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Adams, Sandra Parker

A STUDY OF THE CAREER MATURITY OF GIFTED STUDENTS

The University of North Carolina at Greensboro

Ed.D. 1983

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A STUDY OF THE CAREER MATURITY
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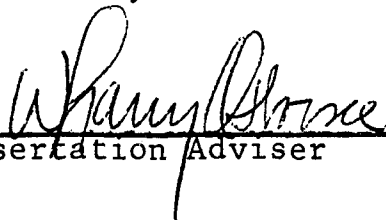
by

Sandra P. Adams

A Dissertation submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Greensboro
1983

Approved by


Dissertation Adviser

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of the Graduate School at the University of North Carolina at Greensboro.

Dissertation Adviser William Horn

Committee Members Rebecca M. Smith
John Chester Bush
William H. Perry

3/30/83
Date of Acceptance by Committee

3/30/83
Date of Final Oral Examination

ADAMS, SANDRA PARKER. A Study of the Career Maturity of Gifted Students. (1983) Directed by: Dr. W. Larry Osborne. Pp. 129.

The purpose of this study was to investigate the career maturity of gifted ninth grade students.

The following research questions were addressed:

1. What is the level of career maturity of gifted students?
2. Is there a main effect for groups (gifted, college-bound, vocational)? If so, which differences between means contributed to the results?
3. Is there a main effect for treatment (Vocational Exploration Group, Control Group)?
4. Is there an interaction between group (gifted, college-bound, vocational) and treatment (Vocational Exploration Group, Control)?

Subjects were 150 ninth grade students identified as gifted (50 students), college-bound (50 students), and vocational (50 students). Twenty-five students in each group were randomly assigned to the experimental group who participated in the Vocational Exploration Group (VEG) and the remaining 25 in each group were assigned to the control group.

The Career Development Inventory was administered to the 150 subjects in the study as a pretest and at the conclusion of the treatment (the Vocational Exploration Group),

the Inventory was again administered to all students. Tests were machine-scored and the data were analyzed using Analysis of Covariance (ANCOVA).

The following results were observed:

1. Gifted students scored significantly higher ($p=.001$) than the norming group on the attitudinal, cognitive and career orientation total scales of the Career Development Inventory.
2. Gifted students scored significantly higher than vocational students but not significantly higher than college-bound students on the attitudinal, cognitive and career orientation total scales of the Career Development Inventory ($p=.05$, $.001$, and $.001$ respectively).
3. The scores of students who participated in the Vocational Exploration Group were significantly higher than scores of the control group on the cognitive and career orientation total scales of the Career Development Inventory ($p=.05$ and $.026$ respectively).
4. There was no significant interaction between group (gifted, college-bound, vocational) and treatment (Vocational Exploration Group, Control).

Implications for future research were included.

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TABLE OF CONTENTS

	Page
APPROVAL PAGE.....	ii
ACKNOWLEDGMENTS.....	iii
LIST OF TABLES.....	vi
CHAPTER	
I. INTRODUCTION.....	1
Statement of the Problem.....	3
Significance of the Study.....	5
Limitations.....	6
II. REVIEW OF THE LITERATURE.....	7
Career Maturity.....	7
The Career Development Inventory (CDI).....	20
Gifted Students.....	30
The Vocational Exploration Group.....	41
III. METHODOLOGY.....	47
Subjects.....	47
Instrument.....	52
Treatment.....	59
Process.....	67
Research Design and Statistical Procedure.....	68
IV. ANALYSIS OF THE DATA.....	72
Research Question I.....	72
Research Question II.....	74
Research Question III.....	82
Research Question IV.....	84
Additional Analysis.....	86
V. DISCUSSION AND CONCLUSIONS.....	90
Career Maturity of Gifted Students.....	91
Gifted Students and the Vocational Exploration Group.....	97
Differential Effects of Participation in the Vocational Exploration Group.....	99
Parental Involvement in Career Decisions.....	99
Summary.....	100
Implications for Future Research.....	102

