ABSTRACT

COMPARATIVE EFFECTS OF THREE CAREER GUIDANCE STRATEGIES ON CAREER MATURITY OF COLLEGE FRESHMAN AND SOPHOMORE STUDENTS WITH NO DECLARED EDUCATIONAL PREFERENCE

By

Joyce Sandra Kennedy

The purpose of this study was to measure the relative effectiveness of three career guidance strategies on a measure of career maturity for college freshman and sophomore students classified as having no educational preference. Grade classification and interaction effects between career guidance treatment and grade level were also measured in this investigation. Additional analyses were conducted to assess the effects of sex and previous academic and career counseling experience on career maturity level.

The Career Maturity Inventory, CMI (Crites, 1973), was used as the dependent measure in this study. This instrument consists of an Attitude Scale and five Competence Tests: (1) Knowing Yourself (Self-Appraisal), (2) Knowing About Jobs (Occupational Information), (3) Choosing a Job (Goal Selection), (4) Looking Ahead (Planning), and (5) What Should They Do? (Problem Solving).

Subjects were self-selected from the 1,200 students classified as "No-Preference" (having no declared educational preference) at Michigan State University during the Fall term, 1974. The original 104 subjects participating in this study were randomly assigned, according to grade classification to each of three treatment groups and the control group.

The career guidance treatments involved (a) career decision-making instruction and practice in career decision-making techniques based on Hoyt's (1967) career decision-making model. In addition, subjects in this group viewed a filmstrip series, Keys--Career Exploration (Lombard & Grinager, 1972), and examined various printed materials on careers.

The career decision-making, alone, group received instruction and practice in career decision-making techniques in the same manner as the decision-making plus multimedia group. However, this group did not view multimedia materials on careers.

The multimedia-only group viewed the vocational filmstrip entitled Keys--Career Exploration and studied printed materials containing detailed descriptions of over 300 occupations.

The control group received no treatment, but was posttested along with the other three groups.

Multivariate analyses for treatment, classification, and interaction effects were conducted across the six

scales of the CMI. Univariate analyses of the individual scales were also computed for treatment, class, and interaction effects.

Results indicated that the three treatment conditions: (a) career decision-making instruction plus multimedia, (b) career decision-making instruction, alone, and (c) multimedia, only, tended to have an equal effect on measured career maturity level. However, univariate analysis revealed that freshman students scored significantly higher than sophomore students on Scale 1--Knowing Yourself (Self-Appraisal). A significant interaction effect was also indicated on Scale 5--What Should They Do? (Problem Solving). Scale 5 showed a downward trend in the decision-making group from freshman to sophomore levels. However, an opposite tendency was evidenced by the other two treatment groups--the multimedia only, and the decision-making plus multimedia groups.

Multivariate analyses of career guidance treatment and previous academic counseling indicated no significant overall effects. Conversely, univariate tests revealed trends on Scale 5--What Should They Do? and on the Attitude Scale in favor of more career and academic counseling.

The findings of this study indicate that the three career guidance techniques produce equal effects on measured career maturity level. In regard to career self-appraisal, differential competence was evidenced between short-term

(freshman) and long-term (sophomore) "No-Preference" students.

In addition, multivariate analyses of sex classification effect on career maturity level revealed significant differences in favor of female subjects. Female subjects also scored significantly higher than male subjects in career self-appraisal skills. Trends in favor of female subjects were evidenced further on Scale 5--What Should They Do? (Problem Solving) and on the Attitude Scale.

Univariate analyses for career guidance treatment and previous career counseling effects on career problem-solving ability revealed trends in favor of more career counseling experience. Additionally, positive effects were indicated on career attitude resultant from previous exposure to academic counseling.

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Counseling, Personnel Services,
and Educational Psychology

1975

DEDICATION

To My Loving

Family

and

Friends

ACKNOWLEDGMENTS

I would like to express special appreciation to Dr. Herbert Burks, Jr., dissertation director, for assisting me in clarifying and developing my ideas. His thorough knowledge of the field and his warm concern were immeasurably valuable to the accomplishment of this task.

I would also like to express my appreciation to Dr. Bob Winborn, committee chairman, for his willing assistance and guidance. The benefit of his extensive experience and friendly encouragement were extremely helpful to the formulation of this document. His professional achievements set a fine example for graduate students to follow.

Sincere appreciation is also due to Dr. Thomas Gunnings, an educator of outstanding accomplishments, for his encouragement and guidance during my educational career. His professional attainments and dedication to his students were greatly inspiring.

I would also like to express special appreciation to Dr. Gloria Smith, a learned educator whose exceptional abilities are paralleled to her warmth and genuineness.

Her knowledge and perceptiveness contributed greatly to this endeavor.

Special acknowledgments are also due to Dr. Thomas Kishler and his able staff of the University College Student Affairs Office, South Complex Division, Michigan State University. I wish to express special appreciation to Mrs. Glenna Withee for her kind assistance. In addition, acknowledgment is due to Dr. Ronald Gibbs and his staff at the Career Education Center, Lansing School District.

I also wish to thank Janet Tillman for her able assistance and Clementine Mills for her encouragement.

Finally, I would like to express heartfelt appreciation to my loving family and friends who made this accomplishment possible.

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CHAPTER I

THE PROBLEM, RATIONALE, AND RELATED RESEARCH

Introduction

Interest in the developmental process in career education has been escalating during recent years. The growth of the broader concept of career development is antithetical to traditional vocational theory involving selection and preparation for one specific vocational goal. Super (1964) refers to a career as a sequence of occupations, jobs, or positions an individual occupies during his lifetime. Super further states that a career represents a pattern of interests and activities which extend from a period prior to the individual's actual employment years through the retirement period.

There is strong support for the concept of career development among other leading theorists. According to Roe (Whiteley & Resnikoff, 1972), various personal and environmental factors interact throughout an individual's lifetime to produce shifts in his occupational interests and objectives. Both Ginzberg (1951) and Tiedeman (1958) support the basic concept of the developmental aspect of the career process. However, these authorities additionally

stress the importance of decision making in the dynamic phenomenon of career development. Cochran (1974) states that an integral aspect of career development involves self-knowledge and knowledge of one's occupational environment. Therefore, Cochran hypothesizes that career education can be facilitative as a change agent in the important areas of personal, educational, and vocational growth.

The rising trend toward career education has fostered revisions in traditional vocational theory and stimulated new research. Super's (1957) original self-concept theory states that a person usually selects a career which is consistent with his self-perceptions and his perspective of the world of work. Super (1942) also gave support to the theory of differential psychology, or the trait-factor approach. According to the trait-factor concept, an individual's interests, aptitudes, and values should be matched with an occupation which allows for the optimal expression of these characteristics.

In both his original formulations and his early revisions, Super (Super, 1942; Super, 1957; Super, Starishevsky, Matlin & Jordaan, 1963) describes specific stages through which an individual progresses during the process of vocational development. The first stage, referred to as the Crystallization stage, extends approximately from 14 to 18 years of age. During this period, initial consideration is given to the individual's personal

interests and values. Initial investigations are made into various fields offering future career possibilities. The second stage, extending approximately from 18 to 21 years of age, is called the Specification stage. This stage involves job information-seeking and the planning of specific career goals. Following Specification is the Implementation stage, ranging from age 21 to age 25. During this period, the individual embarks on the first years of active employment in his chosen field. The fourth stage of Stabilization (ages 25 through 35) marks a period during which the individual develops a characteristic pattern of occupational choice and interests. As the individual continues to mature, he approaches the final stage of Consolidation. Of primary concern during this phase is the achievement of job security and job advancement.

In his revised theory, Super (1964) broadens the concept of career development to include time periods prior to and following the years of actual employment. Super states that career development is a process which begins during early childhood and extends through both the employment and retirement years. A pattern of interests, values, and aptitudes is usually reflected in this lifelong process of occupational growth.

Super's emphasis on this broader perspective of career development has motivated current research directed toward a wider age range of populations. Persons ranging

from early childhood to older adulthood have been the subjects of several recent studies. Kuldau and Hollis (1971), studying the development of vocational attitudes of young children, found that basic attitudes toward work were discernible in children as early as their primary school years.

Sheppard (1971) measured the difference in career maturity among various adult populations using the Vocational Development Inventory (VDI). In this research, Sheppard compared the test scores of 200 unemployed men, 100 vocational trainees, and 100 graduate students. Results indicated that the graduate students were generally more progressive and more mature in their vocational outlook.

Hirt (1964) compared general ability to the level of career development of older and younger employees. Results showed that older employees scored lower on the General Aptitude Test Battery (GATB) than did younger employees. However, since this study involved a cross-sectional design, it is questionable whether these significant results were due to actual inherent differences in ability based on age, or to time factors reflective of cultural and societal changes.

Vroom and Pahl (1971) investigated the relationship of age to risk-taking behavior in employees holding managerial positions. This study showed significant

results which indicate that as an individual matures, his occupational behavior takes on a more cautious orientation.

Following Super's lead, Ginzberg (1972) expanded his theory of vocational development to include the various personal and environmental factors occurring during early childhood and late adulthood years. Current emphasis is placed on the concept of career development as a continuous process involving an entire lifetime. Previously, however, Ginzberg's (1951) theoretical formulations had been directed mainly toward the adolescent and early adult years. In his earlier hypothesis, Ginzberg describes three stages necessary to the process of career maturation. The Fantasy stage defines that period during which the child dreams or fantasizes about unlimited career possibilities. The Tentative stage describes the phase during which the child begins to consider his interests, abilities, and values relative to more specific career goals. Finally, the Realistic stage, occurring during early adulthood, marks a period of exploration, crystallization, and specification of a chosen occupational goal.

In addition to expanding his conceptualization of vocational development to career development, Ginzberg also emphasized the importance of sex roles, economics, culture, and societal factors in determining career growth. These environmental influences are particularly reflected in the career aspirations and development of women and minorities.

In a study investigating the personal and environmental factors which influenced the career plans of white and non-white college graduates, Astin and Bisconti (1973) found substantial differences between the career orientations of these two groups. Non-white students tended to select jobs from a narrower range of career choices than did their white counterparts.

Birk and Tanney (1973) conducted a career exploration study involving high school girls. Forty-three percent of the participants in this study reported an increase in awareness of their own tendency to place sex-role stereotypes on various occupations.

In a 10-year study comparing the income levels of black and white employees, Blum (1971) found that white employees had greater outside financial resources than did black employees with comparable incomes.

The more recent hypotheses advanced by Holland (1973) also reflect the current trends in vocational theory. Holland's (1959) original concepts describe his typology theory. According to this theory, there are six personality types and six corresponding occupational environments: (a) Realistic, (b) Investigative, (c) Social, (d) Conventional, (e) Enterprising, and (f) Artistic. The optimal vocational choice is one which most nearly reflects the personal typology of the individual. Holland also formulated the concept of level hierarchy, which refers to

the level of achievement or advancement an individual attains within any one vocational area. This level is largely determined by personal ability and self-knowledge.

Although his basic theory has not undergone major revision, Holland (1973) has made some conceptual modifications with regard to the process of vocational development. Instead of the concept of a single, optimal vocational choice, Holland currently supports the idea of "vocational behavior" indicative of his expanded view of the process of career development. According to this hypothesis, career development is a continuous process sensitive to shifts in interests and various other personal factors.

Holland, also a supporter of the use of programmed materials, developed the Self-Directed Search (1970). This self-instruction program provides the individual with both occupational information and self instructions in decision-making.

Zener and Schnuelle (1972) studied the effect of Holland's Self-Directed Search on the career selection of 1,092 high school students. Results indicated that students receiving programmed self-instruction selected more appropriate vocations and were more satisfied with their choices than did the controls.

Roe (Whiteley & Resnikoff, 1972) has made sweeping revisions in her basic theory. In her previous theoretical

concepts, Roe placed heavy emphasis on the influence of child-rearing practices on vocational choice. Roe hypothesized that an individual is born with certain inherent needs which he strives to satisfy through the development of various personal and vocational behavior patterns. Parental attitudes and child-rearing practices are important determinants of the characteristics of these chosen behaviors. An accepting child-rearing mode reflects a warm, loving family atmosphere. The avoidance mode, referring to active or passive neglect of the child's physical and emotional needs, reflects a cold family climate. The overprotective mode, indicative of conditional love, may represent either a warm, loving atmosphere, or a cold, severe family climate. Roe felt that a warm, loving family environment resulted in the later selection of an occupation involving people, such as social work, psychology, or teaching. Conversely, a cold or rejecting atmosphere resulted in the selection of an occupation dealing with objects or things, such as technology, husbandry, or science. Research support for Roe's initial theories has not been substantial.

In accordance with the trend set by Super (1964) and Ginzberg (1972), Roe's revised theory reflects the vital role that social, economic and environmental factors play in career development. Roe (Whiteley & Resnikoff, 1972) has subsequently introduced a formula which reflects

each factor which she feels is relevant to vocational growth:

(eE + bB + cC) + (mM) + S (pP x gG x tT x iI) + (lL + aA)

In this new formula, E represents the general state of the economy. B indicates the individual's family background such as socio-economic status, culture, or child-rearing practices. C reflects chance factors which Roe contends play an important role in the career process. M represents marital status; S indicates the influence of sex or sex roles; P is reflective of physical appearance or characteristics; G refers to intellectual capacities; T represents temperament and personality; and I indicates interests. L and A refer to prior learnings and acquired skills, respectively.

Several concepts important to current vocational theory revolve around the impact that sex, economics, culture, and sociological factors have on the process of career development. Increasingly, these factors are receiving greater attention from current researchers and theorists.

Bobbitt and Letwin (1971) investigated the effectiveness of a teacher training program designed to teach vocational education to disadvantaged students. Posttest results indicated that teacher training geared toward improving teacher attitudes and methods significantly increased instructional competency in this area.

Kriger (1972) surveyed the career attitudes of a sample of 66 women from a variety of family backgrounds. He found that a rigid family environment correlated highly with the choice of homemaking as a career. On the other hand, a relatively permissive family atmosphere had a high correlation with the selection of a professional occupation.

An increasing amount of data indicates that social and environmental obstacles impede the vocational development of minorities. Inferior education, limited financial resources, and fewer job opportunities greatly retard the process of career development for members of subcultural groups (Petty & Davenport, 1973; Blum, 1971; Leonard, 1973).

According to the latest United States Census report taken in 1970, 40 percent of all non-white employees are engaged in labor or service occupations. In addition, the average income for non-white workers in 1970 was $6,279 in comparison to $10,236 for white employees.

Miller and Tiedeman (1972) stress decision making as a critical variable in the process of career development. Using the Cubistic Model, these theorists describe the interrelations between the decision-making process and the phases of vocational development. There are several major elements of the decision-making process which permeate each aspect of its operation. Problem solving, psychological clarification, and accommodation are important dimensions in the career development process.

Optimally, the individual moves through these three stages during the process of making a well-informed career decision.

Studies have been designed to investigate the decision-making process in relation to career development. Ryan (1968) investigated the relationship of decision-making ability to self-esteem. Using positive reinforcement on a sample of 333 college students, Ryan found a significant relationship between high self-concept scores and high career decision-making ability.

Malacos (1974), using a sample of 50 community college students, found significant differences between the use of instructional materials and counseling services on career decision-making. Results showed that programmed self-instruction and multi-media materials had a greater positive effect on career decision making than did traditional one-to-one counseling.

Other innovations have received considerable attention in relation to career development. Programs designed to give students real-life or simulated job experience have been advocated by a number of theorists. It is felt that the learning experience a student can obtain from direct involvement and first-hand experience is invaluable to the process of career selection (Chick, 1970; Boocock, 1968; Krumboltz & Bergland, 1969; Hamilton & Krumboltz, 1969; Morrison & Fulton, 1974).

The Shared Experience Program (Morrison & Fulton, 1974) was developed to provide students with a greater experiential base from which to make career choices. Students were paired with volunteers from various professions and observed and assisted these employees in their work over a period of several months. Student reports indicated that this was a very insightful learning experience.

The Life Career Game (Boocock, 1968) and the Occupational Simulation Kits (Krumboltz & Bergland, 1969) were also developed to give students experiential knowledge about careers through simulated job activities. Various imaginary personal and occupational situations are described in these games. Students are required to make judgments appropriate to these problem situations. Theoretically, by pretending to function as a real-life employee, the student gains more realistic information which he can use in making his own career selection.

Another innovation in the field of career guidance is the use of computers and programmed self-instruction. Programmed materials provide students with an expansive resource of information and alternatives upon which they can base critical educational and occupational decisions (Malacos, 1974; Gelatt, Varenhorst & Carey, 1972; Tiedeman & O'Hara, 1963).

In a self-instruction program on career decision making entitled "deciding" (Gelatt, Varenhorst & Carey,

1972), students are given practice in solving simulated life-career problems. These exercises are designed to give users practice and insight into the use of systematic procedures in the process of effective decision making.

The Information System for Vocational Decisions (ISVD) (Ellis, Pincus & Yee, 1968) provides 50 facts on 850 different occupations. Information on entrance requirements for various colleges and universities is also stored in the computer utilized in this system. In addition, the ISVD answers questions regarding various college course requirements and can suggest other reliable sources of educational and vocational information.

