the number of occupations listed, and the Ss' reported amount of certainty with career plans.

Findings

Evaluation of the reinforcing qualities of the Self-Directed Search (SDS, Holland, 1970) required a comparison between the pretest and first posttest mean scores of vocational information seeking behaviors (VISB). An analysis of the data indicated that 240 experimental Subjects (Ss) exposed to treatment one, (SDS and Vocational Guidance Questionnaire, VGQ I), scored significantly higher on the first posttest of intended VISB scores. It was concluded that treatment one, (SDS & VGQ I) apparently reinforced the Ss to intend to perform a greater number of VISB.

In order to evaluate the reinforcing qualities of contingency contracts, a comparison was made between treatment two (SDS, VGQ I and contingency contract) and treatment one (SDS & VGQ I) involving the criterion measures of VISB actually performed, the number of occupations listed, and the Ss' reported amount of certainty with career plans. An analysis of the data indicated that there was no significant difference at the .01 level between the two treatments. It was concluded that the use of contingency contracts did not add measureably to the SDS in increasing the experimental Ss' scores on the criterion measures.

A comparison made between the adjusted mean scores of the 240 experimental Ss with the 120 control Ss indicated that both treatment one (SDS & VGQ I) and treatment two (SDS, VGQ I & contingency contract) influenced significantly higher mean scores on two criterion measures than did the control procedures. Experimental Ss performed more VISB and listed more

occupations than the control Ss. On the third criterion measure of Ss' reported amount of certainty with career plans there was no significant difference.

Related findings also indicated significant interactions occurred between treatment, sex, and type of student on the criterion dimensions of VISB and occupations listing. College bound populations generally scored higher than the work oriented Ss. College bound males, in particular, scored the highest while work oriented males generally scored the lowest. College bound females exposed to treatment two (SDS, VGQ I, & contingency contracts) generally scored the highest of the female Ss.

In was concluded that the use of the Self-Directed Search (SDS) in educational-vocational career planning influenced the intent and performance of vocational information seeking behaviors (VISB) and the listing of occupations for consideration. The SDS apparently failed to increase the Ss' reported amount of certainty with career plans. It was also found that the technique of contingency contracting did not add measureably to the criterion measure scores. Both experimental treatments, however, appeared to influence significantly higher criterion measure scores than the use of control procedures.

Suggestions were made for futher study in the area of contingency contracting and extended use of the Self-Directed Search in other settings and with other populations.

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CHAPTER I

Statement of the Problem

Introduction

Occupational information has long been considered to be essential for the vocational choice process. Bordin (1946) and Byrne (1958), for example, maintained that the lack of vocational information and occupational inexperience have combined to restrict the number and kind of careers available to high school students. Swift and surprising changes occurring in the world of work (Moran, 1961) and within the individual himself (Erickson, 1959) have made relevant and accurate occupational information even more vital today. Realizing the importance of occupation information for good decision making, this study investigated two methods of increasing vocation information seeking behaviors required to gain a knowledge of careers and the alternatives available.

Justification and Need for Study

In discussing the advantages of occupational information for secondary school students, Paulsen (1960) demonstrated that vocational information both enriched the individual's general experience and also increased the motivation and influence of educational and vocational planning. Peters (1963) also found that meaningful career information actively involved the student in occupational exploration and provided the individual with insights into available careers. Yet, despite the importance of occupational information, it

has become evident that the schools have consistently and continuously neglected the student's career formation and exploration activities (Poll, Nation's Schools, April, 1971).

Choice of an educational-vocational career has become a crucial and challenging experience facing today's youth. Modern scientific developments such as automation, cybernation, and technology have exerted a direct impact on the development of careers and indirectly affected the individual's vocational planning and career decision (Van Hoose and Pietrofesa, 1970). New and emerging industries and professions have sprung up and multiplied the number and kinds of jobs and careers available. In addition, rapid socio-economic changes have also contributed to the career indecisions of secondary school students.

Concurrent with the external shift and emphasis in the career world, the high school student has likewise experienced the internal stress and strain of his own personal growth and development. Unstable vocational interests and undeveloped skills and talents have contributed to the individual's career indecision. Faced with the revolutionary challenges of the career world, and confronted with the evolutionary uncertainties of his own life, the student has been forced to encounter the risk and insecurity of making a career choice without adequate preparation and planning (Holland, 1966).

Recent research investigations, however, have provided new direction and help in improving the career exploration process. Krumboltz and others, (1967, 1968), have demonstrated the effectiveness of several behavioral techniques for increasing the frequency of information seeking behaviors involved

in exploring careers. According to Crites (1969), the vocational information seeking behaviors produced the "choice supply", a knowledge of careers and alternatives available. He maintained that the presence of career alternatives was the necessary condition for the occurrence of a vocational choice. Larramore (1970), on the other hand, found in his study of the methods of presenting occupational information on certain career seeking behaviors, that ninth grade students intended to explore careers, but as a group, they failed to carry out the suggested vocational information seeking behaviors. Based on the findings of the last study, it has become clear that additional research is required to discover procedures which will increase student's information seeking behaviors since such are necessary in gaining a "choice supply" for a possible career commitment.

Summarizing the need and justification for the study, it was found that relevant occupational information and active student involvement in career planning have been identified as key factors in the vocational choice process. Despite the importance of occupational information, it was also found that the schools have not solved the task of disseminating and implementing career exploration practices and specifically have not increased information seeking behaviors. In the present day of rapid socioeconomic and personal changes, high school students, now more than ever before, require assistance and structure in carrying out career planning behaviors. Additional research is required to establish new and more efficient procedures for increasing career exploration behaviors. Attending to the use of behavioral principles and specifically, the use of reinforcement procedures, the present study was designed to evaluate two methods of increasing

vocational information seeking behaviors of high school students.

Systematic Procedures of Career Exploration and Choice

For over half a century different persons have postulated hypotheses and theories relating to occupational choice which accounted for vocational decisions. While some of these theoretical approaches have not attended in great detail to systematic procedures in career exploration, the concern of this study, others have. Parson (1908), on the one hand simply matched the man with the job; Kuder (1968) and Strong (1959) measured interest; Ginzberg (1951), Super (1953), and Tiedman and O'Hara (1963) advocated a developmental approach; while, on the other hand, others like Edwards (1964) and Gelatt (1962) fashioned a more specific decision-making model. With so many changes having occurred among the youth and careers of today, Magoon (1968) developed a problem-solving model to provide the student with a knowledgeable choice of occupations and the alternatives. Many of the approaches, however, assumed without necessarily specifying the precise behaviors which assured the student's deep involvement and active participation in the career exploration process. Krumboltz and others (1968) observed that any system of vocational investigation which failed to account for the student's information seeking behaviors might prove to be intellectually satisfying, but in reality, such an approach had little or severely limited practical application.

One proponent of systematic procedures, in particular, has recognized the importance of accurate occupational information and active student involvement in career exploration. Holland has recently developed the "Self-Directed Search for Educational and Vocational Planning" (SDS, Holland, 1970). According to Holland (1971) the instrument actively engaged the student's interest.

Subjects taking the SDS knew what was being assessed. They experienced immediate feedback on the inventory's results because they scored, profiled, and interpreted their own scores. The study selected the SDS as one of the treatments designed to increase vocational information seeking of high school students.

Definition of Terms

The following terms have been used throughout the study and required further clarification:

Work Oriented Student. While in one sense all students could be considered work oriented, employment bound or job seekers, this particular term was chosen in place of the negatively laden term: non-college bound. In this study, work oriented described those students who planned to seek employment immediately after high school or pursue technical vocational training at public or private schools.

College Bound Student. This label described students who planned to attend college full time for four years or more after high school graduation.

Information Seeking Behaviors

With their extensive research on vocation exploration, Krumboltz and others (1964, 1967, and 1968) have used information seeking behaviors as the criterion to measure the attainment of the behavioral goals of vocational counseling. Mayer (1968) provided the explanation of information seeking behaviors as follows:

> Those behaviors or acts which the student performs in order to gain relevant information, ideas, or experiences regarding his conceptual framework relating to decision making, or in exploration concerning educational and vocational plans, e.g., reading phamphlets, about school or vocations, discussing financial costs of college with parents, talking to peers about the possibility of attending college, etc., (Mayer, 1968, p. 6).

The results of current research has effectively demonstrated that the attainment of these practical behaviors measureably reduced the distance between the client's goals and performance (Krumboltz and Schroeder, 1965, and Krumboltz and Thoresen, 1964).

Reinforcement Theory

The theory of operant behavior grew out of empirical studies on how behaviors are acquired and maintained, such studies dealing with the behaviors of men and animals as they acted on and interacted with the environment (Ferster and Perrott, 1968). Empirical studies of human behavior emphasized manipulable, or at least observable environments as the independent variables or causes of behaviors. The most important environmental events for determining behaviors are the consequences of acts, and the simplest kind of consequences was the event known as a reward. The functional relationship between operant behaviors and its consequences on the environment has been described in reinforcement terms as follows: "When some behavior is followed by the occurrence of a reward, or more technically a reinforcer, that behavior is more likely to take place again under similar circumstances." (Michaels, 1968, p. 71). This simple explanation of reinforcement was probably the most important single principle of behavior. It described the procedure by which the frequency of an operant performance was increased.

Contingency Contracting

The theory of operant condition has been refined and applied in several settings. Studies of the relationship between behavior and its consequences has delineated a whole new area in the field of behavioral

psychology termed contingency management. Using reinforcers, contingency management attempted to regulate the relationship between a behavior and its consequence. As a direct outgrowth of Skinner's (1954, 1958) application of operant condition principles to human behavior, contingency management, in turn, has also been refined. By negotiating a contract which focused on the agreed reinforcer to increase the frequency of a desired behavior, Homme (1969) developed a procedure referred to as contingency contracting. He has demonstrated that the principles and rules of positive contracts could be used for the management of relationships between teachers and the children they instructed. The reinforcement techniques of contingency contracting appeared to have several other possible uses in educational settings.

Research Question

In attempting to resolve some of the issues surrounding the problems and procedures of increasing vocational information seeking activities, the use of the Self-Directed Search and use of reinforcers bound into contingency contracts became the subject of this research investigation. Information was lacking about the reinforcing qualities of both the Self-Directed Search and reinforcers which are part of contingency contracts. Additional information was also required to find the number, kind, and effectiveness of contingencies necessary to increase the student's active involvement in career seeking performances. In the final analysis, testing a systematic procedure for vocational exploration activities which emphasized self-direction and problem solving was one aspect of the problem; arranging the contingencies for increased information seeking behaviors was another. The main thrust, then, of the research investigation was centered on the reinforcing qualities

of both the Self-Directed Search and contingency contracts in increasing vocational information seeking behaviors of high school students. Formally stated, the research question addressed by the present study read as follows:

> What is the effect of using the Self-Directed Search and contingency contracts in increasing the vocational information seeking behaviors of work oriented and college bound female and male eleventh grade students?

The expected outcome of the research study was that the subjects who completed the Self-Directed Search and negotiated a contingency contract would engage in an increased number of vocational information seeking behaviors.

The effectiveness of the Self-Directed Search and contingency contract as independent variables, were evaluated on the effort of these two methods on four dependent variables:

1. Intent to explore occupations and major educational fields,
2. Frequency of information seeking behaviors actually performed,
3. Number of occupations listed, and,
4. Amount of reported certainty with career plans

Criterion Variables

For the purpose of the study, external performances which were observable and quantifiable were selected as the criteria of behavioral change. Krumboltz and others (1967) have established information seeking as a rational and defensible criterion. The behaviors chosen as criterion variables included:

1. Mailing requests for vocational and educational materials
2. Reading educational-vocational materials
3. Talking with others about future vocational-educational plans
4. Viewing audiovisual educational-vocational materials
5. Listening to others explain career and entrance requirements
6. Planning to visit places of employment or schools
7. Visiting places of employment or schools

8. Attending vocational-educational exhibitions or conferences
9. Arranging to take vocational, interest or educational inventories
10. Taking vocational, interest, or educational tests, and,
11. Completing written job or school applications or career summaries

Other criteria included several commonly used ones for assessing the vocational exploration procedures. For high school students, increasing the number of occupational alternatives has generally been considered an important aspect of vocational decision process (Clark, Gelatt, & Levin, 1965). Becoming more certain about educational-vocational plans has been central to Super's concept of choice crystallization. These criteria were selected to measure the influence of the two methods selected for increasing vocational information seeking behaviors, namely: (1) The administration of the Self-Directed Search; and, (2) The administration of the Self-Directed Search followed by the negotiation of a contingency contract for the performance of vocational information seeking behaviors.

Research Questions

The following research questions were selected to be investigated by the study:

1. Does the administration of treatment one (SDS and VGQ I) influence the experimental Subjects (Ss) to intend to perform an increased number of vocational information seeking behaviors (VISB)?
2. Does the administration of treatment two (SDS, VGQ I, and the negotiation of a contingency contract) influence the experimental Subjects (Ss) to perform a greater number of vocational information seeking behaviors (VISB) than the administration of only treatment one (SDS, VGQ I)?

3. Does the administration of treatment two (SDS, VGQ I, and the negotiation of a contingency contract) influence the experimental Subjects (Ss) to list more occupations for consideration than the administration of only treatment one (SDS, VGQ I)?

4. Does the administration of treatment two (SDS, VGQ I, and the negotiation of a contingency contract) influence the experimental Subjects (Ss) to report more certainty with career plans than the Subjects (Ss) who are administered only treatment one (SDS, VGQ I)?

Research Limitations

Failure to test the effectiveness of contingency contracts alone in increasing the information seeking behaviors was a serious omission in the design of the study. While Homme (1967) had demonstrated the effectiveness of contingency contracts in the classroom setting, no research was found which tested the use of contingency contracts in increasing vocational information seeking behaviors.

The local school authorities' refusal to allow the use of the reinforcement menu developed in the pilot study (Appendix A) also limited the testing of contingency contracts in increasing information seeking behaviors. Any reinforcements permitting release time or earning of free time was rejected outright. The structured school environment limited the range and scope of reinforcement available to the students.

Another serious limitation concerned the students' self report data of VISB. While the original hope was to verify the actual number of all VISB performed by each student, the difficulty of designing and carrying out a study using a large enough N to observe the treatment effects on the criterion variables, prevented the experiment or from attaining this objective. Therefore the basis for testing the increase in VISB was the student's self report data. Further, the restriction of self report data limited the verification process to only written VISB. While students may have performed many different types of VISB, the only verifiable increase measured by this study was written VISB.

Summary

With the revolutionary developments taking place in the world of work and the evolutionary changes occurring within the lives of the high school students, a study was needed to investigate specifically the means of effecting and increasing vocational information seeking behaviors. In particular, research was required to investigate the effectiveness of the Self-Directed Search and reinforcers which were part of contingency contracts in helping students increase vocational information seeking behaviors.

While other systematic procedures for exploring careers have been developed, most vocational investigations were found wanting or inadequate. All too often the current approaches to career seeking have failed to specify the precise vocational information seeking behaviors required. Relevant and meaningful information was also found missing. In undertaking this present empirical study, it was hypothesized that the use of the Self-Directed Search and contingency contracts which employed reinforcers would help the students increase their vocational information seeking behaviors.

The novelty of this approach to career exploration was considered to be worthy of indepth research.

Chapter II has been arranged to provide a summary of significant research connected with shaping and increasing vocational information seeking behaviors required for the vocational choice process of high school students.

CHAPTER II

Review of Literature

This Chapter is a review of the current research relevant to the areas of the vocational choice process covered by the research study. The formulations of theorists, research findings, and tentative conclusions were considered a starting point for the present study.

Introduction

Seeking information about a constantly changing world of work has been both a frustrating and incomprehensible task for today's high school student. In an article by Piel (1961) a whole new concept of the future of work was expounded. In describing the subversion of the social institution of work, he maintined that the virtues of hard work and profit were rooted in the concept of scarcity and failed to be relevant to the economics or sociology of abundance. Increased output and more productive goods were bound to be accompanied by less work and decreased payrolls. In the future, according to Piel, there will be a smaller work force for production, but more time for activities highly rewarding to the individuals involved. Along these same lines, Rosen (1971) and Wolfbein (1968) analyzed the 1960 census' vital statistics of the real work world and presented implications for counseling, training, and employment of today's high school student. Above all, the last writers

stressed the importance of continuing career education in and out of school.

The need and rationale for vocational information in the career exploration process has been explained by such writers as: Gelatt (1962); Hollis and Hollis (1969); Hoppock (1967); Hoyt (1968); Krumboltz (1966); O'Hara (1968); Norris, Zeran, & Hatch (1966). Still, Dutt and others (1968); Krumboltz and Schroeder (1965); and Magoon (1964), believed that students were making important life choices on the basis of inaccurate or at best inadequate career information. Lee and others (1971), called attention to the "dysfunctional" vocational knowledge and attitudes of senior girls in several American high schools and suggested that similar conditions probably existed in many other secondary schools. McDaniels (1968) reported that young people were capable of making vocational decisions but were poorly prepared in decision making skills. There was general agreement on the value of extensive, effective, and systematic approaches to career seeking and planning in the following areas: elementary schools (Borrow, 1966; Cote, 1970); middle school (Osipow, 1970, Stanton, 1970); junior high school (Budke, 1971, Yunker, 1967); high school (Boocock and Coleman, 1966, and Hamilton and Webster, 1971); and post high school (Whitfield, 1969).

Much time and money have already been spent imparting occupational information to high school students. Cooley and Hummel (1969); the November issue of the Personnel and Guidance Journal (1970); and Ryan (1969) reviewed the various computer systems for disseminating career data. Less expensive "Do-it-yourself" approaches have been developed by

Hamilton and Webster (1971); Johnson (1970); Laramore (1971); and Martin (1967). Additional studies by Smith (1971); Sturges and other (1969); explored different methods of providing vocational information to secondary school students.

The vocational information publishing industry has become so active that Biggers (1971) recommended that less time be devoted to the novel ways of packaging career data and more effort be given to help students learn how to use career information. Occupational information, then, has taken on such importance that Crum (1971) and Marland (1971) have both suggested that the new term "Career Education" included more than older label of vocational education.

With so many changes taking place in the meaning and world of work, a new emphasis has been placed on the importance of career exploration for high school students. The explosion of educational and vocational career information and the many innovative systems used to present career data cause several questions to surface. The questions centered on these concerns:

1. Current status of work-oriented and college-bound students, the users of the occupational information.
2. Latest behavioral techniques devised to increase occupational seeking behaviors, and,
3. Results of a self-directed approach which deeply involved students in career exploration behaviors.

At present, the answers to the above questions have not been written. The following review of literature has been designed to clarify

the problem. Different approaches to career exploration remain to be tried and evaluated.

Part I of the chapter discusses the literature dealing with the work-oriented and college-bound users of vocational educational information.

Part II studies the effects of different behavioral techniques on increasing information seeking behaviors, and

Part III reviews the self-directed approach to career exploration as prescribed by Holland (1970). The current research findings which involved the work-oriented students will be discussed first.

PART I: Students' Vocational Orientation

Employment Bound

The review of the literature dealing with the employment bound revealed the obvious: both programs and students have received second class treatment in public education. In a recent survey of school superintendents, 49% of the schoolmen polled thought non college students were most unsatisfactorily served by their district's educational program, "Nation's Schools" (March, 1971). The typical "career" days, occupational brochures, and job descriptions for communicating occupational information, have, in one instance, been bound to be insensitive to the problem of work oriented youth (Martin, 1967). Analyzing the effect of group guidance and industrial tours for students classified as non-college bound, Yunkers (1967) determined that the program did not significantly change the vocational interest patterns of these students.

Doctoral studies which evaluated the effects of occupational information programs obtained mixed results. For example, the use of occupational information: helped ninth graders make more stable and realistic choices, (Hill, 1965); influenced college freshmen's trend toward greater vocational maturity, (Jackson, 1971); pointed to the need for some kind of educational or occupational experience to aid vocational agriculture students in their career development process, (Robertson, 1970); favored experimental high school students in their attempts at occupational entry, (Rosengarten, 1961); and, assisted high school seniors to align their vocational interest and choices with their interests, aptitudes, and abilities, (Zenger, 1970).

Other research theses concerned with occupational information concluded with these negative findings: senior students surveyed were not satisfied with the amount of occupational information they possessed, (Byrn, 1950); over half of the 778 vocational high school students sampled reported that their knowledge of occupational requirements and vocational qualifications came from outside the school, (Knight, 1958); in presenting occupational information the majority of Indian middle school teachers rarely used occupational materials or audio visual aids, (Neher, 1971); a short term intensified guidance unit failed to help students develop a basis for selecting occupations, (Toporowski, 1961), or achieve readiness for vocational planning, (Wilson, 1969). These recent studies pointed to the need for improved and effective information programs to meet the demands of work-oriented students.

A twofold challenge confronted the high school: (1) prepare youth to choose an occupation, and (2) provide education and training relevant to these choices, (Mondart and others, 1970). Unfortunately, as Hoyt (1970) observed, the development of vocational education has been handicapped by a biased or bigoted view which he termed: "Vocational Educationism." Hoyt explained six negative attitudes which prevented public acceptance and support of vocational education. In summary, Oelke (1966) cited three reasons why the school failed to provide a realistic approach to work: (1) low status of non-professional occupations; (2) lack of communication between vocational education and society; and, (3) teachers and counselors' lack of experience or exposure to realistic occupations. "Vocational Educationism" is a very real phenomenon and the greatest need for the school today is to integrate career education into its total program.

In addition to vocational education programs, employment bound students have also been overlooked. Analysis of the perceptions of the vocationally oriented high school graduates by Betz and others (1969) revealed their negative views of the school, for favoring the college bound; of counselors, for failing to assist them to reach satisfactory vocational decisions; of their parents, for their lack of help in resolving their problems, and lastly, of themselves, for their own inadequate self-concepts. Hoyt (1966) tentatively concluded that while high school students made decisions to consider specialized training, they received little or no attention from their counselors. Hawthorne's (1970) findings concurred with Betz (1970); and Mondart and others (1970); that

the family and friends influenced career decisions more than school personnel.

This institutional neglect of the employment bound has helped contribute to serious nationwide consequences. Borow (1966) pictured American non-college bound youth as estranged from occupational life and developing biases against certain areas of work. The 1968 Labor Department's Manpower Report on Transition from School to Work (Hoyt, 1968) cited the high rate of unemployment especially for those in low income minority group families. According to this report, the situation developed largely because of the high educational and flexible career sights that were set while job opportunities did not remain at as high a level. As a result, one of the Report's chief recommendations was for increased opportunities for students, while still in school, to gain knowledge and experience of the environments of work. Because of the vocational immaturity of eighth grade students, Dutt and others (1968) asserted that broad vocational experiences should be provided in the junior high school with narrowed and more specialized vocational training available in high school and later years.

Apart from Hoyt's (1971) work with the Speciality Oriented Students, work bound students have been an overlooked minority. Mondart and others (1967) observed that program integration and equality in educational experiences appeared to be the main concern of the work-oriented students. The empirical studies and the innovation approaches to vocational information seeking (to be discussed in Parts II and III of this chapter) offer some hope to these students. But for the present, the

conclusion is unavoidable; it appears from the literature that many employment bound programs have been ineffective and work-oriented students have either been neglected or have failed to take advantage of the existing school guidance services, (Wallace and Leonard, 1971).

College Bound

Much more work has been devoted to researching the college bound students than to the work-oriented population. Nationwide and longitudinal studies: Project Talent (Flanagan and others, 1962); Cooley (1968); National Merit Scholarship Qualifying Tests Reports (NMSQT, Watley, 1971); and the American College Testing Program (ACT Research Reports, Holland and Whitney, 1968; Holland, 1968) were but a few examples of investigation dealing with college bound populations. Other research has focused on occupational and educational aspirations and expectations of high school students (Astin, 1968), (Mondart and others, 1967), and (Smith and Jiloca, 1971). These studies indicated that while secondary school students concurred with their parents on educational aspirations, the three groups differed on occupational aspiration. Further, there was general agreement that these students appeared capable of making realistic and stable occupational and educational commitments, (Magruder, 1970 and Paulsen, 1967). There was also evidence to support the belief that educational and occupational choices have been made by 11th grade with more choices being made in ninth grade than at any other level, (Wallace and Leonard, 1971). But for those students entering college and who remained undecided, Baird (1969) determined from his research that vocational

indecision did not make them any different from the other students.

Whether the Women's Liberation Movement was the cause or the occasion remained unclear, but the research literature discussing vocational seeking of girls has increased. For example, high school junior girls were the subjects of Leten and Dodds study (1968); the post high school years were summarized by Astin and Myint (1971) and plans of career women were described by Lins (1969). From these surveys it was learned that girls planned fewer years of training and/or education than boys; were not as inclined as men to do graduate work; and were not as well informed about the probable nature and extent of their vocational participation. Another study by Lee and others (1971) investigated the effects that type of school, size of community, and social status differences has on the career plans of girls. The data reinforced the following: (1) Girls in vocational type of schools planned earlier marriage, more full time work, and less education than those attending comprehensive schools. (2) Metropolitan girls were more knowledgeable of occupations than non-metropolitan girls; and, (3) Girls of high social status indicated more knowledge of work and less concern with the extrinsic rewards of work and planned for more education than those of a lower social status.

Finally, the college bounds' dealings with school officials, especially the school counselor, came under public scrutiny. In Scott's (1966) survey of college students two-thirds of the respondents stated that their high school counselor was among the persons who gave them the worst advice about going to college. Gutsch and Milner (1969) and Kerr (1962) presented research evidence to contradict this finding. In the previously cited

study of Wallace and Leonard (1971), it was noted as the girls' level of education and occupational choices increased, their perceptions of the availability of counseling services and occupational information also increased. Counselors using large group guidance and occupational information were effective in speeding up the vocational development of undecided college students, (Goodson, 1970).

Within the framework of his study Ford (1969) noted that since college bound and counselors behaved in the same manner in making purely acturial predictions, he suggested that some counselor time might be freed from educational vocational planning with the college bound in order to spend more time with the work-oriented population. In contrast, however, Willey (1971) noted that providing high school students with college guide information did not stimulate a significant reassessment of his college preferences.

Research with the college bound population, then, has been more extensive and precise than those dealing with the work-oriented. Nationwide interest in college testing programs, emphasis on career exploration for girls and public concern about college entrance requirements were but some of the pressures responsible for this type of research. Although studies on the secondary students' level of aspiration, expectation, and achievements abound, much remained to be learned about shaping and increasing the vocational exploration behaviors of both the college bound and work oriented students.

The remainder of this chapter will examine and discuss the research on career exploration behaviors. In Part II of this chapter, the

techniques of increasing information seeking behaviors are examined; Part III is devoted to exploring the innovative vocational search system recently developed by Holland (1971).