REFERENCES.....	104
APPENDIX A. THE RENZULLI-HARTMAN SCALE FOR RATING BEHAVIORAL CHARACTERISTICS OF SUPERIOR STUDENTS.....	113
APPENDIX B. CLASSROOM PERFORMANCE EVALUATION FOR G/T CANDIDATES (GRADES 7-9).....	117
APPENDIX C. STUDENT IDENTIFICATION PROFILE.....	118
APPENDIX D. STUDENT INFORMATION SHEET.....	120
APPENDIX E. VEG OBSERVER FORM.....	121
APPENDIX F. STANDARD SCORES ON CAREER DEVELOP- MENT INVENTORY: CAREER DEVELOPMENT ATTITUDES (CDA), CAREER DEVELOPMENT KNOWLEDGE AND SKILLS (CDK), CAREER ORIENTATION TOTAL (COT).....	122

LIST OF TABLES

Table	Page
1.	Allocation of Subjects from Paisley (P) and Summit (S), by Group (Gifted, College-Bound, Vocational) and Treatment (VEG, Control).....51
2.	Differences in Career Development Attitude Scores, Career Development Knowledge and Skills Scores, and Career Orientation Total Scores Comparing Gifted (N=50) and Norm (N=1,249) Groups.....73
3.	Differences in Career Development Attitude Scores among Gifted, College-Bound, and Vocational Students.....75
4.	Differences in Mean Scores on Career Development Attitude Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC).....76
5.	Differences in Career Development Knowledge and Skills Scores among Gifted, College-Bound, and Vocational Students.....77
6.	Differences in Mean Scores on Career Development Knowledge and Skills Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC).....79
7.	Differences in Career Orientation Total Scores among Gifted, College-Bound, and Vocational Students.....80
8.	Differences in Mean Scores on Career Orientation Total Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC).....81
9.	Differences in Career Development Attitude Scores, Career Development Knowledge and Skills Scores, and Career Orientation Total Scores Comparing Gifted VEG Group (N=25) and Gifted Control Group (N=25).....83

10.	Adjusted Means on the Career Development Attitude Scale, Career Knowledge and Skills Scale, and Career Orientation Scale for Treatment (Control, Vocational Exploration Group) X Group (Gifted, College-Bound, Vocational) Combinations.....	85
11.	Students by Group (Gifted, College-Bound, Vocational) and Sex (Boys, Girls) Whose Parents Suggested Career Choice (in Percent).....	87

CHAPTER I

INTRODUCTION

During the past decade, the importance of career development, career education, career guidance, and career choice has been expounded in theories, research, position statements of professional organizations and curriculum experts. In Western society where many people have the opportunity to select careers and where the broad significance of work is recognized, the climate is conducive to fostering methods by which the career decision-making process might be better understood (Osipow, 1973). Of all the available choices, career choice may be the most critical to self definition (Bloland & Walker, 1981). According to Super (1957), in choosing an occupation, one is not simply selecting a way to earn a living but rather is choosing a way of life. "Occupation is the principal source of social status in our society, an important means for satisfying personal interests, abilities and values, and a major determinant of life style," claimed Jordaan and Heyde (1979, p.1). Sartre (1956) stated that choosing a career is synonymous with defining who we are in the world as the career we choose provides the medium for our unique expression of what it means to be a human being. Since work is clearly central, if not all-important to most people's lives, research pertaining to a better understanding of the functions and processes related to

it is relevant. In the last few years, there has been a significant developmental emphasis on studying career behavior (Crites, 1971; Ginzberg, Ginsburg, Axelrod, & Herma, 1957; Super, 1957; Tiedeman & O'Hara, 1963). Career development theory views career behavior as an ongoing process occurring over time rather than as a single-decision event (Karayanni, 1981). Career development is a lifetime process involving awareness of one's abilities and the world of work, exploration of specific occupations, creation of career plans, and action on decisions related to preparation, entrance, establishment, advancement, change and retirement in the career world (Frederickson & Rothney, 1972).