Minor, Myers, and Super (Whiteley & Resnikoff, 1972) emphasize the importance of computers and programmed materials as a time-saving device for both students and counselors. Through the use of these resources, valuable counselor time can be reserved for more in-depth counseling of a personal or problem-solving nature.

The rising impact of career education is evidenced by the increasing number of studies and programs in this field. A growing interest among teachers and students in career programs was recently evidenced in a survey conducted in Windsor, Connecticut (Levine, 1972). This needs assessment survey involved a random sample of students and teachers at Windsor High School. Over 500 students participated in the study (439 tenth graders and 100 twelfth

graders). Self-report data indicated that the majority of students and educators felt that career programs were vitally important.

The Comprehensive Career Education Program (Woo, 1973) developed by the Texas Education Agency (TEA) introduced a new dimension into career education. In this program, teachers are encouraged to integrate career education into the regular curriculum rather than treat it as a separate unit. In the Comprehensive Career Education Program, emphasis is placed on experiential learning. Such activities as field trips, simulation of real-life work experiences, and experimentation with various workers' tools are included in the student learning activities.

The Career Intern Program sponsored by the National Institute of Education provides an educational and career awareness program for drop-outs and potential drop-outs in the Philadelphia area. This program was designed to provide special students with information and motivation to enhance their educational and vocational progress.

Recently, in the rural areas of Nebraska, the Career Education Project (Guidepost, March 1974) was developed. This 18-month project involves counseling, career guidance, and placement services. Career education and counseling services are made available to students from kindergarten through high school.

A follow-up study on students taking shop courses in Ontario Public Schools, Ontario, Canada, was reported by Isabelle (1973). Although follow-up data on all 1500 students were incomplete, it appeared that this training program was generally helpful to graduates in securing and maintaining future positions. Brighter students, however, seemed to do less well on mundane, repetitive tasks than did other graduates. Participating employers recommended that more emphasis be placed on work attitudes and that on-the-job training be increased.

In studying the effectiveness of the Career Opportunity Program coordinated through the Atlanta Public School System, Atlanta, Georgia, Taylor (1973) found data to suggest that this project was successful in improving academic progress in addition to increasing career awareness.

The Ohio Advisory Council for Vocational Education (1973), in its evaluative study of State-approved vocational education programs, found that students who had participated in vocational development programs were viewed by their employers and by themselves as better prepared for their jobs than students from the same schools following nonvocational curriculums. These findings were based on a survey of 1,022 employers and employees across the State.

Need

Although there has been considerable growth in the field of career education, the adequacy and general effectiveness of career counseling and vocational guidance programs are still questionable. Presently, the level of service provided by many school systems seems to be inadequate. In a national student survey, Prediger, Roth and Noeth (1974) found that three-fourths of all high school juniors reported a need for more career guidance in their high schools. Only 13 percent of those eleventh graders surveyed felt that they had received an adequate amount of vocational guidance. Fifty percent reported they had received little or no help in vocational guidance during their high school careers.

In order to provide more adequate career guidance services, some theorists suggest that career education be integrated into the regular school curriculum. According to Herr (1973) and Healy (1974), the most effective career education program is one which reflects the cooperative efforts of all educators within a school system and is interwoven into all academic areas.

In considering more proficient ways of providing vocational guidance and job-placement services within the school system, Hipp (1973) suggests that high school counselors employ advertising techniques as a means of securing more cooperation from employers in the development

of job-placement programs. Improvements are needed also in job development programs on the national level.

Despite the development of a nation-wide Manpower program, job training and job placement are still greatly in need expansion. In the evaluation of Manpower, a cooperative work training program between the federal government and private industries, several problem areas have been surfaced. Bechtel (1970) states that failure to reach employment goals in Manpower programs resulted from the current national recession and a general lack of cooperation from businesses. Mangum (1967) states that vocational training courses need to be expanded to include more specialized skills and occupations. In addition, job shortages and reduced federal aid have had a negative effect on the success of Manpower programs. Vocational training and school guidance programs are not the only areas in need of further development. A substantial need also exists in the field of career development for improved research and evaluation.

Inefficient evaluative and research methodology has contributed to the general lack of effectiveness of career programs. Ginzberg (1971) states that guidance counselors place high priority on providing services, with little regard for the evaluation of their work. Although many educators assert that the effects of guidance and counseling services are difficult variables to measure, some seem

to disagree. Humes (1972) recommends that counselors employ the use of an accountability model to help clarify specific goals and objectives. Once specific objectives have been clearly defined, counseling outcomes can be measured relative to the degree of accomplishment of these predetermined goals. Healy (1974) also suggests that counselors use an evaluative or monitoring system to insure program improvement and effectiveness.

The adequacy of research related to the field of career development is also regarded with some skepticism. Roe (Whiteley & Resnikoff, 1972) states that more investigation is needed on lower level occupations and on the vocational development of women. Super (Whiteley & Resnikoff, 1972) and Holland (Whiteley & Resnikoff, 1972) stress the need for more longitudinal studies and further clarification of career terms such as "vocational maturity" and of self-descriptors relating to self-concept theory.

Warnath (1975) strongly criticizes the focus of past research in the area of career development. In the past, research was directed toward the superficial classification of personality types and corresponding job classifications. Warnath states that much more research is needed relative to the determination of specific factors in the work environment which offer the greatest degree of personal satisfaction and human dignity.

Osipow (1973) and Crites (1969) state that prior research is inadequate because its general focus has been on testing broad theoretical concepts and outcomes rather than investigating the effectiveness of specific counseling methods and procedures. These theorists stress the importance of comparing the relative effectiveness of vocational counseling methods in developing the most proficient career programs possible.

Skovholt and Hoenninger (1974) emphatically state that the implementation of present vocational counseling procedures is excessively methodical and superficial. The investigation of more effective techniques is prerequisite to the development of successful career counseling strategies.

The need for improved counseling procedures in career education is also stressed by Youst (1969). According to Youst, research in the area of motivational techniques could potentially enhance the impact of present vocational guidance programs.

Johnson and Myrick (1972) are also critical of the use of traditional career guidance techniques. These authors view the current practices of the interpretation of vocational interest tests and the provision of occupational information as relatively ineffective career counseling procedures.

Healy (1973) refers to the need for reliable procedures in counselor trainee programs. Effective and definable guidance training techniques provide a reservoir of information that the new counselor can employ in the successful development of future career programs.

Quatrano and Bergland (1974) state that the comparative effectiveness of traditional career counseling methods has not been adequately researched. They encourage further research in the areas of social learning theory, group counseling methods, the use of simulation games, and decision-making instruction relative to career development.

In summary, the need for research investigating the general effectiveness and efficiency of present career programs and career counseling procedures in evidenced throughout the literature. Additional research would be particularly relevant in the area of career counseling methodology (Magoon, 1964; Osipow, 1973; Holland, 1971; Crites, 1973). The process of career development can be enhanced through the comparative evaluation of present career guidance techniques. This study was designed to add further empirical data to this area.

Purpose

The purpose of this study is to determine which of three career education strategies yields the greatest positive effect on the career maturity of college freshmen and sophomores who have no officially declared academic

preference. The three career counseling methods to be considered are (a) instruction in decision-making techniques, (b) exposure to multimedia materials on various career areas, and (c) instruction in decision-making techniques followed by exposure to multimedia materials.

Recent investigations have shown decision-making instruction to be a viable method for developing career maturity. Using decision-making strategies in a simulation game exercise entitled MOLD (Making of Life Decisions), Johnson and Myrick (1972) found that decision-making seemed to contribute positively to educational and vocational development. This finding was similar to the results of a study by Gelatt, Clarke, and Levine (1965), who found that students who were instructed in decision-making guidance were more successful in their college studies and also in the level of achievement in the jobs which they subsequently acquired.

Recent data have also supported the use of multimedia materials in career education. A career counseling course conducted at California State University in San Diego, California, utilized multimedia materials as one source of information for female students involved in career exploration. Student evaluation of the course indicated that the career awareness of the participants had been significantly improved (Ramsey, 1973).

In a career education course for students at Langley High School in McLean, Virginia, students reported that the most valuable experience in the program was their exposure to multimedia materials on occupational information (Johnson & Martin, 1973).

In another study measuring the relative effects of various types of media on career decisions, Malacos (1974) concluded that multimedia, in general, seemed to have a positive effect on career development.

Such research data indicate favorable results on career development by the intervention of both multimedia materials and instruction in career decision making. Despite these successful findings, however, there is still a need for further investigation of career guidance methods. Additional research is needed to measure the comparative and combined effects of existing techniques. Such information is valuable in program selection and development, particularly in consideration of the comparative time and cost factors of various approaches.

The present study is designed to compare the separate and combined effects of multimedia materials and instruction in career decision making on the career maturity of college freshman and sophomore students classified as having no educational preference. This and similar investigations may provide important practical data which

have implications for more efficient career guidance programming.

Rationale

Decision-Making Approach

It is generally accepted that the development of a successful life style is based on insightful planning and efficient decision-making. The need for selecting or deciding among various alternatives represents an unavoidable life activity which permeates all levels of human endeavor. According to Rotter's social learning theory, an individual's life choices are motivated by a drive for need reduction and the anticipation of positive reinforcement (Patterson, 1973).

The adaptation of decision making as a counseling technique has been applied to a number of different counseling approaches. In the social learning approach, Rotter states that the role of the counselor is to assist the client in making the best possible judgments concerning his life choices (Patterson, 1973). The client-centered approach as proposed by Carl Rogers (1951) states that an individual's behavior reflects his environmental perceptions; therefore, man's ultimate life decisions are influenced by his basic self-perceptions and his unique interpretations of the total life experience. The behavior modification theorists also accept the tenet that man must

make relevant choices or decisions throughout his lifetime (Krumboltz & Thoresen, 1969). Behaviorists extend this concept further, however, to include systematic procedures for selecting the optimal choices from all possible alternatives. Many of the concepts considered in this problem-solving technique, such as goal-setting, personal values, interests, consideration of alternatives, and probabilities and desirabilities of results, overlap a number of models for the implementation of the decision-making process (Gelatt, Clarke & Levine, 1965; Hoyt, 1967; Osipow, 1973).

Ginzberg (1951) strongly advocated the application of decision-making methods to career counseling. He stated that career development involves a decision-making process that extends throughout most of the individual's lifetime. This process involves a series of compromises between one's desires and one's personal abilities and the environmental circumstances. Tiedeman's theory (Osipow, 1973) closely approximates the concept of Ginzberg. However, the decision-making process is stressed more strongly and described more intricately in Tiedeman's work. McBrien (1973) describes the Miller and Tiedeman Cubistic Model for career decision-making as having three basic components: (a) analysis of problem condition, (b) analysis of psychological states, and (c) self-comprehension. Twenty-seven subelements are intricately developed from these basic three.

Herr (1970) states that the process of making vocational decisions varies considerably among different career counseling approaches. The trait-factor approach makes the assumption that the attributes of the individual should be matched with an occupation which allows for the maximum expression of the client's interests and talents. Closely related to the trait-factor theory is the economic concept of career choice. According to Herr (1970) this approach hypothesizes that the individual usually selects a career which reflects his needs and values. The social structure approach places great emphasis upon the environmental and social circumstances into which a person is born in terms of their influence on his later occupational opportunities. The complex information processing theory (Hilton, 1962) was developed from the theory of cognitive dissonance. The individual's unrealistic concepts about himself and his beliefs about the world of work must be brought into closer harmony. This is done through a process of data gathering about self and vocational information. Roe's need theory is also cited by Herr (1970). Roe states that the individual has certain physiological and psychological needs which he strives to satisfy through the selection of career goals which will meet these needs. These career goals can be chosen from one or more occupational areas as categorized by Roe: (a) service, (b) business contact, (c) organization, (d) technology, (e) outdoor,

(f) science, (g) general cultural, and (h) arts and entertainment. According to the self-concept theory of Super, Tiedeman, and Field as cited in Herr (1970), the individual selects career goals which are congruent with his self-perceptions and his perceptions of the world of work. Although the basic tenets of the above theories vary widely, there are several elements germane to the decision-making process which permeate almost all these approaches: (a) the establishment of goals, (b) a process of information-gathering, and (c) the selection of optimal choices.

Career decision-making also shows possibilities as a learnable skill in the counseling process. Gelatt, Clarke, and Levine (1965), formulating a systematic procedure for teaching decision-making skills, found favorable results on students' career development. In a similar study conducted by Johnson and Myrick (1972), students were given training in career decision-making strategies. Results indicated that decision-making instruction had a positive effect on the students' acquisition of occupational information.

Use of Multimedia

Popular learning theory states that learning involves the brain and the central nervous system. Both of these organs are stimulated through the five senses of sight, hearing, touch, taste, and smell. The greater the number of senses which become actively involved in the

learning process, the more effective and efficient the learning experience (Kanfer & Phillips, 1970). It would logically follow, then, that the employment of a variety of media as learning tools would prove invaluable in the classroom situation.

The use of multimedia as a teaching aid has become a widely accepted practice in education. Tapes film-strips, charts, pictures, films, models, and the like have lent a tangible dimension to the instructional process by providing both visual and audio stimulation. In more recent years, multimedia materials have been used effectively in the counseling process. Kagan, Krathwohl, and Farquhar (1965) developed Interpersonal Process Recall (I.P.R.) as a counseling and a counselor-training technique. This process involves the use of videotapes in developing self-awareness and communication skills. Poling (1968) suggests the use of films or videotapes in counselor-trainee practicums for evaluation purposes. Poling states that multimedia afford the trainee an excellent opportunity to critique his counseling experiences by observing his overt behavior as well as his covert processes. Immediate feedback is also achieved through audio-visual instruction, according to Poling.

Ivey (1968), similar to Poling, developed videotaped sessions of counseling interviews in order to provide intermittent feedback and evaluation on specific

skills for counselor-trainees. Counseling films dealing with educational issues of current relevance, such as developing more assertive behavior in women, have been developed and made available to educators (Guidepost, May 1974).

Multimedia have also been extensively used in career guidance. In a report on the activities of a career guidance course for high school juniors and seniors, Johnson and Martin (1973) discussed various types of media as being very useful in the career exploration stages of the program. In a pilot program for high school pupils conducted in New Jersey, films and tapes on vocational information were used to accelerate the career development of students (New Jersey Department of Education, 1968). In another study comparing the effects of various multimedia materials on career decisions (Malacos, 1974), results indicated that media had a definite positive effect on curriculum choice. In addition to the studies cited above, Hamilton and Krumboltz (1969) measured the effect of media on level of career exploration. Results from this study indicated that students' interest in career information increased as the attractiveness of the media increased.

The continued escalation of the use of multimedia materials in career education prompted the United States Department of Health, Education, and Welfare to conduct a study assessing the relative effectiveness of various

commercially prepared audio-visual materials designed for school use. It was thought that such a study would save valuable teacher and counselor time by evaluating the myriad of resource materials now on the market (Asher & Vockell, 1973).

Since past research has generated support for the use of both multimedia materials and decision-making instruction in career guidance, it might prove valuable to investigate the relative effectiveness of these two approaches.

Review of the Literature

Career development is most conveniently reflected through the assessment of the individual's present level of career maturity. Career maturity is defined as an individual's position, relative to his peers, along the continuum of career development (Carter, 1940; Super, 1968; Crites, 1973). The process of career development involves several important aspects. One phase, termed "orientation to vocational choice" (Crites, 1973, p. 6), refers to the individual's general attitude toward employment, his degree of commitment to work, and his independence in making his career selection. Another phase, "information and planning," refers to the amount of general knowledge one has about the world of work. Both consistency and degree of realism also play an important role in the career maturation process. "Crystallization of traits" refers to the

individual's degree of self-knowledge relative to appropriate career selection. In addition, "wisdom of vocational preferences" refers to the individual's ability to effectively solve problems related to the process of career development (Crites, 1973, p. 6).

Recent research studies have been designed to investigate the effects of different vocational guidance techniques on the various aspects of career maturity. A number of investigations have been directed toward measuring the specific effects of multimedia materials and decision-making instruction on career development.

Use of Multimedia

Rather substantial empirical support for the use of multimedia as a career education tool has been generated. Williams, Whitehead, and Brooks (1972) tested the effect of a communication learning system on the career awareness of 1,460 junior high school students. This communication series consisted of questions, posters, simulation games, and films developed to enhance the students' cognitive and affective knowledge of careers. Posttest results on experimental and control groups revealed a significant positive increase in career knowledge and attitude in the treatment group.

Positive results were also found in a study designed to test the effectiveness of a vocational guidance film series entitled "Careers in the 70s" (Culver City

Unified School District, California, 1971). In this study, posttest data showed an increase in positive attitudes toward work in general and also an increase in self-motivated career exploration.

Multimedia also showed positive effects on the career development and career motivation of non-college-bound students (Martin, 1967). Martin developed and tested audio-visual materials which stimulated the interest of disadvantaged students in pursuing non-professional vocations.