Part II: Information Seeking Behaviors

In their review of research in psychotherapy, Strupp and Bergin (1969) keynoted: (1) empiricism, (2) innovation, and (3) evaluation as the emerging trends in psychotherapy. These same trends were apparent in the field of vocational counseling. The organization of the remaining sections of this review of literature surrounding the topic of educational vocational information seeking conveniently fit these same three categories. First, the literature which discussed the "empiricism" of reinforcement theory in increasing the frequency and variety of information seeking behaviors were listed. Any research relating to reinforcement, social modeling, simulation and gaming, and contingency contracting was included in this section. Part three deals with the "innovations" of Holland (1971), his theory (1959, 1966, 1968) and the research concerned with his vocational exploration instruments. It will be left to the final chapters to "evaluate" the effect of using reinforcement techniques with the "Self-Directed Search" to increase the information seeking behaviors of male and female work oriented and college bound high school students.

Information Seeking Behaviors

A series of doctoral dissertations under the supervision of John D. Krumboltz have examined methods of stimulating students to explore educational and vocational opportunities. One line of research has investigated the effect of reinforcement counseling and model reinforcement

counseling upon the information seeking behaviors of high school students, Hosford, (1966); (Schroeder, 1964); (Thoresen, 1964); and (Varenhorst, 1964). The dependent variable in all these studies was the same: the frequency and variety of information seeking behaviors (ISB). Information seeking behavior (ISB) was defined by Schroeder (1964), (See Ch. I, p. 4). Specific behaviors were chosen because they were able easily to be observed, measured, and counted. In discussing the direction that future counseling research should take, Krumboltz (1967) rejected gross cirterion measures of change such as grade point averages (GPA) and, instead, advocated appropriate outcome criteria such as information seeking behaviors (ISB) critieria tailored to the behavior changes desired by both the client and counselor involved, (Krumboltz, 1966).

Reinforcement

Research in psychotherapy and behavioral counseling has demonstrated that the concept of operant conditioning and reinforcement as developed by Skinner (1953, 1963), explained by Forster and Parrott (1968), employed by Krumboltz and Thoresen (1964), Michael and Meyerson (1962) and Ullman and Krasner (1965), was an effective counseling procedure for shaping and controlling behaviors. Operant conditioning has been employed for different purposes and settings such as: psychotic behavior, Allyon and Azrin (1965) in institutional setting; school phobia (Lazarus, Danson & Palifka, (1965); and in educational settings, (Lindsely, 1967).

Ryan and Krumboltz (1964) showed that by systematically reinforcing "deliberation" and "decision" types of statements during the interview, the counselor could increase, in a very short period of time the extent

to which the student continued to deliberate in the interview. The group reinforced for "decision" type responses has a tendency to make decisions outside the interview in a classroom setting.

The effect of reinforcement on the information seeking behaviors (ISB) of 54 high school juniors was observed by Krumboltz and Schroeder (1965). Both reinforcement and model reinforcing counseling techniques were employed. Reinforcement counseling consisted of the counselor interview which indicated that the student was presently seeking or intended to seek information relevant to his own educational or vocational plans. Model reinforcing counseling consisted of presenting an audio tape recording of a male counselor played to each student prior to reinforcing counseling. Findings revealed that (a) The experimentals engaged in more ISB outside the interview than the control; (b) Reinforcement counseling produced significantly more external ISB than control for females but not for males; (c) Model reinforcement counseling produced significantly more external ISB than control for males but not for females.

Other studies which employed reinforcement counseling as treatment were located: Borman (1970) found that the individual rather than group counseling reinforcement treatment was more effective with "less motivated students"; Mickelson (1970) reported that the facilitative counselors (more potent reinforcers) produced a significantly greater amount of client ISB than the non-facilitative counselors without regard to sex differences; Samann (1970) concluded that within the limitation of his study, reinforcement counseling was found superior to persuasive advice given in engaging subjects in ISB; and, Aiken (1970) noted that the reinforced "consistent"

group of students (as measured by Holland's Vocational Preference Inventory) significantly increased in ISB.

Not all studies employing reinforcement techniques reported positive gains. The results of Anderson's (1970) study suggested that the group counselor's cues (conceptualized as a set of questions designed to establish an expectation or elicit a desired ISB) were more effective than no cues or reinforcement alone, while reinforcement versus no reinforcement treatments failed to show significant differences on any of the dependent measures. In general, however, reinforcement studies provided a valid approach to increasing students' ISB (Krumboltz, 1966).

Modeling

Modeling has been generally viewed within the framework of "social learning theory" as developed by Bandura and Walters (1963); Lovas (1961); Bandura, Ross, and Ross (1961). Besides overcoming behavior deficits, eliminating strongly established patterns of maladaptive or deviant behaviors, modeling also aided in the development of new competencies (Bandura, 1962, 1969). Recent evidence showed that modeling was effective for transmitting and controlling many different types of behaviors such as: transmitting aggressive behaviors through film mediated models (Mussen and Rutherford, 1961); administering self-imposed contingencies for self-reinforcement, (Bandura and Kupers, 1964); improving study habits, (Ryan, 1966); teaching interview skills, (Del Beato, 1971); increasing adolescent vocational behaviors (La Fleur, 1970). Investigations in social modeling have stimulated research in the use of modeling procedures in counseling

(Hamilton, 1969); (Krumboltz and Schroeder, 1965); (Krumboltz and Thoresen, 1964); (Krumboltz, Varenhorst, & Thoresen, 1967); (Nelson and Krumboltz, 1970); (Thoresen, 1966); (Thoresen, Krumboltz, & Varenhorst, 1967); and, (Thoresen and Steward, 1967); and (Thoresen and others (1969).

Significant results for the use of social models in increasing ISB were reported by Krumboltz and Thoresen (1964). The study represented a replication and extension of the Krumboltz and Schroeder (1965) investigation. The authors attempted, with success, to determine which of the two counseling techniques, reinforcement or model reinforcement counseling, was more effective when applied in a dyadic or small group setting. The major findings drawn from this experiment were (a) Reinforcement counseling and model reinforcement counseling were both significantly more effective in promoting ISB in both individual and group settings than were two control procedures; (b) Model reinforcement was more effective than reinforcement counseling for males and; (c) Model reinforcement counseling was more effective for males than individual reinforcement counseling. No significant differences were found for girls between reinforcement and model reinforcement procedures or between the type of group setting.

Meyer (1968) replicated and extended to rural high school youth the behavioral counseling studies completed by Krumboltz and his associates (1964). The study demonstrated that small group counseling procedures were as effective as dyadic interviews in promoting ISB among eleventh grade students. Of interest also was the finding that females showed more and varied ISB than did the males.

Characteristics of Models

Flanders (1968) provided a review of literature dealing with "effects of antecedent characteristics" of models including the effects of such variables as: status, nurturing, sex, realism of performance, affective relationship between model and observer, and effects of antecedent characteristics of observer's sex. The sex variable has been studied in a series of investigations: Beach (1967); Krumboltz and Thoresen (1964); Thoresen, Hosford, & Krumboltz (1968); Varenhorst (1964). Bandura, Ross & Ross (1961) observed significant interaction effects which were attributable to sex of model and the learner. In other studies for example, male models and male counselors were determined to be significantly more effective in promoting ISB than female counselors and male models, (Hamilton, 1969). The sex difference between model and client appeared to have made model reinforcement counseling more effective for males than for females in the study reported by Krumboltz and Schroeder (1965). The model used in this last study was a male who discussed only male interests and concerns. In addition, of the nine experimental counselors applying reinforcement counseling techniques, eight were female which fact, the authors postulated, may have accounted for the effectiveness of reinforcement counseling for females.

Stugardt (1970) compared the effect of two distinct characteristics of a social model, namely, race and age, on the ISB of male black eleventh graders. Results indicated that a treatment based on a rewarded model produced more vocationally relevant behaviors than did control procedures. Differences due to age and race of the model were not obtained.

Stillers (1967) studied the verbal behavior of model interviewer as determinants of students' ISB. The findings, in general, supported negative answers to the experimental questions. Students exposed to the different model interviews which used planned and not planned reinforcement, did not assign significantly different ratings to the model interviewers nor did they perform significantly different numbers of ISB. Males tended to perform more ISB when the model student was verbally reinforced for appropriate statements whereas females tended to perform more ISB when no planned reinforcement was administered. Females performed more ISB than did the males in three of the four experimental groups.

A later study by Thoresen, Krumboltz, & Varenhorst (1967) examined the effects of the sex of the counselor model on the client's ISB. Findings implied that model reinforcement procedures were on the average more effective than control procedures for males but not for females. Male students responded best when males were in all other roles, while female students responded best when a male counselor presented an all male or an all female modeled tape.

In trying to determine the effective models for counseling clients of varying competencies Hosford (1966) and Thoresen, Hosford, & Krumboltz (1970) learned that while different athletic and academic model success levels caused significant differences in the frequency of ISB by the subjects, the experimentals did not consistently seek more information than controls. This discrepancy involved in the sex variable was explained by Burdon (1970) as follows:

> Part of the confusion on the sex variable seems to stem from the fact that studies such as those cited above are increased in complexity by an interaction between the sex of the subjects and the behaviors being modeled, which were usually sex typed. In such studies it was difficult to determine whether differential results were actually due to the sex of the subject or some other variable which derived from sex of the subject (e.g., ability of the subject to identify with the sexual role and status of the model). ...(1970 Review of Ed. Research, p. 439)

More research, then was called for on distinctive modeling cues for particular types of clients in increasing the frequency of information seeking behaviors.

Simulation

In addition to studies dealing with reinforcement counseling and model reinforcement counseling influencing ISB, a second line of experimental research has centered about vocational problem solving. These studies were developed at Stanford in projects directed by Krumboltz (1967, 1968) and described in doctoral dissertations by Baker (1968); Jones (1966); and Sheppard (1967). By presenting students with simulated materials, these authors attempted to focus on treatment influences upon the ISB variable. Results to date underscored the findings: (1) Problem solving career kits consistently generated more interest and more occupation seeking than control treatments, and (2) Subjects from lower socio-economic schools consistently gave more positive reactions than subjects from middle class schools, particularly in response to the problem solving approach, (Krumboltz, 1967).

The use of "gaming," a form of simulation for increasing ISB has been advocated by Abt (1966); Boocock and Coleman (1966); Cherryholmes (1966); Dawson (1962); Kitson (1924); and Wolff (1966). After observing

students participating in career simulation games, Barbula and Isaac (1967) attempted to assess student acquisition of vocational knowledge and attitudinal change toward vocational concepts. Although no statistical results were obtained, the treatment groups had a general tendency to increase hours of study in a hypothetical self-planning situation on the post test. According to the investigators, the obtained negative results were due to insensitive instrumentation.

Both the field testing of the Life Career Game (LCG, Boocock, 1967); McHenry (1969); Varenhorst (1969), and the continued research studies on the occupational exploration kits of Krumboltz, Johnson (1971); Mahoney (1971), showed that simulation has had powerful motivational effects on students' ISB. After surveying the research on occupational gaming, Forsberg (1969) pointed out that gaming by itself was not sufficient for increasing ISB but should be part of a total program which included readings, lectures, games, and critiques. Having reviewed the various approaches to increasing ISB, Burdon (1970) concluded that: simulation and gaming techniques have opened a different approach to increasing frequency of information seeking behaviors of career exploration.

Contingency Management

Contingency management, a recent development in the field of behavioral psychology, represented one of the large strides of progress made in understanding and dealing with human behavior. In essence, a contingency is a relationship between a behavior and its consequence. Contingency management, therefore, means changing behavior through the regulation of this relationship, (Berman, 1971). Much of the current research in

contingency management is an outgrowth of Skinner's (1954, 1958) application of operant conditioning procedures to human behavior. Skinner (1969) explained the "contingencies of reinforcement" as follows:

> Behavior which acts upon the environment to produce consequences--"operant behavior"--has been experimentally analyzed in great detail. Certain kinds of consequences called reinforcers (among them the things the layman calls rewards) are made contingent upon what an organism is doing and upon the circumstances under which it is done. Changes in behavior are then observed. The contingencies rather than the reinforcers are the important thing. (Education, Vol. 90, No. 2, p. 94).

Several doctoral dissertations have employed the principles of contingency management in research settings. Gloss (1969) reported on the effects of applying the contingency management principles to the behavior of three conduct disordered children. The data confirmed the predicted change in increased task response and reduced emission of behavior deemed inappropriate. Mont (1971) compared the effect of contingency management approach with that of a lecture approach in an introductory psychology course. No significant difference was obtained between the two methods of instruction. But, as more and more contingencies were studied, analyzed, and arranged, it has been possible to extend them to other more complex kinds of behavior including learning activities in educational or related settings, (April Issue of Educational Technology, 1971).

Contingency Contracting

Only the introduction of an agreement or contract distinguished contingency contracting from contingency management. The teacher who used contingency contracting promised rewards in return for the desired learning behavior by the student, (Homme, 1970). Contingency contracting began with

Homme in 1963. He observed what three year old children wanted to do (run, push chairs, etc.) and making that contingent upon more appropriate activities (sitting quietly) he discovered he could strengthen good behaviors, (Martin, 1971). In his book entitled: How to Use Contingency Contracting in the Classroom, Homme (1970) presented his systematic use of reinforcement principles in shaping and increasing the frequency of learning behaviors. The basis of Homme's approach was the principle of reinforcement: "Behavior is strengthened or weakened depending upon its consequences." (Homme, 1970, p. 2). One example would be in a classroom setting: "If you complete these five math problems, ... then you may watch TV for five minutes." As Becker (1970) observed: "The general procedure is deceptively simple; arrange the conditions so that the child gets to do something he wants, to follow something you want him to do." (Homme, 1970, p. vii). The technique appeared to have limitless possibilities for the educational and vocational exploration activities of school students.

Available literature on contingency contracting gave evidence that this approach was an effective method of influencing change in behavior at school and in other institutional settings, Foley and Wilson (1971); Hoffman (1971); Sharp (1971); and Towes (1969). Most of the studies reviewed indicated that the data were obtained from children; in educational settings; or with students' deficient behaviors, Mestanas (1972); Krumboltz and Thoresen (1969). No study, however, was found which used contingency contracting to increase the information seeking behaviors of the career exploration process.

Hanley (1970) reviewed the research involving the criteria of behavior analysis (Baer and others, 1968) in normal and special classroom. The last author cited the unsystematic application of operant principles, not the lack of reinforcement or knowledge of principles, as the main difficulty which prevented most teachers from effectively shaping academic behaviors. Another review of the literature by Altman and Linton (1971) grouped the articles according to the categories of the reinforcement employed, namely: teacher attention, peer attention, token reinforcement, and vicarious reinforcement. The studies pointed out that teachers could become effective contingency managers or behavioral engineers in scientifically controlling classroom behaviors.

Written contracts and agreements were employed by Peterson (1971) to resolve classroom morale problems between teacher and students. After six weeks of contracting the author found: improved classroom atmosphere, more positive feelings toward the teacher and students, and, more class work completed.

Contracts for grades have been tried in place of conventional marking procedures, Taylor (1971). The last study reported that an analysis of the students' responses to a 14 item attitudinal scale showed a generally favorable opinion toward the contract grading system. At Rand Junior High School in Arlington Heights, Illinois, the use of contracts has been established in the sixth grade reading program. Of the 160 sixth grade students 35% were placed on contract. Of these 77% indicated greater satisfaction in working under the contract method and felt that the classroom atmosphere was more relaxed. (Smith and Riebeck, 1971).

Contingency contracting procedures have also been employed developing tasks behaviors in the classroom, Andrews (1970); in the attainment of performance criteria in a high school chemistry course, Barrett (1971); in modifying the classroom behaviors of black adolescents, Sapp (1970); and, increasing study behaviors and decreasing disruptive and non-study behaviors, Wodarski (1970). While the sample size of these studies were small, the behavior dealt with in these investigations were of social importance and in most cases essential to the educational goals of the participants, Hanley (1971).

Besides the precise principles of contingency contracting, other behavior modification procedures employing different types of reinforcement techniques have also been used successfully in and out of the classroom setting to change and modify behavior. O'Leary and Drabman (1971); Stetter (1971); and, Towes (1969), all used tokens to increase attentive behaviors; Ayllon and Azrin (1968) used tokens to help institutionalized patients in self-care; Almen and Joseph (1968) issued coupons for attendance and achievement in class; Homme (1969), and Addison and Home (1966) have demonstrated the value of utilizing reinforcing events menus to establish control of academic and other social behaviors; and Mecklenburger and Wilson (1971) set aside a reinforcing events (RE) room which included such items as games, toys, comic books and the like, in a word, things that kids liked, and increased academic performance.

The use of contingency contracting has been expanded from the individual classroom setting to cover an entire school district. Performance contracting for human services such as counseling and rehabilitation has

been suggested by Ehrle (1970). Mechlenburger and Wilson (1971) reported contracting programs in Gary, Indiana; Cherry Creek, Colorado; and Grand Rapids, Michigan. Performance contracting for an entire school district was first implemented in Texarkana's 1969 Drop Out Prevention Program, (Blaschke, 1971). While the results of the first year program have been both encouraging and discouraging, the drop-out rate of the target populations (students who needed help in English and mathemetics) decreased from 20 to 2%. Yet, much controversy still surrounds this issue of performance contracting, (Hottleman, 1970). After evaluating the mixed results of the first year of performance contracting, Blaschke (1971) concluded that the actual existence of performance contracting and turnkey operations was progress.

Summary

In summary, then, the review of literature dealing with increasing information seeking behaviors revolved around the "empiricism" of the reinforcement principles as developed by Skinner (1953) and applied by Michaelson and Meyer (1962) and others. Krumboltz and Thoresen (1969) have tested reinforcement procedures in individual and group settings, involving reinforcement, modeling, and simulation techniques. Homme (1969), in turn, applied behavior principles in promoting contingency contracting in educational settings to modify and change behavior. The majority of the articles reviewed demonstrated the effectiveness and power of the reinforcement approach. Applications and evaluation of these techniques in other areas remains to be accomplished.

There are many different theoretical approaches to explaining the process of vocational exploration and selection. While the different career development theories overlap, one theorist has recently devised an instrument which may significantly contribute to the organization and motivation of students' information seeking behaviors. This next section reviews the literature dealing with Holland's theoretical and practical "innovations." Hopefully, Holland's approach will add to the understanding and prediction of the process of career exploration and selection.

PART III: Holland's Vocational Choice Theory

Background of Theory

Holland (1959, 1966, 1968) has developed a theory of vocational choice which states that people develop life styles (personality types) and try to implement them when they choose a vocation. He postulated six different types. Most people can be categorized as one of six types--Realistic, Investigative, Artistic, Social, Conventional, and Enterprising. Each theoretical type is a model against which the real person can be compared. Holland (1966) defined a type as: ... "the product of a characteristic interaction between a particular heredity and a variety of cultural and personal forces, including peers, parents, and other significant adults, social class, cultural and physical environment." These occupational stereotypes serve as a psychological threshold for occupational and career planning, Banducci (1970), Osipow (1968), Ulrich, Hechlik & Roeber (1966).

To implement their life styles, people choose a vocation which agrees with their personality type. Consequently, vocations are also classified according to the environment which is dominated by a given type of personality--Realistic, Investigative, Artistic, Social, Conventional, or Enterprising. When "Birds of a feather flock together ...", they created an environment which reflected the types that are present. Holland used identical terms, then, to assess interactions of both personality and environments.

In order to make vocational choices "congruent" with the personality style which allows for freedom of expression and creative response in and to the surroundings, people must seek and to some degree be attracted by the environment. To seek out one's type and environment requires both time and effort. Holland (1966) maintains that the person's search for environment is carried on in many ways and at several levels of consciousness, and over a long period of time. The process of career exploration, in particular, the information seeking behaviors necessary before a person can reasonably exercise his choice of environment, is the main focus of this paper. Holland's vocational choice theory appears to offer the reasonable and practical paramenters to help understand, control, and shape the information seeking behaviors.

Research on Holland's Theory

Holland's theory is heuristic and has suggested several areas for research Osipow (1968), and Lonsway (1969). Current research findings provided evidence for the use and application of Holland's theory in a variety of settings with different populations, and for diverse purposes. Some of

the general hypotheses of Holland's (1959) theory of vocational choice were determined apriori and only later were they examined and tested in such longitudinal studies as those conducted by Holland (1963), Holland and Nichols (1964), and Holland (1968). In agreement with the theory, vocational preferences were generally associated with self-descriptions, coping behaviors, daydreams about vocational developmental history of successive career choices, and images of vocations Holland (1963, 1964). The sample of high scholastic aptitude students studied by Holland and Nichols (1964) tended to sort themselves into fields which were congruent with their personal traits, interests, aptitudes, and achievements.

In 1966 Holland revised his theory and proposed an empirically and theoretically based classification system for vocations and major fields. Earlier versions had been reported in studies by Astin and Holland (1961); and Holland (1959). The rationale of the classification system was that vocational choice was viewed as expression of personality and if people having similar vocation choices were classified together, it would be the same as classifying similar personalities together. Holland (1966) and Holland and others (1969) introduced a hexagonal model which arranged students' occupational aspirations according to psychological relatedness. This arrangement made Holland's classification system more useful for research in the career exploration process, (Holland and others, 1970). Edwards and Whiteny (1971) subjected the data from a sizeable sample to factor and configural analysis and verified the relationships among Holland's personality types, clarified the characteristics of each type, and extended Holland's hexagonal model to new domains of assessment. Two

methods were developed by Viernstien (1971) to extend Holland's classification system to all occupations in the Dictionary of Occupational Titles. This development, along with the relation which Walls, Osipow and Ashby (1967) observed between Holland's categories and Strong Vocational Interest Blank (SVIB, Strong, 1963), added considerable face and construct validity to Holland's theory.

Personality Characteristics and Vocational Choice

Investigations based on Holland's theory were expressively extensive and the findings support Holland's theoretical constructs. Evidence from Ashby, Wall and Osipow (1966), Bohn (1966), Holland and Nichols (1964), Lo Cascios (1965), Osipow, Ashby, and Wall (1965), supported Holland's assertion of a relationship between personality characteristics and vocational choice. Each personality type tended to seek out occupational roles or environments viewed as consistent with the perception of self, (Holland, 1963). Data from Astin (1964), Holland and Richards (1966) and Skager (1966) indicated that even institutional characteristics were related to the personality types, especially, Realistic and Intellectual types, possessed more stability in the history of their occupational choice Holland (1964). Those students who changed career choices often appeared to be more dependent, to have greater potential, and to come from more permissive homes than non changers (Holland and Nichols, 1964). Personality traits and background had an influence on the student's approach to vocational decision making, (Ashby, Wall & Osipow, 1966). Results from two studies: Davis (1965) and Holland and Nichols (1964), supported Holland's conclusion that changes in career

choice occurred if the original choice was not appropriate to the individual's sex role.

Other studies have demonstrated the clear relationship of personality variables to vocationally relevant behaviors. Elton (1967) investigated the influence of personality and ability predictors in the selection of career roles and vocational choice. College freshmen who did not know their future vocational choice appeared to have less ability but enjoyed independence and democratic modes of thought more than those who chose engineer-agriculture--technical vocations. Furthermore, the two separate multiple discriminant analyses conducted by Elton revealed that (A) Personality factors accounted for the major part (61%) of discrimination in vocational choice, and (B) A conjunct dimension of ability and personality accounted for the major part (49%) of discrimination in the career role choice.

Practical Application of Holland's Theory

The literature abounded in research applications of Holland's theory. For example, choice of educational institutions, Astin and Nichols (1964); Blasi (1971); choice of college major and stability of such a choice, Morrow (1971); Richards and Holland (1965); Walsh and Russell (1969); predicting a students' vocational choice, Fortner (1970); Holland and Lutz (1967); predicting male occupational constancy and change, Elton and Rose (1970); prediction of occupational level, Stockin (1964); and studying work values as related to Holland's six personal orientations, Krause (1970) are some of the many different purposes connected with research efforts.

In like manner different types of male populations have been investigated within the framework of Holland's theory. College students were: assessed by Abe, Holland, Lutz & Richards (1965); described by Abe and Holland (1965a, 1965b); and, involved in a longitudinal study (Holland and Nichols, 1964). In another study, Holland (1968) demonstrated that adolescent stereotypes of the six occupations were consistent with Holland's theoretical formulation of the model category they represented. Peck (1970) applied the theory of vocational choice to community college students. Lucy (1971) observed that college graduates chose and remained in occupations consistent with their personality types. Patterson, et al. (1971) showed that occupational therapists corresponded to the Social personality types of Holland's theory. Most of Holland's studies have focused on the male populations of the National Merit Scholarship Finalists, Osipow (1968). However, Parson's (1971) study noted the relevance of the theory for the vocational selection of older men (age 45 to 59) presently working in the labor force and for the study of occupational mobility. Rose and Elton (1971) concluded that at present Holland's system of classifying occupations appeared to apply for predicting male choices only.

Holland's theory has been criticized by several. Isaacson (1967), and Hollifield (1971) charged that it oversimplified the process of vocational development. Others, Carkhuff, Alexis, & Anderson (1967), suggested that Holland's framework failed to meet the criteria of a true "theory." Negative findings were reported with the following research investigation: Holland's typology had limited practical applications for predicting academic and college counseling behaviors, Ingram (1969); although some support

was found for the Occupational Level hypothesis, Holland's theory was much too simplistic to be validated in the adult employment world, Hughes (1971); when primary and secondary vocational patterns of 493 freshmen males were compared to Holland's hexagonal model, Foster (1970) saw little empirical relationship between Rotter's social learning theory and Holland's theory of vocational choice, despite the similarities which seemed to exist at a theoretical level; Livent (1971) failed to find a significant relationship between existing Holland's independent variables (congruency, consistency, and homogeneity) and Erickson's concept of ego identity.

The final criticism of Holland's theory came from Holland and Whitney's (1969) review of vocational development theories. In general, they concluded that Holland's (1966) revision was more systematic and inclusive; definitions of the major concepts were more explicit and the theory was extended to deal with personal development and other behavior. The theory, however, still contained ambiguities and many complex and unnecessary concepts.

Vocational Preference Inventory

The Vocational Preference Inventory (VPI, Holland, 1965 Sixth Revision) has been devised to assist in the development of a scheme for assessing the major constructs in a theory of vocational choice and personality theory, and for the psychological classification of vocation and college majors Holland (1959, 1966, 1968). The instrument was described in the manual (Holland, 1965) in this fashion:

> The Vocational Preference Inventory (VPI) is a personality inventory composed entirely of occupational titles. A person takes the inventory by merely indicating the occupation which he likes or dislikes. The complex clusters of personality traits which the inventory assesses yield a broad range of information about the subject's interpersonal relations, interests, values, self-conception, coping behavior and identifications. (VPI Manual, p. 91)

Both the inventory and theory have undergone investigation so that the meanings attributed to the scale score had some validity (Holland, 1961, 1963, 1964, and 1965).