Career maturity, a concept found in career development theory, is

readiness to cope with the career development tasks that are appropriate to one's stage in life: to make the required decisions as one progresses through school into the world of work and through early and mature adulthood into later maturity and retirement (Thompson and Lindeman, 1981, p.4).

Because students differ greatly in their degree of career maturity (Super & Overstreet, 1960; Jordaan & Heyde, 1979). assessments of career maturity should be made to provide programs and activities geared to the varying developmental needs of individuals and groups.

Gifted and talented students need the opportunity to acquire the outcomes associated with career development programs: career identity, self-awareness, educational awareness,

career placement, and employability (Herr & Watanabe, 1979). An assessment of their career maturity would be a first step toward implementing appropriate strategies for their optimal career development. Though gifted and talented students would be expected to score higher than nongifted peers on aspects of career maturity related to intelligence, it cannot be assumed that they will score equally high on all aspects since their emotional and social maturity is often not as advanced as their intellectual or achievement performance would indicate (Burt, 1975).

Research and theory suggest that most high school students are in the exploratory stage of career development in which they begin to formulate career goals (Thompson & Lindeman, 1981). Because gifted and talented students tend to be multipotential in their abilities and interests, it may be argued that the best career counseling for them would be an approach that permits full exploration of as many occupational areas as possible rather than an approach which focuses on a career choice (Herr & Watanabe, 1979).

Statement of the Problem

The purpose of this study was to investigate the career maturity of gifted high school students. More specifically, the following questions were addressed:

1. What is the level of career maturity of gifted students?

2. Is there a main effect for groups (gifted, college-bound, vocational)? If so, which differences between means contributed to the results?
3. Is there a main effect for treatment (Vocational Exploration Group, Control Group)?
4. Is there an interaction between group (gifted, college-bound, vocational) and treatment (Vocational Exploration Group, Control?)

Significance of the Study

Career development for the gifted should take into account the unique needs and characteristics which they must face in their career development. An assessment of their career maturity is essential in determining the developmental tasks with which they need assistance. There are many research voids and unresolved issues related to the career development of the gifted and talented. Sanborn, Pulvino, and Wunderlin (1971) have contended that further research with gifted and talented students is badly needed, particularly in the areas of attitude development, value structures, interpersonal relationships, and career decision-making processes. This study added to the literature related to career decision-making of the gifted.

For many people career is a statement of self, a means for fulfillment, and a way of existing in the world (Bloland & Walker, 1981). Rodenstein, Pflieger, and Colangelo (1977)

stated that it is common for the gifted to view their work as a means of self-expression. Since occupational choice is a choice of life style reflecting their philosophy of life, optimal career development is crucial for gifted students (Hoyt & Hebel, 1974). This study investigated the career maturity of gifted students in an attempt to aid them in their career development, thus influencing a central facet of their lives.

The relationship between general adjustment and vocational adjustment is moderately positive ($r=.40$) according to Super (1957) who suggested that if career adjustment can be enhanced, general adjustment might follow. Williams (1962) found that congruence between perceptions of the self and ideal self significantly increased as a by-product of career counseling without direct treatment of the client's personality functioning. Martin (1971) suggested that in dealing positively with the career maturity of the student, the total human being is involved and there will be benefits to the total person. Bohn (1966) concluded: "Vocationally mature individuals are more mature not only in occupational attitudes and orientations but also in personality characteristics) (p. 125). Career maturity seems to be reflective of general personality development and must be taken into account in effective vocational counseling. Bartlett (1968) found that persons scoring high in career maturity were more self-confident, achievement-oriented, independent, and better adjusted in general. Crites and Semler (1967) discovered that

the adolescents perceived as better adjusted by counselors and teachers were more career-mature. By adding to the literature related to the construct of career maturity, it is hoped that this study will lead to efforts that will result in improved personal development of students.