Lasota (1973) further investigated the effect of vocational materials used to supplement regular career counseling sessions. Air Force cadets who expressed an interest in receiving vocational counseling were exposed to television cassettes containing career information. The cadets reported that this new method of receiving vocational information was more entertaining and more reliable than traditional guidance methods.

The use of multimedia was also found effective in developing positive attitudes toward career education (Garber, 1973). Two student groups exposed to multimedia materials on careers showed significant positive changes in level of career awareness and career attitude. In one group, media presentation was followed by self-instruction using a study guide. In the second group, media presentation was followed by discussion periods in small groups.

Results indicated that both groups were equally effective in increasing career maturity.

Hamilton and Krumboltz (1969) investigated the impact of multimedia materials on students engaged in simulation game exercises. One hundred randomly selected tenth grade students used real workmen's tools in simulating actual work experiences. Follow-up data indicated that the more attractive and realistic the media materials were, the more motivated and enthusiastic the students seemed.

In a survey rating the effectiveness of various sets of occupational materials, Borman and Stenning (1973) report that most of the 32 participating teachers questioned stated that multimedia materials had a very positive effect on the career development of their students.

Audio-visual materials have also been used to disseminate career information in both instructional and counseling settings. Jacobson (1972) found that the Ohio Vocational Interest Survey (OVIS) can be self-interpreted with the assistance of audio-visual materials. Overhead transparencies showing various pictures and charts were included in this instructional packet. Sixty percent of the students using these kits indicated probable carry-over of this information to their future career selections.

In investigating the use of media for vocational instructional purposes, Gaddis (1973) measured the

effectiveness of televised instruction on vocational teachers. Instruction in the use of a new electronics curriculum was provided through this medium. Follow-up data suggested that televised instruction can play an important role in vocational education.

Success has also been reported in district-wide career programs using multimedia materials. In Wisconsin's state-wide secondary school vocational education program, individualized instruction in career education has recently been introduced (Labrecht, Hosler & Samson, 1972). The increase in achievement scores and the concomitant decrease in course Incompletes were two measures indicative of the success of this program.

In Milford, Delaware, developmental career units were implemented into each curriculum area (Delaware's Occupational-Vocational Education Model, 1971). In this program, students study related occupations while studying the content of each academic area. Career guidance activities are used to encourage students to begin tentative career planning and to develop appropriate career self-concepts.

Black (1973) describes the effective use of career guidance materials in a school district in Wyoming. Career information was developed into packets designed to complement existing vocational programs and activities. This supplemental use of multimedia materials provided an

interesting and economical means of improving present career programs.

In comparing the effects of a system-wide computer-based career program to traditional counseling, James and Smith (1972) found that the computer system provided a more efficient source of occupational information to students than did traditional counseling.

Walz, Kersch, Mattson, and Banfield (1972) describe the successful development of a career education program for grades K-14. This program provides self-directed learning activities at each grade level through multimedia materials. Students progress to a new career module after the successful completion of each unit objective.

Woo (1973) and Kelly and Gaujot (1973) report the success of comprehensive vocational educational programs involving kindergarten through twelfth grade. In these programs, career education is interwoven into the regular curriculum rather than taught as a separate unit. Emphasis on experiential learning contributes to the success of these programs. In addition to the use of multimedia materials, other career guidance techniques have been recently investigated. The use of decision-making strategies also has been initiated into the field of career education.

Decision-Making Approach

Decision-making instruction has been recently investigated for its effectiveness as a career guidance technique. In a study involving career counseling of undecided college students, Kuehn (1974) found that practice in decision-making skills seemed to increase career decision-making ability. Students were given practice in analyzing career problems and developing appropriate solutions. Better than 90 percent of these undecided students had made a vocational choice by the end of this study.

Johnson and Myrick (1972) also found that training and practice in use of decision-making skills increased ability to make satisfactory career choices. Students in this experiment received practice in making and evaluating career choices in a group setting. Posttest data showed a significant difference in educational and occupational information between the experimental and control groups.

Housley (1973) found that most students selected a career following successive rejections of less desirable alternatives. Such findings suggest that career decision-making is basically a process of elimination rather than active selection.

In another study, special education students increased their ability to make appropriate career decisions following exposure to decision-making techniques (Bureau of Education for the Handicapped, 1971). Secondary

special education students were taught such procedures as acquiring relevant information about self, considering current job opportunities, and evaluating the probability of success for various occupations. Follow-up data showed teacher reports indicating improved career decision-making ability among their students.

Egner (1974) measured the effects of exposure to a career decision-making model on eleventh grade students. Favorable comments resulted from participating students regarding their improved decision-making ability.

Tatum (1967) contrasted the vocational and educational decisions of college-bound students and drop-out students. Findings showed that approximately 69 percent of the college-bound students selected professional careers, while 70 percent of the drop-outs selected non-professional occupations, military service, or marriage.

Smith (1973) conducted a study comparing the effects of two decision-making instructional techniques on the career development of freshman and sophomore students. Both individual and group sessions were conducted involving instruction in aspects important to the decision-making process: values, interests, social influences, and vocational opportunities.

Gelatt, Clarke, and Levine (1965) assessed the effectiveness of the vocational counseling services provided by the secondary school system in Palo Alto,

California. Follow-up data indicated that those students who had obtained important information regarding their educational and vocational goals made the most successful educational and occupational adjustments. Access to relevant information such as high school grade-point average, college requirements, and probable success in an occupation correlated highly with effective, successful decision-making.

A number of innovations in career decision-making instruction have been developed recently. Boocock (1968) designed a simulation game entitled "Life Career Game," which provides practice in decision-making skills. In this game, participants discuss and analyze the career-related problems of characters described on cards. The success of this important career guidance technique in facilitating career selection has been substantiated by Youst (1969).

A decision-making system was developed at Tallahassee Community College by Richardsville, Partridge, Kinzer, and Benson (1972). In this programmed instruction system, students are assisted in clarifying their abilities and interests. Consideration of various occupational alternatives and suggested procedures for attaining vocational objectives are also provided in this program.

Another computer system has been developed for community college students in the State of Washington

(Marble & Cowen, 1973). This system is programmed for information designed to broaden career awareness and strengthen decision-making skills through practice.

Healy (1973) has structured innovative group guidance experiences for undecided students. In these career guidance sessions, group members assist one another in clarifying self-perceptions and solving career problems. Group monitoring and feedback serve as positive reinforcements for each member.

Relatively little research has been designed to directly compare the effects of multimedia and decision-making instruction on career maturity or to measure the results of the combined effects of these techniques. One such study has been recently reported involving a series of vocational guidance programs for college freshmen (Pappas, Fuhriman, Packard, Warsaw, Stoddard and Carney, 1972). These programs consist of multimedia packets which have been correlated with counseling modules based on the various aspects of the decision-making process: (a) identifying the problem, (b) gathering occupational information, (c) exploring vocational alternatives, (d) selecting a career choice, and (e) implementing and evaluating career alternatives. Posttest data indicated that students attained a higher level of career maturity as a result of their exposure to vocational multimedia materials and decision-making instruction.

Summary

The literature supports the use of multimedia containing vocational information and instruction in decision-making as viable career guidance techniques. There is an apparent need, however, for further investigation of the comparative effects of these two career guidance methods. Career counseling and vocational guidance programs can be rendered more effective and efficient by the comparative evaluation of these two counseling procedures.

Overview

Presented in Chapter II are descriptions of subjects, treatment groups, measurement instrument, procedures, hypotheses, research design, and a brief description of the statistical analysis used in the present study. Detailed statistical analysis of results is presented in Chapter III. Chapter IV contains a summary of results and considerations for future research.

CHAPTER II

METHODOLOGY

Overview

The purpose of this study is to investigate the effects of three career guidance strategies on the career maturity of college freshman and sophomore students who have no officially declared educational preference. The three career guidance techniques considered in this study are (a) instruction in decision-making skills, (b) exposure to multimedia materials on careers, and (c) a combination of instruction in decision-making plus exposure to multimedia materials. The dependent measure in this study is the Career Maturity Inventory (Crites, 1973). Treatment effects were measured on the Attitude Scale and the five Competency Tests contained in the Career Maturity Inventory (CMI): (a) Knowing Yourself (Self-Appraisal), (b) Knowing About Jobs (Occupational Information), (c) Choosing a Job (Goal Selection), (d) Looking Ahead (Planning), and (e) What Should They Do? (Problem Solving).

The combined effects of multimedia materials containing occupational information and decision-making instruction on the various dimensions of career maturity

were also investigated. In addition, the interaction effect of grade level classification and career guidance strategy on the measures of career maturity were assessed in this study.

Career guidance techniques and grade level classification are the independent variables in this study. Scores on the two separate scales of the Career Maturity Inventory--the Attitude Scale and the Competence Tests--served as dependent measures.

The use of multimedia as a career guidance technique has been investigated with positive results by a number of researchers (Hansen, 1970; Lasota, 1973; Webster, 1973; and Malacos, 1974). The effects of decision-making instruction on career maturity have also been the subject of several recent investigations (Kuehn, 1974; Smith, 1973; Johnson & Myrick, 1972; Tatum, 1967). These researchers report positive effects on career maturity resultant from the intervention of decision-making instruction.

If the separate treatments of these two instructional methods produce positive results, it seems logical to hypothesize the existence of differential effectiveness between the two techniques or greater effectiveness from a combination of these two methods. Previous research has been directed mainly toward measuring the effects of various career guidance techniques independently of one another. Very little research has been conducted comparing

the separate and combined effects of career guidance strategies. Therefore, an important need still exists to further refine present career research to the point of evaluating the relative effectiveness of various career guidance techniques. Such information would prove invaluable to educators in the process of program selection and development.

Participants in this study consisted of 104 freshman and sophomore students classified as having no declared educational preference by the University College, South Complex Division of Michigan State University. Freshman and sophomore students were randomly assigned (according to grade) to each of three treatment groups and a control group. One experimenter provided the treatments for all three groups.

The separate and combined treatment effects of three career guidance strategies on the career maturity of freshman and sophomore students were compared in this study. Treatment I consisted of a combination approach of instruction in career decision-making followed by exposure to multimedia materials on careers. Participants in this group were given instruction and practice in decision-making strategies in addition to viewing multimedia materials on various occupations. Treatment II involved instruction in decision making, only. Subjects in this group received instruction and practice in Hoyt's (1967)

career decision-making model in the same manner as Treatment Group I above. Treatment III consisted of exposure to multimedia materials on careers, only. This group viewed filmstrips and printed materials on various careers. The control group received no treatment, but was administered the posttest measure (the Career Maturity Inventory) along with the three treatment groups.

Multivariate and univariate analyses were used to analyze the data in this study. The independent variables were career guidance strategies and grade level. The dependent variables were scores on the Attitude Scale and scores on the five Competence Tests of the CMI: (a) Part I: Knowing Yourself, (b) Part II: Knowing About Jobs, (c) Part III: Choosing a Job, (d) Part IV: Looking Ahead, and (e) Part V: What Should They Do? The critical level of statistical significance was set a priori at $\alpha = .05$. However, attention was also given to findings significant at $\alpha = .10$.

Presented in Chapter II are descriptions of subjects, treatment groups, measurement instrument, procedures, hypotheses, research design, and a brief statistical analysis. A more detailed statistical analysis of results is presented in Chapter III. Chapter IV contains a summary of the results and a discussion of some possible implications for future research.

The 120 subjects participating in this study were drawn from a total of 1,200 students enrolled in the University College, South Complex Division of Michigan State University. University College is comprised of only freshman and sophomore students who have no officially declared educational preference.

Subjects for this experiment were self-selected. According to Cornfield and Tukey (1956), a carefully described sample is representative of the original population to which it belongs. Therefore, findings based on this sample are generalizable to a larger population. A summary of personal and demographic data on this sample group is presented in Tables 1-6.

Selection and Assignment of Subjects

Volunteers from the "No-Preference" group were randomly assigned, according to grade level, to each of three treatment groups and a control group until a total of 120 was reached. Of this original sample, 104 Ss completed the treatment. A minimum of 20 subjects (10 freshmen and 10 sophomores) were randomly assigned to one of four treatment groups: (a) multimedia plus decision-making group, (b) decision-making group, (c) multimedia group, and (d) control group. Freshman and sophomore students were assigned according to grade classification until a minimum of 10 subjects per cell had been reached.

Table 1.--Personal and Demographic Characteristics of Sample: Sex (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
Male	3	8	7	6	29	36
Female	17	12	13	14	51	64
Totals	20	20	20	20	80	100

Table 2.--Personal and Demographic Characteristics of Sample: Previous Career Counseling Contacts at the College Level (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
None	13	9	11	14	47	59
1-2	5	10	8	5	28	35
3-4	2	1	1	1	5	6
5-9	0	0	0	0	0	
10+	0	0	0	0	0	
Totals	20	20	20	20	80	100

Table 3.--Personal and Demographic Characteristics of Sample: Previous Academic Counseling Contacts at the College Level (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
None	1	0	0	1	2	3
1-2	8	6	11	8	33	41
3-4	9	11	8	9	37	46
5-9	2	3	1	2	8	10
10+	0	0	0	0	0	0
Totals	20	20	20	20	80	100

Table 4.--Personal and Demographic Characteristics of Sample: Community (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
Urban	6	5	1	4	16	20
Suburban	10	9	16	13	48	60
Rural	4	6	3	3	16	20
Totals	20	20	20	20	80	100

Table 5.--Personal and Demographic Characteristics of Sample: Family Income (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
$0,000-$4,999	1	1	0	0	2	3
$5,000-$9,999	5	0	2	1	8	10
$10,000-$14,999	3	2	5	5	15	19
$15,000-$19,999	6	6	4	6	22	27
$20,000 and above	5	11	9	8	33	41
Totals	20	20	20	20	80	100

Table 6.--Personal and Demographic Characteristics of Sample: Occupation of Head of Household (N=80).

	Decision-Making Plus Multimedia Group	Decision-Making Group	Multimedia Group	Control	Frequency	%
Unskilled Laborer	7	5	4	4	20	25
Skilled Laborer or Semi-Professional	6	8	15	7	36	45
Professional	7	7	1	9	24	30
Totals	20	20	20	20	80	100

Treatment Groups

Treatment Group I--Decision-Making Plus Multimedia Group

The subjects in this group received instruction and practice in the implementation of decision strategies based on Hoyt's (1967) decision-making model (see Appendix A). This model consists of four basic stages. The first stage involves establishing tentative goals. These goals help define general interest areas and are based on the individual's current vocational and avocational interests. The second stage concerns gathering relevant data regarding self-understanding and the probabilities of attaining desirable vocational objectives. The third stage consists of the comparative evaluation of these projected occupational goals. The last stage--decision-making--marks the careful selection of a career based on the knowledge acquired during the three previous stages.

Several examples of the implementation of this model were given in both hypothetical and real-life situations. Subjects were then asked to write the stages in Hoyt's decision-making model from memory. Following this exercise, subjects were encouraged to apply the model to making their own career decisions by writing down responses corresponding to as many of the stages in the decision-making model as possible.

After receiving instructions in decision-making strategies, subjects in this group viewed a commercially prepared filmstrip series and listened to accompanying cassette tapes which presented descriptions of over 30 different jobs. This series, entitled Keys--Career Exploration, S.R.A. (Lombard & Gringer, 1972) presents job information on the ten occupational areas contained on the Kuder E General Interest Survey: (a) outdoor, (b) mechanical, (c) computational, (d) scientific, (e) persuasive, (f) artistic, (g) literary, (h) clerical, (i) musical, and (j) social service. For the purpose of this study, only seven of the ten categories were selected for use. These areas contain job categories in which the majority of occupations require college preparation. The following categories were selected for viewing by students participating in this study: (a) computational, (b) scientific, (c) persuasive, (d) artistic, (e) literary, (f) musical, and (g) social service. Interviews were shown in the filmstrips in which employees working on the job speak directly to viewers regarding the desirability of their line of work and their specific job responsibilities. Musical arrangements and creative photography enhanced the attractiveness of this media presentation. Each filmstrip lasted from 12 to 15 minutes, requiring a total presentation time of about one hour and fifteen minutes.

Five different types of jobs were presented in each of seven categories. In the area of computation, occupations such as computer programming, mathematics, auditing, insurance writing, and bookkeeping were shown. Under the scientific category, careers in geology, engineering, and medicine were described. In the persuasive field, vocations in law, real estate, business management, and television advertising were presented. In the artistic area, careers were presented in music, fashion designing, and graphic arts. The literary classification included English teaching, free-lance writing, and television directing. In addition, the social service area described vocations such as social work, mental health work, social agency administration, and college counseling.

Following the filmstrip presentation, subjects explored printed materials which contained information on over 340 different occupations. The Widening Occupational Roles Kit (Lang, 1972) and the Occupational Exploration Kit (Belanger, 1967) were provided for this purpose. These kits presented work briefs containing information on job preparation, job responsibilities, advancement possibilities, and projected income. Subjects were encouraged to study these materials for additional information on various occupations.

Treatment Group II--
Decision-Making Group

Subjects in this group received instruction and practice in the implementation of decision-making strategies in the same manner as the Decision-Making plus Multimedia Group cited above. Employing Hoyt's (1967) career decision-making model, subjects were given examples of the process of career selection. Following this, subjects were instructed to apply Hoyt's model to their own career selection process by writing down appropriate responses to as many stages in the model as possible. These responses were self-scored.