While its primary purpose was to assess personality the VPI has been used for several other purposes such as: (1) occupational inventory; (Holland, 1958); (2) an assessment of personality types according to Holland's theory of vocational choice (1959, 1963, 1964, and 1966); and, (3) an instrument to increase occupational exploration among high school and college students, (Holland, 1965). The brevity and inexpensive efficiency of the VPI was an attractive feature. As Holland (1965) remarked: "The VPI's most desirable use is as a brief screening inventory for high school and college students and employed adults." (p. 91 Manual)

Reliability of Vocational Preference Inventory

The latest revision of the VPI indicated that the present scales were relatively homogeneous and independent, and contained few overlapping items, Holland (1965). Scores on the 14 item scales reported reliabilities (KR -20) ranging from .83 to .89 for 6289 male college freshmen and from .76 to .89 for 6143 females, Holland (1966). "In another investigation, Clark (1961) cited an unpublished study by Albitz reporting reliabilities

ranging from .73 to .89." (p. 7, Manual 1965). Finally, in stating the test-retest reliability coefficients and the internal consistence of the items of the sixth revision, the manual produced evidence to support reliability scores ranging from moderate to high.

Validity of Vocational Preference Inventory

The examination of the VPI's validity focused first on the constructs and then on its predictive usefulness. The development and revision of the VPI has been intimately connected with the construction and revision of Holland's theory. As new constructs were invented, complemented and revised, new scales and subsequent revisions were added to the VPI. As a result of this intertwinement of theoretical constructs with the practical applications of the scales in research, the determination of the construct and predictive validity of the VPI has been an endless and complex process Holland (1965).

1. The construct validity of the VPI has been tested in many different settings and with diverse populations such as: psychiatric and TB patients, drug addicts, prison inmates, employed adults, and high school and college students, Astin (1963); Fairweather (1960); and Holland (1958, 1962, 1965); and Lopez (1962). In the research conducted to establish the construct validity, the VPI scales have been intercorrelated with several personality scales. On study observed the similarities between the Sixteen Point Personality Factor Questionnaire (16PFQ, Cattell, 1960) and the VPI. The resulting intercorrelations provided support to the construct validity and the meanings attached to the VPI scales. Also, a factor analysis by Forsythe and Fairweather (1961) supported some of the constructs in the VPI.

Several other correlational studies have investigated the relation of the VPI with other assessment instruments. The manual (VPI, Holland, 1965) provided evidence for the intercorrelations between some of the Strong's Vocational Interest Blank (SVIB, Strong, 1963) and the Kuder Preference Record (KPR, 1968) scales. Wall, Osipow and Ashby (1967) observed the cannonical correlations of the SVIB and the Edward's Personal Preference Scale (EPPS Edwards, 196), and noted that the VPI was more an interest than a personality measure. But even though the VPI items had more in common with the SVIB than the EPPS, it could not be substituted for the SVIB. In another study Navran and Kendall (1971) saw that the six cannonical roots extracted in their study, suggested six underlying constructs common to both the SVIB and the VPI. Finally, the joint use of the Kuder Preference Record (KPR) and the VPI was compared by Rezler (1967). While the results indicated that these two instruments measured different factors and could not replace one another, the data from this and the above investigations have provided construct validity for Holland's theory and his Vocational Preference Inventory.

2. The predictive validity of the VPI has also been investigated. In a series of vocational choice studies, Holland (1962) found for students of high ability, that the VPI was only moderately successful in predicting choices of major fields and vocations for only a one and two year interval. Prediction in achievement such as grade point averages, extracurricular accomplishment and originality in fields of arts, literature, and science have been reported in the VPI Manual, (Holland, 1965); Holland and Astin (1962); Nicholas and Holland (1963); Winkleman (1960). Even though these

differences were statistically significant, the predictions were too inefficient to be of value.

Holland and Lutz (1967) and Rose and Elton (1970) compared the predictive validity of a student's expressed vocational choice with the predictive validity of his scores on the VPI. They concluded that asking the student about his vocational choice or asking him about his vocational intentions or role were almost twice as efficient as the VPI in predicting vocational choice. In a comprehensive review of the literature on vocational behavior and development, Crites (1968) reported correlations between expressed and inventoried interest ranging from .40 to .50. Nelson (1971) used the VPI as one of the instruments to compare the responses of individuals who inconsistently reported their professed and inventoried interests. The outcome of this study was similar to Cooley's (1967) findings which pointed out " ... stated career plans (a one item test!) predicted later careers as well or better than did an entire interest inventory." (1967, p. 1). In a review of a large sample of longitudinal studies Whitney (1969) also stated that a persons' expressed vocational choice predicted his future employment about as well as interest inventories or combinations of personality and background characteristics. Holland and Lutz (1967) suggested that interest inventories should be used with greater discrimination.

The relationship of measured interest to personality and talent has also been the subject of several involved studies. The American College Testing Survey (Abe, Holland, Lutz, & Richards, 1963) attempted, with some success, to obtain a more complete account of the typical college student and of the variations from college to college. Baird's (1970) study was

an outgrowth of this ACT survey. Using the VPI, Baird identified some of the patterns of interest consistent with Holland's theory. But since the relationships found were at best moderately strong, the measure of vocational interest could not be substituted for measures of goals, self-concept, or potential.

Other Applications of the Vocational Preference Inventory

Research studies differing in scope and purpose have employed the Vocational Preference Inventory (VPI, Holland, 1965). For example, cognitive styles and educational-vocational preferences and selection, Osipow (1969); differentiating the non-intellectual characteristics of High and Low scores on the ACT, (Bott, Giblette, Magoon, 1965); validating Holland's hexagonal configuration of occupations with rural high school youth, Crabtree (1971); describing the personality profiles of counseled and non-counseled college students, Magoon, Magrab, and Giblette (1967); examining students' satisfaction with their choice of college major, Morrow (1971); predicting college grades and extracurricular achievements, Nichols (1965); predicting the types of vocational choice and helping counselors to implement Holland's theory, Peck (1971); comparing VPI high point codes and educational preferences, Osipow and Ashby (1968); determining perseverance in engineering students, Southworth and Morning star (1970); classifying personality types of the dimensions of consistency-inconsistency and homogeneity and heterogeneity bases, Thomas (1971); and, analyzing the conflict between freshmen roommates, Williams and Giblette (1967), are all evidence of the usefulness and versatility of the VPI in research investigations.

Not all studies using the VPI reported positive results. Walker (1964) attempted to identify freshmen underachievers with this instrument. He concluded that the scores generated on its scales could not be used to discriminate among overachievers, achievers, and underachievers. In another study, faced with the question concerning the appropriateness of the VPI normative data, Scott (1968) was unable to draw any firm conclusions concerning the utility of Holland's theory for practitioners of employee selection and college placement. Occasionally, as Holland observed (1965), the VPI seemed to produce invalid results. In any event the instrument was never designed to be used alone, but only in combination with other psychological and sociological data. But despite its limitations and weaknesses, the research examined, has provided support to the reliability and validity of the VPI and credence to the theory and rationale underlying its construction and interpretation.

Self-Directed Search

In addition to the Vocational Preference Inventory (VPI), Holland has recently developed the "Self-Directed Search for Educational and Vocational Planning" (SDS, Holland, 1970). Holland (1971) estimated that 50 to 60% of the student and adult population would find this first level of help sufficient for their vocational educational career explorations. Since the SDS has just been published, few empirical studies have been located which revealed its usefulness and limitations in research investigations.

Most of the evidence dealing with the entire SDS has been collected on incoming college freshmen at the University of Maryland. During the summer orientation program at Maryland, Sedlacek, Collins, and Kimball (1971) administered the SDS to 5109 incoming freshmen. The data have led to a series of related studies on the SDS. Collins and Sedlacek (1971) compared the summary codes of 458 extremely satisfied users of the SDS with the codes of 343 completely dissatisfied subjects. The latter group had a significantly larger proportion (20%) of students whose summary codes did not correspond to any occupation than did the satisfied group (10%). The same data also showed that the satisifed group received more Artistic and Investigative codes while the dissatisfied group obtained more Conventional scores. Based on the structure of the SDS, the writers hypothesized that these outcomes might well be explained by educational and cultural backgrounds rather than vocational interests of the users.

Since the SDS summary codes depended to some extent on the competencies and experience or exposure to occupations, Kimball, Sedlacek, & Brooks (1971) raised the question whether the instrument was an appropriate one to use with black students. They hypothesized that the SDS might direct educationally and culturally deprived blacks to consider more Realistic occupations which did not require a college education. The study compared the patterns of vocational exploration choices for both black and white college freshmen and determined student satisfaction with their SDS summary codes. Findings disclosed that blacks were inclined to choose Social occupations more often than whites who selected Realistic and Investigative choices. No significant difference was found between blacks and

whites with regards to satisfaction with the results of their SDS summary codes. The study's conclusion was that the SDS was equally appropriate for both blacks and whites.

The level of education attained by the parents of those completing the SDS was investigated by Lewis and Sedlacek (1972). From a stratified sample of incoming college freshmen in the summer of 1970 two groups were selected for study. The "High" group contained subjects whose fathers had at least an undergraduate college degree; the "Low" was comprised of subjects whose fathers had less than a high school education. Analysis of the data pointed out that both "High" and "Low" groups aspired to similar occupations. But the "Low" group revealed a significantly large discrepancy between their day dreams (level of aspirations) and their summary codes. When compared to the day dreams, the "Low" group obtained more Conventional and fewer Artistic summary codes and chose summary codes requiring less schooling than did the "High" group. It appeared from this study that the SDS is influenced by the socioeconomic level of the users. The writers mentioned that this finding may have significance for those subjects using the SDS without the aid of a counselor.

Edwards and Whitney (1971) administered the SDS to a sample of 358 men and 360 women. In their attempt to verify the relationship between Holland's personality types, the writers subjected the data to factor and configural analysis. The findings offered strong empirical support for Holland's hexagonal mode, the occupational classification system, and the structure of the SDS.

In an attempt to provide test-retest reliability data for the SDS, O'Connell and Sedlacek (1971) randomly selected 65 of 144 beginning psychology students who were willing to retake the SDS seven to ten months later. The second assessment showed relatively little change in the subject's summary codes. Median reliability coefficients were reported as follows: .75 (Pearson Product Moment), .87 (Average Common Element), and .92 (Spearman Rho). Thus, the data collected at the University of Maryland showed that the SDS possessed an acceptable amount of reliability for an educational and vocational planning instrument.

Finally, Zener and Schnuelle (1972) administered the SDS to 1092 secondary students in four different high schools. Two versions of the SDS were employed. One group took the regular published version containing the self-directed aspect; the other group took a second simplified version which combined the VPI, day dreams, immediate scoring and a list of occupations which corresponded to the subject's final three letter code summary. Results of the instrument's evaluation indicated that: (1) students taking either version of the SDS increased the number of occupations considered; those students using the regular published version considered more congruent occupations than those who took the non self-directed version; (2) students taking either version were more satisfied and certain about their vocational plans. Also, while students taking the published version reported less need to see a counselor immediately, the control group indicated less satisfaction and certainty by expressing a greater need for information about specific jobs and training programs. Finally, (3) neither version had any effect on the information seeking behaviors of the subjects or their

knowledge of chosen occupation. The last finding has significance for the present study.

Relationship of the Review of Literature to the Present Study

The discrepancy that Zener and Schneulle (1972) found between the effectiveness of the SDS, on the one hand, to increase the number of occupations a subject considered and, on the other hand, not to have any effect on information seeking behaviors of the students was an intriguing result. What approach could be used to increase the ISB necessary for the vocational choice process? The review of literature dealing with the different types of high school students pointed out that while the work oriented population was neglected and overlooked in vocational educational programs, much remained to be learned about shaping and increasing the vocational exploration behaviors of the college bound. The research concerned with reinforcement principles and techniques, Krumboltz and others (1964, 1965, 1967, 1968); Michaelson and Meyer (1962); Skinner (1953, 1962); and, Ullmann and Krasner (1965); and in particular the recent research describing contingency contracting Homme (1969, 1970), has attested to the effectiveness of the reinforcement procedures in influencing and shaping behaviors in the educational setting. On the other hand, evaluations of Holland's theory and his vocational exploration instruments (VPI and SDS) has provided sufficient evidence for the validity, reliability, and usefulness of this theoretical and empirical approach to vocational exploration.

The combination of these two approaches, reinforcement techniques, especially contingency contracting, with Holland's vocational exploration instrument, the SDS needed to be evaluated. High school work oriented and college bound male and female eleventh grade students require assistance and direction in completing their career exploration. The focus of the study, then, is to consider the effectiveness of using behavioral contracts with Holland's Self-Directed Search in increasing the frequency of information seeking behaviors of high school students.

The remaining chapters will be devoted to describing, explaining, and analyzing the results of the experiment.

CHAPTER III

Design of the Investigation and the Experimental Procedures

Problem

This study investigated two methods of increasing the vocational information seeking behaviors of high school students. In particular, the research investigated the reinforcing effects of the Self-Directed Search (SDS, Holland, 1970) and contingency contracting (Independent variables) on the information seeking behaviors (Dependent variables) of eleventh grade male and female work oriented and college bound students. The four specific dependent criterion variables were: intended and actual vocational information seeking behaviors and the number of occupations listed along with the amount of certainty with career plans.

Research Hypotheses

Four hypotheses were tested by this study:

1. Subjects (Ss) administered treatment one(SDS&VGO I) exhibit an increase in the number of vocational information seeking behaviors they intend to perform.
2. Ss administered treatment two(SDS&VGQ I followed by a contingency contract)actually perform a greater number of information seeking behaviors than those Ss who are administered only treatment one (SDS & VGO I).

3. Ss administered treatment two (SDS&VGQ I followed by a contingency contract) list more occupations than the Ss who are administered only treatment one (SDS&VGQ I), and,
4. Ss administered treatment two (SDS&VGQ I followed by a contingency contract) report more certainty with career plans than those Ss who are administered only treatment one (SDS&VGQ I).

Sample and Population

The study was carried out during the 1971-72 school year in two public senior high schools located in Montgomery County, Maryland. The first school was characterized by an extensive vocational and educational program and had a number of students on a part-time work program or preparing for a trade or technical occupation (Wheaton High School Guidance Department, Personal Communication). The 1969 follow-up study conducted by the Montgomery County Public Schools (MCPS, OEMIA, 1970) indicated that 48.1 of the first school's 1969 graduates continued their education in 1969-70 and 25.9 found employment. The same follow-up study also showed that the second senior high school was oriented toward the college bound with 73.2 of its 1969 graduates continuing their education in 1969-70 and 24.4 found employment.

A pretest, entitled Student Interest Questionnaire (SIQ, Appendix B) was designed and administered to the sample population by the investigator. This screening device was presented to the 1,282 eleventh grade students in the two senior high schools. Only the students who agreed to complete the SIQ were considered for the study. A total number of 1,192 agreed to participate.

The school with the work oriented population had an eleventh grade enrollment of 700 students. In administering the SIQ it was found that some 62 students indicated that they did not wish to participate in the study. Another 282 students were dropped from the study because they classified themselves on the SIQ as college bound students. At the school with the college bound population, 198 students indicated on the SIQ that they planned to seek employment after high school, and so, were dropped from the research investigation. In addition, the 58 absentee students who failed to complete the SIQ brought the total number of subjects at the college bound school not included in the study to 284. Of the 502 students enrolled, some 298 college bound students were considered for the experimental program.

Randomization Procedures

Randomization, according to Campbell and Stanley (1963), has been considered a necessary condition for the internal validity of an experiment. In order to achieve pre-experimental equation of the treatment and control groups, Ss were randomly assigned to treatment groups.

The randomization procedures employed for both the work oriented and college bound were identical. Using a table of random numbers, 360 subjects, 180 males and 180 females were randomly selected and assigned to form 12 groups of the same size with an N of 30, equally divided by sex and vocational orientation of the student. At each school six equal sized groups were randomly assigned to one of the two treatments or controls.

Subject mortality was not a problem. In the event of attrition or absenteeism, a pool of ten alternates was selected for each group. Thus, at

each school there were three all male and three all female groups size 30. At the first school there were six work oriented groups (three all male and three all female) and at the second school there were six college bound groups (three all male and three all female). The total number of students randomly selected and assigned was 480; however, the number of students actually employed in the study numbered 360. The sampling unit arrangement is presented graphically in Table I.

Experimental Design

The statistical design was a 3 X 2 X 2 fixed factorial with Level A consisting of two treatments: (1) the Self-Directed Search alone, and (2) the Self-Directed Search used in conjunction with a contingency contract negotiated within the selected groups. An appropriate number of controls were also included. The second dimension (B) was a blocking dimension which separated males and females. The third and final dimension (C) was the vocational orientation of the student (work oriented or college bound).

Dependent Variables

The dependent (criterion) variables chosen for use were each selected in terms of possible effects the contingency contract might be expected to have on student information seeking behaviors. Four such information behaviors were selected for study. These behaviors and the essential means utilized in converting each to a quantitative measure were:

Student Information Seeking	Criterion Measure Used
1. Stimulate intent to explore occupations and careers	1. Summated rating scores of the student's statements expressing intent to explore occupations. (Post treatment).
2. Increase actual exploration of occupations and careers	2. Summated rating scores of the student's statements expressing actual information seeking behaviors performed. (Post minus pretest of information seeking statements).
3. Listing of occupations and careers of interest	3. Larger number of occupations listed (Post minus pretest scores).
4. Increase the amount of certainty with vocational-educational plans.	4. Higher certitude score (Post minus pretest scores).

Table 2 summarized the dependent variables and the nature and level of the treatment employed.

Instrumentation

All measuring instruments were designed by the investigator. Some items were based on the questionnaires developed by Zener and Schnuelle (1972).

Student Interest Questionnaire (SIQ, Appendix B)

This 56 item questionnaire was employed to separate students by sex (B) and by vocational orientation of students (C), item one. Some 48 other items were designed to provide a summated rating score in eleven different areas of current information seeking behaviors. The remaining items were devoted to measuring these variables:

TABLE I

Graphic Representation of Basic Statistical Design

	Work Oriented School	College Bound School
Type of Student	Work Oriented	College Bound
Treatment I SDS Alone	Male 30 Female 30	Male 30 Female 30
Treatment II Behavioral Contract	Male 30 Female 30	Male 30 Female 30
Treatment III Discussion of Counselor's Role and Functions	Male 30 Female 30	Male 30 Female 30

N = 360

TABLE II

FACTORS INCLUDED IN THE STATISTICAL DESIGN UTILIZED FOR ANALYSIS OF CURRENT INFORMATION SEEKING BEHAVIORS, INTENT TO SEEK INFORMATION, ACTUAL INFORMATION SEEKING BEHAVIORS PERFORMED, AND THE NUMBER OF OCCUPATIONS LISTED AND THE REPORTED AMOUNT OF CERTAINTY WITH CAREER PLANS

Factor Codes (C)	TYPE OF STUDENTS:	COLLEGE BOUND						WORK ORIENTED						NATURE AND LEVEL OF TREATMENTS
		I		II		III		I		II		III		
(A) Treatments		SDS Alone		SDS and Contingency Contracts		NO Treatment		SDS Alone		SDS Contingency Contracts		NO Treatment		1. A pretest, Student Interest Questionnaire, (SIQ) was designed to measure: (a) Current Information Seeking Behaviors, (b) Listing of occupations, (c) Certainty with career plans, (d) Type of student, college bound or work oriented, and, (e) Interest in participating in the study.
(B) Sex		Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	
	ONE WEEK	30	30	30	30	30	30	30	30	30	30	30	30	
		X	X	X	X	X	X	X	X	X	X	X	X	
		X	X	X	X			X	X	X	X			2. SDS with the Vocational Guidance Questionnaire I (VGQ I) to measure intended information seeking behaviors.
				X	X					X	X			3. Negotiation of contingency contracts for performance of information seeking behaviors
						X	X					X	X	4. Group discussion to examine the role and function of the high school counselor. Same amount of time as administration of SDS
	SIX WEEKS													
		X	X	X	X	X	X	X	X	X	X	X	X	5. Vocational Guidance Questionnaire II (VGQ II) to measure gains in: Information seeking behaviors actually performed, occupations listed, and certainty with career plans.
		X	X	X	X	X	X	X	X	X	X	X	X	6. A ten per cent review of self-reports of information seeking behaviors

(1) Listing of occupations and careers of interest (item two).

(2) Certainty with career plans (items three and four).

A reliability study was conducted using two eleventh grade classes in a third Montgomery County Public Senior High School. There were approximately twenty-five college bound students in the eleventh grade English class and twenty work oriented students in the general business class. These students completed the questionnaire and then a week later took the same questionnaire a second time. The test-retest Pearson Product Moment Correlation of information seeking behavior scores was reported at r = .93 for the college bound students and r = .94 for the work oriented students. Other correlation scores for occupational listing, certainty with career plans, presented substantial evidence for acceptable reliability scores on these items. The results are shown in Table 3. The SIQ instrument, then, appeared to possess sufficient reliability for the purpose of the investigation.

Since the questionnaire items were based on the scales developed by Krumboltz and Hamilton (1969), Zener and Schnuelle (1972), they also appeared to have sufficient fact and construct validity to measure information seeking behaviors under investigation.

Vocational Guidance Questionnaire I (VGQ I, Appendix C)

The instrument was identical to the SIQ except it measured intended information seeking behaviors (question 5, items 1-48) rather than current ISB. After completing the SDS the subjects stated their intended information seeking on the VGQ I. The summated rating score and the other item

TABLE III

PILOT STUDY RELIABILITY TEST OF THE PRETEST INSTRUMENT: STUDENT INTEREST QUESTIONNAIRE (SIQ) SCORES ON THE DIMENSION OF REPORTED INFORMATION SEEKING BEHAVIORS, THE NUMBER OF OCCUPATIONS LISTED, AND THE REPORTED AMOUNT OF CERTAINTY WITH CAREER PLANS, USING TEST - RETEST RELIABILITY PROCEDURES

	INFORMATION SEEKING BEHAVIORS	OCCUPATIONS LISTING BEHAVIORS	CERTAINTY WITH CAREER PLANS
COLLEGE BOUND	$\frac{6176}{6628} = .93$	$\frac{130}{306.9} = .42$	$\frac{92}{501.2} = .10$
WORK ORIENTED	$\frac{8843}{9343} = .94$	$\frac{204}{423.2} = .48$	$\frac{65}{228.9} = .24$

scores depended on the Student Interest Questionnaire for its reliability and validity.

Vocational Guidance Questionnaire II (VGQ II, Appendix D)

Six weeks after the administration of the SDS and VGQ I, all 360 subjects took the VGQ II. The post test questionnaire was identical to the SIQ except that it provided a summated rating score of information seeking behaviors actually performed (Question 5, items 1-48), other scores on occupational listing (item 2), and certainty with career plans (items 3 and 4). The Questionnaire also depended on the Student Interest Questionnaire (SIQ) for the reliability and validity of its scores.

Self-Directed Search for Educational and Vocational Planning (SDS, Holland, 1970) (Appendix E)

Two instruments were used in the study for the purpose of increasing information seeking behaviors of the students involved. The first was entitled: Self-Directed Search for Educational and Vocational Planning (SDS) and was derived directly from the VPI (See Chapter II for a review of research). In his Presidential Address, Division 17, APA, 1970, Holland described the SDS as follows:

> The Self-Directed Search for Educational and Vocational Planning (SDS) is a self-administered, self-scored, and self-interpreted vocational counseling tool. It is inexpensive, practical and has a high degree of scientific validity and client effectiveness.
>
> The SDS includes two booklets. To use the SDS a person fills out the assessment booklet and obtains a three letter code. He then uses the code to find suitable occupations in the occupational classification booklet.

The SDS is based on Holland's theory of personality types. It is expected to provide helpful vocational counseling service at a low cost.

The SDS, according to Holland, (1971) has been a better diagnostic device than the typical computer-based vocational information system. The instrument has had both a theoretical (Holland, 1966, 1968, 1970) and empirical basis (Sedlacek, Collins, and Kimball, 1970: and Zener and Schnuelle, 1972).

Through the statistical process of factor analysis, a complete psychological classification of occupations has been developed by Holland and others, (1966a, 1970) and extended to other occupations (Edwards and Whitney, 1971). Current research provided sufficient evidence of reliability for the use and the application of the SDS in educational settings (O'Connell and Sedlacek, 1971).

In general the validity of the SDS rested on Holland's theory of personality and environmental models. The development of the scales and ratings employed by the SDS was begun with Holland's (1962) early investigations of the theory. The SDS used the self-rating, activities, competencies and occupational (VPI) scales, because these provided consistent predictions about personality types and their environmental orientations. In discussing the construct and predictive validity of these scales, Holland (1971) wrote:

> "In general, these validities are not remarkable, because only low to moderate relationships were found. At the same time, it appears unlikely that the SDS is any less predictive than similar assessment devices. The SDS is only intended to facilitate a person's occupational search. At best, it can only indicate a class of occupations a person prefers: it cannot efficiently predict a single choice for a person."

Besides providing useful predictive validity for vocational exploration, Holland expected the SDS to prove its worth by suggesting more occupations for the user to consider and by stimulating the individual to seek vocational counseling and additional information (Holland, 1971).

Contingency Contract (Appendix F)

After taking the SDS a second instrument was employed to effect the information seeking behaviors of half of the experimental subjects. A contingency contract was negotiated with 120 subjects, i.e., an equal number of (30) male and (30) female work oriented subjects and the same number of college bound (30) males and (30) female students. Eleven different information seeking activities were suggested. The experimentals first agreed on the number of ISB activities they wished to perform and then selected from the reinforcement menu the rewards they wished to earn. This menu was first developed in a pilot study with work oriented and college bound high school students (Appendix A). While many rewards were identified as being desirable, such as: early dismissal, late arrival, release time, free time in the library, the school authorities limited the number and kind of reinforcers which could be offered. These reinforcers were found acceptable:

1. The principal's commendation of the subject to the employer or college of the subject's choice;
2. An official entry on the student's permanent record card, notating the student's performance in the experimental guidance program;
3. A field trip to a local industry, business or school; and,
4. Three vocational group counseling sessions.

Each selection required information seeking activities from one or many of the eleven suggested categories. To earn all the rewards, the students were required to perform twenty or more information seeking activities. Upon completion of the SDS the contract was in effect for six weeks, but could be revised at any time with the agreement of both the student and investigator.