Limitations

Due to the difficulty of obtaining permission for students to be released from normal school schedules for pre- and posttesting and in some cases for participation in the Vocational Exploration Group, it was necessary to limit the sample size to 150 students. Since leaders of the Vocational Exploration Group have to be specifically trained, it was practical to select the sample from schools where the counselors had been previously trained in VEG procedures. For practical purposes, the sample was limited to ninth-grade students. Results of this study, therefore, should be viewed as related to a particular age group and based on measures of a particular assessment of career maturity, the Career Development Inventory.

Since the scope of this study was limited by the time which the researcher has to finish her doctoral studies, valuable longitudinal data were omitted. It may be possible, however, to do follow-up studies since demographic data on the subjects will be available.

CHAPTER II

REVIEW OF THE LITERATURE

The review of that literature concerning the career maturity of gifted students is organized into the following topical areas: (1) career maturity, (2) gifted students, (3) the Vocational Exploration Group and, (4) the Career Development Inventory.

Career Maturity

The term career or vocational maturity defined first by Super in the fifties as "the place reached on the continuum of vocational development from exploration to decline" (Super, 1955, p.153) was given an expanded definition by Super and his associates during the process of a major longitudinal research project on career development. Super and his colleagues defined career maturity as

readiness to cope with the career development tasks that are appropriate to one's stage in life: to make the required career decisions as one progresses through school into the world of work and through early and mature adulthood into later maturity and retirement (cited in Thompson & Lindeman, 1981, p.4).

Super formulated five vocational life stages: growth, exploration, establishment, maintenance and decline, and in addition proposed that certain vocational developmental tasks were appropriate to each stage. The primary task of the first stage is to develop a realistic self concept and gain an

understanding of the concept of work while the major emphasis in the exploratory stage is on crystallizing, specifying, and implementing a vocational preference. During the establishment stage individuals make a place for themselves in their chosen occupation and work on improving that position. Maintaining and preserving the status achieved in the establishment stage is the primary task of the fourth stage while decelerating, disengaging and retiring are the challenges of the last vocational life stage (Super, Crites, Hummel, Moser, Overstreet & Warnath, 1957). The varying demands and challenges of each life stage necessitate continual decision-making and adjusting.

Super postulated that individuals differ in their readiness to cope with the vocational developmental tasks at the expected time and their ability to deal with tasks effectively. Individuals who have already completed tasks that still occupy their peers or have dealt with the tasks more successfully than peers can be judged as being more career-mature than their age-mates (Super, 1957). From Super's formulation, it follows that there are two ways to assess career maturity: first, by determining whether individuals are addressing, completing, or not dealing with the vocational tasks appropriate to their age; second, by determining how well they are dealing with the tasks compared to their peers (Jordaan & Heyde, 1979).

Career maturity is a major construct in Super's developmental self-concept theory of vocational behavior. According

to Osipow (1973), Super was influenced primarily by the fields of differential psychology, self-concept theory, and developmental psychology. From research in the field of differential psychology, Super concluded that individuals are suited for a variety of occupational settings as a function of their interests and abilities and that occupations in turn tend to require varying patterns of interests and abilities for their successful performance. Job satisfaction then is related to close correspondence between the interests and abilities that the occupation requires and those interests and abilities which the worker has (Super, 1953).

Influenced by self-concept theory, Super posited that individuals develop vocational self-concepts based on their observation of and identification with adult workers. Expansion and clarification of his original theory focused on describing self concept as explicitly as possible (1963b). According to Super (1963a), the formation of self-concept is dependent upon the ability of persons to differentiate themselves as distinct individuals while recognizing the commonalities between themselves and others. The self-concepts of well integrated persons are fluid enough to adapt to the changes in self-perception that experiences indicate are necessary to reflect reality. Vocational self-concept develops similarly as small children first differentiate themselves from others as entities, and then as adolescents become quite specific in noting the qualities and characteristics by

which they differ from others. The acknowledgment of these specific differences leads adolescents to make career and educational decisions consistent with their self concepts.