Treatment Group III--
Multimedia Group

Similar to Treatment Group I, Group III viewed the Keys--Career Exploration filmstrip series and listened to accompanying cassette tapes. These filmstrips presented job categories in which the majority of the occupations require college preparation. The following occupational categories were viewed by this group: (a) computational, (b) scientific, (c) persuasive, (d) artistic, (e) literary, (f) musical, and (g) social service. Interviews were shown in the filmstrips in which employees working on the job speak directly to viewers regarding the desirability of their line of work and their specific job responsibilities. Approximately 35 different occupations were presented by this media.

Following the filmstrip presentation, subjects explored printed materials which contained information on over 340 different occupations. The Widening Occupational Roles Kit (Lang, 1972) and the Occupational Exploration Kit (Belanger, 1967) were provided for this purpose. These kits presented work briefs containing a variety of job information. Subjects were encouraged to study these materials for additional occupational information.

Measures

The criterion measure for this study is the Career Maturity Inventory (CMI) (Crites, 1973). This instrument is designed to measure attitudes and competencies related to the career developmental processes of junior high, high school, and college students. The CMI is divided into two major categories--the Attitude Scale and the Competence Tests. The Attitude Scale is a 50-item, true-false test designed to measure subjective dispositions toward the process of selecting a career and entering the world of work.

The Competence Test is designed to assess the five skill areas believed to be important to the process of career development (Super, 1957; Tiedeman, 1963; Crites, 1973).

Part I: Knowing Yourself (Self-Appraisal) contains questions designed to measure the individual's degree of self-understanding and his awareness of personal assets

and weaknesses. Part II: Knowing About Jobs (Occupational Information) measures the respondent's general knowledge of the world of work. Part III: Choosing a Job (Goal Selection) assesses the individual's ability to match personal and environmental factors with an optimal career. Part IV: Looking Ahead (Planning) assesses the subject's ability to plan logically for the attainment of his future career goals. Part V, entitled What Should They Do? (Problem Solving) measures the capacity to solve problems related to career development. Testing time for the CMI ranges from one and a half hours to two hours.

Validity for the Attitude Scale has been supported through both theory and research. Content validity was established through the logical deduction of test items from vocational counseling theory. In addition, a team of counseling psychologists served as expert judges in the process of item selection. The criterion of interjudge agreement was established at 80 percent; that is, eight out of ten judges were in agreement on an item before it was considered for inclusion in the inventory.

Criterion validity for the CMI has been substantially documented through research findings. Bathory (1967), testing a group of ninth grade students, found a correlation of .39 ($p < .01$) between the Attitude Scale and the Occupational Aspiration Scale (Miller & Haller, 1964). Cooter (1966) reported a correlation of .38

($p < .01$) between the Attitude Scale and the Readiness for Vocational Planning scales (RVP) (Gribbons & Lohnes, 1968). In a study involving 1,648 junior high and high school students, Hollander (1964) reported a significant correlation between the Attitude Scale and variables such as realism in career choice, consistency of vocational interests, and quality of career decision. Hoyt (1962) found significantly high correlations (ranging from .25 to .53, with a mean of .37) between the Attitude Scale and the Vocational Guidance Tests. In addition, Crites (1973) reported favorable results from multiple tests indicating a positive correlation between upper level scores on the Attitude Scale and degree of realism in career selection.

Mental ability and personality traits have been correlated with the Attitude Scale in an effort to establish construct validity. Dutt (1968) found a correlation of .42 between scores on the Otis Quick Scoring Mental Abilities Test and scores on the Attitude Scale. Bartlett (1968) found relatively high correlations between scores on the Attitude Scale and scores in such areas as self-confidence and achievement on the Adjective Checklist. Studying a sample of 1,116 high school seniors, Tamminen and Miller (1968) found a significant correlation (.40) between the Attitude Scale and the Minnesota Scholastic Aptitude Test (MSAT). Malone (1965) and Harris (1966) also reported significant correlations between success in

college and vocational training and high scores on the Attitude Scale. Using the Adjective Checklist (ACL) and the Minnesota Multiphasic Personality Inventory (MMPI), Hollander and Schalon (1965) found data supporting the hypothesis that subjects with high scores on the Attitude Scale were generally better adjusted individuals than those with low scores. A longitudinal study conducted by Crites and Semler (1967) further indicated a positive relationship between career attitude and educational and personal adjustment.

Reliability coefficients (using Kuder-Richardson Formula 20) for internal consistency of the Attitude Scale have been quoted from .65 to .84, with a mean of .74. A stability coefficient of .71 was reported for test-retest reliability for 1,648 students tested over a one-year period. Crites (1973) states that the developmental quality of career maturity makes extremely high coefficients of stability undesirable. Therefore, the obtained mean of .71 was considered a sufficiently high measure of stability for the Attitude Scale.

Although construct and criterion-related validity for the Attitude Scale have been substantially supported through research, the Competency Test, because it is relatively new, has not yet been as thoroughly investigated. Studies designed to increase the research data in this area are now underway. The Competency Test was designed to

assess the various abilities believed to be vital to the process of career development. The test consists of five interrelated scales: (a) Knowing Yourself (Self-Appraisal), (b) Knowing About Jobs (Occupational Information), (c) Choosing a Job (Goal Selection), (d) Looking Ahead (Planning), and (e) What Should They Do? (Problem Solving).

Part I: Knowing Yourself, is a self-assessment scale developed on the assumption that self-knowledge enhances career maturity. Crites (1964) and Super (1957) further postulate that self-awareness tends to increase with age. Questions on this scale reflect actual counseling and guidance cases. In this test, respondents are required to choose one of five alternative responses, each of which is designed to measure one of the following personal traits: (a) dependency, (b) desire for certainty, (c) inaccurate self-appraisal, (d) realistic self-appraisal, and (e) indecision. Scores obtained in these areas reflect personality traits which are related to the process of career development.

Part II: Knowing About Jobs (Occupational Information) is designed to test the individual's level of acquired knowledge about various occupations. Crites (1964) states that career maturity is characterized by an extensive knowledge of the world of work. Knowledge of job requirements and responsibilities is believed to be vital to career maturity (Gelatt, Clarke, & Levine, 1965;

Crites, 1964; Hoyt, 1967; Crites, 1973). On this scale, respondents are required to match job descriptions with appropriate vocational titles based on the Dictionary of Occupational Titles (U.S. Department of Labor, 1965). These job descriptions correspond with the Strong Vocational Interest Blank, the Kuder Occupational Interest Survey (Form DD) and the Widening Occupational Roles Kit.

In Part III: Choosing A Job (Goal Selection) respondents are required to match hypothetical characters with optimal vocations. This scale is designed to measure the individual's ability to analyze personality traits and environmental circumstances relative to appropriate job selection.

The important dimension of planning is measured in Part IV of the CMI--Looking Ahead. Most theorists agree that planning is important to the successful attainment of educational and vocational goals. In Section IV, respondents are judged on the degree of realism and logical thinking exhibited by their responses. Questions for this section were developed from the Widening Occupational Roles Kit (WORK) and the Dictionary of Occupational Titles (DOT). On this scale, subjects are required to identify and to arrange in a logical sequence activities related to (a) obtaining job information, (b) successfully gaining employment, and (c) achieving job certification and advancement.

In Part V: What Should They Do? (Problem Solving), various problem situations are presented. Respondents must select the most appropriate solutions for problems relating to each of the following areas: (a) emotional or physical handicaps to career development, (b) parental conflicts concerning career choice, (c) insufficient ability for attaining a chosen vocation, (d) unrealistic career expectations, and (e) indecision regarding career choice. Responses are judged on the basis of apparent logic, realism, and creativity.

Content validity for the Competence Scale was established by constructing items from real-life vocational counseling cases. In addition, test items were developed on the basis of logical deduction from accepted vocational theory.

Criterion-related validity for the Competence Test has been supported by recent research data. Significant correlations between competence scores and grade level are indicative of predictive validity. Similarly, the existence of concurrent validity is evidenced by the positive relationship of grade level to the individual scales.

Construct validity for the Competence Test was established by correlating the related psychological constructs across the subscales. The theoretical constructs upon which the five subscales are based have a hypothetical correlation coefficient of .40 to .60 (Crites, 1973).

Therefore, the relationship among subscales was tested in order to establish construct validity for this test. Correlation coefficients for the five subscales range from .25 to .75, with a mean of .54. Data clusterings indicate the highest degree of correlation occurring among the Occupational Information, Goal Selection, and Planning scales.

Reliability was established by a measure of internal consistency using the Kuder Richardson Formula 20. Scores from student samples ranging from 120 to 475 per group revealed high correlation coefficients (.72 to .90) for all but two of the scales. The two lowest scores were obtained on the Problem Solving scale for sixth and seventh graders. Crites (1973) states that these low correlations may be due to the lack of problem-solving experience in younger children--ages 11 and 12.

Facilities and Apparatus

The career guidance groups were conducted in a classroom in Wonders Hall at Michigan State University. A filmstrip projector, a cassette tape recorder, a movie screen, and a chalkboard were available for use during two of the sessions--the Decision-Making plus Multimedia Group and the Multimedia (only) Group.

Occupational information booklets were arranged in categories along wall shelving located in the rear of the

room. Colorful pamphlets and leaflets were attached to the wall above each job information kit.

Mimeographed diagrams of Hoyt's decision-making model were provided for each subject in the Decision-Making plus Multimedia Group and the Decision-Making (only) Group.

Procedures

Treatment Group I--Decision-Making Plus Multimedia Group

The subjects in this group received instruction and practice in the implementation of decision strategies based on Hoyt's (1967) career decision-making model (see Appendix A). Subjects in this group received mimeographed sheets containing an adapted version of Hoyt's decision-making model. Each aspect of this model was explained by the experimenter.

1. The first stage, involving tentative goal setting, focused on establishing several general areas of interest, either vocational or avocational in nature.

2. The information-gathering stage emphasized the acquisition of important information relative to the possibilities of each vocational alternative.

3. The evaluation phase stressed the careful exploration of these alternatives in terms of the comparative advantages and disadvantages of each.

4. The final stage--decision, concerned actual vocational selection based on information from the three previous stages.

Several hypothetical examples were given by the experimenter to demonstrate the effective use of this model

in the process of career decision making. After a short review of the steps in the model, subjects were requested to write each step in Hoyt's decision model from memory. Responses were self-scored. Subjects were then encouraged to apply the career decision-making model in the processing of subsequent career information received through multi-media.

This group then viewed a commercially prepared filmstrip series and listened to accompanying cassette tapes presenting descriptions of approximately 35 different occupations. This series, entitled Keys--Career Exploration, S.R.A. (Lombard & Grinager, 1972) presents job information on the ten occupational areas categorized by the Kuder E General Interest Survey: (a) outdoor, (b) mechanical, (c) computational, (d) scientific, (e) persuasive, (f) artistic, (g) literary, (h) clerical, (i) musical, and (j) social service. For the purposes of this study, only seven of the ten categories were selected for viewing. These were areas in which the majority of occupations required college preparation: (a) computational, (b) scientific, (c) persuasive, (d) artistic, (e) literary, (f) musical, and (g) social service.

Following this hour-and-fifteen minute filmstrip presentation, subjects viewed printed materials which contained information on over 340 different jobs. The Widening Occupational Roles Kit, S.R.A. (Lang, 1972) and

the Occupational Exploration Kit (Belanger, 1967) were made available for viewing at this time. These materials contained work briefs on job preparation, job responsibilities, advancement possibilities, and earnings. Subjects were encouraged to explore these materials for additional information on jobs. Assistance was given by the experimenter in locating specific areas of interest. Clarification and elaboration on specific job areas were given upon request. Subjects viewed these materials for a period of time ranging from 20 minutes to an hour, with an average viewing time of approximately 30 minutes.

Treatment Group II--
Decision-Making Group

The subjects in this group received instruction and practice in the implementation of Hoyt's career decision-making model, only (see Appendix A). This group also received mimeographed sheets containing an adapted version of Hoyt's decision-making strategies. Each aspect of this model was explained by the experimenter. The stages utilized were as follows:

1. The first stage, involving tentative goal setting, focused on establishing several general areas of interest, either vocational or avocational in nature.

2. The information-gathering stage emphasized the acquisition of important information relative to the possibilities and probabilities of each vocational alternative.

3. The evaluation phase stressed the careful exploration of these alternatives in terms of the comparative advantages of each.

4. The final stage--decision-making, involved the actual selection of an optimal vocation based on the three previous stages.

As in Treatment Group I, this group was given several hypothetical examples of the effective use of Hoyt's model in the process of career decision-making. Following a short review of the steps, subjects were then requested to write each step in Hoyt's career decision model from memory. These responses were self-scored.

Treatment Group III--
Multimedia Group

The subjects in this group viewed multimedia materials on careers in the same manner as Treatment Group I, cited above. Group III viewed a commercially prepared filmstrip series and listened to accompanying cassette tapes presenting descriptions of approximately 35 different occupations. This series, Keys--Career Exploration (Lombard & Grinager, 1972) presents job information on the ten occupational areas categorized in the Kuder E General Interest Survey: (a) outdoor, (b) mechanical, (c) computational, (d) scientific, (e) persuasive, (f) artistic, (g) literary, (h) musical, (i) social service, and (j) clerical. For purposes of this study, only seven of the ten categories were selected for viewing. These were areas in which the majority of the occupations

required college preparation: (a) computational, (b) scientific, (c) persuasive, (d) artistic, (e) literary, (f) musical, and (g) social service.

Following this hour-and-fifteen minute filmstrip presentation, subjects viewed printed materials which contained information on over 340 different jobs. The Widening Occupational Roles Kit (Lang, 1972) and the Occupational Exploration Kit (Belanger, 1967) were made available for viewing at this time. These materials contained work briefs on job preparation, job responsibilities, advancement possibilities, and earnings. Subjects were encouraged to explore these materials for additional information on jobs. Again, assistance was given by the experimenter in locating specific areas of interest. Clarification and elaboration on specific occupations were given upon request. Subjects viewed these materials for intervals ranging from 20 minutes to one hour, with the majority of the subjects remaining approximately 30 minutes.

Control Group

This group received no treatment but was post-tested along with the three experimental groups. At the conclusion of this study, control subjects were referred to the University College Counseling Center at Michigan State University for academic advisement and career counseling.

Hypotheses

Hypothesis I

There will be no significant difference in scores on the Career Maturity Inventory (CMI) across treatment groups. There will be no significant difference in scores on the CMI of college freshman and sophomore students classified as "No-Preference"--that is, having no officially declared educational preference--who are exposed to the experimental conditions of (a) decision-making instruction plus career information received through multimedia materials, (b) decision-making instruction alone, (c) career information through the use of multimedia materials only, and the control group.

Hypothesis I_A

There will be no significant difference in the CMI scores of freshman and sophomore college students classified as "No-Preference" who are exposed to decision-making instruction plus career information presented through multimedia materials, and the composite score of (a) subjects exposed to decision-making instruction alone, (b) subjects exposed to career information through the use of multimedia materials only, and (c) the control group.

Hypothesis I_B

There will be no significant difference between the CMI scores of freshman and sophomore college students classified as "No-Preference" who receive decision-making instruction and the composite score of (a) subjects exposed to career information through multimedia materials only, and (b) students who receive no treatment (control group).

Hypothesis I_C

There will be no significant difference between the CMI scores of college freshman and sophomore students classified as "No-Preference" who are exposed to career information through multimedia materials and the control group.

Hypothesis II

There will be no significant difference in CMI scores between the two grade classifications--freshman and sophomore levels.

Hypothesis III

There will be no significant interaction effect between the two independent variables--grade classification and career guidance treatment on a measure of career maturity (CMI).

Experimental Design

According to Campbell and Stanley (1963), Klugh (1970), and Slakter (1972), randomization procedures adequately insure the assumption of equalization among treatment groups. Therefore, initial biases between groups in this study were presumably controlled through the process of random assignment. Each subject was randomly assigned to one of three treatment groups and the control group. Based on theories proposed by Campbell and Stanley (1963), a posttest only design was selected as appropriate for this study. This design is presented in Figure 1. A graphic presentation of this design is presented in Table 7.

Analysis of Data

The Finn Program was used to analyze the data in this study. Multivariate analysis of variance was the statistical method employed to measure treatment effect across the three experimental conditions and the control

R	X_1	O_1	Decision-Making Instruction plus Multimedia Group
R	X_2	O_2	Decision-Making Instruction Group
R	X_3	O_3	Multimedia Group
R	X_4	O_4	Control

Legend:

O = Career Maturity Inventory (Crites, 1973)

X_1 = Treatment Group I--Those subjects receiving career decision-making instruction plus career information through multimedia materials.

X_2 = Treatment Group II--Those subjects receiving instruction in career decision-making techniques, only.

X_3 = Treatment Group III--Those subjects receiving information on professional career areas through filmstrips based on the Kuder General Interest Survey and through various kits containing written job descriptions.