Reports of Vocational Information Seeking (Appendix G)

Upon completion of the SDS, a six page booklet called the Report of Vocational Information Seeking (RVIS) was distributed to all the experimental subjects. Use of the booklet was optional. The purpose was to provide the high school student with some direction and structure in exploring occupations and careers. All experimental subjects were encouraged to complete those sections of the booklet they found to be useful and worth while. Students were instructed to be prepared to turn in the booklet and any other evidence of information seeking at the end of the six week experimental program. Table IV summarizes the instrumentation.

Data Collection Procedures

At the regular monthly school faculty meeting the teachers and staffs of both schools were informed by the principals of the nature, purpose, and procedures of the research study. A memorandum of explanation (Appendix H) was distributed to each faculty member. During the period of October 19th to the 25th, homeroom teachers were asked to administer the initial Student Interest Questionnaire (SIQ) to all eleventh grade students. On the first day, the homeroom period was extended from ten to twenty minutes for the administration of the pretest instrument. The remaining three days of the

TABLE IV

Measuring Instruments, Methods of Administration, Method of Scoring, and Criterion Variables Measured

Instrument	Appendix	Method	Scoring	Criterion
Student Interest Questionnaire (SIQ)	A	Pre-Survey	Summated Rating (Likert) Score	Current Level of ISB: Listing of Occupations: Certainty of Plans
Vocational Guidance Questionnaire I (VGQ I)	B	Post	Summated Rating (Likert) Score	Intended ISB, etc.
Vocational Guidance Questionnaire II (VGQ II)	C	Pre-Post (six weeks)	Summated Rating (Likert) Score	Gain in Actual Number of ISB Performed, etc.

TABLE IV (Cont'd)

Behavioral Contract	*E*	Post (six weeks)	Yes, plus ISB Selected	Number of ISB Performed
Reports of Information Seeking	F	Post (six weeks)	Tabulate Actual ISB	Number of ISB Performed

first week were left for the absentees or late arrivals to complete the questionnaire.

The survey was presented to each homeroom in a standardized fashion. Homeroom teachers were instructed to introduce the questionnaire as a research program approved by the Research Department of the Montgomery County Public Schools and sponsored by the University of Maryland Graduate School of Education. The announced purpose was to investigate the vocational educational choice process of eleventh grade students. Standardized instructions (Appendix I) were read to all students.

After the SIQ was completed the replies of interested participants were separated by sex and vocational orientations. These students were then randomly assigned to treatments or control groups. On the day of the treatment, a special bulletin was published with the names of the students chosen to receive the experimental guidance program. In addition, individual appointment forms were passed out in homeroom to notify each student included in the study. The homeroom teachers were instructed to read the names on the special bulletin, distribute the individual appointment slips and read this notice:

> "It is very important that each student who received an appointment slip report to the assigned location at the scheduled time."

No additional directions were given. If questions of schedule conflicts arose, teachers were asked to encourage the students to check with the investigator at the assigned location and at the proper time. When the subjects reported to the testing room, they were greeted with standardized

instructions (Appendix J).

Test Administrator and Test Assistants

The test administrator was the author and there were two assistants. In order to prevent bias, both treatment groups were administered the Self-Directed Search and VGQ I at the same time. The test administrator was unaware of which subjects were to receive which treatment. The testing assistants were two fully certified counselors employed by the local high school.

Experimental Room

In conducting the experiment the schools' cafeteria was reserved for the group testing session. During the time of experiment, no other activities occurred in the area of the school. All subjects were tested in the morning in the cafeteria of the school which they attended.

Administration of Contingency Contracts

After administering the Self-Directed Search and the Vocational Guidance Questionnaire I, (VGQ I) the investigator returned the next day and met with the experimental groups who had been randomly assigned to receive the contingency contract treatment. The rationale and plan of contingency contracting (Appendix E) was discussed in small group sessions with these students. From the entire number of 120 students selected for this treatment, four students declined to enter into a contract agreement. These subjects were dropped from the study and replaced by their alternates.

The majority of students showed interest in the contract. Once they worked out the precise behaviors they intended to perform, they readily

signed the agreement. In order to earn their reward(s) the subjects were instructed to present in six weeks time the evidence of their information seeking activities. Examples of acceptable evidence included such items as: printed vocational-educational materials, job application forms, programs for career days, college catalogues, receipt of transcripts sent-for or educational-vocational testing fees paid, written summaries of job interviews and finally, completion of "Reports of Vocational Information Seeking Booklets" (RVIS). At the end of the six weeks, all experimentals were promised written notification of the time and place to turn in the evidence of their information seeking activities. (Appendix K)

Control Procedures

One week after taking the Student Interest Questionnaire (SIQ) the members of the control groups were notified by individual appointment slips to report to the cafeteria at an assigned time. These students were first administered a short questionnaire (Appendix L) which investigated the role and function of the school counselor. One full class period (55 minutes) was spent in group discussion of the student's perception of the school counselor. This amount of time approximates the period spent administering the SDS to experimental students.

Procedures for Administering the Vocational Guidance Questionnaire II

During the week of December 10th to the 17th, the investigator returned to both school and adminstered the Vocational Guidance Questionnaire II (VGQ II) to all 360 students. The treatment groups were tested separately. In order to verify the self-report data of the questionnaire, a ten percent

random sample (three males and three females) was selected from each treatment group. These thirty-six students (18 males; nine work oriented and nine college bound) were interviewed in samll groups immediately after taking the VGQ II. After rechecking the VGQ II responses, participants were asked to produce evidence to support their reports of information seeking. This evidence, along with the evidence of the other treatment groups was tallied and included in the results of the study. (Table XVI).

Data Analysis

Since the data obtained from the study was interval data and the adjusted means were employed to test the difference between the treatments and within groups, multiple analysis of covaraiance was selected as the appropriate test to determine the significance of difference between two or more independent groups when the research data consisted of frequencies in interval arrangements.

The MANOVA and ANCOVA programs provided by the University of Maryland Computer Science Center were employed to analyze the data. After determining the means and source of variance for the 12 cells, the grand means were computed for each major effect. The MANOVA program identified the significant inter-group differences. A further analysis of data was then carried out when the interactions of the factors involved were found to be significant at or beyond the .01 level of significance. Table IVA (Appendix M) summarizes the sources of variation included in the statistical design.

CHAPTER IV

Analysis of the Data

Introduction

The general purpose of this study was to examine the reinforcing qualities of Holland's Self-Directed Search and contingency contracts on the vocational seeking behaviors of a high school population. Two treatments were employed: (1) Administration of the "Self-Directed Search" to all subjects (Ss) (SDS, Holland, 1970); and, (2) Administration of SDS followed by adding the negotiation of contingency contracts for the performance of information seeking behaviors with one-half of the experimental Ss. It was hypothesized that in comparing the effects of the two treatments, the (Ss) exposed to the second treatment would score significantly higher on the criterion measures of: information seeking behaviors, listing of occupations, and the Ss' reported amount of certainty with career plans. It was determined that the statistical hypotheses would be tested at the .01 level of significance.

This Chapter has been organized into four sections. From the research questions outlined in Chapter III, four statistical hypotheses were developed. For each major hypothesis, tests of homogeneity of regression and homogeneity of variance and covariance were performed as appropriate. The means and standard deviations are reported. F values are stated for each analysis. Finally, the central and related findings for each hypothesis are described.

Central Findings for Hypothesis One

> Hypothesis One: Ss administered treatment one (SDS&VGQ I) **exhibit an increase** in the number of vocational information seeking behaviors they intend to perform.

The Box Test (Dayton, 1970) was used to test the assumption of homogeneity of variance and covariance. Results of the Box Test are shown in Table V (Appendix M). The value provided by the Box Test for the chi square statistic with three degrees of freedom was 17.78. The F value associated with the statistic at the .995 level was 12.84. The obtained F value indicated a violation of the test of repeated measure's basic assumption of variance and covariance.

Box (Dayton, 1970) recommended that the conservative procedure of assigning 1 degree of freedom to the numerator and n - 1 degree of freedom to the denominator whenever the sample variance-covariance matrix could not be concluded to be a sample from a population having a homogeneous variance and covariance. "The critical value of F associated with 1 and n - 1 degrees of freedom are utilized for the ratio rather than the critical values for (p - 1) and (p - 1) (N - 1) degrees of freedom." (Dayton, 1970, p. 253). Since the F Table was already entered with only 1 degree of freedom assigned to the numerator, the procedure of using n - 1 degrees of freedom with the denominator had no effect on the obtained results.

In the final analysis, the high value for the chi square statistic of 17.78 attested to a significant interaction (as will be demonstrated later in hypothesis two) between sex (B) and type of student (C). Since the analysis of variance is relatively robust with respect to the violation of homogeneity, and because of the size of the sample (N = 240), it was concluded that findings of the test of repeated measure on the dimension of intended

information seeking behaviors were significant.

The repeated measures design (Lindquist Type III) was employed to test the difference between pre and post means. The pretest mean for Ss exposed to treatment one was 26.88 with a standard deviation of 20.40. The posttest mean for the same identical Ss was 44.92 with a standard deviation of 29.18. The posttest mean was significantly greater than ($p < .01$) the pretest mean. After the administration of the SDS, students scored higher on the first posttest mean of the Ss' summated rating scores of intended information seeking behaviors. Results are shown in Table VI.

TABLE VI

ANALYSIS OF SCORES ON THE DIMENSION OF INTENDED INFORMATION SEEKING BEHAVIORS FOR Ss EXPOSED TO TREATMENT ONE WHEN PRETEST SCORES ARE USED AS COVARIATE

Treatment One: Administration of SDS	Mean	SD	F*	P
Pretest	26.88	20.40	128.91	.01
First Posttest	44.92	29.18		

*F Value derived from ANOVA summary Table VIA included in Appendix M.
N = 240

Central Findings for Hypothesis Two

Hypothesis Two: Ss administered treatment two (SDS&VGQ I followed by the negotiation of a contingency contract) report a significantly higher adjusted mean score on the dimension of information seeking behaviors actually performed as measured by VGQ II than the group of Ss administered only treatment one (SDS&VGQ I).

Before the analysis of covariance was applied the homogeneity of regression assumption was tested. An examination of Table VII (Appendix M) indicated that the obtained F value of 1.90 was non significant at the .01 level. The within group regression coefficient differences seemed to be explained reasonably by sampling error.

The adjusted means of information seeking behaviors reported as actually performed by college bound Ss exposed to treatment one, administration of the SDS, was 32.26 for females and 49.22 for males. Work oriented females and males exposed to treatment one obtained adjusted means of 39.14 and 35.07 respectively.

College bound females and males exposed to treatment two, administration of the SDS and the negotiation of a contingency contract, showed means of 42.39 and 46.66 each. Work oriented females and males exposed to treatment two obtained means of 40.35 and 38.71 respectively.

Using the pretest and the first posttest as covariates, the obtained F value of 2.10 was non significant at the .01 level (Table VIIIA, Appendix M). Therefore, the statistical null hypothesis of no difference between treatment population adjusted means was not rejected. Apparently, the most reasonable explanation for the modest differences between the sample treatments of SDS, and SDS and the negotiation of a contingency contract, was chance. The results are shown in Table VIII.

TABLE VIII

ANALYSIS OF SCORES ON THE INFORMATION SEEKING DIMENSION FOR Ss IN TREATMENT ONE AND TWO WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES. (*F VALUE = 2.10 INDICATING NO SIGNIFICANT DIFFERENCE BETWEEN TREATMENTS' MEANS AT THE .01 LEVEL)

Treatment	Type of Student	Raw Mean	Adjusted Mean	Adjusted SD
1. Admin. of SDS	College Bound Females	35.97	32.26	11.62
	College Bound Males	49.20	49.22	20.31
	Work Oriented Females	39.50	39.14	16.63
	Work Oriented Males	30.07	35.07	18.86
2. Admin. of SDS and Contingency Contract	College Bound Females	45.97	42.39	14.02
	College Bound Males	54.00	46.66	14.73
	Work Oriented Females	35.47	40.35	12.52
	Work Oriented Males	33.63	38.71	19.07

*F Value derived from ANOVA summary Table VIIIA included in Appendix M.
N = 240

Related Findings for Hypothesis Two

Threats to the internal or external validity of the experiment such as history, maturation, and testing, etc., or non-representativeness, reactive effects of testing, and multiple treatment interference found in the initial design, have been reduced by a reanalysis of the data through the use of control groups. Control groups were also employed to provide a base line for the differential effects of treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of a contingency contract for performing information seeking behaviors. The adjusted means of information seeking behaviors reported as actually performed by college bound female and male control Ss was 33.31 and 32.66 respectively.

The adjusted means of information seeking behaviors reported as actually performed by work oriented female and male control Ss were 30.06 and 26.88 each. Using the pretest as covariate, an analysis of covariance was performed on the scores of treatments one, two, and controls. The obtained F value of 13.35 was significant at the .01 level (Table IXA Appendix M). Students in treatments one and two, therefore, reported significantly higher scores of information seeking behaviors stated as actually performed than the students in the control groups. Results are shown in Table IX.

TABLE IX

ANALYSIS OF SCORES ON THE INFORMATION SEEKING DIMENSIONS FOR Ss IN TREATMENT ONE, TWO, AND CONTROLS WHEN PRETEST SCORES ARE USED AS COVARIATES. (*F VALUE = 13.35 INDICATING SIGNIFICANT DIFFERENCE AT .01 LEVEL BETWEEN TREATMENTS ONE AND TWO, AND CONTROLS

Treatments	Type of Student	Raw Mean	Adjusted Mean**	Adjusted SD
1. Admin. of SDS	College Bound Females	35.97	32.64	12.26
	College Bound Males	49.20	51.57	21.43
	Work Oriented Females	39.50	39.13	17.55
	Work Oriented Males	30.07	34.29	19.90
2. Admin. of SDS and Contingency Contract	College Bound Females	35.47	41.54	14.79
	College Bound Males	54.00	48.48	15.55
	Work Oriented Females	35.47	37.13	13.21
	Work Oriented Males	33.63	35.57	20.12
3. Controls	College Bound Females	33.80	33.31	10.05
	College Bound Males	34.27	32.66	12.72
	Work Oriented Females	29.50	30.06	15.49
	Work Oriented Males	21.90	26.88	16.99

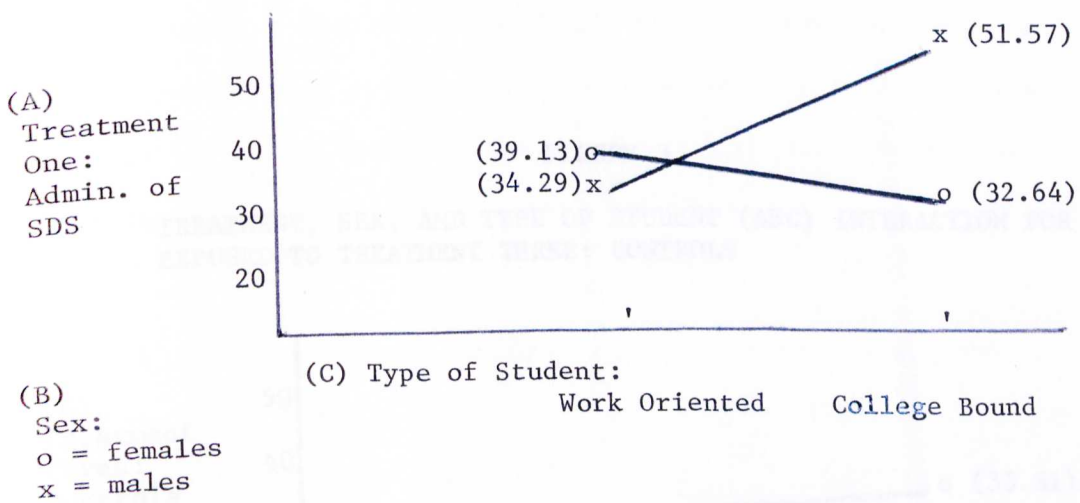
N = 12 equal size groups of 30 each. Total N = 360

*F Value derived from ANOVA summary Table IXA included in Appendix M.
**Differences in Adjusted Means between Experimentals of Hypothesis Two explained by the use of two covariates in Hypothesis Two.

Figures 1, 2, and 3 display the significant interactions between the treatments, sex, and type of student (ABC Interaction, Table IXA Appendix M). College bound males scored higher on treatments one and two than any other group. In general, the total college bound population earned higher information seeking behavior scores reported as actually performed than the work oriented population. Students in treatment one and two scored higher than the students in the control groups.

FIGURE I

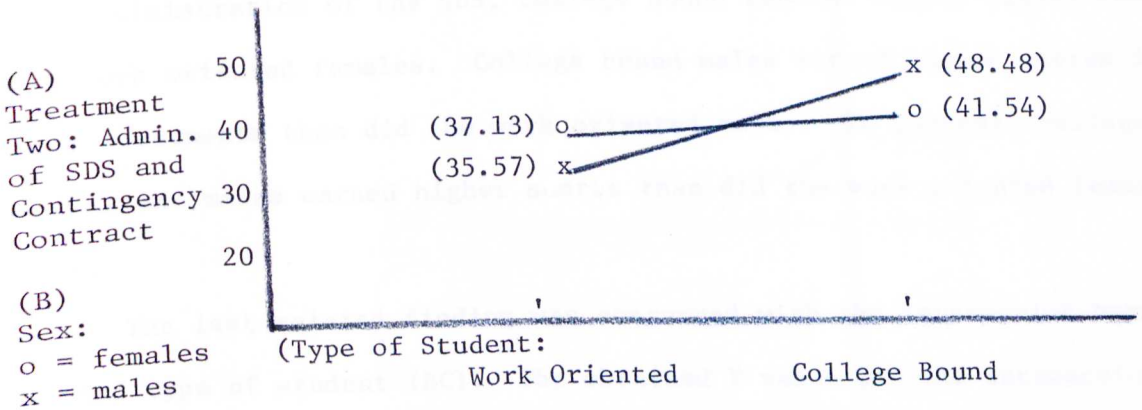
TREATMENT, SEX, AND TYPE OF STUDENT (ABC) INTERACTION FOR STUDENTS EXPOSED TO TREATMENT ONE, ADMINISTRATION OF THE SDS



N = 4 equal size groups of 30. Total N = 120

FIGURE 2

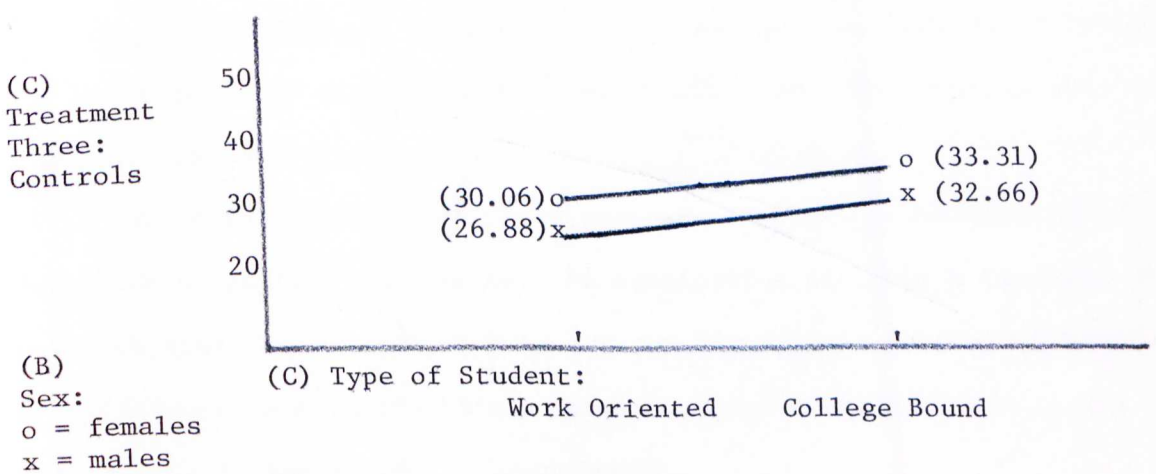
TREATMENT, SEX, AND TYPE OF STUDENT (ABC) INTERACTION FOR STUDENTS EXPOSED TO TREATMENT TWO: ADMINISTRATION OF THE SDS AND NEGOTIATION OF A CONTINGENCY CONTRACT FOR THE PERFORMANCE OF INFORMATION SEEKING BEHAVIORS



N = 4 equal size groups of 30. Total N = 120

FIGURE 3

TREATMENT, SEX, AND TYPE OF STUDENT (ABC) INTERACTION FOR STUDENTS EXPOSED TO TREATMENT THREE: CONTROLS



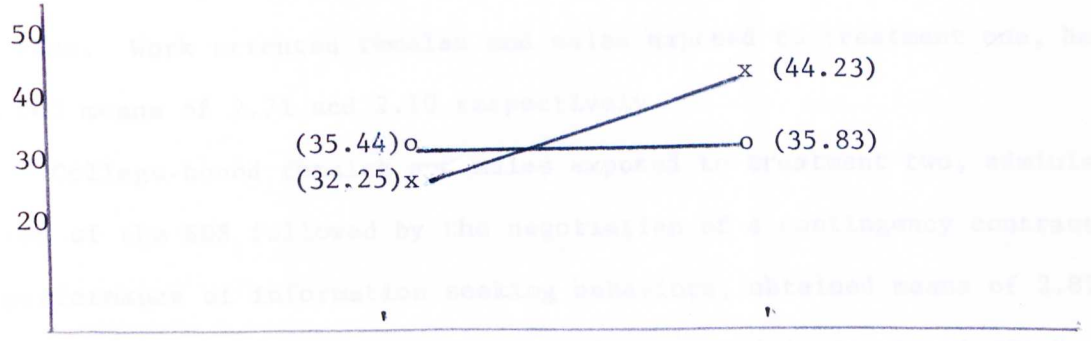
N = 4 equal size groups of 30. Total N = 120

Further inspection of the results of the analysis of covariance (Table IXA, Appendix M) revealed two additional related findings. Using the pretest as a covariate an F value of 12.75 was significant at the .01 level for the type of student (C) exposed to the treatments. Except for treatment one, administration of the SDS, college bound females earned higher scores than work oriented females. College bound males earned higher scores in all three treatments than did the work oriented males. In general, college bound females and males earned higher scores than did the work oriented females and males.

The last related finding was concerned with the interaction between sex and type of student (BC). The obtained F value for the interaction between sex and type of student was 11.49 which was significant at the .01 level. Figure 4 graphically displays the (BC) interaction. College bound males report higher scores on information seeking behaviors stated as actually performed than any other group. Work oriented students achieve lower scores in information seeking behaviors.

FIGURE 4

SEX AND TYPE OF STUDENT (BC) INTERACTION FOR STUDENTS EXPOSED TO TREATMENT ONE, ADMINISTRATION OF THE SDS, TREATMENT TWO, ADMINISTRATION OF THE SDS AND NEGOTIATION OF A CONTINGENCY CONTRACT, AND TREATMENT THREE, CONTROL PROCEDURES FOR THE PERFORMANCE OF INFORMATION SEEKING BEHAVIORS



(C) Type of Student:
Work Oriented College Bound

(B)
Sex:
o = females
x = males

N = 12 equal size groups of 30. Total N = 360

Central Findings for Hypothesis Three

Hypothesis Three: Ss administered treatment two (SDS&VGQ I followed by a contingency contract) list more occupations for consideration than the Ss who are administered only treatment one (SDS&VGO I).

Before the analysis of covariance was applied the homogeneity of regression assumption was tested. An examination of Table X (Appendix M) indicated that the F value of 1.40 was non significant at the .01 level. The difference between the within group regression coefficients seemed most reasonably explained by chance error.

Homogeneity of variance was tested by using the F Max Test. The observed ratio value was 2.18. At the .01 level, the obtained F value was non significant, therefore the homogeneity of variance assumption was accepted.

The adjusted mean of occupations listing by college bound Ss exposed to treatment one, administration of the SDS, was 2.37 for females and 3.03 for males. Work oriented females and males exposed to treatment one, had adjusted means of 2.71 and 2.10 respectively.

College bound females and males exposed to treatment two, administration of the SDS followed by the negotiation of a contingency contract for the performance of information seeking behaviors, obtained means of 2.87 and 2.84 each. Work oriented females and males exposed to treatment two had means of 2.79 and 2.95 respectively.

Using the pretest and the first posttest as covariates, an analysis of covariance was performed on the scores of treatments one and two. The obtained F value of 5.55 was non significant at the .01 level (Table XIA Appendix M). There were no significant differences between treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of the contingency contract for the performance of information seeking behaviors. The slight differences between the two treatments seemed most reasonably explained by sampling error. The results are shown in Table XI.

TABLE XI

ANALYSIS OF SCORES ON THE OCCUPATIONS LISTING DIMENSION FOR Ss IN TREATMENTS ONE AND TWO WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES. (*F VALUE = 5.50 INDICATING NO SIGNIFICANT DIFFERENCE BETWEEN TREATMENTS' MEANS AT THE .01 LEVEL)

Treatment	Type of Student	Raw Mean	Adjusted Mean	Adjusted SD
1. Admin. of SDS	College Bound Females	2.43	2.37	1.07
	College Bound Males	3.10	3.03	.91
	Work Oriented Females	2.70	2.71	1.04
	Work Oriented Males	1.77	2.10	1.00
2. Admin. of SDS and Contingency Contract	College Bound Females	3.10	2.87	.91
	College Bound Males	3.03	2.84	.97
	Work Oriented Females	2.83	2.79	.90
	Work Oriented Males	2.70	2.95	1.20

* F Value derived from ANOVA summary Table XIA included in Appendix M.
N = 240

Related Findings for Hypothesis Three

The adjusted means of occupations listing performed by college bound females and males control Ss was 2.50 and 2.28 respectively. The adjusted means of occupations listing performed by work oriented female and male control Ss was 2.18 and 2.02 each.

Using the pretest as covariate, the analysis of covariance was performed. The obtained F value of 9.88 was significant at the .01 level (Table XIIA Appendix M). Students in both treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of a contingency contract, scored significantly higher in occupations

listing behaviors than the students who were exposed to the control procedures. Results are shown in Table XII.