The process of identification occurs simultaneously with the process of differentiation as children progress from identification with the same-sex parent to identifying with specific characteristics of various models. Individuals, through role playing and reality testing, develop a vocational identity that influences their vocational decisions (Super, 1963c).

Developmental concepts influenced Super's ideas about career patterns. Individuals, as a result of many psychological, physical, situational, and societal factors, develop regular, predictable patterns of career behavior. In addition the life cycle of individuals precipitates the necessity of their facing different vocational tasks at various times in their lives (Super, 1957).

Combining the ideas from the areas mentioned previously, Super developed his theory on the proposition that individuals implement their self-concept by selecting occupations that they judge as conducive to permitting self-expression. Furthermore, the particular behaviors which individuals engage in to implement their vocational self-concept are a function of life stage. Self concept becomes more stable with maturity but the implementation of the vocational self-concept is dependent upon external conditions. Vocational behavior, according

to Super, is best understood by noting the demands of the life stage of the individual (Super, 1957).

Super (1953) generated ten propositions which are foundations for his developmental self-concept theory:

1. People differ in their abilities, interests, and personalities.
2. They are qualified, by virtue of these characteristics, each for a number of occupations.
3. Each of these occupations requires a characteristic pattern of abilities, interests, and personality traits, with tolerances wide enough, however, to allow both some variety of occupations for each individual and some variety of individuals in each occupation.
4. Vocational preferences and competencies, the situations in which people live and work, and hence their self concepts, change with time and experience (although self concepts are generally fairly stable from late adolescence until late maturity), making choice and adjustment a continuous process.
5. This process may be summed up in a series of life stages characterized as those of growth, exploration, establishment, maintenance, and decline, and these stages may in turn be subdivided into (a) the fantasy, tentative, and realistic phases of the exploratory stage, and (b) the trial and stable phases of the establishment stage.
6. The nature of the career pattern (that is, the occupational level attained and the sequence, frequency, and duration of trial and stable jobs), is determined by the individual's parental socioeconomic level, mental ability, and personality characteristics, and by the opportunities to which he is exposed.
7. Development through life stages can be guided, partly by facilitating the process of maturation of abilities and interests, and partly by aiding in reality testing and in the development of the self concept.

8. The process of vocational development is essentially that of developing and implementing a self concept: it is a compromise process in which the self concept is a product of the interaction of inherited aptitudes, neural and endocrine makeup, opportunity to play various roles, and evaluations of the extent to which the results of role playing meet with the approval of superiors and fellows.
9. The process of compromise between individual and social factors, between self concept and reality, is one of role playing, whether the role is played in fantasy, in the counseling interviews, or in real life activities such as school classes, clubs, parttime work, and entry jobs.
10. Work satisfactions and life satisfactions depend upon the extent to which the individual finds adequate outlets for his abilities, interests, personality traits, and values; they depend upon his establishment in a type of work, a role which his growth and exploratory experiences have led him to consider congenial and appropriate (p.189).

Ginzberg, Ginsburg, Axelrod and Herma (1951) were among the first researchers to note that occupational choice is a process extending from childhood through adulthood which progresses through definable stages and results in selection of a career that is a compromise between personal needs and occupational realities. Super, intrigued by this concept of career development, yet critical of the Ginzberg theory because of its authors' failure to utilize the existing data about vocational choice, was careful to ground his propositions on previous research and theory. Inherent in both the Ginzberg and Super theories and in any career development theory is the proposition that "vocational behavior matures

for most individuals as they progress from late childhood through adolescence to early adulthood" (Crites, 1978, p.3). The assumption is that the process is systematic. Ginzberg et al. (1951) stated that the process of career decision-making is largely irreversible and Super and Overstreet (1960) characterize developmental vocational behavior as increasing goal-directedness, realism, and independence.