X_4 = Control Group

Fig. 1.--Experimental Design.

Table 7.--Experimental Design.

Grade Classification	Decision-Making plus Multimedia	Decision-Making	Multimedia	Control
Freshman	10	10	10	10
Sophomore	10	10	10	10

group. Grade classification and interaction effect were also assessed through the use of multivariate techniques. Univariate analysis was employed to measure treatment, grade classification, and interaction effect across the individual scales.

The dependent variable in this study was the Career Maturity Inventory consisting of an Attitude Scale and five Competence Tests.

Posthoc procedures used in this study were least squares estimates of contrasts employed at the 95 percent level of confidence.

CHAPTER III

ANALYSIS OF RESULTS

This study was designed to measure the separate and combined effects of two career guidance treatments on a measure of career maturity of college freshman and sophomore students classified as having no educational preference. Concurrently, grade classification was investigated in this study for its effect on the career maturity of "No-Preference" college students. Analysis for possible interaction effect between grade classification and career guidance treatment was also conducted.

The Finn Program was used to analyze the data in this study. A Control Data Corporation 6500 computer located at Michigan State University was employed in the computation of multivariate and univariate analysis of treatment, class, and interaction effects. The Career Maturity Inventory, consisting of an Attitude Scale and five Competence Tests, served as the dependent measure. The following null hypotheses were formulated to facilitate the data analysis.

Hypothesis I

There will be no significant difference between the career maturity (CMI) scores of college freshman and sophomore students classified as "No-Preference"--that is, having no officially declared educational preference--who are exposed to the experimental conditions of (a) decision making instruction plus career information received through multimedia materials, (b) decision-making instruction alone, (c) career information through multimedia only, and the control group.

Hypothesis I_A

There will be no significant difference between the career maturity scores of freshman and sophomore college students classified as "No-Preference" who are exposed to decision making instruction plus career information presented through multimedia materials and the composite score of (a) subjects exposed to decision making instruction alone, (b) subjects exposed to career information through multimedia only, and (c) the control group.

Hypothesis I_B

There will be no significant difference in the career maturity scores of freshman and sophomore college students classified as "No-Preference" who receive decision making instruction and the composite score of (a) subjects who are exposed to career information through multimedia materials only, and (b) subjects who receive no treatment (control group).

Hypothesis I_C

There will be no significant difference in the career maturity scores of college freshman and sophomore students classified as "No-Preference" who are exposed to career information through multimedia materials and subjects who receive no treatment (control group).

Hypothesis II

There will be no significant difference on a measure of career maturity (CMI) between the two grade classifications--freshman and sophomore levels.

Hypothesis III

There will be no significant interaction effect between the two independent variables--grade classification and career guidance treatment--on a measure of career maturity.

Career Guidance Treatment and Grade Classification Effects

Test Results for Hypothesis I

Hypothesis I was formulated to measure the differential effects of level of career guidance treatment on a measure of career maturity of college freshman and sophomore students classified as "No-Preference." Results showed an F value of 1.3884, $p < .1409$ for treatment effect by grade classification. Therefore, the data do not provide sufficient evidence for rejection of the null hypothesis (see Table 8).

Although there was no significant F value found for the main treatment effects, further investigation of the data revealed significance ($F = 3.4427$, $p < .0212$) for Scale 4--Looking Ahead. The data indicated that subjects in the multimedia group scored significantly higher than subjects in either the decision making plus multimedia group, the decision making instruction (only) group, or the control group.

Table 8.--Summary of Multivariate and Univariate Analyses for Treatment, Grade Classification, and Treatment by Grade Interaction Effects.

Source	Multivariate df	Univariate Variables	Univariate F	Univariate P	Multivariate F	Multivariate P
Treatment	18				1.3884	.1409
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0286	.9935		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.2895	.2846		
		$Scale_3$ Choosing A Job (Job Selection)	.6473	.5872		
		$Scale_4$ Looking Ahead (Planning)	3.4427	.0212*		
		$Scale_5$ What Should They Do? (Problem Solving)	1.4243	.2428		
		$Scale_6$ Attitude	2.2557	.0892†		
Grade Classification	6				1.4687	.2024
		$Scale_1$ Knowing Yourself (Self-Appraisal)	4.7882	.0320*		
		$Scale_2$ Knowing About Jobs (Occupational Information)	.3227	.5718		
		$Scale_3$ Choosing A Job (Job Selection)	.0635	.8018		
		$Scale_4$ Looking Ahead (Planning)	1.4874	.2267		
		$Scale_5$ What Should They Do? (Problem Solving)	.2285	.6342		
		$Scale_6$ Attitude	.7271	.3967		
Treatment x Grade Interaction	18				.8845	.5979
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0552	.9829		
		$Scale_2$ Knowing About Jobs (Occupational Information)	2.1182	.1054		
		$Scale_3$ Choosing A Job (Job Selection)	.2880	.8339		
		$Scale_4$ Looking Ahead (Planning)	.0860	.9675		
		$Scale_5$ What Should They Do? (Problem Solving)	2.8458	.0436*		
		$Scale_6$ Attitude	.0829	.9692		

(df for error = 72)

*p < .05
†p < .10

Univariate analysis of Scale 6--the Attitude Scale, revealed a trend in favor of the control group ($F = 2.2557$, $p < .0892$).

Test Results for Hypothesis II

Hypothesis II was formulated to measure the effect of grade classification on the career maturity scores (CMI) of college freshman and sophomore students classified as "No-Preference." Multivariate analysis was employed to analyze the differential effects of the two grade classifications--freshman and sophomore levels--on the dependent measure, the Career Maturity Inventory. Test results showed an insignificant overall F value of 1.4687, $p < .2024$ for the effect of grade classification on the career maturity scores of "No-Preference" students.

However, significance was found at the .05 level on the univariate test for Scale 1--Knowing Yourself (Self-Appraisal) in favor of freshman students ($F = 4.7882$, $p < .0320$).

Test Results for Hypothesis III

Hypothesis III was designed to measure the interaction effect of career guidance treatment and grade classification on the career maturity scores of "No-Preference" college freshman and sophomore students. Multivariate analysis indicated no significant interaction between the two variables ($F = .8845$, $p < .5979$).

However, univariate tests showed a significant F value ($F = 2.8458$, $p < .0436$) for Scale 5--What Should They Do? (Problem Solving) (see Figure 2).

Additional Analyses

Further analyses were conducted to measure level of career guidance treatment and sex classification effects. In addition, treatment and level of previous academic counseling contacts and previous career counseling effects were also investigated.

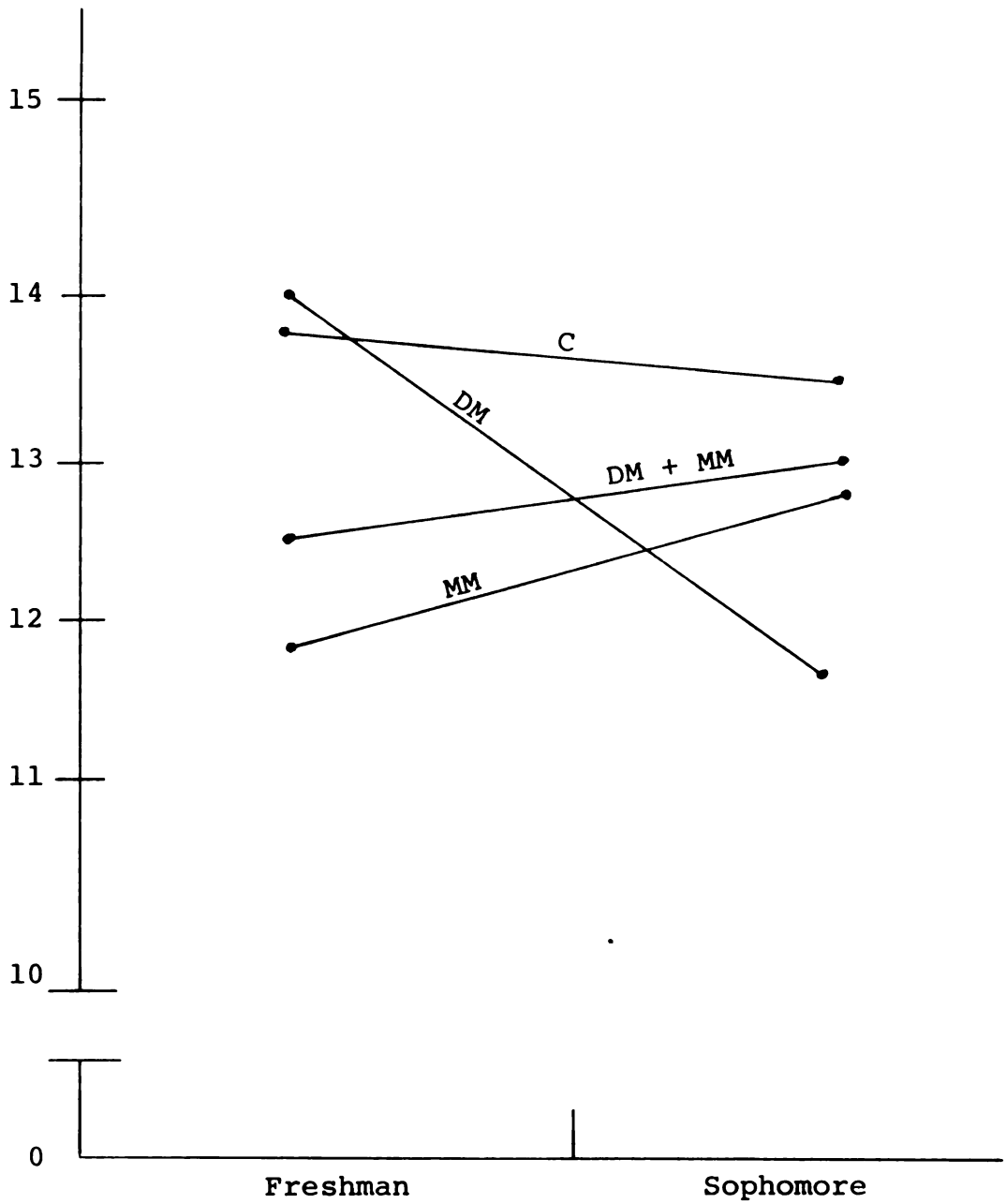
The Finn Program and the Control Data Corporation 6500 computer were again employed to compute the multivariate and univariate F tests of significance. Tables 9, 10, and 11 contain the designs and the respective cell sizes for each additional classification variable.

Career Guidance Treatment and Sex Classification Effects

The following hypotheses were formulated to measure career guidance treatment and sex classification effects on the dependent measure--the Career Maturity Inventory.

Hypothesis IV

> There will be no significant difference between the career maturity (CMI) scores of male and female subjects classified as "No-Preference" who are exposed to the experimental conditions of (a) decision-making instruction plus career information received through multimedia materials, (b) decision making instruction alone, (c) career information through multimedia only, and the control group.



Legend: DM + MM = Decision Making plus Multimedia Group
DM = Decision Making Group
MM = Multimedia Group
C = Control

Fig. 2.--Cell Means for Interaction Effect Between Career Guidance Levels and Grade Classification on Scale 5--What Should They Do? (Problem Solving).

Table 9.--Cell Sizes for Analyses of Career Guidance Treatment and Sex Classification Effects.

	Treatment and Sex Classification			
	Decision Making plus Multimedia	Decision Making	Multimedia	Control
Male	3	8	7	6
Female	17	12	13	14

Table 10.--Cell Sizes for Analyses of Career Guidance Treatment and Level of Previous Career Counseling Effects.

	Treatment and Level of Previous Career Counseling Experience			
	Decision Making plus Multimedia	Decision Making	Multimedia	Control
No Previous Career Counseling Experience	13	9	11	14
Previous Career Counseling Experience	7	11	9	6

Table 11.--Cell Sizes for Analyses of Career Guidance Treatment and Level of Previous Academic Counseling Effects.

	Treatment and Level of Academic Counseling Experience			
	Decision Making plus Multimedia	Decision Making	Multimedia	Control
0 to 2 Previous Academic Counseling Contacts	9	6	11	9
3 or More Previous Academic Counseling Contacts	11	14	9	11

Hypothesis IV_A

There will be no significant difference between the career maturity scores of male and female subjects classified as "No-Preference" who are exposed to decision making instruction plus career information presented through multimedia materials and the composite score of (a) subjects exposed to decision making instruction alone, (b) subjects exposed to career information through multimedia only, and (c) the control group.

Hypothesis IV_B

There will be no significant difference in the career maturity scores of male and female students classified as "No-Preference" who receive decision making instruction and the composite score of (a) subjects who are exposed to career information through multimedia materials only, and (b) subjects who receive no treatment (control group).

Hypothesis IV_C

There will be no significant difference in the career maturity scores of male and female students classified as "No-Preference" who are exposed to career information through multimedia materials and students who receive no treatment (control group).

Hypothesis V

There will be no significant difference on a measure of career maturity (CMI) between male and female subjects.

Hypothesis VI

There will be no significant interaction effect between the two independent variables--sex classification and career guidance treatment level--on a measure of career maturity.

Test Results for Hypothesis IV

Hypothesis IV was formulated to measure the effect of treatment differences on the career maturity (CMI) scores of "No-Preference" male and female college students who were exposed to the experimental conditions of (a) decision-making instruction plus career information received through multimedia materials, (b) exposure to decision-making instruction alone, (c) exposure to career information through multimedia only, and (d) the control group. Results from multivariate analysis indicated an F value for treatment effect of 1.4184, $p < .1265$. Therefore, the F ratio for treatment effect was not significant at the .05 alpha level (see Table 12).

Although there was no significance found on the overall F test, univariate analyses revealed a significant F value for Scale 4--Looking Ahead (Planning) in favor of the Multimedia and Control groups ($F = 3.5105$, $p < .0195$). Scale 6--the Attitude Scale--showed trends in favor of the control group ($F = 2.3451$, $p < .0801$).

Test Results for Hypothesis V

The effect of sex differences on the career maturity scores of college students classified as "No-Preference" was measured by Hypothesis V. Employing multivariate analysis, a significant F ratio was found for the effect of sex on career maturity scores ($F = 2.3205$, $p < .0421$).

Table 12.--Summary of Multivariate and Univariate Analyses of Treatment, Sex Classification, and Treatment by Sex Interaction Effects.

Source	Multivariate df	Univariate Variables	Univariate F	Univariate P	Multivariate F	Multivariate P
Treatment	18				1.4184	.1265
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0309	.9927		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.2584	.2952		
		$Scale_3$ Choosing A Job (Job Selection)	.6605	.5791		
		$Scale_4$ Looking Ahead (Planning)	3.5105	.0195*		
		$Scale_5$ What Should They Do? (Problem Solving)	1.3765	.2569		
		$Scale_6$ Attitude	2.3451	.0801†		
Sex	6				2.3295	.0421*
		$Scale_1$ Knowing Yourself (Self-Appraisal)	8.8118	.0041*		
		$Scale_2$ Knowing About Jobs (Occupational Information)	.1067	.7449		
		$Scale_3$ Choosing A Job (Job Selection)	.5560	.4584		
		$Scale_4$ Looking Ahead (Planning)	1.1316	.2910		
		$Scale_5$ What Should They Do? (Problem Solving)	3.6208	.0611†		
		$Scale_6$ Attitude	2.6294	.1093†		
Treatment x Sex Interaction	18				.8488	.6411
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.7556	.5228		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.5583	.2070		
		$Scale_3$ Choosing A Job (Job Selection)	.6192	.6049		
		$Scale_4$ Looking Ahead (Planning)	.6888	.5619		
		$Scale_5$ What Should They Do? (Problem Solving)	.8121	.4914		
		$Scale_6$ Attitude	.4132	.7441		

(df for error = 72)

*p < .05
†p < .10

Further investigation of the data revealed that female subjects scored significantly higher than male subjects on Scale 1--Knowing Yourself (Self Appraisal) ($F = 8.8118$, $p < .0041$). Although the .05 significance set for this study was not met, marginal significance in favor of female subjects was indicated for Scale 5--What Should They Do? ($F = 3.6208$, $p < .0611$). In addition, mean scores for Scale 6--the Attitude Scale--also indicated a directionality favoring female students ($F = 2.6294$, $p < .1093$).

Test Results for Hypothesis VI

Hypothesis VI was designed to measure the interaction effect between level of career guidance treatment and sex classification on the career maturity scores of college students classified as "No-Preference." Multivariate analysis indicated no significant interaction between these two variables ($F = .8488$, $p < .6411$).

Career Guidance Treatment and Previous Career Counseling Effects

Additional analyses were conducted to measure career guidance treatment effect by previous career counseling experience. Career counseling experience was defined in this study as any formal contact with an officially designated college counselor for assistance in obtaining vocational information or solving vocational

problems. The following null hypotheses were developed to facilitate this investigation.

Hypothesis VII

There will be no significant difference between the career maturity (CMI) scores of subjects having differential career counseling experience classified as "No-Preference" who are exposed to the experimental conditions of (a) decision-making instruction plus multimedia, (b) decision-making instruction alone, (c) career information through multimedia only, and the control group.