TABLE XII

ANALYSIS OF SCORES ON THE OCCUPATIONS LISTING DIMENSION FOR Ss IN TREATMENTS ONE, TWO, AND CONTROLS WHEN PRETEST SCORES ARE USED AS COVARIATE. (*F VALUE = 9.88 INDICATING SIGNIFICANT DIFFERENCE AT THE .01 LEVEL BETWEEN TREATMENTS ONE AND TWO, AND CONTROLS)

Treatment	Type of Student	Raw Mean	Adjusted Mean**	Adjusted SD
1. Admin. of SDS	College Bound Females	2.43	2.32	1.12
	College Bound Males	3.10	3.07	.95
	Work Oriented Females	2.70	2.66	1.08
	Work Oriented Males	1.77	2.06	1.04
2. Admin. of SDS and Contingency Contract	College Bound Females	3.10	2.88	.95
	College Bound Males	3.03	2.92	1.01
	Work Oriented Females	2.83	2.78	.94
	Work Oriented Males	2.70	2.84	1.25
3. Controls	College Bound Females	2.60	2.50	.83
	College Bound Males	2.17	2.28	.97
	Work Oriented Females	2.30	2.18	1.20
	Work Oriented Males	1.77	2.02	1.28

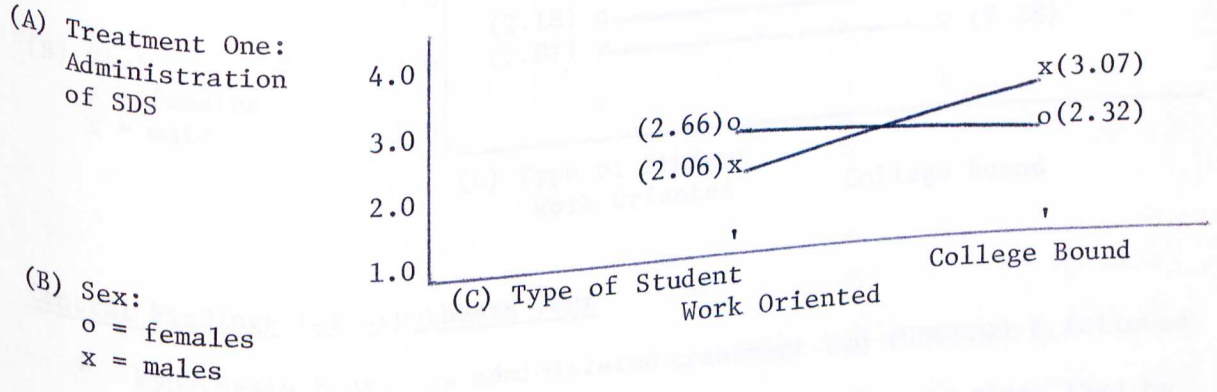
N = 12 equal size groups of 30. Total N = 360

* F Value derived from ANOVA Table XIIA included in Appendix M.
** Differences in Adjusted Means between Experimentals of Hypothesis Three explained by the use of two covariates instead of one.

Further inspection of the results of the analysis of covariance (Table XII) revealed a significant interaction for the college bound males exposed to treatment one, administration of the SDS. Figures 5, 6, and 7 show the different treatment effects for each treatment group. College bound males scored higher in all three treatment groups. Work oriented males consistently scored the lowest in all three treatment groups. Students in treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of a contingency contract for the performance of information seeking behaviors, scored higher consistently than the Ss exposed to the control procedures of treatment three.

FIGURE 5

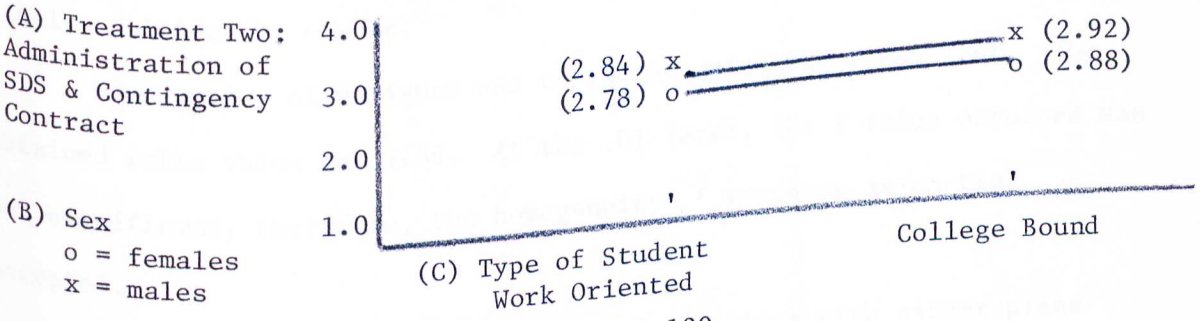
TREATMENT INTERACTION (A) FOR SUBJECTS EXPOSED TO TREATMENT ONE, ADMINISTRATION OF THE SDS. (F VALUE = 9.88 INDICATING SIGNIFICANT INTERACTION AT THE .01 LEVEL)



N = 4 equal size groups of 30. Total N = 120

FIGURE 6

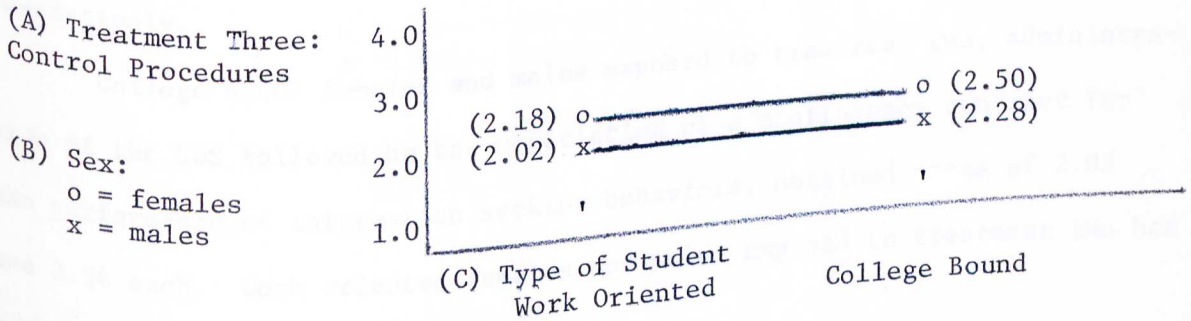
TREATMENT (A) FOR SUBJECTS EXPOSED TO TREATMENT TWO, ADMINISTRATION OF THE SDS, FOLLOWED BY THE NEGOTIATION OF A CONTINGENCY CONTRACT FOR THE PERFORMANCE OF INFORMATION SEEKING BEHAVIORS



N = 4 equal size groups of 30. Total N = 120

FIGURE 7

TREATMENT (A) FOR Ss EXPOSED TO TREATMENT THREE, CONTROL PROCEDURES



Central Findings for Hypothesis Four

Hypothesis Four: Ss administered treatment two (SDS&VGQ I followed by a contingency contract) report more certainty with career plans than Ss who are administered only treatment one (SDS&VGQ I).

Before the analysis of covariance was applied, the homogeneity of regression assumption was tested. An examination of Table XIII (Appendix M) indicated that the obtained F value of .68 was non significant. The difference between within group regression coefficients seemed to be most likely explained by chance.

Homogeneity of variance was tested by using the F Max Test. The obtained ratio value was 1.36. At the .01 level, the F value obtained was non significant, therefore, the homogeneity of variance assumption was accepted.

The adjusted means of the amount of certainty with career plans reported by college bound Ss exposed to treatment one, administration of the SDS, was 2.04 for females and 2.30 for males. Work oriented females and males exposed to treatment one had adjusted means of 2.09 and 2.03 respectively.

College bound females and males exposed to treatment two, administration of the SDS followed by the negotiation of a contingency contract for the performance of information seeking behaviors, obtained means of 2.02 and 2.34 each. Work oriented females and males exposed to treatment two had means of 1.91 and 1.60 each.

Using the scores on the pretest and the first posttest as covariates, the obtained F value of .70 was non significant at the .01 level. The small differences which resulted between treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of contingency contract for the performance of information seeking behaviors appear to have been the result of sampling error. There was no significant difference between means of the two treatments. The results are shown in Table XIV.

TABLE XIV

ANALYSIS OF SCORES ON THE AMOUNT OF CERTAINTY WITH CAREER PLANS FOR Ss IN TREATMENTS ONE AND TWO WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES. (*F VALUE = .70 INDICATING NO SIGNIFICANT DIFFERENCE BETWEEN TREATMENTS' MEANS AT THE .01 LEVEL)

Treatment	Type of Student	Raw Mean	Adjusted Mean	Adjusted SD
1. Admin. of SDS	College Bound Females	2.20	2.04	1.18
	College Bound Males	1.97	2.30	1.40
	Work Oriented Females	2.17	2.09	1.30
	Work Oriented Males	2.00	2.03	1.44
2. Admin. of SDS and Contingency Contract	College Bound Females	2.03	2.02	1.43
	College Bound Males	2.20	2.34	1.16
	Work Oriented Females	1.97	1.91	1.29
	Work Oriented Males	1.80	1.60	1.28

* F Value derived from ANOVA Table XIVA Included in Appendix M.
N = 4 equal size groups of 30. Total N = 120

Related Findings for Hypothesis Four

The adjusted means of the amount of certainty with career plans reported by college bound females and male control Ss was 1.54 and 1.99 respectively. The adjusted means of the amount of certainty with career plans reported by work oriented female and male control Ss was 1.76 and 2.04 each.

Using the pretest as covariate, an analysis of covariance was performed on the scores of the Ss exposed to treatment one, administration of the SDS, treatment two, administration of the SDS followed by the negotiation of a contingency contract for the performance of information seeking behaviors, and treatment three, control procedures. The obtained F value of .55 was non significant at the .01 level (Table XVA Appendix M). Only sampling error appeared to have been responsible for the slight difference between the three treatments. Results are shown in Table XV.

TABLE XV

ANALYSIS OF SCORES ON THE AMOUNT OF CERTAINTY WITH CAREER PLANS FOR Ss IN TREATMENTS ONE, TWO, AND CONTROLS WHEN PRETEST SCORES ARE USED AS COVARIATES. (*F VALUE = .55 INDICATING NO SIGNIFICANT DIFFERENCE AT THE .01 LEVEL BETWEEN THE THREE TREATMENTS)

Treatment	Type of Student	Raw Mean	Adjusted Mean**	Adjusted SD
1. Admin. of SDS	College Bound Females	2.20	2.00	1.29
	College Bound Males	1.97	2.08	1.52
	Work Oriented Females	2.17	2.09	1.41
	Work Oriented Males	2.00	1.91	1.57
2. Admin. of SDS and Contingency Contract	College Bound Females	2.03	2.13	1.56
	College Bound Males	2.00	2.26	1.26
	Work Oriented Females	1.97	1.93	1.40
	Work Oriented Males	1.80	1.58	1.40
3. Controls	College Bound Females	1.43	1.54	1.40
	College Bound Males	1.83	1.99	1.46
	Work Oriented Females	1.77	1.76	1.47
	Work Oriented Males	1.97	2.04	1.56

N = 12 equal size groups of 30. Total N = 360

* F Value derived from ANOVA Table XVA Included in Appendix M.

** Differences in the Adjusted Means between Experimentals of Hypothesis Four explained by the use of two covariates instead of one.

Summary

Results of the study indicated that Ss exposed to treatment one, administration of the SDS, exhibited a significant increase in the mean scores on the dimension of intended information seeking behaviors. In comparing the scores of Ss exposed to treatment two, administration of the SDS followed by the negotiation of contingency contract for the performance of information seeking behaviors, with the scores of Ss exposed to treatment one, administration of the SDS, no significant differences were reported. Students exposed to treatment two did not score higher than the students exposed to treatment one on the criterion measures of: information seeking behaviors, occupations listing, and the amount of certainty with career plans as measured by the VGQ II. The data indicate that the use of the SDS followed by a contingency contract for the performance of information seeking behaviors did not increase the adjusted mean scores significantly more than the use of treatment one, administration of the SDS.

When comparing the experimental Ss with controls, scoring differences, significantly at the .01 level were reported. Both experimental treatment groups scored significantly higher than the controls on the criterion measures of: information seeking behaviors reported as actually performed, and occupations listing. In the third criterion measure of the amount of certainty reported with career plans, no significant differences between experimentals and controls were found.

A further examination of the data showed significant differences between the treatments, sex, and type of student (ABC) interactions on the information seeking and occupations listing dimensions. In general, the

college bound population scored significantly higher than the work oriented Ss. College bound males, in particular, scored highest on the criterion measures, while work oriented males generally scored the lowest. Students exposed to treatment one, administration of the SDS, and treatment two, administration of the SDS followed by the negotiation of a contingency contract for the performance of information seeking behaviors scored significantly higher on the criterion measures at the .01 level than did the students exposed to the control procedures.

CHAPTER V

Summary, Conclusions, Discussions and Recommendations

Summary

This study was an outgrowth of previous research which investigated reinforcement techniques used to increase the frequency of vocational information seeking behaviors (VISB). Based on the finding that subject (Ss) intended but did not always carry out suggested (VISB) it became apparent that additional research was required to increase the actual performance of certain career seeking behaviors. This research investigation was designed to evaluate the reinforcing qualities of the Self-Directed Search (SDS, Holland, 1970) and contingency contracts on the frequency of VISB. It was assumed that the administration of the SDS followed by a contingency contract would increase performance of a greater number of VISB than just the administration of the SDS.

Subjects (Ss)

Eleventh grade students in two public senior high schools located in Montgomery County, Maryland served as Ss of the study. From the 700 eleventh grade students attending the high school with programs specifically designed for work oriented students, 180 Ss were randomly selected and randomly assigned to one of three treatment groups. From the 502 eleventh grade students attending the high school with a large proportion of college bound students, 180 Ss were also randomly selected and randomly assigned to one of the

treatment conditions. Altogether, there were 12 groups, each with a N of 30, and equally divided among female and male, and work oriented and college bound students. The total number of Ss involved in the study was 360.

The experiment required: (1) Administration of a pretest which measured the current VISB, the number of occupations listed for consideration, and the Ss' reported amount of certainty with career plans for all 360 Ss. (2) Administration of treatment one, the SDS and the Vocational Guidance Questionnaire (VGQ I) to 120 experimental Ss, and the administration of treatment two, the SDS, VGQ I, and a contingency contract, to another 120 experimental Ss, and (3) Administration of a posttest which measured the number of VISB actually performed, the number of occupations listed for the consideration and the Ss' reported amount of certainty with career plans for the 360 Ss included in the experiment.

Conclusions

The hypotheses testing each research question is restated and the findings relevant to each are discussed:

Hypothesis for Research Question One:

1. Subjects (Ss) administered treatment one (SDS&VGQ I) exhibit an increase in the number of vocational information seeking behaviors (VISB) they intend to perform.

An analysis of variance was performed on the 240 experimental Ss' scores obtained from the pretest, the Student Interest Questionnaire (SIQ), and the first posttest, (VGQ I), which was administered immediately after the SDS. The scores which the experimental Ss earned on the first posttest (VGQ I) were significantly higher at the .01 level than the pretest (SIQ) scores. Therefore, the analysis of data in relation to hypothesis one

supported the conjecture that experimental Ss exposed to treatment one (SDS, VGQ I) intend to perform an increasing number of VISB.

Hypothesis for Research Question Two

2. Subjects (Ss) administered treatment two (SDS&VGQ I followed by the negotiation of a contingency contract) perform a greater number of vocational information seeking behaviors (VISB) than those Ss who are administered only treatment one (SDS&VGQ I).

The second research question was not supported. There was no significant difference at the .01 level in the adjusted mean scores between the two treatment groups on the vocational information seeking behaviors (VISB) reported as actually performed and as measured by the posttest, Vocational Guidance Questionnaire II (VGQ II). Subjects (Ss) administered treatment two (SDS & VGQ I, & contingency contracts) did not earn significantly higher VISB scores than the Ss administered treatment one, (SDS & VGQ I). Contingency contracting did not appear to add significantly to the VISB scores obtained from Ss exposed to treatment one, (SDS & VGQ I).

Related Findings for the Second Research Question

In comparing the 240 experimental Ss with the 120 control Ss, scoring differences significant at the .01 level were reported. Experimental Ss exposed to treatment one, (SDS & VGQ I) and treatment two, (SDS, VGQ I, & contingency contracts) scored significantly higher VISB scores reported as actually performed and as measured by the posttest (VGQ II), than did the Ss exposed to treatment three (control procedures).

A further analysis of the data indicated a significant interaction between treatments, sex, and type of student. College bound males exposed to treatment one (SDS & VGQ I) earned the highest VISB scores, followed by the

college bound males exposed to treatment two (SDS & VGQ I, & contingency contracts). Work oriented males exposed to treatment three, the control procedures, scored the lowest. In addition, a second significant interaction occurred between sex and type of student. In general, the college bound population earned significantly higher scores of VISB than did the work oriented Ss. College bound males, in particular, scored highest on the criterion measure of VISB, while work oriented males earned the lowest VISB scores.

Hypothesis for Research Question Three

3. Subjects (Ss) administered treatment two (SDS&VGQ I followed by a contingency contract) list more occupations for consideration than Ss who are administered only treatment one (SDS&VGQ I).

The third research hypothesis was not supported. There was no significant difference at the .01 level in the adjusted mean scores between the two treatment groups on the dimension of occupations listed for consideration as measured by the posttest (VGQ II). Contingency contracts did not appear to add significantly to the number of occupations listed by the Ss exposed to treatment one (SDS & VGQ I).

Related Findings for the Third Research Question

In comparing the 240 experimental Ss with the 120 control Ss, scoring differences significant at the .01 level were reported. Experimental Ss exposed to treatment one, (SDS & VGQ I) and treatment two, (SDS, VGQ I, & contingency contracts), scored significantly higher on the dimension of occupations listed than the control Ss.

A further analysis of the data indicated a significant interaction occurred between treatment one (SDS & VGQ I), sex, and type of student. College bound males exposed to treatment one (SDS & VGQ I) listed the highest number of occupations for consideration, followed by the college bound males exposed to treatment two, (SDS, VGQ I, & contingency contracts). Work oriented males exposed to treatment three (control procedures), listed the lowest number of occupations. Of all the female Ss, college bound females exposed to treatment two (SDS, VGQ I, & contingency contracts), earned the highest occupations listing scores, while female control Ss earned the lowest scores.

Hypothesis for Research Question Four

4. Subjects (Ss) administered treatment two (SDS&VGQ I followed by a contingency contract) report more certainty with career plans than Ss who are administered only treatment one (SDS&VGQ I).

The answer to the fourth research question was negative. There was no significant difference at the .01 level in the adjusted mean scores between the two treatment groups on the dimension of the reported amount of certainty with career plans as measured by the posttest, VGQ II. Contingency contracting did not appear to add significantly to the amount of certainty scores reported by the Subjects (Ss) exposed to treatment one (SDS & VGQ I).

Related Findings for the Fourth Research Question

When comparing the 240 experimental Ss with the 120 control Ss on the dimension of the amount of certainty reported with career plans, no significant differences at the .01 level were found. College bound males exposed to treatment two (SDS, VGQ I, & contingency contracts) earned the highest

scores on the dimension of the amount of certainty reported with career plans, while college bound females exposed to treatment three (control procedures) earned the lowest scores.

Summary

The research investigated the differences between the Ss exposed to treatment one (SDS & VGQ I) and Ss exposed to treatment two (SDS, VGQ I & contingency contracts) on the dimension of intended and actually performed VISB, the number of occupations listed, and the Ss' reported amount of certainty with career plans.

The answer to the first research question was positive. Ss exposed to treatment one (SDS & VGQ I) exhibit an increase in the number of VISB they intend to perform.

The answers to research questions two, three, and four, were negative. Ss exposed to treatment two (SDS, VGQ I, plus a contingency contract) do not perform a higher number of VISB, list more occupations for consideration, nor report more certainty with career plans than the Ss exposed to treatment one (SDS & VGQ I) alone. Both experimental treatments, however, influenced higher VISB and occupations listing scores than treatment three (control procedures).

Discussion

Intended Information Seeking Behaviors. In testing the difference between the pretest means (SIQ), and the first posttest means (VGQ I), on the dimension of intended VISB, the obtained F value of 128.91 was found to be significant at the .01 level. Taking into account the threats of

validity such as history, maturation, and test, etc., the most reasonable explanation of the significant increase in the experimental Ss' mean scores of VISB appears to be exposure to treatment one (SDS & VGQ I). Apparently, the administration of the SDS to high school Ss influences the number of VISB the Ss intend to perform.

One possible explanation of the significant increase in the mean scores of VISB may lie in the fact that after the SDS measures the Ss' preferred vocational activities, competencies, and occupations, the instrument then provides a summary code of the Ss' personal orientation, a list of occupations which matches the Ss' summary code, and finally, a list of suggested number of VISB. It appears that the combination of the SDS & VGQ I had a reinforcing effect on the number of VISB the Ss intend to perform. The experimental Ss appear to be stimulated sufficiently to intend to seek additional information about the careers which match the final summary code.

Another possible explanation of the reinforcing qualities of the SDS may revolve around the instrument's novel approach to career exploration. The fact that each S scores, profiles, and interprets his own inventory may heighten the Ss' interest in the careers under consideration and may promote the Ss' active involvement in VISB about future and alternative careers.

Intended vocational information seeking behaviors (VISB), on the other hand, are perhaps the easiest to influence. Ss' intentions are suspect when it comes to carrying out all the activities promised. High school students, in particular, usually intend to perform more than they ever actually accomplish. The effectiveness of treatment one (SDS & VGQ I) requires further evaluation than just an increase on the dimension of intended VISB.

Vocational Information Seeking Behaviors Actually Performed

Research question two was tested by comparing treatment two (SDS, VGQ I & Contingency contracts) with treatment one (SDS & VGQ I). As the results indicated, the technique of negotiating a contingency contract, with its particular reinforcers, apparently did not add significantly to treatment one (SDS & VGQ I) in increasing the number of VISB.

Several explanations may be considered to explain the apparent ineffectiveness of contingency contracts in increasing a greater number of information seeking behaviors that are obtained with just the administration of the SDS & VGQ I. Ss who negotiated a contingency contract after the administration of the SDS received no further assistance or contact. The contract, in effect, was negotiated under the influence of the SDS which significantly increased the Ss' intended information seeking behavior scores. In effect, the intended information seeking scores became the criterion measure. The time interval of six weeks, however, apparently tempered and reduced the promised number of information seeking behaviors which the Ss planned to perform. As a result the time interval may have been too long. The process of extinction appears to have occurred too soon. The final scores of information seeking behaviors actually performed may indicate that high school students require a fixed reinforcement schedule to insure continuous information seeking behaviors over a six week interval. In addition, the academic pressure generated in a suburban high school, and the hectic pace of extracurricular teenage activities suggest many incompatible behaviors which easily interfere with and extinguish the number of information seeking behaviors the Ss contracted to perform.

The same discrepancy between intended and the information seeking behaviors actually performed was also observed for Ss exposed to treatment one (SDS & BGQ I). While the differences between the treatments tend to favor treatment two (SDS, VGQ I, & contingency contract) the adjusted mean scores were not significant at the .01 level.

A second observation on the limitation of contingency contracts to significantly increase information seeking behaviors over treatment one, (SDS & VGQ I), concerns the restricted number and type of the reinforcers permitted by the local school authorities. Perhaps a broader, more comprehensive reinforcement menu may influence the Ss to perform a significantly greater number of VISB than the number obtained by the administration of treatment one (SDS & VGQ I). In addition, it appeared that the type of rewards offered were not really reinforcers of VISB or at least they were not potent enough to influence the increase in the desired behaviors.

Self-Report Data

After the administration of treatment one (SDS & VGQ I) all experimental Ss were distributed a copy of the booklet entitled: Reports of Vocational Information Seeking (RVIS, Appendix G). When the administration of the posttest (VGQ II) was completed all experimental Ss were asked to provide evidence which confirmed the VISB they reported to have performed. The use of the RVIS Booklet was entirely optional. Its purpose was to provide a model for performing VISB. Table XVI shows the results.

Inspection of Table XVI shows that 12 Ss exposed to treatment one (SDS & VGQ I) turned in a total of 18 pages of the RVIS Booklet. While 12 Ss exposed to treatment two (SDS, VGQ I, & contingency contracts) turned in

TABLE XVI

EXPERIMENTAL GUIDANCE PROGRAM

REPORTS OF

VOCATIONAL INFORMATION SEEKING

SUMMARY SHEET:	TYPE OF STUDENTS	NUMBER OF PAGES COMPLETED	NUMBER OF SUBJECTS INVOLVED:
1. Treatment One:			
Administration of the SDS	College Bound Females	8	3
	College Bound Males	10	3
	Work Oriented Females	0	3
	Work Oriented Males	0	3
	sub total	18	12
2. Treatment Two:			
Administration of the SDS followed by the negotiation of the contingency contract for the performance of information seeking behaviors	College Bound Females	47	3
	College Bound Males	25	3
	Work Oriented Females	28	3
	Work Oriented Males	10	3
	sub total	110	12

110 pages. On the average college bound Ss exposed to treatment two (SDS, VGQ I & contingency contracts) turned in twice as many pages than Ss exposed to treatment one (SDS, VGQ I). While no statistical analysis was performed on the number of written RVIS pages turned in, there is some written evidence, at least, that contingency contracts and the SDS & VGQ I exerted some influence in increasing VISB.

Interactions

In testing the second research question, the significant interactions between treatment, sex, and type of students and sex and type of students indicated that the college bound population in general and college bound males, in particular, performed more information seeking behaviors (VISB) than the work oriented populations, especially in the case of work oriented males.

Since college bound males are concerned with college admission, it may be that much of VISB reported as actually performed focused chiefly on gaining information about college entrance requirements. Since the study was not designed to analyze the type of VISB performed, it is difficult to confirm the last observation. The work oriented Ss, in many cases have already secured some type of employment. Job security and less need for continuing education may have some effect on the number of vocational information seeking behaviors (VISB) performed by the work oriented populations. Consequently, the work oriented Ss may not perform as many VISB because they do not experience the same type of pressures which the college bound Ss face in identifying and gaining admission into the college of their choice.

Occupations Listing Behaviors

The lack of support for research question three seems to indicate that treatment two (SDS, VGQ I, & contingency contracts) fails to add to the effectivness of treatment one (SDS & VGQ I) in increasing the number of occupations the Ss list.

The same reasons which attempt to explain the ineffectivness of contingency contracts in increasing the VISB predicted by research question two, also seem to hold true for occupations listing behaviors predicted by research question three. The lack of a fixed reinforcement schedule, the extended time interval, the inevitable process of extinction, all apparently limit the effectiveness of contingency contracts in increasing occupations listing behaviors.