Crites (1978) stated that early researchers of career development assumed that the concept of development implied a linear process of change in vocational behavior over time. More recent theorists and researchers have addressed this assumption as questionable. Baltes and Goulet (1970)

noted:

The only major criterion that seems necessary to define developmental change is whether there exists a systematic age-functional relationship from birth to death, whatever the shape of the relationship (linear, nonlinear, increasing, decreasing, u-shaped, inverted u-shaped) may be (p.10).

Some of the assumptions of career development then may need to be revised.

The construct of career or vocational maturity has been the focus of much of Super's research in recent years. Super asserted that the closer the congruence between the actual career behavior and the behavior expected of persons due to age, the more career mature the person is. Super's most comprehensive research, "The Career Pattern Study," is a 21-year longitudinal study begun in 1951 of the vocational development of approximately 300 eighth-and ninth-grade boys in Middletown,

New York. Through interviews, questionnaires, tests, school records, and inventories, the subjects were studied when they were in the eighth or ninth grade (ages 14 or 15), in the twelfth grade (about age 18), and at about age 21, 25, and 30 in order to test the construct of career maturity suggested by Super's theory (Jordaan & Heyde, 1979).

Career maturity fits the definition given by English and English (1958) of a hypothetical construct:

a construct that is inferred as actually existing (though at present not fully observable) and as giving rise to measurable phenomena, including phenomena other than the observables that led to hypothesizing the construct, (p.16)

since its existence is inferred from many different observable facts. Jordaan and Heyde (1979) stated the following facts as examples:

Some individuals are satisfied with their jobs and the progress they have made, while others are not. In short, some individuals are demonstrably more successful than others in choosing, entering, and progressing in an occupation they find satisfying. One reason for the difference would seem to be that some people are more aware than others of the decisions that must be made at various points in their lives. As a consequence, they are readier and better equipped to make and carry out such decisions (p.141).

The major research projects involving the indices of career maturity are the Career Pattern Study (Super, Jordaan et al.), the Career Development Study (Gribbons & Lohnes), the Vocational or Career Development Project (Crites) and the Vocational Maturity Project (Westbrook). The dimensions of career maturity that have been investigated and refined by these studies are listed by research project:

I. Career Pattern Study (Super & Overstreet, 1960)

Orientation to Vocational Choice
 Concern with Choice
 Use of Resources
 Information and Planning
 Specificity of Information
 Specificity of Planning
 Extent of Planning
 Consistency of Vocational Preferences
 Consistency within Fields
 Consistency within Levels
 Consistency within Families
 Crystallization of Traits
 Patterning of Interests
 Interest Maturity
 Liking for Work
 Patterning of Work Values
 Discussion of Rewards of Work
 Acceptance of Responsibility
 Vocational Independence
 Independence of Work Experience
 Wisdom of Vocational Preferences
 Agreement: Ability and Preference
 Agreement: Interests and Preference
 Agreement: Interests and Fantasy Preference
 Agreement: Level of Interests and Preference
 Socioeconomic Accessibility

II. Career Pattern Study (Jordaan & Heyde, 1979)

Crystallization of Interests
 Number of Vocational Possibilities under Consideration
 Number of Fields of Work under Consideration
 Specificity of Vocational Preference
 Consistency of Vocational Preferences within Fields, Levels, Families
 Interest Maturity
 Primary Interest Pattern (Median = A)
 Primary Interest Pattern (Median = B+)
 Commitment to Preference
 Appropriateness or Wisdom of Preference
 Agreement: Ability and Preference
 Agreement: Ability and All Occupations under Consideration
 Agreement: Interests and Preference
 Agreement: Interests and All Occupations under Consideration
 Socioeconomic Accessibility: Preferred Occupation
 Socioeconomic Accessibility: All Occupations under Consideration