Hypothesis VII_A

There will be no significant difference between the career maturity scores of subjects having differential career counseling experience classified as "No-Preference" who are exposed to decision-making instruction plus career information presented through multimedia materials and the composite score of (a) subjects exposed to decision making alone, (b) subjects exposed to career information through multimedia only, and (c) the control group.

Hypothesis VII_B

There will be no significant difference in the career maturity scores of subjects having differential career counseling experience classified as "No-Preference" who receive decision-making instruction and the composite score of (a) subjects who are exposed to career information through multimedia materials only, and (b) subjects who receive no treatment (control group).

Hypothesis VII_C

There will be no significant difference in the career maturity scores of subjects of differential career counseling experience classified as having "No-Preference" who are exposed to career information through multimedia materials and subjects who receive no treatment (control group).

Hypothesis VIII

> There will be no significant difference on a measure of career maturity (CMI) between subjects who have had previous career counseling experience and subjects who have had no previous career counseling experience.

Hypothesis IX

> There will be no significant interaction effect between the two independent variables--level of previous career counseling experience and career guidance treatment level--on the career maturity scores of "No-Preference" students.

Test Results for Hypothesis VII

Hypothesis VII was designed to assess the effect of level of career guidance treatment on a measure of career maturity of "No-Preference" students with differential career counseling experience. Results of the F test for Hypothesis VII were not significant ($F = 1.3962$, $p < .1371$).

However, Scale IV--Looking Ahead (Planning) was computed with a significant F ratio--$F = 3.4937$, $p < .0199$. Post hoc procedures revealed higher mean score values for the multimedia and control groups. The F test for the Attitude Scale also showed trends in favor of the control group--$F = 2.3337$, $p < .0812$ (see Table 13).

Test Results for Hypothesis VIII

Hypothesis VIII was formulated to measure the effects of differential career counseling experience on the career maturity level of "No-Preference" college

Table 13.--Summary of Multivariate and Univariate Analyses of Treatment, Previous Career Counseling Experience, and Treatment by Previous Career Counseling Interaction Effects.

Source	Multivariate df	Univariate Variables	Univariate F	Univariate P	Multivariate F	Multivariate P
Treatment	18				1.3962	.1371
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0294	.9932		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.2922	.2837		
		$Scale_3$ Choosing A Job (Job Selection)	.6951	.5575		
		$Scale_4$ Looking Ahead (Planning)	3.4937	.0199*		
		$Scale_5$ What Should They Do? (Problem Solving)	1.4070	.2478		
		$Scale_6$ Attitude	2.3337	.0812†		
Previous Career Counseling Experience	6				1.6423	.1493
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0425	.8372		
		$Scale_2$ Knowing About Jobs (Occupational Information)	2.2648	.1368		
		$Scale_3$ Choosing A Job (Job Selection)	3.5289	.0644†		
		$Scale_4$ Looking Ahead (Planning)	1.2596	.2655		
		$Scale_5$ What Should They Do? (Problem Solving)	3.0025	.0875†		
		$Scale_6$ Attitude	.7383	.3931		
Treatment x Previous Career Counseling Interaction	18				.8095	.6878
		$Scale_1$ Knowing Yourself (Self-Appraisal)	2.3459	.0800†		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.5252	.2153		
		$Scale_3$ Choosing A Job (Job Selection)	.9657	.4138		
		$Scale_4$ Looking Ahead (Planning)	.5266	.6655		
		$Scale_5$ What Should They Do? (Problem Solving)	1.5946	.1982·		
		$Scale_6$ Attitude	.9206	.4354		

(df for error = 72)

*p < .05
†p < .10

students. The F value for multivariate analysis was computed at 1.6423, $p < .1493$. Therefore, F was not significant at the .05 alpha level for this analysis.

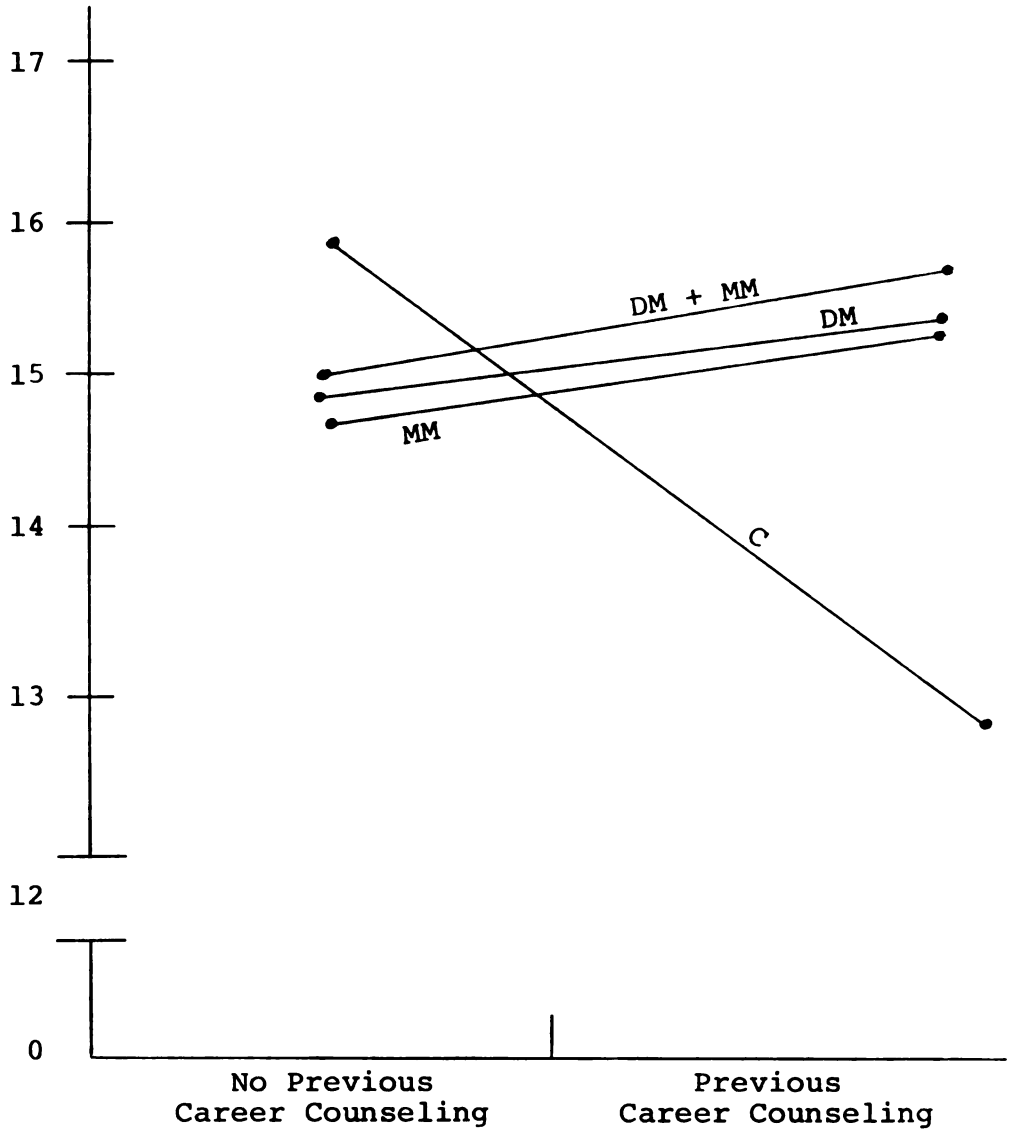
However, marginal significance was found for Scale 3--Choosing A Job with $F = 3.5289$, $p < .0644$ in favor of subjects having no previous career counseling experience. Conversely, univariate analysis of Scale 6--the Attitude Scale, revealed a trend in favor of increased career counseling experience ($F = 3.0025$, $p < .0875$).

Test Results for Hypothesis IX

The purpose of Hypothesis IX was to measure interaction effect between the two independent variables--level of previous career counseling experience and level of career guidance treatment--on the career maturity scores of "No-Preference" students. Test results for Scale I--Knowing Yourself, indicated a trend in favor of previous career counseling for the three treatment groups but not for the control group ($F = 2.3459$, $p < .0800$) (see Figure 3).

Career Guidance Treatment and Previous Academic Counseling Effects

Academic counseling experience was also considered in combination with career guidance treatment for its effect on the CMI scores of "No-Preference" students. Academic counseling experience was defined in this study



Legend: DM + MM = Decision Making plus Multimedia Group
DM = Decision Making Group
MM = Multimedia Group
C = Control

Fig. 3.--Cell Means for Interaction Effect Between Career Guidance Levels and Previous Career Counseling Experience on Scale 1--Knowing Yourself (Self-Appraisal).

as any formal contact with an officially designated college advisor or counselor for assistance with program planning, educational information, or scholastic problems. The following hypotheses were formulated to facilitate investigation of the data.

Hypothesis X

There will be no significant difference between the career maturity (CMI) scores of subjects having differential academic counseling experience classified as "No-Preference" who are exposed to the experimental conditions of (a) decision-making instruction plus multimedia, (b) decision-making instruction alone, (c) career information through multimedia only, and the control group.

Hypothesis X_A

There will be no significant difference between the career maturity scores of subjects having differential academic counseling experience classified as "No-Preference" who are exposed to decision-making instruction plus multimedia materials and the composite score of (a) subjects exposed to decision-making alone, (b) subjects exposed to career information through multimedia only, and (c) the control group.

Hypothesis X_B

There will be no significant difference in the career maturity scores of subjects having differential academic counseling experience classified as "No-Preference" who receive decision-making instruction and the composite score of (a) subjects who are exposed to career information through multimedia materials only, and (b) subjects who receive no treatment (control group).

Hypothesis X_C

There will be no significant difference in the career maturity scores of subjects with differential academic counseling experience classified as

"No-Preference" who are exposed to career information through multimedia materials and subjects who receive no treatment (control group).

Hypothesis XI

There will be no significant difference on a measure of career maturity (CMI) between subjects who have been exposed to differential academic counseling experiences.

Hypothesis XII

There will be no significant interaction effect between the two independent variables--level of previous academic counseling experience and career guidance treatment--on the career maturity scores of "No-Preference" students.

Test Results for Hypothesis X

The differential effects of career guidance treatment on the career maturity scores of subjects with varied academic counseling experience were measured by Hypothesis X. The F test for Hypothesis X was not significant at the .05 level--$F = 1.3801$, $p < .1452$ (see Table 14).

However, univariate analysis showed significance in favor of the multimedia group on Scale 4--Looking Ahead ($F = 3.4352$, $p < .0214$). In addition, a trend toward higher mean scores in favor of the control group was indicated for Scale 6--the Attitude Scale ($F = 2.3968$, $p < .0752$) (see Table 14).

Test Results for Hypothesis XI

Hypothesis XI was formulated to measure the effect of differential academic counseling experience on the

Table 14.--Summary of Multivariate and Univariate Analyses for Treatment, Previous Academic Counseling Experience, and Treatment by Previous Academic Counseling Interaction Effects.

Source	Multivariate df	Univariate Variables	Univariate F	Univariate P	Multivariate F	Multivariate P
Treatment	18				1.3801	.1452
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.0280	.9937		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.2577	.2954		
		$Scale_3$ Choosing A Job (Job Selection)	.7073	.5508		
		$Scale_4$ Looking Ahead (Planning)	3.4352	.0214*		
		$Scale_5$ What Should They Do? (Problem Solving)	1.3680	.2595		
		$Scale_6$ Attitude	2.3968	.0752†		
Previous Academic Counseling Experience	6				1.6824	.1390
		$Scale_1$ Knowing Yourself (Self-Appraisal)	1.8815	.1745		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.2351	.2702		
		$Scale_3$ Choosing A Job (Job Selection)	3.8201	.0546*		
		$Scale_4$ Looking Ahead (Planning)	1.0331	.3129		
		$Scale_5$ What Should They Do? (Problem Solving)	.8123	.3705		
		$Scale_6$ Attitude	4.3283	.0411*		
Treatment x Previous Academic Counseling Interaction	18				.7951	.7046
		$Scale_1$ Knowing Yourself (Self-Appraisal)	.4810	.6965		
		$Scale_2$ Knowing About Jobs (Occupational Information)	1.1669	.3284		
		$Scale_3$ Choosing A Job (Job Selection)	1.2881	.2851		
		$Scale_4$ Looking Ahead (Planning)	.1839	.9070		
		$Scale_5$ What Should They Do? (Problem Solving)	1.5872	.2000		
		$Scale_6$ Attitude	.4045	.7502		

(df for error = 72)

*p < .05
†p < .10

career maturity scores of students classified as "No-Preference." A non-significant F value of 1.6824, $p < .1390$ was computed for this multivariate test.

Further analysis of the data, however, indicated significance on Scale 3--Choosing A Job (Job Selection) in favor of subjects having minimal academic counseling experience ($F = 3.8201$, $p < .0546$). Conversely, the univariate analysis of the Attitude Scale revealed a significant F value ($F = 4.3283$, $p < .0411$) in favor of more academic counseling contacts.

Test Results for Hypothesis XII

Hypothesis XII was designed to measure interaction effect between the two independent variables--amount of previous academic counseling experience and level of career guidance treatment--on the career maturity scores of "No-Preference" students. A non-significant F value was obtained for interaction effect--$F = .7951$, $p < .7046$.

Revised Scale 4

Most of the career information presented in the treatment of this study involved professional or college-related careers. A considerable proportion of test items on the five Competence Scales, however, describes unskilled or non-professional occupations. In an effort to maintain consistency between the treatment experience and the

evaluative process, a revised version of each Competence Test was developed in which non-professional items were deleted.

Univariate analyses for treatment, class, and interaction effects were also conducted for these revised scales. Results showed that subjects differed substantially only on Scale 4, which contains the largest proportion of non-professional items (approximately 3/5). Results for revised Scales 1, 2, 3, and 5 are reported in Appendices B, C, D, and E, respectively.

Scale 4--Looking Ahead, was revised by selecting only those items which involved college-related or professional careers such as law, library science, architecture, medicine, business, and forestry. Items containing the following non-professional occupations were deleted from the original scale: printer, beautician, carpenter, nurseryman, machinist, policeman, secretary, instrument assembler, cook, long-distance truck driver, x-ray technician, office machine operator, and dancer.

Univariate analyses for treatment, class, and interaction effects were conducted for the revised Scale 4. Contrary to previous results, F tests for the revised scale did not show significant results for any of the variables (see Table 15).

On the original Scale 2--Knowing About Jobs (Occupational Information) no significant effect was indicated

Table 15.--Analysis of Variance for Revised Scale 4--Looking Ahead (Planning).

	df	Univariate F	P
Treatment and Grade Classification			
Treatment	3,72	.5645	.6403
Class	1,72	2.0825	.1534
Treatment x Class Interaction	3,72	.0841	.9686
Treatment and Sex Classification			
Treatment	3,72	.5535	.6475
Sex Classification	1,72	.0225	.8813
Treatment x Sex Interaction	3,72	.2911	.8317
Treatment and Previous Career Counseling Experience			
Treatment	3,72	.5643	.6404
Previous Career Counseling Experience	1,72	.5714	.4522
Treatment x Previous Career Counseling Interaction	3,72	.5807	.6296
Treatment and Previous Academic Counseling Experience			
Treatment	3,72	.5575	.6448
Previous Academic Counseling Experience	1,72	1.1305	.2913
Treatment x Previous Academic Counseling Interaction	3,72	.0979	.9610

for level of previous career counseling experience. However, univariate analysis of the revised Scale 2 revealed a significant F value for this effect ($F = 4.968$, $p < .0287$) in favor of no career counseling experience.

Although no significance was indicated for treatment effect on the original Scale 5--What Should They Do? (Problem Solving), the revised scale revealed trends in favor of the control group ($F = 2.1752$, $p < .0984$). However, this data may be reflective of confounding interaction effects also found on this revised scale.

Significant interaction effect for treatment by grade classification was reported on revised Scale 5 ($F = 4.3581$, $p < .0071$). Test results for this scale indicated that students in the decision-making group achieved the highest scores in both grade classifications. Lowest scores were reported for the freshman multimedia group and the sophomore decision-making group, respectively.

Summary

The results from this study showed no significance on the multivariate analysis of career guidance treatment level and grade classification effects. However, univariate tests revealed significance in favor of the multimedia and control groups on Scale 4--Looking Ahead. Scale 6, the Attitude Scale, indicated a trend in favor of the control group. Significant class effect was also indicated on univariate tests in favor of freshman students.

No significant interaction effect was found between career guidance treatment and grade classification.

Additional analyses showed a significant F value in favor of female subjects for the multivariate analysis of treatment and sex classification effects. Further investigation revealed a significant sex classification effect in favor of female subjects on Scale 1--Knowing Yourself (Self Appraisal). Trends in favor of female subjects were also indicated on Scale 5--What Should They Do? (Problem Solving) and Scale 6--the Attitude Scale. There was no significant interaction effect found between career guidance treatment and sex classification.

Multivariate tests for career guidance treatment and previous career counseling effects revealed no significant results. However, significance was found on Scale 4--Looking Ahead (Planning) in favor of the multimedia and control groups. Contrary to the findings on the original Scale 4, the revised Scale 4 showed no significance for treatment effect.