In addition, the adjusted means of the pretest (SIQ) and the first posttest (VGQ I) of occupations listing behaviors indicate the same similar patterns for both treatments one (SDS & VGQ I) and two (SDS, VGQ I, & contingency contracts). Since all 240 experimental Ss were exposed to the administration of the SDS and VGQ I, the treatment alone appears to be sufficient for explaining the significant increase over the occupations listing behaviors of the control Ss. The finding of no significant difference at the .01 level between treatments one (SDS, VGQ I, & contingency contracts) appears to follow logically from the results of research two. If the use of contingency contracts fail to increase the number of VISB generated by the SDS & VGQ I it seems reasonable to expect the same relationship would hold true for research question three. In other words, if Ss are not influenced by contingency contracts to perform more VISB concerning careers,

then the use of contingency contracts can hardly be expected to influence these Ss to list more occupations for consideration.

In further analyzing the data of research question three, the significant interaction obtained between treatment, sex, and type of student (ABC) appears to confirm the finding that college bound populations in general, and college bound males in particular, list more occupations than the work oriented populations, especially work oriented males.

The interaction, again, may be explained by the college bound males' interest in careers requiring continuous education and training experiences. Since the college bound students seek more vocational information, as is indicated by the findings of research question two, it is reasonable to assume the Ss have a greater number of career choices to consider. The work oriented population, on the other hand, appears to have a limited number of choices, and consequently appears to restrict its career considerations to a few specialty areas. Also, the pressure for a career commitment appears to adversely affect the work oriented Ss who tend to seek immediate employment while college bound Ss generally have more time and opportunities to investigate, test, and revise their initial career choices. The administration of the SDS to work oriented and college bound Ss appears to accentuate the already existing socio-economic difference and experience which characterize the two types of students.

The Amount of Certainty with Career Plans

Finally, the rejection of research question four indicates that there is no significant difference between the experimental Ss on the dimension of certainty with career plans. Neither the administration of the SDS, & VGQ I,

nor the additional use of contingency contracts appears to have a measureable influence on the Ss reported amount of certainty with career plans. The same findings also hold true when comparing the experimental Ss with controls.

Measuring certainty with careers under consideration is at best a risky undertaking. The underlying assumption is the more certainty the Ss possess, the better the career choice. An interesting dilemma develops. The amount of certainty Ss possess with regard to career plans is not always a positive factor. Ss with too much certainty in career choice may become rigid and fix on a career selection which later proves to be a source of lifetime frustration and disillusionment. Too much certainty, then, may contribute to an enormous waste of time and talent. Insufficient certitude, on the other hand, may also contribute to the same waste of time and talent in making career selections. Ss who never gain a sufficient measure of career certainty may remain so open minded that they drift endlessly through a period of extended adolescence without effectively and efficiently making a career commitment.

In the final analysis, career certainty is a difficult variable to define, much less measure. Explanations which attempt to clarify the reasons why both treatments fail to influence the Ss' reported amount of certainty with career plans appear to be fruitless and in vain. The question of certainty with career plans requires further research and investigation.

Recommendations

Research has shown that contingency contracting can be used successfully in classroom situations (Homme, 1969). If the same technique is to be

used in increasing vocational information seeking behaviors outside the classroom setting, certain precautions are in order.

The data from the study indicate that the sex and type of students are important variables to be considered in negotiationg a contingency contract for the performance of vocational information seeking behaviors. In general, college bound population appears to be highly motivated for career seeking behaviors. College bound males, in particular, appear to be able to work independently and require fewer immediate "pay offs" or rewards for information seeking behaviors. With the addition of the contingency contract, however, college bound females seem to perform a greater number of information seeking behaviors.

The work oriented population, on the other hand, does not appear to perform the same number of information seeking behaviors as the college bound Ss. But when treatment one (SDS & VGQ I) and treatment two (SDS, VGQ I, & contingency contracts) were administered to the work oriented Ss, even though no significant differences were found between them, the Ss still performed a significantly greater number of information seeking behaviors than the control Ss. The results imply that future use of contingency contracts with appropriate reinforcers requires reexamination and revision. Perhpas if the information seeking behaviors were broken down into smaller behavioral units, and the reinforcement schedule were changed to frequently reward the Ss to help shape successive approximations of vocational information seeking behaviors (VISB) the final number of performed VISB would be much higher. In any event, when employing contingency contracts for the performance of VISB, the number of reinforcements, the kind of schedule, and the length of the contract interval

appear to depend on the sex and type of students involved.

Self-Directed Search and Vocational Guidance Questionnaire

The analysis of data suggests that the SDS & VGQ I are effective instruments in increasing information seeking behaviors. Several observations are in order. First, the SDS may be administered individually or, as in the case of the study, in a large group setting. Since the instrument is not a test, the usual standardized testing procedures do not apply to the SDS. The absence of strict testing protocol appears to add to the Ss' interest and enjoyment in using the instrument.

Secondly, if the SDS is used in a large group setting, it is important to increase the number of proctors. Scoring procedures for the SDS, especially when the work oriented Ss are used, require further explanation and clarification. In fact, the greatest difficulty encountered in administering the instrument, comes in helping students organize or score their answers. Fortunately, however, even if calculation errors are made in determining the summary code, the results still prove to be useful (Holland, 1970).

The third observation on the use of the SDS concerns itself with the instrument's scope and purpose. According to Holland, (1970) approximately 50 to 60% of the Ss who use the SDS require no additional help in career exploration. Ss who find the SDS' help insufficient are encouraged to seek more intensive forms of counseling. In addition, the individuals who take the SDS and experience difficulty in determining the summary code or fail to locate occupations which match the summary code may well be the Ss most in need of counseling. Wide discrepancies between initial occupational daydreams and final summary codes are but one indication that further counseling

is in order. As a rough screening device, then, the SDS promises help in identifying Ss for further counseling. Effective use of the SDS implies that counselors will be better able to identify, and spend more time with clients most in need of counseling.

Future Research

Several suggestions for further research are in order. First, the same study could be duplicated to determine the effectiveness of contingency contracts alone in increasing VISB of high school Ss. Future designs ought to include some changes to measure the effects of switching or crossing over the order of treatments, i.e., administering the contingency contracts before the SDS and VGQI. The confounding variable of the school setting ought to be controlled for and several schools containing both college bound and work oriented students could incorporated in future designs. Second, modifications to the reinforcement menu could be introduced to include more meaningful and attractive rewards. Third, different reinforcement schedules which vary with the sex and type of student could be evaluated. Other suggested research involves extending the present study to include the use of contingency contracts with Ss of different age and grade level and also with Ss in different environments like institutional or camp settings.

The effectiveness of the SDS also requires further evaluation. The use of SDS with different populations, such as the junior high school students and unemployed adults who are considering career changes or retirement, appears to require more study. Finally, the influence of the SDS in different settings such as junior high school, hospitals, and employment offices also calls for further investigation.

Values of the Study

Research in the area of increasing vocational information seeking behaviors (VISB) of high school Ss has demonstrated the potential of similar procedures with populations in other settings.

Although the study failed to identify any significant difference between treatment one (SDS & VGQI) and treatment two (SDS, VFQI & contingency contract), the experimenter feels that an examination of the written (RVIS) summaries which the Ss turned in at the end of the experiment lends support to the effectiveness of contingency contracting.

The main value of the study appears to be threefold: (a) it extends the work of Krumboltz and others (1967, 1968) by introducing the technique of contingency contracts in increasing vocational information seeking behaviors; (b) it contributes to the on-going practical evaluation of Holland's SDS as an effective instrument for educational and vocational planning; and (c) it is hieuristic in that it raises more questions than it answers. Additional research is required to extend the use of the SDS and contingency contracts with other populations and in other settings.

PILOT STUDY

INCREASING INFORMATION SEEKING BEHAVIORS

REINFORCEMENT MENU

DIRECTIONS: If you were to negotiate a contract to perform certain information seeking activities, such as applying for a job or sending for a college catalogue, what rewards would you select from the list below for the performance of the agreed upon activities? Please read over the entire menu. Place a check in the space provided for the rewards which appeal to you. Please feel free to check as many rewards as you wish which appeal to you.

For Example:

(0) One free period in the library

Number of Information Seeking Behaviors Required: 1 or 2

REINFORCEMENT MENU

Number of Information Seeking Behaviors Required:

____1. One hour early dismissal — 1 or 2

____2. One hour late arrival — 1 or 2

____3. One extra lunch period — 1 or 2

____4. Lunch in the faculty dining room — 1 or 2

____5. Coke in the faculty lounge

____6. Letter of commendation from the principal — 3 or 4

____ A. To you — 3 or 4

____ B. To your parents — 3 or 4

____ C. To your employer — 3 or 4

____ D. To the college of your choice

____7. Letter of commendation from the principal to be placed in your student file and good until 12/31/71

Appendix A (Cont'd)

____ 8.	Letter of commendation from the principal to be placed in your student file and good until 6/30/72	5
____ 9.	Principal's commendation entered on your permanent record card and good for life	10
____ 10.	Other rewards you may wish to suggest: Number:	_____

STUDENT INTEREST QUESTIONNAIRE

PLEASE COMPLETE:

_____ _____ _____ H.R._____
Last Name First Name Initial

Male ____ Female ____ (Check One)

DIRECTIONS: Please read the following questions carefully. Check your answer in the space provided.

1. After high school I plan to: (Check One)

____ A. Work full time

____ B. Attend college full time for four years or more.

____ C. Attend junior college for two years and seek employment in specialty area.

____ D. Seek technical-vocational training, e.g. business, technical or trade school.

____ E. Enter military service.

____ F. Other: _____

2. List all of the occupations you are considering right now.

A. _____

B. _____

C. _____

D. _____

E. _____

3. Which occupation is your first choice right now? (If undecided, write: "undecided" and mark "Uncertain" in question four (4).

_____

4. How certain are you of your present choice of career? (Check ( ) one).

( )	( )	( )	( )	( )
Very Uncertain	Less Certain	Moderately Certain	More Certain	Very Certain

NAME: _____

5. Within the past six weeks if you have engaged in any of the activities listed below, check (✓) the item which best describes your performance.

EXAMPLE:

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE T ACTIV 5 or TIMES
0. READ:					
1. College newspaper	( )	( )	( )	( )	( )
In the past six weeks have you: ...					
A. SENT FOR:					
1. Information about job opportunities, wages, training requirements, etc.	( )	( )	( )	( )	( )
2. Information about apprenticeships, job training programs, or on-the-job training.	( )	( )	( )	( )	( )
3. Information about technical schools, e.g. program description, accreditation, cost, etc.	( )	( )	( )	( )	( )
4. Information about educational loans, scholarships, financial assistance, etc.	( )	( )	( )	( )	( )
5. College catalogue, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
B. READ:					
6. Employment information, job advertisements, etc.	( )	( )	( )	( )	( )
7. Descriptions of training programs, apprenticeships.	( )	( )	( )	( )	( )
8. Technical, business, or trade school catalogues.	( )	( )	( )	( )	( )
9. College catalogues, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
10. Guides and manuals for college selection	( )	( )	( )	( )	( )

NAME: _____

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE T ACTIVI 5 or M TIMES
C. SOUGHT VOCATIONAL INFORMATION FROM:					
11. Parents, relatives, friends or future employers about job opportunities or careers.	( )	( )	( )	( )	( )
12. Teacher, counselor, business representative or job placement officer about career or employment.	( )	( )	( )	( )	( )
13. College students, graduates, parents, friends, or others about college careers.	( )	( )	( )	( )	( )
14. Counselor or college representatives about entrance requirements, programs, courses, etc.	( )	( )	( )	( )	( )
D. VIEWED:					
15. Films, filmstrips, T.V. shows describing employment opportunities or jobs available.	( )	( )	( )	( )	( )
16. Films, filmstrips, T.V. shows describing colleges and college careers.	( )	( )	( )	( )	( )
E. LISTENED TO:					
17. Radio programs, tapes speakers, discussions on work opportunities.	( )	( )	( )	( )	( )
18. Radio programs, tapes speakers, discussions on college careers.	( )	( )	( )	( )	( )

NAME: _____

In the past six weeks have you:	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE TH ACTIVIT 5 or MO TIMES
F. ATTENDED:					
19. Community program on job training and placement.	( )	( )	( )	( )	( )
20. Volunteer program for work or training in an institution or organization, e.g. nurse's aide, clerical assistance, etc.	( )	( )	( )	( )	( )
21. Job conventions sponsored by banks, boards of trade, etc.	( )	( )	( )	( )	( )
22. "Career Day Programs" sponsored by schools.	( )	( )	( )	( )	( )
23. Meetings with college representatives from areas or colleges.	( )	( )	( )	( )	( )
G. PLANNED TO VISIT:					
24. Place of employment.	( )	( )	( )	( )	( )
25. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
26. Library or career center occupational files.	( )	( )	( )	( )	( )
27. Counseling office.	( )	( )	( )	( )	( )
28. College campus.	( )	( )	( )	( )	( )
29. Technical school.	( )	( )	( )	( )	( )
H. VISITED:					
30. Place of employment.	( )	( )	( )	( )	( )
31. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
32. Library or career center occupational files.	( )	( )	( )	( )	( )
33. Counseling office.	( )	( )	( )	( )	( )
34. College campus.	( )	( )	( )	( )	( )
35. Technical school.	( )	( )	( )	( )	( )

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE ACTIV 5 or TIMES
H. MADE ARRANGEMENTS TO TAKE: ...					
36. Vocational aptitude tests.	( )	( )	( )	( )	( )
37. Employment tests such as: Civil Service Examination, clerical, or other employment screening devices.	( )	( )	( )	( )	( )
38. College entrance examinations.	( )	( )	( )	( )	( )
I. TAKEN:					
39. Vocational aptitude tests.	( )	( )	( )	( )	( )
40. Employment tests such as: Civil Service Examination, clerical or other employment screening devices.	( )	( )	( )	( )	( )
41. College entrance examinations.	( )	( )	( )	( )	( )
J. WRITTEN:					
42. Job applications and resume of work experience, references, etc.	( )	( )	( )	( )	( )
43. Summaries of employment opportunities and job training programs.	( )	( )	( )	( )	( )
44. Summaries of careers and alternative occupations.	( )	( )	( )	( )	( )
45. Summaries of technical schools and their offerings.	( )	( )	( )	( )	( )
46. Summaries of colleges, programs, costs and requirements.	( )	( )	( )	( )	( )
47. Summaries of scholarship information, loans and financial assistance.	( )	( )	( )	( )	( )
48. College applications and transcript requests.	( )	( )	( )	( )	( )

6. Would you be interested in participating in an experimental program which is arranged to explore occupations and careers?(Check (✓) one).

_____ Yes _____ No _____ Unsure

7. Place a check (✓) on the line beside each activity to indicate how much time you would be willing to devote to each activity.

	0	1 hr.	2 hrs.	3 hrs.	4 hr or m
A. Taking vocational aptitude tests.	( )	( )	( )	( )	( )
B. Reading career or employment information literature.	( )	( )	( )	( )	( )
C. Discussing occupations and career goals with a vocational counselor, or psychologist.	( )	( )	( )	( )	( )
D. Participating in "Career Days" or job interviews.	( )	( )	( )	( )	( )
E. Visiting places of employment or college campuses.	( )	( )	( )	( )	( )

8. Place checks beside the times you would be willing to participate in an experimental program designed to explore occupations and careers.

A. _____ During school hours.

B. _____ Immediately after school.

C. _____ Summer vacation time.

D. _____ Weekday evenings.

E. _____ Weekends.

F. _____ School holidays.

9. During the past six weeks have you spent more or less time than usual in seeking information about your future occupation or career? (Check (✓) one).

( )	( )	( )	( )	( )
Much Less Time	Less Time	About The Same	More Time	Much More Time

VOCATIONAL GUIDANCE QUESTIONNAIRE I

PLEASE COMPLETE:

_____ _____ _____ H.R. _____

Last Name First Name Initial

DIRECTIONS: Please read the following questions carefully. Check your answer in the space provided.

1. After high school I plan to: (Check one)

_____ A. Work full time.

_____ B. Attend college full time for four years or more.

_____ C. Attend ju nior college for two years and seek emmployment in specialty area.

_____ D. Seek technical-vocational training, e.g. bu siness, technical or trade school.

_____ E. Enter military service.

_____ F. Other; _____

2. List all of the occupations you are considering right now.

A. _____

B. _____

C. _____

D. _____

E. _____

3. Which occupation is your first choice right now? (If undecided, write: "Undecided" and mark "Very Uncertain" in question four (4).

_____

4. How certain are you of your present choice of career? (Check (✓) one).

( )	( )	( )	( )	( )
Very Uncertain	Less Certain	Moderately Certain	More Certain	Very Certain

NAME: _____

5. In the next six weeks if you plan to engage in any of the activities listed below, check (✓) the item which will best describe your performance.

EXAMPLE:

In the next six weeks I intend to. . . .	DOES NOT APPLY	CONSIDER THIS ACTIVITY, BUT MAY NOT FIND TIME	DO THIS 1 or 2 TIMES	DO THIS 3 or 4 TIMES	DO THIS 5 or MORE TIMES
0. READ:					
1. College Newspapers.	( )	( )	( )	( )	( )

In the next six weeks I intend to: . . .

A. SEND FOR:					
1. Information about job opportunities, wages, training requirements, etc.	( )	( )	( )	( )	( )
2. Information about technical schools, e.g. program description, accreditation, cost, etc.	( )	( )	( )	( )	( )
3. Information about apprenticeships, job training programs, or on-the-job training.	( )	( )	( )	( )	( )
4. Information about educational loans, scholarships, financial assistance, etc.	( )	( )	( )	( )	( )
5. College catalogues, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
B. READ:					
6. Employment information, job advertisements, etc.	( )	( )	( )	( )	( )
7. Descriptions of training programs, apprenticeships.	( )	( )	( )	( )	( )
8. Technical, business, or trade school catalogues.	( )	( )	( )	( )	( )
9. College catalogues, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
10. Guides and manuals for college selection.	( )	( )	( )	( )	( )

In the next six weeks I intend to: . . .	DOES NOT APPLY	CONSIDER THIS ACTIVITY, BUT MAY NOT FIND TIME	DO THIS 1 or 2 TIMES	DO THIS 3 or 4 TIMES	DO THIS 5 or more TIMES
C. SEEK VOCATIONAL INFORMATION FROM:					
11. Parents, relatives, friends or future employers about job opportunities or careers.	( )	( )	( )	( )	( )
12. Teacher, counselor, business representative or job placement officer about career or employment.	( )	( )	( )	( )	( )
13. College students, graduates, parents, friends, or others about college careers.	( )	( )	( )	( )	( )
14. Counselor or college representatives about entrance requirements, programs, courses, etc.	( )	( )	( )	( )	( )
D. VIEW:					
15. Films, filmstrips, T.V. shows describing employment opportunities or jobs available	( )	( )	( )	( )	( )
16. Films, filmstrips, T.V. shows describing college and college careers.	( )	( )	( )	( )	( )
E. LISTEN TO:					
17. Radio programs, tapes speakers, discussions on work opportunities.	( )	( )	( )	( )	( )
18. Radio programs, tapes speakers, discussions on college careers.	( )	( )	( )	( )	( )

NAME: _____

In the next six weeks I intend to: . . .	DOES NOT APPLY	CONSIDER THIS ACTIVITY, BUT MAY NOT FIND TIME.	DO THIS 1 or 2 TIMES	DO THIS 3 or 4 TIMES	DO THIS 5 or more TIMES
F. ATTEND:					
19. Community program on job training and placement.	( )	( )	( )	( )	( )
20. Volunteer program for work or training in an institution or organization, e.g. nurse's aide, clerical assistance, etc.	( )	( )	( )	( )	( )
21. Job conventions sponsored by banks, boards of trades, schools, etc.	( )	( )	( )	( )	( )
22. "Career Day Programs" sponsored by schools.	( )	( )	( )	( )	( )
23. Meetings with college representatives from areas or colleges.	( )	( )	( )	( )	( )
G. PLAN TO VISIT:					
24. Places of employment	( )	( )	( )	( )	( )
25. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
26. Library or career center occupational files.	( )	( )	( )	( )	( )
27. Counseling office.	( )	( )	( )	( )	( )
28. College campus.	( )	( )	( )	( )	( )
29. Technical school.	( )	( )	( )	( )	( )
H. VISIT:					
30. Places of employment.	( )	( )	( )	( )	( )
31. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
32. Library or career center occupational files.	( )	( )	( )	( )	( )
33. Counseling office.	( )	( )	( )	( )	( )
34. College Campus.	( )	( )	( )	( )	( )
35. Technical school.	( )	( )	( )	( )	( )

NAME: _____

In the next six weeks I intend to: . . .	DOES NOT APPLY	CONSIDER THIS ACTIVITY, BUT MAY NOT FIND TIME.	DO THIS 1 or 2 TIMES	DO THIS 3 or 4 TIMES	DO THIS 5 or more TIMES
I. MAKE ARRANGEMENTS TO TAKE:					
36. Vocational aptitude tests.	( )	( )	( )	( )	( )
37. Employment tests such as: Civil Service Examination, clerical or other employment screening devices.	( )	( )	( )	( )	( )
38. College entrance examinations.	( )	( )	( )	( )	( )
J. TAKE:					
39. Vocational aptitude tests.	( )	( )	( )	( )	( )
40. Employment tests such as Civil Service Examination, clerical or other employment screening devices.	( )	( )	( )	( )	( )
41. College entrance examinations.	( )	( )	( )	( )	( )
K. WRITE:					
42. Job applications and resumes of work experience, references, etc.	( )	( )	( )	( )	( )
43. Summaries of careers and alternative occupations.	( )	( )	( )	( )	( )
44. Summaries of employment opportunities and job training programs.	( )	( )	( )	( )	( )
45. Summaries of technical schools and their offerings.	( )	( )	( )	( )	( )
46. Summaries of colleges, programs, costs and requirements.	( )	( )	( )	( )	( )
47. Summaries of scholarship information, loans and financial assistance.	( )	( )	( )	( )	( )
48. College applications and transcript requests.	( )	( )	( )	( )	( )

6. How interested are you in participating in this program which is designed to explore occupations and careers? (Check (✓) one).

( )	( )	( )	( )	( )
Very Uninterested	Less Interested	Moderately Interested	More Interested	Very Interested

7. Place a check (✓) on the line beside each activity to indicate how much time you intend to spend on each activity.

	0	1 hr.	2 hrs.	3 hrs.	4 hrs or More
A. Taking vocational aptitude tests.	( )	( )	( )	( )	( )
B. Reading career or employment information literature.	( )	( )	( )	( )	( )
C. Discussing occupations or career goals with a vocational counselor.	( )	( )	( )	( )	( )
D. Participating in career, job, or college interviews.	( )	( )	( )	( )	( )
E. Visiting places of employment or college campuses.	( )	( )	( )	( )	( )

8. Place checks beside the times you intend to spend exploring occupations and careers.

A. ____ Du ring school hours.

B. ____ Immediately after school.

C. ____ Immediately before school.

D. ____ Weekday evenings.

E. ____ Weekends.

F. ____ School holidays.

99. Do you intend to spend more or less time than usual during the next six weeks in seeking information about your future occupation or career? (Check (✓) one).

( )	( )	( )	( )	( )
Much Less Time	Less Time	About The Same Time	More Time	Much More Time

VOCATIONAL GUIDANCE QUESTIONNAIRE II

PLEASE COMPLETE:

_____ _____ _____ H.R. _____

Last Name First Name Initial

Male _____ Female _____ (Check one)

DIRECTIONS: Please read the following questions carefully. Check your answer in the space provided.

1. After high school I plan to: (Check (✓) one)

_____ A. Work full time.

_____ B. Attend college full time for four years or more.

_____ C. Attend junior college for two years and seek employment in a specialty area.

_____ D. Seek technical-vocational training, e.g. business, technical, or trade school.

_____ E. Enter military service.

_____ F. Other: _____

2. List all of the occupations you are considering right now.

A. _____

B. _____

C. _____

D. _____

E. _____

3. Which occupation is your first choice right now? (If undecided, write: "Undecided" and mark "Very Uncertain" in question four (4).

_____

4. How certain are you of your present choice of career? (Check (✓) one).

( )	( )	( )	( )	( )
Very Uncertain	Less Certain	Moderately Certain	More Certain	Very Certain

5. Within the past six weeks if you have engaged in any of the activities listed below, check (✓) the item which best describes your performance.