Agreement: Occupational Level of Interests and
 Occupational Level of Preference
 Work Experience
 Extent
 Auspices of Work
 Self-Employment
 Size of Establishment
 Responsibility for Initiating and Obtaining
 Employment
 Specificity of Information: Preferred Occupation
 Requirements
 Duties
 Conditions of Work
 Opportunities
 Range of Information: All Occupations Discussed
 Requirements
 Duties
 Conditions of Work
 Opportunities
 Awareness of Significant Aspects of Occupations
 Extensiveness and Quality of Sources of Information
 Acceptance of Responsibility
 For Choosing an Occupation
 For Education and Training
 For Gaining Admission to Occupation or Training
 Planning
 Specificity of Plans for
 Qualifying for Post-High School Job,
 Education, or Training
 Obtaining Post-High School Job, Education,
 or Training
 Qualifying for the Preferred Occupation
 Entering the Preferred Occupation
 Range of Planning
 Awareness of Contingency Factors
 Weighing of Alternatives
 Implementation
 Selection of Relevant High School Curriculum,
 Courses, etc.
 Selection of Relevant Extracurricular Activities
 Relevant Work Experience
 Steps to Obtain Relevant Beginning Job or Edu-
 cation/Training
 Range of Implementation

III. Career Development Study (Gribbons & Lohnes, 1968)

Factors in Curriculum Choice
 Factors in Occupational Choice
 Verbalized Strengths and Weaknesses
 Accuracy of Self-Appraisal
 Evidence of Self-Rating

Awareness of Interests
 (and their relationship to occupational choices)
 Awareness of Values (and their relationship to
 occupational choices)
 Independence of Choice

IV. Vocational Development Project (Crites, 1971, 1973, 1974)

Vocational Choice Attitudes

Items cover:

Involvement in the choice process
 Orientation toward work
 Independence in decision making
 Preference for choice factors
 Conceptions of the choice process

Vocational Choice Competencies

Self-appraisal
 Occupational information
 Problem solving
 Goal selection
 Planning

V. Cognitive Vocational Maturity Project (Westbrook et al., 1971; Westbrook & Parry-Hill, 1973; Westbrook & Mastie, 1974)

Fields of Work
 Duties
 Work Conditions
 Education Required
 Attributes Required
 Job Selection

(Jordaan & Heyde, 1979, pp. 216-220).

Observation of the dimensions resulting from the various studies shows that though all relate to the findings of the original Career Pattern Study, there are some differences. Westbrook, Crites, and Super and his colleagues emphasize educational and occupational information while Gribbons and Lohnes emphasize self-knowledge. Super and his colleagues list consistency of preferences, planning, and the socioeconomic accessibility of the preferred occupation as indices of career maturity, but in

the Gribbons and Lohnes study, these dimensions are treated as outcomes of career maturity (Jordaan & Heyde, 1979).

The fact that these major studies of career development have utilized the process of factor analysis in examining the data has provided support for the construct of career maturity. Super and Overstreet (1960) analyzed the data collected in the first wave of the Career Pattern Study and identified the following five dimensions along which career maturity proceeds: (1) Orientation to Vocational Choice; (2) Information and Planning; (3) Consistency of Vocational Choice; (4) Crystallization of Traits; and (5) Wisdom of Vocational Preference. These five dimensions, when subjected to a principal axes factor analysis with quartimax rotation, resulted in the general factor of Planning Orientation. Career maturity in the ninth grade, according to this study, consisted of being aware of decisions that needed to be made both immediately and in the future, knowing what must be considered in making decisions, and accepting responsibility for the decisions. In addition, having information about occupational preferences, having plans for meeting objectives, and being aware of problems connected with reaching occupational goals are characteristic of career maturity in the ninth grade (Jordaan & Heyde, 1979).