Univariate analysis for Scale 3 reported significance not in favor of previous career counseling experience, while analysis of Scale 5 revealed significance in favor of previous career counseling experience.

Analyses of career guidance treatment and previous academic counseling effects indicated significance in the direction of minimal academic counseling contacts for

Scale 3--Choosing A Job. Conversely, the univariate test for the Attitude Scale revealed significance in favor of more academic counseling experience.

With the exception of Scale 4, results of multivariate and univariate analyses for the revised scales generally concurred with the results for the original scales. Contrary to previous findings, however, revised Scale 4--Looking Ahead--showed no significance on any of the multivariate or univariate analyses.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview

Purpose

This study was designed to determine the relative effectiveness of three career guidance strategies on the career maturity level of college freshman and sophomore students classified as having no educational preference. The three career guidance strategies that have been investigated in this study are (a) career decision-making followed by multimedia materials on careers, (b) career decision-making instruction alone, (c) multimedia materials only, and (d) no treatment (the control group).

Treatment

Treatment I--career decision-making instruction plus multimedia materials--involved instruction and practice in the implementation of Hoyt's (1967) career decision-making model. This model is composed of the following four stages: (1) the establishment of tentative goals based on present information regarding individual vocational and avocational interests, (2) developing career

self-awareness and comparing vocational alternatives, (3) prioritizing and evaluating career alternatives, and (4) deciding on an optimal career.

After receiving instruction and practice in career decision making, Treatment Group I viewed a commercially prepared filmstrip entitled Keys--Career Exploration (Lombard & Grinager, 1972). This filmstrip series contained ten occupational categories based on the Kuder E General Interest Survey. Seven of the ten categories which contained the highest proportion of professional and college-oriented careers were selected for viewing. Following the filmstrip presentation, subjects viewed written materials presenting over 300 different occupations contained in the Widening Occupational Roles Kit, S.R.A. (Lang, 1972) and the Occupational Roles Kit (Belanger, 1967).

Treatment II--career decision-making alone--involved instruction and practice in Hoyt's decision-making model in the same manner as Treatment I, above. However, subjects in this group did not view multimedia materials on careers following the instruction in decision-making.

Treatment III--multimedia, involved the presentation of the filmstrip series (Keys--Career Exploration) and written materials on careers (Widening Occupational Roles Kit and the Occupational Exploration Kit).

The control group received no treatment, but was posttested along with the three treatment groups. Subjects in the control group were referred to the regular advising and counseling staff at Michigan State University upon the conclusion of this study.

Procedures

In the decision-making instruction plus multimedia group, subjects received mimeographed sheets containing an adapted version of Hoyt's career decision-making model. The experimenter explained the stages of Hoyt's model and gave brief illustrations of the effective implementation of the decision-making process using hypothetical cases. Subjects were asked to apply the decision-making strategies to their own career selection process by writing down appropriate personal responses to as many stages in the model as possible. A brief review of the implementation of Hoyt's career decision-making process was presented, followed by self-ratings of individual models.

After receiving instruction and practice in career decision-making, subjects in Treatment Group I viewed the commercially prepared filmstrips and written materials on vocations.

Subjects in the decision-making instruction, only, group received instruction and practice in Hoyt's decision-making model in the same manner as the decision-making plus

multimedia group, above. However, this group did not view multimedia materials on careers.

The multimedia group viewed the commercially prepared filmstrip series--Keys--Career Exploration--for approximately one hour and fifteen minutes. In addition, subjects in this group viewed occupational kits for additional information on careers.

The control group received no treatment but was administered the posttest (Career Maturity Inventory) along with the three treatment groups. Subjects in this group were referred to the regular Michigan State University advising and counseling staff at the completion of the study.

Measure

The criterion measure for this study was the Career Maturity Inventory (Crites, 1973). This instrument consists of an Attitude Scale and five Competence Tests. The Attitude Scale is a 50-item test which measures subjective dispositions toward the processes of selecting a career and entering the world of work. The Competence Tests measure the five skills considered by Crites (1973) to be essential to the process of career development: Scale 1--Knowing Yourself (Self Appraisal), Scale 2--Knowing About Jobs (Occupational Information), Scale 3--Choosing A Job (Job Selection), Scale 4--Looking Ahead (Planning), and Scale 5--What Should They Do? (Problem Solving).

Content validity was established for the Career Maturity Inventory by employing established counseling theory and by selecting item-content from actual counseling cases. Criterion-related validity was established by the correlation of test scores for the individual scales with the age and grade levels of the subjects. Both concurrent and predictive validities were established by the relatively high correlation of scale scores with age and grade levels.

Construct validity was evidenced by the computed interrelation of the theoretical constructs on individual scales. Hypothesized r's for interscale correlation ranged from .40 to .60. Product-moment correlations for individual scales ranged from .25 to .73 with a mean of .54.

Hypotheses

All hypotheses were stated in the null form. It was hypothesized that there would be no significant difference in the career maturity scores of college freshman and sophomore students classified as "No-Preference" who receive (1) career decision-making instructions plus information through multimedia materials on careers, (2) decision-making instruction alone, (3) career information through multimedia materials only, and (4) no treatment (the control group).

It was further hypothesized that there would be no significant difference in the career maturity scores of freshman and sophomore "No-Preference" students.

In addition, it was hypothesized that there would be no interaction effect between level of career guidance treatment and grade classification.

In consideration of the additional data obtained, it was hypothesized that there would be no significant difference between the career maturity scores of male and female subjects. It was also predicted that there would be no significant interaction effect between career guidance treatment and sex classification.

Further hypotheses stated that there would be no significant difference between the career maturity scores of subjects with differential career counseling experience. Additionally, it was hypothesized that there would be no significant interaction effect between career guidance treatment and level of previous career counseling experience.

In evaluating career guidance treatment effect by academic counseling experience, it was predicted that there would be no significant difference in the career maturity scores of subjects with differential academic counseling experience. It was further predicted that there would be no significant interaction effect between career guidance treatment and academic counseling experience.

Design

The design employed in this study was a two-by-four fixed effects model containing four levels of career guidance treatment crossed by two grade classifications. The four levels of career guidance treatments are: (1) career decision-making instruction plus multimedia materials on careers, (2) decision-making instruction alone, (3) career information through multimedia materials only, and (4) no treatment (the control group). The two grade classifications were freshman and sophomore levels. According to the theories of Cox (1958), Campbell and Stanley (1963), and Kirk (1968), the assumption of equality between groups is established through the process of randomization.

Analyses and Results

Multivariate analysis of career guidance treatment and grade classification effects revealed no significant differences. However, the data showed that freshman students scored significantly higher on univariate analysis for class effect on Scale 1--Knowing Yourself (Self Appraisal).

An interaction effect was also revealed between career guidance treatment and grade classification on Scale 5--What Should They Do? (Problem Solving). Freshman students in the decision-making group scored higher than all other groups on Scale 5. The control group scored

significantly higher on career problem-solving ability (Scale 5) than the other two groups. Further investigation of the data also revealed that the decision-making plus multimedia, and the multimedia only groups showed an upward trend on Scale 5 from freshman to sophomore levels.

Additionally, significant results were found in favor of female subjects on the multivariate tests for career guidance treatment and sex classification effects. Univariate analysis indicated significant differences in favor of female subjects on Scale 1--Knowing Yourself. Scale 5--What Should They Do? and Scale 6--the Attitude Scale also indicated trends in favor of female subjects.

Although there was no significance found on the multivariate analysis for career guidance treatment effect and previous career counseling experience, univariate tests for classification effect revealed significance on Scale 3--Choosing A Job, in the direction of no previous career counseling experience, and Scale 5--What Should They Do? in favor of previous career counseling experience.

A significant interaction effect for career guidance treatment by academic counseling experience was indicated on Scale 1--Knowing Yourself. The three treatment groups--decision-making plus multimedia, decision-making alone, and the multimedia group--showed an increase in scores for students having previous career counseling experience over those who had no previous career counseling

experience. In the control group, however, subjects with previous career counseling experience did less well than subjects who had no previous career counseling experience.

Further analysis revealed significance on univariate tests for career guidance treatment and academic counseling effects on Scale 4--Looking Ahead. This significance was found in favor of minimal (0-2 contacts) academic counseling experience. Conversely, significance for Scale 6--the Attitude Scale, was found in the direction of 3 or more academic counseling experiences.

Conclusions and Implications

The findings of this study are relevant to career theories found in the current literature. Positive results from the use of multimedia in career education have been reported by a number of researchers (Hamilton & Krumboltz, 1969; Johnson & Martin, 1973; Lasota, 1973; Garber, 1973; Malacos, 1974). In this study, also, significance was found in favor of the multimedia group for Scale 4--Looking Ahead (Planning). This finding suggests that exposure to multimedia materials has a positive effect on career planning ability. However, it should be noted that approximately three-fifths of the items on Scale 4 concern non-professional occupations. Therefore, it may be argued that test results for this scale are more reflective of knowledge or interest in unskilled and technical vocations

rather than a true measure of the career planning ability of college students.

According to Super (1957), Norell and Grater (1960), and Crites (1964), awareness of individual interests, abilities, and personality traits enhances the career selection process. The results from this study show that freshman students scored significantly higher than sophomore students on Scale 1--Knowing Yourself (Self Appraisal). It may be speculated that high scorers in self-awareness tend to make career selections more readily than low scorers. These data further suggest that accurate self-perception develops differentially among "No-Preference" students. Apparently, students with less self-knowledge require a longer time period for the process of career selection. These results are indicative of the need for developing career programs which focus on enhancing the self-awareness of long-term "No-Preference" students. An interesting follow-up study could be focused upon the relationship between the self-awareness scores of "No-Preference" students and the time interval required for individual career selection.

The data in this study revealed no significant interaction effect between career guidance treatment level and grade classification. Significant interaction effect was not expected between these two variables, since it is unlikely that career guidance treatment would have

differential effects on two relatively homogeneous groups (freshman and sophomore grade levels).

The data from this study did indicate, however, that sex classification is an important variable in the career developmental process. Significant differences were found in favor of female subjects on Scale 1--Knowing Yourself (Self Appraisal), Scale 5--What Should They Do? (Problem Solving), and Scale 6--the Attitude Scale.

Support for the findings in this study relative to the differential effects of sex on career development has been also reported in the literature. Thomas (1974) found similar results in testing for the career development responsibility level of male and female subjects. Results indicated that female students are more vocationally mature than their male counterparts.

Smith and Herr (1972) reported similar findings in a study designed to assess the vocational attitudes of adolescents. Using the Vocational Development Inventory--Attitude Scale (Crites, 1965), these researchers found that female students tend to score higher than male students in career maturity level. These data also concur with findings in related areas.

In a study measuring the effects of teachers of different sex and ethnic backgrounds on the achievement scores of black students from lower socio-economic environments, Ohberg (1970) reported that female students of high

ability scored higher than male students of high ability on a measure of academic achievement.

In addition, Levine and Crumrine (1973), using a sample of 700 college students, reported that women subjects exhibited less inhibition about career success than male subjects. Sorrentino and Short (1973) also reported that female subjects scored significantly higher in success motivation on male-oriented careers. Although these findings concur with the results of the present study, these data present interesting contrasts to the views of several other theorists.

Research findings reported by Carmichael (1970) and Mussen (1974) reveal a tendency for female students to excel in verbal reasoning abilities and for male students to excel in quantitative and spatial abilities. Therefore, higher mean scores reported in this study for female subjects in career self-awareness, career problem-solving ability, and career attitude may reflect further manifestations of this phenomenon.

Additionally, Hohenshil (1974) emphasizes the need for career programs specifically designed for women in self-awareness and vocational planning. Brandenburg (1974) also discusses the critical need for self-awareness and identity formation among women who are returning to the educational setting.

Oliver (1975) also states that women need special assistance in both educational and career planning throughout their school and adult years.

Kimmel (1974) further implies that more counseling is desirable in the affective domain in order to assist women in resolving ambivalent feelings toward achievement and success. According to this investigator, emotional conflicts based in traditional sex-role expectations impede the vocational progress of women.

Worthington (1973) emphasizes the importance of improving social and environmental factors which limit the career opportunities of women. Worthington strongly recommends more equitable hiring practices and salaries for men and women employees.

In a study designed to identify the environmental factors which influence the career choices of women, Karmon (1973) found that sex-role expectations tended to limit the career selections of female subjects.

Judging from the current literature, it is obvious that discrepant opinions exist regarding the comparative competencies of men and women. Further research is necessary in order to more clearly assess the degree and the directionality of these apparent differences.

Significance in favor of less career counseling was indicated by the univariate analysis of Scale 3--Choosing A Job (Job Selection). These data may be

misleading, however, since by classification, most of the students who reported more extensive career counseling experiences were in the sophomore group. Results from previous data found in this study indicated that "No-Preference" sophomore students generally tended to be lower in career development skills than freshman students. Therefore, based on the relatively high degree of inter-scale correlation, it might be anticipated that Scale 3 scores for the sophomore group would be lower than Scale 3 scores for the freshman group. Therefore, instead of supplying evidence negating the positive effects of previous career counseling experience, these results give further support to the concept of differential career competence level between short-term and long-term "No-Preference" students.

Another caution in considering the results from Scale 3 concerns the large proportion (approximately one-half) of test items on this scale which involve non-professional occupations. As in Scale 4, it might be questioned whether this scale adequately reflects the interests and experiences of students pursuing college-related careers or their degree of familiarity with technical occupations.

On Scale 5--What Should They Do? (Problem Solving) significance was indicated in favor of previous career counseling experience. Therefore, test results from this

scale give support to the implementation of sequential career counseling programs designed for long-range effect on career development.

The significant interaction effect found on Scale 1--Knowing Yourself indicates differential effects between career guidance treatment level and previous career counseling experience. Scores for the three treatment groups reflected an upward trend for career guidance treatment and previous career counseling experience. This would indicate that career counseling is facilitative in the development of more accurate career self-concepts.

The trend toward higher scores for sophomore students in the treatment groups indicated that career guidance treatment had a positive effect on problem-solving ability in combination with previous career counseling experience.

The control group showed a significant decrease in scores for subjects having more career counseling experience. Again, the majority of students falling into the classification of having relatively extensive career counseling experience was sophomores. Therefore, it may be questioned whether the data reflect the true effects of previous career counseling experience or some other characteristic unique to long-term "No-Preference" students. Univariate analysis for Scale 3 for academic counseling experience revealed similar results.

In addition to the favorable results found in this study for the effect of previous career counseling experience on career competence level, a considerable amount of data can be found in the literature supporting the use of career counseling to facilitate vocational development. Turner (1974) reported the successful implementation of a comprehensive career guidance program (Project CARE) designed for kindergarten through adult levels. Participants in this project were given vocational counseling experiences consisting of occupational information, preparation for job-placement, and development in career self-concepts.

Similarly, Miller and Garfinkle (1974) reported a direct relationship between quality of earlier career guidance experiences and subsequent vocational adjustment.

Career guidance has also been reported as having a positive effect on academic achievement. Adams (1974) investigated the effect of preventive career guidance counseling on the academic success of community college students. Students in this experimental group, as a result of attending weekly sessions in career exploration and self-awareness, achieved significantly higher grade-point averages than students in the control group.

Yeager and McMahon (1974) also recommended exposure to career planning experiences in achieving the optimal vocational adjustment for employed adults. According to

these theorists, individuals who have already begun their vocational careers can benefit from career guidance during the important periods of assessing job-satisfaction, planning for advancement, and changing career goals.

Kuehn (1974) reported that vocational guidance programs expedited the career selection of undecided college students. In this study, experimental subjects were exposed to a guidance program which focused on career selection and self-awareness. Personal values and abilities were emphasized as important factors in the career selection process. All of the subjects in the experimental group reported that they had benefited from this experience. In addition, 14 of the 17 participants made career selections by the conclusion of the project.

Favorable results on career development were also reported by Reardon, Burkhart, Domkowski, Minor, and Smith (1973). In this study, college freshman and sophomore students attending career guidance sessions showed an increase in occupational information, self-knowledge, and career decision-making ability.

Cragun and Kartchner (1969) found positive results in assessing the impact of a career educational program designed for the state of Nevada (Career Selection Education of the Western States Small Schools Project). This successful career program involved occupational information, career planning, job training, and development in

self-awareness. Favorable evaluations of this project were given by both students and community outreach employers.

Reports from a similar two-year vocational education program for the state of Arizona also revealed positive results. This state-wide vocational program involved approximately 5,000 students who studied career units designed to increase occupational information, career self-concept, and job readiness (Vicino, DeGracie, Downs, & Peterson, 1974).

In the area of academic guidance, Scale 6--the Attitude Scale, indicated favorable results in the direction of more academic counseling. It may be inferred from this finding that exposure to academic counseling contributes favorably to the development of vocational readiness and responsibility. Findings from several other studies also reveal positive results from the intervention of academic counseling on the educational and career development of students.

Algier (1972) reported that the Academic Support Program facilitated the rehabilitation of college students who had previously experienced failure. A long-term positive effect on educational and vocational careers was also indicated by the data from this study.