EXAMPLE:

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE T. ACTIVI 5 or M TIMES
0. READ:					
1. College newspaper	( )	( )	(✓)	( )	( )
In the past six weeks have you: ...					
A. SENT FOR:					
1. Information about job opportunities, wages, training requirements, etc.	( )	( )	( )	( )	( )
2. Information about apprenticeships, job training programs, or on-the-job training.	( )	( )	( )	( )	( )
3. Information about technical schools, e.g. program description, accreditation, cost, etc.	( )	( )	( )	( )	( )
4. Information about educational loans, scholarships, financial assistance, etc.	( )	( )	( )	( )	( )
5. College catalogue, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
B. READ:					
6. Employment information, job advertisements, etc.	( )	( )	( )	( )	( )
7. Descriptions of training programs, apprenticeships.	( )	( )	( )	( )	( )
8. Technical, business, or trade school catalogues.	( )	( )	( )	( )	( )
9. College catalogues, pamphlets, brochures, etc.	( )	( )	( )	( )	( )
10. Guides and manuals for college selection	( )	( )	( )	( )	( )

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE TH ACTIVIT 5 or MC TIMES
C. SOUGHT VOCATIONAL INFORMATION FROM:					
11. Parents, relatives, friends or future employers about job opportunities or careers.	( )	( )	( )	( )	( )
12. Teacher, counselor, business representative or job placement officer about career or employment.	( )	( )	( )	( )	( )
13. College students, graduates, parents, friends, or others about college careers.	( )	( )	( )	( )	( )
14. Counselor or college representatives about entrance requirements, programs, courses, etc.	( )	( )	( )	( )	( )
D. VIEWED:					
15. Films, filmstrips, T.V. shows describing employment opportunities or jobs available.	( )	( )	( )	( )	( )
16. Films, filmstrips, T.V. shows describing colleges and college careers.	( )	( )	( )	( )	( )
E. LISTENED TO:					
17. Radio programs, tapes speakers, discussions on work opportunities.	( )	( )	( )	( )	( )
18. Radio programs, tapes speakers, discussions on college careers.	( )	( )	( )	( )	( )

NAME: _____

In the past six weeks have you:	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE TH ACTIVIT 5 or MO TIMES
F. ATTENDED:					
19. Community program on job training and placement.	( )	( )	( )	( )	( )
20. Volunteer program for work or training in an institution or organization, e.g. nurse's aide, clerical assistance, etc.	( )	( )	( )	( )	( )
21. Job conventions sponsored by banks, boards of trade, etc.	( )	( )	( )	( )	( )
22. "Career Day Programs" sponsored by schools.	( )	( )	( )	( )	( )
23. Meetings with college representatives from areas or colleges.	( )	( )	( )	( )	( )
G. PLANNED TO VISIT:					
24. Place of employment.	( )	( )	( )	( )	( )
25. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
26. Library or career center occupational files.	( )	( )	( )	( )	( )
27. Counseling office.	( )	( )	( )	( )	( )
28. College campus.	( )	( )	( )	( )	( )
29. Technical school.	( )	( )	( )	( )	( )
H. VISITED:					
30. Place of employment.	( )	( )	( )	( )	( )
31. State employment office, employment agency, etc.	( )	( )	( )	( )	( )
32. Library or career center occupational files.	( )	( )	( )	( )	( )
33. Counseling office.	( )	( )	( )	( )	( )
34. College campus.	( )	( )	( )	( )	( )
35. Technical school.	( )	( )	( )	( )	( )

In the past six weeks have you: ...	DOES NOT APPLY	THOUGHT ABOUT THIS ACTIVITY BUT HAVE BEEN TOO BUSY	DONE THIS ACTIVITY 1 or 2 TIMES	DONE THIS ACTIVITY 3 or 4 TIMES	DONE ' ACTIVI 5 or M TIMES
I. MADE ARRANGEMENTS TO TAKE: ...					
36. Vocational aptitude tests.	( )	( )	( )	( )	( )
37. Employment tests such as: Civil Service Examination, clerical, or other employment screening devices.	( )	( )	( )	( )	( )
38. College entrance examinations.	( )	( )	( )	( )	( )
J. TAKEN:					
39. Vocational aptitude tests.	( )	( )	( )	( )	( )
40. Employment tests such as: Civil Service Examination, clerical or other employment screening devices.	( )	( )	( )	( )	( )
41. College entrance examinations.	( )	( )	( )	( )	( )
K. WRITTEN:					
42. Job applications and resume of work experience, references, etc.	( )	( )	( )	( )	( )
43. Summaries of employment opportunities and job training programs.	( )	( )	( )	( )	( )
44. Summaries of careers and alternative occupations.	( )	( )	( )	( )	( )
45. Summaries of technical schools and their offerings.	( )	( )	( )	( )	( )
46. Summaries of colleges, programs, costs and requirements.	( )	( )	( )	( )	( )
47. Summaries of scholarship information, loans and financial assistance.	( )	( )	( )	( )	( )
48. College applications and transcript requests.	( )	( )	( )	( )	( )

NAME: _____

6. How interested were you during the past six weeks in exploring occupations and and careers? (Check (✓) one).

( )	( )	( )	( )	( )
Very Uninterested	Less Interested	Moderately Interested	More Interested	Very Interested

7. Place a check (✓) on the line beside each activity to indicate how much time you spent during the last six weeks on each of the following activities:

	0	1 hr.	2 hrs.	3 hrs.	4 hrs. or More.
A. Taking vocational aptitude tests.	( )	( )	( )	( )	( )
B. Reading career or employment information literature.	( )	( )	( )	( )	( )
C. Discussing occupations or career goals with a vocational counselor.	( )	( )	( )	( )	( )
D. Participating in career, job, or college interviews	( )	( )	( )	( )	( )
E. Visiting places of employment or college campuses	( )	( )	( )	( )	( )

8. Place checks beside the times you spent exploring occupations and careers during the past six weeks.

A. ____ During school hours.

B. ____ Immediately after school.

C. ____ Immediately before school.

D. ____ Weekday evenings.

E. ____ Weekends.

F. ____ School holidays.

9. Did you spend more or less time than usual during the past six weeks in seeking information about your future occupation or career? (Check (✓) one).

( )	( )	( )	( )	( )
Much Less Time	Less Time	About The Same Time	More Time	Much More Time

PLEASE NOTE:

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UNIVERSITY MICROFILMS.

THE SELF DIRECTED SEARCH

A Guide to Educational and Vocational Planning

by John L. Holland, Ph.D.

This booklet may help you explore what occupation to follow. If you have already made up your mind about an occupation, it may support your idea or suggest other possibilities. If you are uncertain about what occupation to follow, the booklet may help you to locate a small group of occupations for further consideration. Most people find that filling out this booklet is helpful and fun. If you follow the directions carefully, page by page, you should enjoy the experience. Do not rush: you will gain more by approaching the task thoughtfully. Use lead pencil, so you can erase easily.

Name _____ Date ___/___/___

CONSULTING PSYCHOLOGISTS PRESS
577 College Avenue, Palo Alto, California 94306

OCCUPATIONAL DAYDREAMS

1. List below the occupations you have considered in thinking about your future. List the careers you have daydreamed about as well as those you have discussed with others. Try to give a history of your tentative choices and daydreams. Put your most recent job choice on Line 1 and work backwards to the earlier jobs you have considered.

Occupation	Code
1. _____	☐☐☐
2. _____	☐☐☐
3. _____	☐☐☐
4. _____	☐☐☐
5. _____	☐☐☐
6. _____	☐☐☐
7. _____	☐☐☐
8. _____	☐☐☐

2. Now use *The Occupations Finder*. Locate the three-letter code for each of the occupations you just wrote down. This search for occupational codes will help you learn about the many occupations in the world. This task usually takes from 5 to 15 minutes.

If you can't find the exact occupation in *The Occupations Finder*, use the occupation that seems most like your occupational choice.

ACTIVITIES

Blacken under "L" for those activities you like to do. Blacken under "D" for those things you are indifferent to, have never done, or do not like.

Realistic

	L	D
Fix electrical things	☐	☐
Repair cars	☐	☐
Fix mechanical things	☐	☐
Build things with wood	☐	☐
Drive a truck or tractor	☐	☐
Use metalworking or machine tools	☐	☐
Work on a hot rod or motorcycle	☐	☐
Take Shop course	☐	☐
Take Mechanical drawing course	☐	☐
Take Woodworking course	☐	☐
Take Auto mechanics course	☐	☐
Total No. of L's	☐	

Investigative

Read scientific books or magazines	☐	☐
Work in a laboratory	☐	☐
Work on a scientific project	☐	☐
Build rocket models	☐	☐
Work with a chemistry set	☐	☐
Read about special subjects on my own	☐	☐
Solve math or chess puzzles	☐	☐
Take Physics course	☐	☐
Take Chemistry course	☐	☐
Take Geometry course	☐	☐
Take Biology course	☐	☐
Total No. of L's	☐	

Artistic

Sketch, draw, or paint	☐	☐
Attend plays	☐	☐
Design furniture or buildings	☐	☐
Play in a band, group, or orchestra	☐	☐
Practice a musical instrument	☐	☐
Go to recitals, concerts, or musicals	☐	☐
Read popular fiction	☐	☐
Create portraits or photographs	☐	☐
Read plays	☐	☐
Read or write poetry	☐	☐
Take Art course	☐	☐
Total No. of L's	☐	

Social

	L	D
Write letters to friends	☐	☐
Attend religious services	☐	☐
Belong to social clubs	☐	☐
Help others with their personal problems	☐	☐
Take care of children	☐	☐
Go to parties	☐	☐
Dance	☐	☐
Read psychology books	☐	☐
Attend meetings and conferences	☐	☐
Go to sports events	☐	☐
Make new friends	☐	☐
Total No. of L's	☐	

Enterprising

	☐	☐
Influence others	☐	☐
Sell something	☐	☐
Discuss politics	☐	☐
Operate my own service or business	☐	☐
Attend conferences	☐	☐
Give talks	☐	☐
Serve as an officer of any group	☐	☐
Supervise the work of others	☐	☐
Meet important people	☐	☐
Lead a group in accomplishing some goal	☐	☐
Participate in political campaign	☐	☐
Total No. of L's	☐	

Conventional

	☐	☐
Keep your desk and room neat	☐	☐
Type papers or letters for yourself or for others	☐	☐
Add, subtract, multiply, and divide numbers in business, or bookkeeping	☐	☐
Operate business machines of any kind	☐	☐
Keep detailed records of expenses	☐	☐
Take Typewriting course	☐	☐
Take Business course	☐	☐
Take Bookkeeping course	☐	☐
Take Commercial math course	☐	☐
File letters, reports, records, etc.	☐	☐
Write business letters	☐	☐
Total No. of L's	☐	

COMPETENCIES

Blacken under Y for "Yes" for those activities you can do well or competently. Blacken under N for "No" for those activities you have never performed or perform poorly.

Realistic

	Y	N
I have used wood shop power tools such as power saw or lathe	☐	☐
I know how to use a voltmeter	☐	☐
I can adjust a carburetor	☐	☐
I have operated metal shop power tools such as a drill press or grinder	☐	☐
I can refinish varnished or stained furniture or woodwork	☐	☐
I can read blueprints	☐	☐
I can make simple electrical repairs	☐	☐
I can repair furniture	☐	☐
I can make mechanical drawings	☐	☐
I can make simple repairs on a TV set	☐	☐
I can make simple plumbing repairs	☐	☐

Total No. of Y's ☐

Investigative

I understand how a vacuum tube works	☐	☐
I can name three foods that are high in protein content	☐	☐
I understand the "half-life" of a radioactive element	☐	☐
I can use logarithmic tables	☐	☐
I can use a slide rule to multiply or divide	☐	☐
I can use a microscope	☐	☐
I can identify three constellations of the stars	☐	☐
I can describe the function of the white blood cells	☐	☐
I can interpret simple chemical formulae	☐	☐
I understand why man-made satellites do not fall to the earth	☐	☐
I have participated in a scientific fair or contest	☐	☐

Total No. of Y's ☐

Artistic

I can play a musical instrument	☐	☐
I can participlate in two- or four-part choral singing	☐	☐
I can perform as a musical soloist	☐	☐
I can act in a play	☐	☐
I can do interpretive reading	☐	☐
I can do modern interpretive or ballet dancing	☐	☐
I can sketch people so that they can be recognized	☐	☐
I can do a painting or sculpture	☐	☐
I can make pottery	☐	☐
I can design clothing, posters, or furniture	☐	☐
I write stories or poetry well	☐	☐

Total No. of Y's ☐

Social

	Y	N
I am good at explaining things to others	☐	☐
I have participated in charity or benefit drives	☐	☐
I cooperate and work well with others	☐	☐
I am competent at entertaining people older than I	☐	☐
I can be a good host (hostess)	☐	☐
I can teach children easily	☐	☐
I can plan entertainment for a party	☐	☐
I am good at helping people who are upset or troubled	☐	☐
I have worked as a volunteer aide in a hospital, clinic, or home	☐	☐
I can plan school or church social affairs	☐	☐
I am a good judge of personality	☐	☐

Total No. of Y's ☐

Enterprising

I have been elected to an office in high school or college	☐	☐
I can supervise the work of others	☐	☐
I have unusual energy and enthusiasm	☐	☐
I am good at getting people to do things my way	☐	☐
I am a good salesman	☐	☐
I have acted as spokesman for some group in presenting suggestions or complaints to a person in authority	☐	☐
I won an award for work as a salesman or leader	☐	☐
I have organized a club, group, or gang	☐	☐
I have started my own business or service	☐	☐
I know how to be a successful leader	☐	☐
I am a good debater	☐	☐

Total No. of Y's ☐

Conventional

I can type 40 words a minute	☐	☐
I can operate a duplicating or adding machine	☐	☐
I can take shorthand	☐	☐
I can file correspondence and other papers	☐	☐
I have held an office job	☐	☐
I can use a bookkeeping machine	☐	☐
I can do a lot of paper work in a short time	☐	☐
I can use a calculating machine	☐	☐
I can use simple data processing equipment such as a keypuch	☐	☐
I can post credits and debits	☐	☐
I can keep accurate records of payments or sales	☐	☐

Total No. of Y's ☐

OCCUPATIONS

This is an inventory of your feelings and attitudes about many kinds of work. Show the occupations that *interest* or *appeal* to you by blackening under Y for "Yes." Show the occupations that you *dislike* or find *uninteresting* by blackening under N for "No."

	Y	N
Airplane Mechanic	☐	☐
Fish and Wildlife Specialist	☐	☐
Power Station Operator	☐	☐
Master Plumber	☐	☐
Power Shovel Operator	☐	☐
Surveyor	☐	☐
Construction Inspector	☐	☐
Radio Operator	☐	☐
Filling Station Attendant	☐	☐
Tree Surgeon	☐	☐
Tool Designer	☐	☐
Locomotive Engineer	☐	☐
Photoengraver	☐	☐
Electrician	☐	☐
Total Realistic Y's	☐	
Meteorologist	☐	☐
Biologist	☐	☐
Astronomer	☐	☐
Aeronautical Design Engineer	☐	☐
Anthropologist	☐	☐
Zoologist	☐	☐
Chemist	☐	☐
Independent Research Scientist	☐	☐
Writer of Scientific Articles	☐	☐
Editor of a Scientific Journal	☐	☐
Geologist	☐	☐
Botanist	☐	☐
Scientific Research Worker	☐	☐
Physicist	☐	☐
Total Investigative Y's	☐	
Speculator	☐	☐
Buyer	☐	☐
Stock & Bond Salesman	☐	☐
Manufacturer's Representative	☐	☐
Television Producer	☐	☐
Hotel Manager	☐	☐
Business Executive	☐	☐
Restaurant Worker	☐	☐
Master of Ceremonies	☐	☐
Traveling Salesman	☐	☐
Real Estate Salesman	☐	☐
Industrial Relations Consultant	☐	☐
Sports Promoter	☐	☐
Political Campaign Manager	☐	☐
Total Enterprising Y's	☐	

	Y	N
Poet	☐	☐
Symphony Conductor	☐	☐
Musician	☐	☐
Author	☐	☐
Commercial Artist	☐	☐
Free-Lance Writer	☐	☐
Musical Arranger	☐	☐
Art Dealer	☐	☐
Dramatic Coach	☐	☐
Concert Singer	☐	☐
Composer	☐	☐
Stage Director	☐	☐
Playwright	☐	☐
Cartoonist	☐	☐
Total Artistic Y's	☐	
Foreign Missionary	☐	☐
High School Teacher	☐	☐
Juvenile Delinquency Expert	☐	☐
Speech Therapist	☐	☐
Marriage Counselor	☐	☐
Physical Education Teacher	☐	☐
Playground Director	☐	☐
Clinical Psychologist	☐	☐
Social Science Teacher	☐	☐
Director of Welfare Agency	☐	☐
Asst. City School Supt.	☐	☐
Personal Counselor	☐	☐
Psychiatric Case Worker	☐	☐
Vocational Counselor	☐	☐
Total Social Y's	☐	
Bookkeeper	☐	☐
Quality Control Expert	☐	☐
Budget Reviewer	☐	☐
Traffic Manager	☐	☐
Statistician	☐	☐
Court Stenographer	☐	☐
Bank Teller	☐	☐
Tax Expert	☐	☐
Inventory Controller	☐	☐
IBM Equipment Operator	☐	☐
Financial Analyst	☐	☐
Cost Estimator	☐	☐
Payroll Clerk	☐	☐
Bank Examiner	☐	☐
Total Conventional Y's	☐	

SELF-ESTIMATES

1. Rate yourself on each of the following traits as *you really think you are when compared with other persons your own age.* Give the most accurate estimate of *how you see yourself.* Circle the appropriate number and *avoid rating yourself the same in each ability.*

	Mechanical Ability	Scientific Ability	Artistic Ability	Teaching Ability	Sales Ability	Clerical Ability
High	7	7	7	7	7	7
	6	6	6	6	6	6
Average	5	5	5	5	5	5
	4	4	4	4	4	4
	3	3	3	3	3	3
Low	2	2	2	2	2	2
	1	1	1	1	1	1
	R	I	A	S	E	C
High	7	7	7	7	7	7
	6	6	6	6	6	6
Average	5	5	5	5	5	5
	4	4	4	4	4	4
	3	3	3	3	3	3
Low	2	2	2	2	2	2
	1	1	1	1	1	1
	Manual Skills	Math Ability	Musical Ability	Friend-liness	Managerial Skills	Office Skills

HIGHEST LETTER RATINGS

☐ 1st

☐ 2nd

☐ 3rd

HIGHEST LETTER RATINGS

☐ 1st

☐ 2nd

☐ 3rd

2. Connect your self-ratings with lines so that you have two line graphs.

3. Print the three highest letter ratings for each graph. If you rated yourself highest on R, then print an R in the first box. If I was your next highest rating, print an I, and so on. If any of your highest ratings are the same (for example, R = 7, I = 7, E = 6, S = 5), rerate yourself so that there are no ratings with the same number.

HOW TO ORGANIZE YOUR ANSWERS

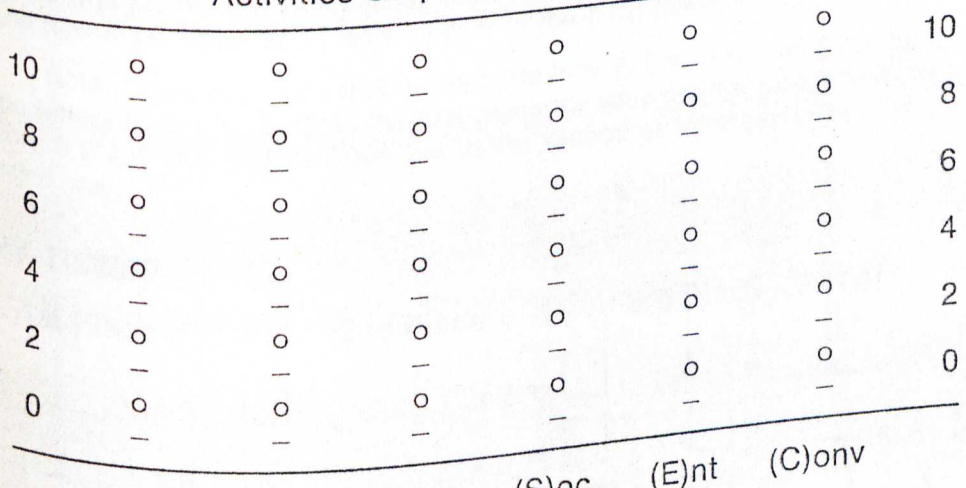
1. *Start on page 4.* Count how many times you said L for "Like." Record the number of L's or Y's for each group of *Activities, Competencies,* or *Occupations* in the blank spaces that are at the end of each group.

2. Plot your letter scores on the graphs below by making a black dot in the appropriate column for each of your scores, and connect the six dots for each graph with lines.

3. Write down the *letters* for the three highest letter scores. For example, take your "Activities." If letter "R" has the highest number you would put down an "R" first. If "I" has the next highest number, you would put down an "I" in the second box. And if "E" has the next highest number, then put down "E" in the third box.

Note: If high scores are the same or tied, put both letters in the same box separated by a line. For example, if your two highest scores were the same, you might do this: R/I E S. Follow the same procedure if three or more scores are tied, but leave the second and third boxes blank.

Activities Graph (from pages 4 & 5)



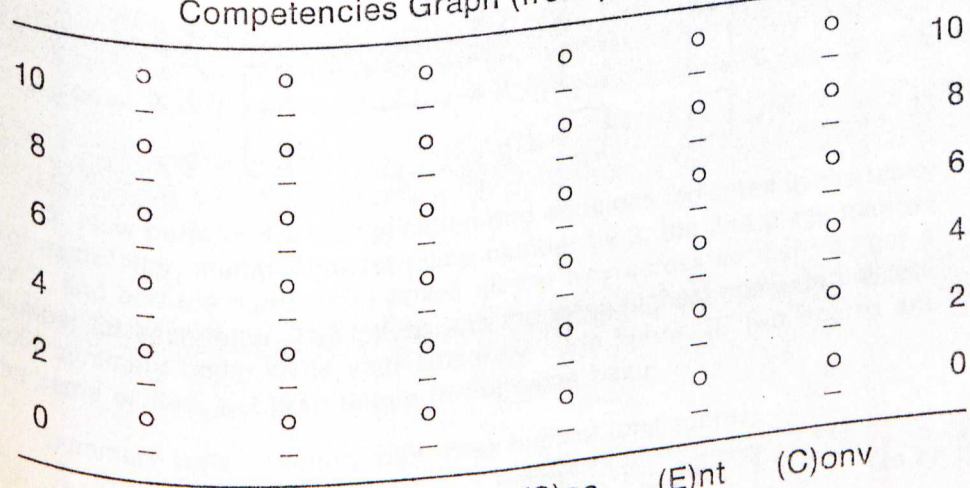
HIGHEST LETTER RATINGS

1st

2nd

3rd

Competencies Graph (from pages 6 & 7)



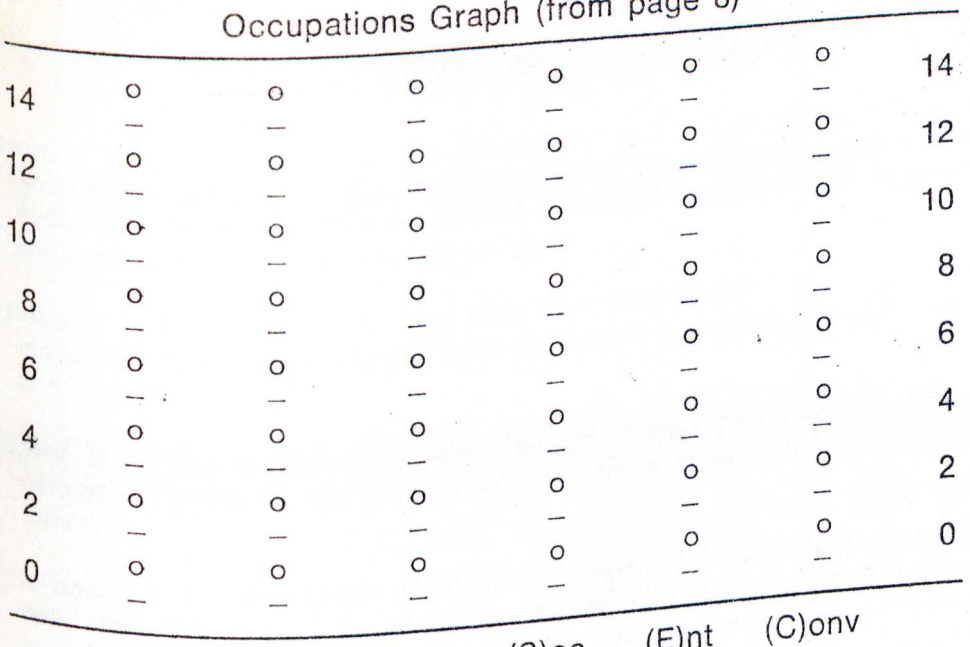
HIGHEST LETTER RATINGS

1st

2nd

3rd

Occupations Graph (from page 8)



HIGHEST LETTER RATINGS

4. Finally, you must obtain your summary code. Review your highest letter scores for the graphs on pages 9 and 10. Be sure to count all five graphs. Record on the table below the number of times each letter occurs in the first place, how many times each letter occurs in the second place, and how many times each letter occurs in the third place.

Note: Count any tied sores as separate letters. For example, if you had the letters E, E/I, C, E, C, in the first place for your graphs, you would record 3 E's, 2 C's, and 1I. Treat ties in the second or third positions in the same way.

HOW MANY TIMES?

	1st Place		2nd Place		3rd Place	TOTAL
R	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	R
I	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	I
A	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	A
S	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	S
E	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	E
C	_____	x 3 = ☐	_____	x 2 = ☐	☐ = _____	C

5. Now perform the multiplication and additions indicated in the table. For each letter, multiply the 1st place number by 3, the 2nd place number by 2, and *add the numbers in boxes* all the way across so that you get a number for each letter. The letters with the three highest numbers indicate your summary code. Write your summary code below. (If two scores are the same or tied, put both letters in the same box.)

Summary code (Letters with three highest total scores)

Highest ☐ 2nd ☐ 3rd ☐

Go on to page 13

SOME USEFUL BOOKS

Astin, A. W., and Panos, R. J. *The Educational and Vocational Development of College Students.* Washington, D.C.: American Council on Education, 1969. A technical book about the effects of college on student vocational decisions. Also documents the ways students move from field to field in college.

*Crites, J. O. *Vocational Psychology.* New York: McGraw-Hill, 1969. A technical and encyclopedic account of vocational behavior including vocational choice, job satisfaction, and related topics.

Glaser, B. G. *Organizational Careers.* Chicago: Aldine, 1968. A book of readings about careers—theories of, role of motivation, effects or organizations on workers, and other topics.

*Holland, J. L. *The Psychology of Vocational Choice.* Waltham, Massachusetts: Ginn-Blaisdell, 1966. The SDS is based on the theory of personality types and environmental models outlined in this book. Attempts to organize the scientific knowledge of vocational decisions, vocational interests, and personality.

The Occupational Outlook Handbook, U.S. Department of Labor, Bureau of Labor Statistics. This handbook is published every two years and is the best single source for information about occupations. See your counselor or library, or order from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, and enclose a check for $6.25.

Roe, Anne. *The Psychology of Occupations.* New York: Wiley, 1956. An interesting account of what we know about people in different occupational groups. Includes Roe's theory of vocational choice and occupational classification.

Super, D. E. *The Psychology of Careers.* New York: Harper, 1957. A useful and readable summary of our occupational knowledge.

Guidance Series Booklets: *Choosing Your Career. Discovering Your Real Interests. How to Get the Job. What Employers Want. Your Personality and Your Job.* Your counselor may have these readable booklets for high school students, or you may order them from Science Research Associates, Chicago, Illinois 60611.

*Available from Consulting Psychologists Press.

WHAT YOUR SUMMARY CODE MEANS

The summary code is a simple way for organizing information about people and jobs. Although it is only an estimate, your summary code can be used to discover how your special pattern of interests, self-estimates, and competencies resemble the patterns of interests and competencies that many common occupations demand. In this way, your summary code locates suitable *groups* of occupations for you to consider.

1. Use *The Occupations Finder* and locate the occupations whose codes are *identical* with yours. For instance, if your summary code is I R E, occupations with codes of I R E are *identical* with yours. List some of these occupations below. If you do not find an occupation with an identical code, go to the next paragraph.

Occupation	Education

2. Make a list of occupations whose summary codes *resemble* yours. For instance, if your code is I R E, search *The Occupations Finder* for occupations with all possible arrangements of I R E. Look for occupations with codes of R I E, R E I, I E R, E R I. (If your summary code includes a tie such as R IE A, you must look up more combinations such as R I E, R I A, R E A, etc.) Start by writing down the six possible letter arrangements of your summary code.

Summary Code	Similar Codes			

SOME NEXT STEPS

1. Compare your summary code with the codes for your Occupational Daydreams on page 3. They should be fairly similar. If they are quite different, you may find it helpful to talk over the differences with a counselor. You should also see a counselor if you do not obtain a satisfactory summary code or if you would like more information.

2. Go back to *The Occupations Finder* and find out how much education or training is required for each of the occupations you listed earlier. Record these facts after each of your occupational possibilities.

3. Seek more information about these occupations from local counseling centers, school counselors, libraries, labor unions, employment services, and occupational information files (usually found in counseling offices).

4. Talk to people employed in the occupations in which you are especially interested. Most business and professional people enjoy talking about their work. Remember, however, that they may have personal biases.

5. Try to obtain part-time work experience that is similar to the activities in the occupation or occupations you are considering, even if you must give your time without pay.

6. Read articles and books that describe occupations or attempt to explain current scientific knowledge about the choice of an occupation. Some suggestions are listed on page 12.

7. Consider any health or physical limitations that might affect your choice.

8. Investigate the educational requirements for the occupations that interest you. Where could you obtain the required training? Is it financially possible? Is it reasonable in terms of your learning ability, age, family situation, etc.

9. Remember: no one but you can make your vocational decision. Our knowledge of vocational choice is too limited to provide you with an exact choice, but we may help you focus on some of the most likely possibilities.

10. Put your SDS workbook away for a few days or weeks. Then get it out and go through it carefully again, changing any answers that should be changed, refiguring your scores and code, reflecting on the results. It is usually best to defer making a single, specific occupational choice until it is absolutely necessary; if one can prepare himself for several related occupations simultaneously, his final selection will have a better chance of fitting his abilities and personality optimally.

DUPLICATE SUMMARY PAGE

The summary code is a simple way for organizing information about people and jobs. Although it is only an estimate, your summary code can be used to discover how your special pattern of interests, self-estimates, and competencies resemble the patterns of interests and competencies that many common occupations demand. In this way, your summary code locates suitable *groups* of occupations for you to consider.

1. Use *The Occupations Finder* and locate the occupations whose codes are *identical* with yours. For instance, if your summary code is I R E, occupations with codes of I R E are *identical* with yours. List some of these occupations below. If you do not find an occupation with an identical code, go to the next paragraph.

Occupation	Education

2. Make a list of occupations whose summary codes *resemble* yours. For instance, if your code is I R E, search *The Occupations Finder* for occupations with all possible arrangements of I R E. Look for occupations with codes of R I E, R E I, I E R, E R I. (If your summary code includes a tie such as R IE A, you must look up more combinations such as R I E, R I A, R E A, etc.) Start by writing down the six possible letter arrangements of your summary code.

Summary Code	Similar Codes

CONTRACT
FOR
INFORMATION SEEKING

APPENDIX F

Last Name _____ First Name _____ H.R. Initial _____

I. RATIONALE:

Seeking vocational information is important because it provides the "Choice Supply" necessary for a sound vocational or career decision. The Self-Directed Search Instrument should help you increase your vocational information seeking activities and provide you with your own personal "Choice Supply." But there are some students who even though they can agree to the necessity of seeking vocational information still feel the need of some further incentive to encourage them in their vocational exploration activities. If you are one of these students I have a proposal to make.

II. PLAN:

If you agree on the need of seeking vocational information, I have a plan which is designed to the number of your information seeking performances. My plan is to offer you a choice of appropriate reward(s) to encourage you to seek vocational information concerning your future occupation or career. To earn this reward you must perform an agreed upon number of activities. Consider now, some of the Information Seeking Activities and rewards available:

A. INFORMATION SEEKING ACTIVITIES:

1. Send for vocational literature.
2. Read " "
3. Talk with people in these careers.
4. View vocational films, filmstrips T.V.
5. Listen to radio programs, discussions
6. Attend vocational meetings, conventions, "Career Days", vocational programs.
7. Plan to visit places of work, training, or schooling.
8. Visit places of work, schools.
9. Make arrangements to take tests.
10. Take vocational tests.
11. Write summaries of careers.

B. REINFORCEMENT MENU:

REWARDS	NUMBER OF REQUIRED INFORMATION SEEKING BEHAVIORS:
1. Letter of commendation from your counselor, or principal	
a. to you	1 or 2
b. to your parents	3 or 4
c. to your employer or college of your choice	5 or more
2. Letter of commendation from your principal to be placed in your file until:	
a. December 31, 1971	1 or 2
b. June 30, 1972	3 or 4
c. Indefinitely	5 or more
3. Pending arrangements, student interests and school resources a field trip to local place of business, technical school or college campus,	5 or more
4. Pending arrangements, student interests and school resources (2) vocational group counseling sessions, films, filmstrips or a speaker on careers.	5 or more

CONTRACT
FOR
INFORMATION SEEKING

Last Name _____ First Name _____ Initial _____ H. R. _____

DIRECTIONS:

Perform the following steps to complete your Information Seeking Contract:

1. In Column A of the contract state the specific kind, and the exact number of vocational information seeking you intend to engage in during the next six weeks (Nov. 1 to Dec. 10).
2. In Column B of the contract enter the reward(s) you have selected from the Reinforcement Menu on page 1.
3. Fill in the remaining information blanks of the contract, and
4. At the bottom of the contract sign your name, the date and your high school.

CONTRACT

In the next six weeks -- November 1st to December 10th, 1971,

I, _____
Name of Student

Agree to perform the following information seeking activities this number of times:

	COLUMN A INFORMATION SEEKING ACTIVITIES	NUMBER OF TIMES
1.		
2.		
3.		
4.		

(If more space is needed, use other side)

The reward(s) I have selected is or are as follows:

COLUMN B

_____

_____

Date _____ _____ High School
Signature of Student

EXPERIMENTAL GUIDANCE PROGRAM

REPORTS OF

VOCATIONAL INFORMATION SEEKING

H.R. _____

NAME:: _____

HIGH SCHOOL: _____

REPORT
OF
VOCATIONAL INFORMATION SEEKING

H.R. _____

Last Name _____ First Name _____ Initial _____

OCCUPATION INFORMATION OUTLINE:

1. Name of occupation or career: _____

2. Make a list of occupations or careers with similar Self-Directed Search Summary codes, e.g. RIA Architectural Draftsman RIS Forester RIC Carpenter
RIA Dental Technician RIE Mech. Eng. RAI Typesetter
which resemble the summary code of question one.

SUMMARY CODE	SIMIIAR CODES			
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

3. Investigate the occupation or career mentioned in question one for the following facts:

A. Nature of the work. (What daily tasks are actually performed?)

_____

_____

_____

B. Interests and Competencies Required. (What things I like to do? What things I should be able to do?)

INTERESTS:

_____

_____

COMPETENCIES:

_____

C. Education Required. (What do you need to study? Technical Training? College?)

_____

_____

3. (Continued):

D. Other Requirements: (Work experience, union membership, special examinations, licenses, etc.)

E. Working Conditions: (Is the work inside or outside, clean or dirty, heavy or light, etc? What are the hours? Are there health or safety hazzards?)

F. Job Location and Employment Trends: (Where would the best job opportunities be? How many workers are employed in the occupation nationally and locally? What is the demand for workers? Is the demand increasing or decreasing?)

G. Wages and Opportunities for Advancement: (What is the starting wage? The top wage? What are chances for promotion? Are there benefits or compensation for illness, accidents, unemployment, old age?)

H. Social Significance: (In what way is this occupation important for society?)

I. Personal Advantages or Disadvantages:(What do you like or dislike about this occupation or career?)

LIKE:

DISLIKE:

REPORT
OF
VOCATIONAL INFORMATION SEEKING

_____ _____ _____ H.R. _____

Last Name First Name Initial

Job Interview Notes:

DIRECTIONS: To learn more about an occupation or career of particular interest, arrange an interview with a person in your community who is engaged in that occupation or career.
The outline below will provide the essential information about most occupations or careers. You can add additional notes in the space provided.

Occupation or Career for which information is desired: _____

Name and address of place visited: _____

_____

Name of Person interviewed; _____

Date of interview: _____ Time: _____ Phone: _____

INFORMATION ABOUT THIS OCCUPATION

1. What are some of the everyday duties connected with this occupation?

_____

_____

2. What highly developed competencies are required for success in this occupation?

___Language Usage
___Arithmetic
___Abstract Reasoning
___Mechanical Reasoning
___Manual Dexterity
___Clerical Speed and Accuracy
___Spelling and Sentence Structure
___Memory
___Space Relations
OTHER: _____

3. What highly developed interests are required for success in this occupation?

___Outdoor
___Literary
___Scientific
___Persuasive
___Artistic
___Computational
___Social Service
___Clerical
___Mechanical
___Musical
___Other:
_____

4. What personal and social preferences are needed for success in this occupation?

___ Likes to work with ideas
___ Likes to avoid personal conflicts
___ Likes being active in groups
___ Likes to direct others
___ Likes to be directed
___ Likes to work with things
___ Likes to be in familiar and stable situations

5. What formal education is required?

___ High School
___ Business School
___ Trade School
___ Technical School
___ Junior College
___ College
___ Graduate School
___ Other: _____

6. What school subjects are need most in this occupation? _____

_____

7. What are the best job locations and opportunities?

___ Local only
___ Nation-wide
___ State-wide
___ World-wide

8. What are the possibilites for promotion and income increases?

_____

_____

_____

9. What are the major advantages and disadvantages in this occupation?

_____

_____

_____

10. What are the working conditions usually associated with this occupation?

___ Inside ___ Outside ___ Light Work ___ Heavy Work ___ Clean Work
___ Dirty Work ___ On the road ___ Stay in one place ___ Standing
___ Sitting Work ___ Close Quarters ___ Move about ___ Within the Building.

OF
VOCATIONAL INFORMATION SEEKING

Last Name _____ First Name _____ Initial _____ H.R. _____

NOTES ON OCCUPATIONAL FILMS, T.V. or RADIO PROGRAMS:

1. Name of FILM: _____

   Occupations Described: _____

   What I have learned from this Film: _____

   Date of Film: _____ Movie Location: _____

2. Name of T.V. Program: _____

   Occupations Described: _____

   What I have learned from this Program: _____

   Date of T.V. Show: _____ Channel: _____

3. Name of Radio Program: _____

   Occupations Described: _____

   What I have learned from this Program: _____

   Date of Radio Program _____ Station: _____

OF
VOCATIONAL INFORMATION SEEKING

Last Name _____ First Name _____ Initial _____ H.R. _____

Notes on vocational books, pamphlets, brochures, and college catalogues, etc.:

1. Name Of Publication: _____

Author(s): _____

Publisher(s) and Date: _____

Occupation, Career, or School Described: _____

_____

What I have learned from this publication: _____

_____

_____

_____

_____

2. Name of Publication: _____

Authors: _____

Publisher(s) and Date: _____

Occupation, Career, or School Described: _____

_____

What I have learned from this publication: _____

_____

_____

_____

_____

_____

_____

_____

Office of the Associate Superintendent for Administration

MONTGOMERY COUNTY PUBLIC SCHOOLS

Rockville, Maryland

October 11, 1971

MEMORANDUM

To; Eleventh Grade Counselors, Homeroom Teacher
English Teacher

From: Joseph J. Tarallo
Associate Superintendent for Administration

Refer Questions: Ronald E. Redmond, Counselor
Kensington Junior High School, Telephone 949-9145

Subject: Participation in a Research Study of Educational-Vocational Choices of Eleventh Grade Students

Mr. Ronald E. Redmond, Counselor at Kensington Junior High School has requested our cooperation in his doctoral research.

The study is designed to investigate ways of increasing the frequency of information seeking behaviors required for the educational-vocational choice process. In order to accomplish this study, Mr. Redmond needs:

1. A measure of 240 eleventh grade (120 college bound and 120 work oriented) students' current information seeking behaviors. A ten minute questionnaire has been designed to gather this information.

2. After administration of the treatment (Holland's Self-Directed Search Instrument, 1 hour), a measure of the students' intended information seeking behavior. A questionnaire requiring tne minutes has been developed to elicit these responses, and

3. Six weeks later a final ten minute questionnaire will be administered to measure the information seeking behaviors actually performed.

To obtain the necessary data, Mr. Redmond wishes to study the information seeking behaviors of a random sample consisting of 120 eleventh grade college bound students at one high school and a second random sample consisting of 120 eleventh grade work oriented students at another high school. Copies of the questionnaires and the Self-Directed Instrument are enclosed for your review. Questionnaires of this nature have been used in several other studies. On the basis of our prior experience we would not expect their use to raise any controversial issues.

Besides the use of subjects, Mr. Redmond will also need the assistance of the Eleventh Grade Counselors in administering the questionnaire and Self-Directed Search Instrument. The information realized should prove valuable to the counselors in their work with their counselees.

It is hoped that you will agree that both the research problem and its proponent are worthy of your cooperation.

"Mr. Ronald E. Redmond, a graduate student at the University of Maryland, is studying a self-directed guidance program's effect on the vocational choice process of eleventh grade students. All eleventh graders of this school have been selected to participate in this investigation. The study has been approved by the Montgomery County Public School System, the University of Maryland, and your school administration.

You are invited to complete this initial questionnaire which requires approximately ten minutes of your time. All information requested will be kept confidential and in no way will become part of your school records. Your identity and choices will not be revealed. You are free not to participate.

If you choose to participate, please read each question carefully and give serious thought to your responses. Please try to complete every item. You may use pen or pencil. Depending upon your responses, some of you will be contacted next week to complete an additional instrument.

Thank you for your time and cooperation."

APPENDIX J

"My name is Ronald E. Redmond. I am a graduate student in the College of Education at the University of Maryland. I am exploring the vocational choice process of high school students, and I am inviting you to participate in a study which hopes to determine the effects of an experimental guidance program on the information seeking behaviors of eleventh grade students.

Last week in homeroom you completed the Student Interest Questionnaire. On this instrument you indicated your interest in taking part in this experimental program. From all the eleventh grade students in this school, you have been randomly selected to complete this part of the study. If you have changed your mind or are no longer interested in taking part, please feel free to leave and return to class.

This morning you will be asked to complete two instruments. The first was recently developed by John L. Holland, Ph.D. of Johns Hopkins University. It is entitled: The Self Directed Search, A Guide to Educational and Vocational Planning. There are two booklets: the assessment booklet, in which you will do all your work, and the occupational finder which you may keep as your own for later and future reference.

Please note this instrument is not a test. You yourself will complete, score, and analyze the results. I shall check over your score. If I find a mistake, I shall correct it. All of you will receive a written confirmation of your summary codes. You will also receive a list of suggested activities for educational-vocational information seeking.

A second instrument you will be asked to take today is entitled: Vocational Guidance Questionnaire I. This questionnaire is identical to the Student Interest Questionnaire you took last week, but this time, you are to state the information seeking behaviors you intend to complete in the next six weeks. After you have completed both the SDS and the VGQ I, you are free to leave. There are no exact time limits for this program. You should be finished in approximately seven minutes.

On your way out, please take a copy of this six page booklet entitled: Reports of Information Seeking. The booklet will help you organize your career seeking activities. While the use of this booklet is optional, you are encouraged to complete all of the parts of it you find helpful in gathering evidence of your information seeking. In six weeks time I shall return to find out what information seeking behaviors you have actually performed.

Tomorrow, I shall return to administer these same instruments to the absentees and also to discuss with some of you an additional proposal for influencing information seeking activities.

Please now turn to the SDS Assessment Booklet. You read the directions on the front silently, while I read them aloud."

WHEATON HIGH SCHOOL
12601 Dalewood Drive
Silver Spring, Maryland

H.R._____

December 6, 1971

Dear: _____

Time Flies!
Six weeks ago you had the opportunity to do some vocational planning. Holland's Self-Directed Search Instrument suggested some possible careers to meet your identified interest, competencies, and abilities. Your summary code was designed to assist you in your search for information about possible future careers.

Now it is time to reconsider your vocational planning.
On Thursday and Friday December 9th and 10th I plan to administer a short ten minute questionnaire. If you have any evidence of your information seeking or have completed the information seeking booklet(s), please be prepared to hand in this material on these days.

You will be notified in Homeroom when and where to report for this final activity.
Thank you for your cooperation!

Sincerely,

R.E. Redmond
University of Maryland

ROBERT E. PEARY HIGH SCHOOL H.R._____
13300 Arctic Avenue
Rockville, Md. 20850

Dear:_____

Time Flies!

Six weeks ago you had the opportunity to do some vocational planning. Holland's Self-Directed Search Instrument suggested some possible careers to meet your identified interest, competencies, and abilities. Your summary code was designed to assit you in your search for information about possible future careers.

Now it is time to reconsider your vocational planning. On Tuesday, December 13th, I plan to meet with you during the first period to administer a short ten minute questionnaire. If you have any evidence of your information seeking or have completed the information seeking booklet(s), please be prepared to hand in this material at this time.

You will receive a Guidance Pass in Homeroom period and this pass will notify you where and when to report to the cafeteria for this final activity.

Thank you for your cooperation!

Sincerely,

R.E. Redmond
University of Maryland

ANALYSIS OF GUIDANCE SERVICES

DATE: _____

SCHOOL: _____

GRADE: _____

DIRECTIONS: Answer the following questions briefly but accurately.

1. Who is your counselor? _____
2. How many time did you request to see your counselor since September 1, 1971? _____
3. How long did you wait before you received your appointment? _____
4. How many times did you meet with your counsleor since September 1, 1971? _____
5. How many time did your counselor request to see you? _____
6. How many college conferences or career meetings have you attended? _____
7. How do you feel the sutdent body regards the Guidance Department? _____
8. How do you feel about the Guidance Department? _____
9. Do you feel that you know enough about what a counselor does and how to use his or her service to your benefit? _____
10. Would you like counselors to visit classroom more often? _____
11. Do you feel that the guidance services of this school have been useful to you? _____
12. Would you be interested in participating in group counseling sessions with 7 or 8 other students who have common interests or problems? _____

13. Check ( ) the topics you would be willing to discuss with your counselor

____ 1. Grades
____ 2. Problems with teachers
____ 3. Course selection
____ 4. Problems with other students
____ 5. Future educational-vocational plans
____ 6. Test scores
____ 7. Family problems
____ 8. Personal problems
____ 9. College Admission Requirements
____ 10. Drug Problem
11. Other:_____

14. State the problems you would not discuss with your counselor:

1._____

2._____

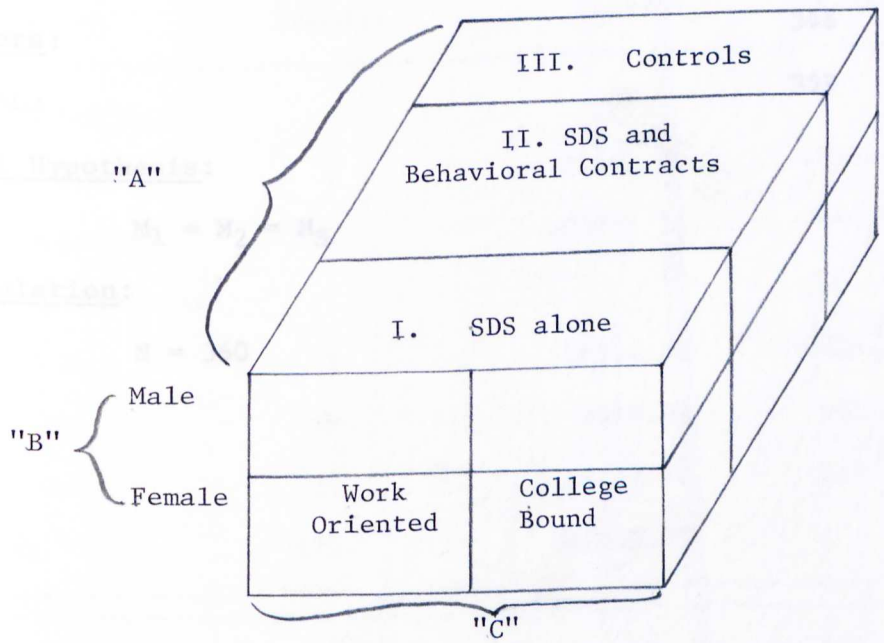
3._____

4._____

5._____

TABLE IV A

SOURCES OF VARIATION INCLUDED IN THE STATISTICAL DESIGN UTILIZED FOR ANALYSIS OF INTENDED, AND ACTUAL INFORMATION SEEKING BEHAVIORS, OCCUPATIONAL LISTINGS, CERTAINTY OF CAREER PLANS



		df
Main Effects:		
A	Treatments	2
B	Sex	1
C	Type of Student	1
Interaction:		
AB		1
AC		1

TABLE IV A

Interaction:	
BC	2
ABC	2
Errors:	348
TOTAL:	359

Null Hypothesis:

$M_1 = M_2 = M_3$

Population:

N = 360

TABLE V (A)

BOX TEST: TWO DIMENSIONAL REPEATED MEASURES DESIGN REPETITION ON THE INTENDED INFORMATION SEEKING BEHAVIOR SCORES ONLY

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F
Among Subjects				
B	7	21653.96	3093.42	3.49
Subjects	232	205681.24	886.56	
Within Subjects				
A	1	39024.13	39024.13	130.97
AB	7	6518.08	931.15	3.13
AS	232	69127.79	297.96	
Total	479	342005.20		

The value of Chi-Square with 3 degrees of Freedom is 17.78

TABLE VI (A)

ANOVA SUMMARY TABLE THREE DIMENSIONAL REPEATED MEASURES DESIGN REPETITION ON THE INTENDED INFORMATION SEEKING DIMENSION SCORES ONLY

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F
Among Subjects				
B	1	15526.87	15526.87	17.39*
C	1	130.21	130.21	.15
BC	1	929.62	929.62	1.04
Subjects	236	210748.49	893.00	
Within Subjects				
A	1	39024.13	39024.13	128.91*
AB	1	2641.41	2641.41	8.73*
AC	1	696.00	696.00	2.30
ABC	1	864.05	864.05	2.85
AS	236	71444.41	302.73	
Total	479	342005.20		

*Significant at the .01 level of confidence

TABLE VII (A)

HOMOGENEITY OF REGRESSION TEST FOR HYPOTHESIS TWO

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob. *
Among Slopes	14	6723.03	480.22	1.90	.03
Deviations	216	54583.14	252.70		
Total	230	61306.17			

Level of Significance set at the .01 level

TABLE VIII (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS TWO ON THE INFORMATION SEEKING BEHAVIOR DIMENSIONS FOR SUBJECTS IN TREATMENTS ONE OR TWO WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob. *
Within Cells	230	61306.17	266.55		
Regression	2	51168.37	25584.19	95.98	.001
A	1	559.60	559.60	2.10	.149
B	1	890.63	890.63	3.34	.069
C	1	1028.16	1028.16	3.86	.051
AB	1	389.67	389.67	1.46	.228
AC	1	27.45	27.45	.10	.749
BC	1	2683.07	2683.07	10.07	.002
ABC	1	856.96	856.96	3.22	.074

* Significant at the .01 level

TABLE IX (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS TWO ON THE INFORMATION SEEKING DIMENSION FOR SUBJECTS IN TREATMENTS, ONE, TWO AND CONTROLS WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob. *
Within Cells	347	91214.65	262.87		
Regression	1	59080.76	59080.76	224.76	.001
A	2	7017.38	3508.69	13.35	.001
B	1	607.02	607.02	2.31	.130
C	1	3352.06	3352.06	12.75	.001
AB	2	1203.08	601.54	2.29	.103
AC	2	285.26	142.63	.54	.58
BC	1	3021.10	3021.10	11.49	.001
ABC	2	1795.08	897.54	3.41	.03

* Significant at the .01 level

TABLE X (A)

HOMOGENEITY OF REGRESSION TEST FOR HYPOTHESIS THREE

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.
Among Slopes	14	19.45	1.39	1.40	.16
Deviations	216	215.04	1.0		
Total	230	234.49			

Level of Significance set at the .01 level

TABLE XI (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS THREE ON THE OCCUPATION LISTING SCORES FOR SUBJECTS IN TREATMENTS ONE AND TWO WHEN PRETEST AND FIRST POSTTEST ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.*
Within Cells	230	234.49	1.020		
Regression	2	83.38	41.69	40.89	.001
A	1	5.66	5.66	5.55	.02
B	1	.114	.114	.112	.74
C	1	1.13	1.13	1.11	.29
AB	1	.03	.03	.025	.87
AC	1	1.48	1.48	1.45	.23
BC	1	4.28	4.28	4.20	.04
ABC	1	8.14	8.14	7.99	.05

*Significance at the .01 level

TABLE XII (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS THREE ON THE OCCUPATION LISTING SCORES FOR SUBJECTS IN TREATMENTS ONE, TWO, AND CONTROLS WHEN PRETEST SCORES ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.
Within Cells	347	391.88	1.13		
Regression	1	97.02	97.02	85.91	.001*
A	2	22.32	11.16	9.88	.001
B	1	.04	.04	.04	.85
C	1	5.16	5.16	4.57	.03
AB	2	1.31	.66	.58	.56
AC	2	1.04	.52	.46	.63
BC	1	3.99	3.99	3.54	.06
ABC	2	9.69	4.85	4.29	.01

*Significant at the .01 level

TABLE XIII (A)

HOMOGENEITY OF REGRESSION TEST FOR HYPOTHESIS FOUR

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.
Among Slopes	14	17.03	1.22	.68	.79
Deviations	216	384.20	1.78		
Total	230	401.22			

TABLE XIV (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS FOUR ON THE AMOUNT OF CERTAINTY WITH CAREER PLANS FOR SUBJECTS IN TREATMENTS ONE, TWO, AND CONTROLS WHEN PRETEST SCORES ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.
Within Cells	230	401.23	1.744		
Regression	2	142.24	71.12	40.77	.001*
A	1	1.23	1.23	.70	.40
B	1	.16	.16	.09	.76
C	1	4.12	4.12	2.36	.13
AB	1	.13	.13	.07	.79
AC	1	1.51	1.51	.86	.35
BC	1	3.33	3.33	1.91	.17
ABC	1	.35	.35	.20	.66

*Significant at the .01 level

TABLE XV (A)

ANOVA SUMMARY TABLE FOR HYPOTHESIS FOUR ON THE AMOUNT OF CERTAINTY WITH CAREER PLANS FOR SUBJECTS IN TREATMENTS ONE AND TWO WHEN PRETEST AND FIRST POSTTEST SCORES ARE USED AS COVARIATES

Source of Variation	Degrees of Freedom	Sums of Squares	Mean Squares	F	Prob.
Within Cells	347	727.33	2.09		
Regression	1	104.00	104.00	49.62	.001*
A	2	2.29	1.14	.55	.58
B	1	.42	.42	.20	.66
C	1	1.22	1.22	.58	.45
AB	2	4.07	2.04	.97	.38
AC	2	5.17	2.59	1.23	.29
BC	1	2.01	2.01	.96	.33
ABC	2	4.03	.20	.10	.91

*Significant at the .01 level

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