Additionally, academic counseling was found effective in improving the educational adjustments of

"high-risk" community college students (Rosella, 1970). Students receiving assistance through this academic counseling program attained higher grade-point averages than the control subjects.

In a study designed to measure the effects of pre-enrollment counseling on the educational careers of college students, Bohr, Cias, and Clayton (1973) found positive results on success-rate in required English skills courses. Long-range positive treatment effect was also indicated in this study by a reduction in student attrition rate.

In reviewing the findings from the present study, several factors should be considered which may have critical influence on these data. One major factor is the measuring instrument employed in this study. The CMI was designed to measure career attitude and the five competencies believed to be important to the process of career development (Crites, 1973). Although this widely used instrument has applicability for students from grades five through senior level in college, individual scales were normed on only junior high, high school, and freshman college students. Such a wide range of age and grade levels may place serious limitations on the inventory's ability to discriminate well among subjects scoring at the upper ranges of the scales. Thus, the apparent lack of treatment effect may have resulted from the imperceptibility of the measuring instrument, itself.

Another consideration regarding this testing instrument is the large proportion of test items which involve unskilled, skilled, and non-professional occupations. It may be questioned whether the obtained scores reflect an interest and familiarity with technical occupations rather than a true measurement of the vocational competencies of college students.

Lack of treatment effect also may have been due to the developmental quality of career maturity. According to most leading theorists (Super, Starishevsky, Matlin, & Jordaan, 1963; Roe (Whiteley & Resnikoff, 1972); Ginzberg, 1972; Holland, 1973; Crites, 1973) career maturity develops sequentially at individual rates. Overall career maturity level, therefore, may be difficult to measure at any given point along this continuum. Considering its developmental quality, longitudinal research may provide the most comprehensive assessment of career maturity level.

Several theorists advocate the sequential concept of career growth by asserting that earlier learnings influence the quality of later career development. Baker (1974) recommends that counselors instruct students in career problem-solving exercises in order to develop their proficiency in this skill preparatory to later life-career decisions. Neely (1974) refers to the developmental nature of career maturity in presenting his description of the Kansas Model for career education. This career

education series presents exercises designed specifically for the various stages in the career developmental process. Holland and Gottfredson (1974) successfully employed information regarding previous vocational goals and experiences to predict the future career activity of college students and adults.

Since career guidance treatments may involve long-range effects undetectable through short-term posttesting, the isolation of treatment effects may occur with an extension in postmeasurement time.

Similarly, a study designed to assess treatment effect on specific career competencies may have reduced complications resultant from the developmental nature of career maturity. Isolating short-term career guidance treatment effect on career planning skills or career problem-solving ability, for example, would have provided a more direct assessment of treatment effect on specific career competencies.

In summary, results from this study indicate that short-term exposure to the three career guidance strategies: (a) decision-making instruction plus multimedia, (b) decision-making instruction alone, and (c) exposure to multimedia materials alone appear to have an equal impact on career maturity level. Effective and efficient career program planning, therefore, should be largely contingent

upon such practical factors as cost, time, and counselor-training.

Differential effects between freshman and sophomore "No-Preference" students in self-appraisal skills were also evidenced by the data in this study. The freshman "No-Preference" group was composed of a number of subjects who would potentially make career selections before the completion of their first year of college. The sophomore "No-Preference" group consisted of students who had not declared an educational preference by the conclusion of their first year of college. Freshman students, as a group, scored significantly higher than sophomore students on the self-appraisal scales. These results imply that self-awareness plays a vital role in the career selection process.

Recommendations

In deference to these findings, it is recommended that career programs be developed which are designed to increase the career self-concepts of long-term "No-Preference" students. Further diagnosis of career competence deficiencies among undecided students is also recommended for effective program planning.

Previous career and academic counseling indicated positive effects on career attitude and career problem-solving ability. These findings support the trend toward comprehensive career guidance programs beginning at the

elementary level and continuing throughout college and adult years. These data further suggest the possible extension of vocational education through effective career guidance from teachers, parents, and employers.

Since the career interests of college students tend to be more professionally-oriented than the interests of the general student population, a critical need exists for the development of an instrument designed specifically to assess the career attitudes and career competencies of this population.

In relation to length of treatment, the current literature reports many career guidance experiences involving only one or two sessions (Johnson & Myrick, 1972; Adams, 1974; Zener, 1972; Birk & Tanney, 1973). However, in consideration of the continuous quality of career development, a treatment period extending over several months or an entire school year may allow more sufficient time for measurable treatment effects to occur. It is therefore recommended that replications of this study involve weekly career guidance sessions ranging over a period of from several months to an entire school year.

This research reveals an apparent need for the development of effective, sequential programs in career guidance. Career programs should be designed to meet the needs of students with differential levels of readiness and competence. As the data from this research indicate,

individual differences in career development may result from variations in amount of previous career and academic counseling experience. Differential career competence levels were also indicated among students within the "No-Preference" classification. Therefore, flexible vocational education programming is required in order to meet the needs of a variable student population.

Test data gave further evidence that male and female subjects differ significantly in level of career maturity. Additional research is recommended in this area in order to more fully analyze the elements of difference between the sexes. The differential effects of various career guidance strategies on the career competencies of male and female subjects is also an important area needing further investigation. Through the comparative analysis of the career development of male and female students, more equitable vocational guidance programs can be developed.

Based on the findings of this study, it is recommended that additional research be conducted to assess differences between the career competencies of "No-Preference" students and the general student population. Previous research in this area has been relatively sparse. However, past data have indicated different characteristics for decided and undecided students. Baird (1969), investigating the characteristics of 60,000 freshmen, reported that undecided students tend to have more

intellectual interests than decided students. Further investigation by Ashby, Wall, and Osipow (1969) revealed that undecided or "No-Preference" students evidence more dependency traits than the general student population. Additional research is greatly needed pursuant to this line of investigation. An in-depth analysis of the process of career development of "No-Preference" students would assist in the isolation and treatment of the individual deficiencies which occur during the process of vocational growth.

Feedback on the subsequent vocational adjustments of "No-Preference" students who have been exposed to career guidance experiences would be an appropriate follow-up to the present study.

In conclusion, current research findings support the development of comprehensive career programs designed to meet the needs of a variable student population. Effective career programming should reflect consideration of individual differences resultant from differential levels of career readiness and career competence. Diagnosis and evaluation of the vocational experiences of individual students are essential to the efficient implementation of such vocational programs.

Current research further indicates that differences in vocational development are contingent upon a variety of factors. Variations in vocational readiness, career skills, and personality characteristics have been found

among undecided or "No-Preference" students. In addition, sex has been identified as an important variable in the development of career attitudes and career competencies. The present data further indicate that previous career and academic counseling tend to influence vocational competence.

It is evident from these findings that innovative planning is required for the development of creditable career education programs. The recent trend toward comprehensive career development designed to meet individual needs represents a positive movement toward establishing effective career programs.

Despite this progress, however, research is still needed in a number of areas. Further investigation of the comparative effects of short-term and long-term career guidance treatments on career maturity and career competence is greatly needed.

Additional longitudinal studies are necessary to provide adequate evaluation of present vocational theories and practices.

Research is ostensibly needed in the investigation of the career development and vocational adjustment of minority populations.

The differential effects of sex on career development are also areas requiring continued and expanded study.

Further inquiry into these important areas could greatly enhance the development of effective and creative career education programs.

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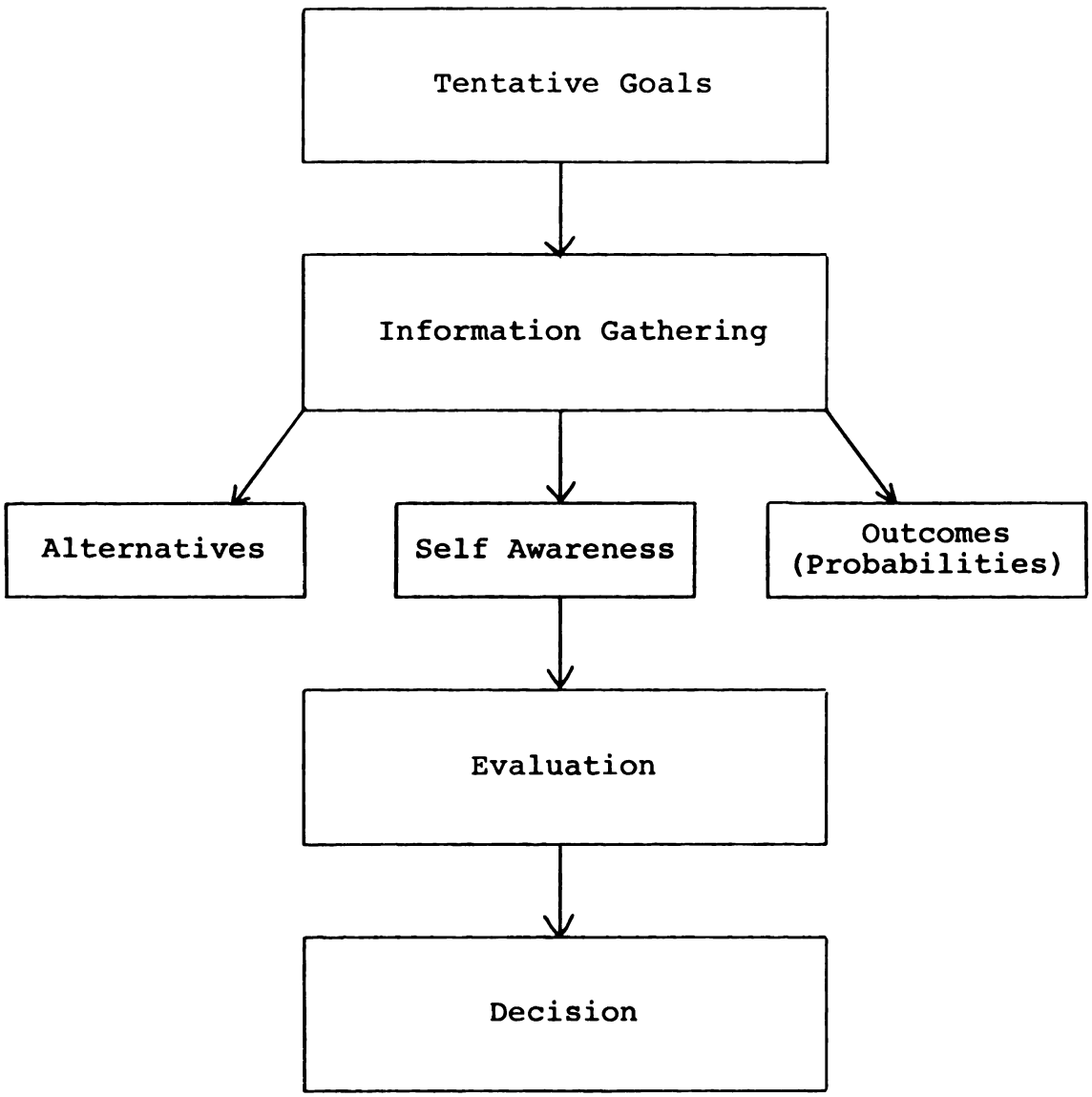
APPENDICES

APPENDIX A

CAREER DECISION-MAKING MODEL

APPENDIX A

CAREER DECISION-MAKING MODEL



Adaptation of Hoyt's Decision-Making Model (Hoyt, 1967)

APPENDIX B

ANALYSIS OF VARIANCE FOR REVISED SCALE 1-- KNOWING YOURSELF (SELF-APPRAISAL)

APPENDIX B

ANALYSIS OF VARIANCE FOR REVISED SCALE 1--
KNOWING YOURSELF (SELF-APPRAISAL)

	df	Univariate F	P
Treatment and Grade Classification			
Treatment	3,72	.2135	.8868
Class	1,72	6.8548	.0108*
Treatment x Class Interaction	3,72	.0940	.9632
Treatment and Sex Classification			
Treatment	3,72	.2250	.8788
Sex Classification	1,72	9.4035	.0031*
Treatment x Sex Interaction	3,72	.6721	.5720
Treatment and Previous Career Counseling Experience			
Treatment	3,72	.2135	.8868
Previous Career Counseling Experience	1,72	.0177	.8947
Treatment x Previous Career Counseling Interaction	3,72	2.3723	.0775†
Treatment and Previous Academic Counseling Experience			
Treatment	3,72	.2018	.8949
Previous Academic Counseling Experience	1,72	1.7956	.1845
Treatment x Previous Academic Counseling Interaction	3,72	.3407	.7960

*p < .05
†p < .10

APPENDIX C

ANALYSIS OF VARIANCE FOR REVISED SCALE 2--KNOWING ABOUT JOBS (OCCUPATIONAL INFORMATION)

APPENDIX C

ANALYSIS OF VARIANCE FOR REVISED SCALE 2--KNOWING ABOUT JOBS (OCCUPATIONAL INFORMATION)

	df	Univariate F	P
Treatment and Grade Classification			
Treatment	3,72	1.9006	.1372
Class	1,72	2.6129	.1104
Treatment x Class Interaction	3,72	1.9935	.1226
Treatment and Sex Classification			
Treatment	3,72	1.8275	.1498
Sex Classification	1,72	.6992	.4059
Treatment x Sex Interaction	3,72	1.5983	.1974
Treatment and Previous Career Counseling Experience			
Treatment	3,72	1.8838	.1400
Previous Career Counseling Experience	1,72	4.9868	.0287*
Treatment x Previous Career Counseling Interaction	3,72	.9646	.4143
Treatment and Previous Academic Counseling Experience			
Treatment	3,72	1.7913	.1565
Previous Academic Counseling Experience	1,72	1.3652	.2465
Treatment x Previous Academic Counseling Interaction	3,72	.8643	.4637

*p < .05
†p < .10

APPENDIX D

ANALYSIS OF VARIANCE FOR REVISED SCALE 3-- CHOOSING A JOB (JOB SELECTION)

APPENDIX D

ANALYSIS OF VARIANCE FOR REVISED SCALE 3--
CHOOSING A JOB (JOB SELECTION)

	df	Univariate F	P
Treatment and Grade Classification			
Treatment	3,72	.9441	.4240
Class	1,72	.0038	.9514
Treatment x Class Interaction	3,72	.2539	.8584
Treatment and Sex Classification			
Treatment	3,72	.9957	.3999
Sex Classification	1,72	.9910	.3229
Treatment x Sex Interaction	3,72	1.2493	.2984
Treatment and Previous Career Counseling Experience			
Treatment	3,72	1.0296	.3848
Previous Career Counseling Experience	1,72	3.6391	.0605†
Treatment x Previous Career Counseling Interaction	3,72	1.2380	.3023
Treatment and Previous Academic Counseling Experience			
Treatment	3,72	1.0177	.3900
Previous Academic Counseling Experience	1,72	4.0538	.0479*
Treatment x Previous Academic Counseling Interaction	3,72	.7945	.5010

*p < .05
†p < .10

APPENDIX E

ANALYSIS OF VARIANCE FOR REVISED SCALE 5--WHAT SHOULD THEY DO? (PROBLEM SOLVING)

APPENDIX E

ANALYSIS OF VARIANCE FOR REVISED SCALE 5--WHAT SHOULD THEY DO? (PROBLEM SOLVING)

	df	Univariate F	P
Treatment and Grade Classification			
Treatment	3,72	2.1752	.0984†
Class	1,72	2.0825	.1534
Treatment x Class Interaction	3,72	4.3581	.0071*
Treatment and Sex Classification			
Treatment	3,72	1.9987	.1219
Sex Classification	1,72	4.7463	.0327*
Treatment x Sex Interaction	3,72	.5104	.6764
Treatment and Previous Career Counseling Experience			
Treatment	3,72	1.9789	.1248
Previous Career Counseling Experience	1,72	2.1764	.1446
Treatment x Previous Career Counseling Interaction	3,72	1.1093	.3511
Treatment and Previous Academic Counseling Experience			
Treatment	3,72	1.9388	.1310
Previous Academic Counseling Experience	1,72	.1839	.6694
Treatment x Previous Academic Counseling Interaction	3,72	1.2489	.2985

*p < .05
† < .10

APPENDIX F

CAREER MATURITY PROFILE

NAME ▶
GRADE ▶
AGE ▶
BIRTHDATE ▶

TEACHER ▶
SCHOOL ▶
CITY ▶
TEST DATE ▶

BATCH ▶
GROUP ▶
RUN DATE ▶

CAREER MATURITY PROFILE

Competence Test

Right Response Record
+ item answered correctly
– item answered incorrectly
0 item omitted

		Raw Score	Percentile Rank	Percentile Scale Rate of Career Maturity	Right Response Record
Part 1	Knowing Yourself (Self-Appraisal)			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20
Part 2	Knowing About Jobs (Occupational Information)			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20
Part 3	Choosing A Job (Goal Selection)			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20
Part 4	Looking Ahead (Planning)			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20
Part 5	What Should They Do? (Problem Solving)			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20
	Attitude Scale			1 2 5 10 20 30 40 50 60 70 80 90 95 98 99	2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50