The theoretical model of career development devised and tested in the Career Pattern Study, tested independently by Willstach (1966), Gribbons and Lohnes (1968), Vriend (1968), Asis (1971), Crites (1973), and Westbrook and Parry-Hill (1973),

and further refined by Super (1974) provides five basic dimensions whose intercorrelations validate the general construct of career maturity. These dimensions are planfulness, exploration, decision-making information, world of work information, and reality orientation (Thompson & Lindeman, 1981). Dimensions warranting further research because they lack either construct or predictive validity are agreement between ability and preference, work experience, and knowledge and use of resources (Jordaan & Heyde, 1979).

Super and Overstreet (1960) also studied variables that might be related to career maturity. They concluded that career maturity is related to intelligence, sex, grade in school, parental occupational level, school curriculum, scholastic achievement, participation in extracurricular activities, independence, and cultural stimulation. Other researchers (Crites, 1973; Gribbons & Lohnes, 1968; Thompson & Lindeman, 1981) reported similar correlations. Super, Kowalski, and Gotkin (1967), in a retrospective study of the relationship of career maturity to other variables, noted that career maturity is generally predictive of career satisfaction, questionable as a predictor of economic success, negatively related to early establishment in a career, and not particularly effective as a predictor of the ability to get and hold a job. They concluded that career maturity in combination with the conventional measures found in schools such as intelligence tests, parental occupational level, vocational aspirations, type of curriculum,

and grade point average is a useful predictor of vocational behavior.

The Career Development Inventory (CDI)

Since the construct of career maturity has been shown to be multidimensional, it follows that measures to assess career maturity must take into account the complexity of the construct.

The Career Development Inventory (CDI) is the result of over a decade of work by Super and his associates in which the findings of the Career Pattern Study were utilized to devise a standardized, paper-and-pencil test in response to the need for easily used, objective instruments for the evaluation of career development programs and counseling (Super & Thompson, 1979). The instrument is designed to assess four of the five dimensions previously noted as evolving from the Career Pattern Study: planfulness, exploration, decision-making information, and world of work information. The dimension of reality orientation is not addressed by this measure.

The need for standardized measures of career maturity is apparent when the limitations of data derived from interviews and teacher or counselor judgment are considered. Data gathered from interviews requires large investments of time and are difficult to quantify in addition to being susceptible to variation due to interviewer differences. Indications of the reliability of interview data is almost nonexistent due to the expense of time and money necessary to reinterview subjects (Jordaan & Heyde, 1979). In a paper presented at the American Educational

Research Meeting, Gustafson (1975) reported on a study comparing counselor judgment to scores on the Career Maturity Inventory as measures of career maturity. Finding no significant relationship between the counselors' judgment and the test scores, the researcher concluded that what the counselors were judging was different from the career maturity that is validated as being measured by the Career Maturity Inventory.

The Career Development Inventory has been revised several times (Forrest, 1971; Super & Forrest, 1972; Forrest & Thompson, 1974; Thompson & Lindeman, 1981). The first version of the CDI consisted of 236 items and yielded scores on 13 scales (Super, Bohn, Forrest, Jordaan, Lindeman, & Thompson, 1971). Work by Forrest (1971) involving a principal components analysis with varimax rotation of the scores of 200 tenth graders yielded the following three factors considered conceptually accurate: planning orientation, resources for exploration, and information and decision-making. The revision of the CDI by Super and Forrest (1972) used three scales and was given to another group of 200 tenth graders. When results of this testing were compared to the scores of the 200 subjects in the 1971 testing, no significant difference between the means and variances of the two groups was found, lending credence to the original findings. Phillips (1974) using the earliest form of the CDI with 700 community college freshmen and performing a factor analysis of the scores, found that the scores yielded the same three factors reported by Forrest

(1971). Planning orientation, resources for exploration, and information and decision-making appear to be important components of career maturity.

The scales on the CDI measuring planning orientation and resources for exploration are self-ratings which assess attitudes and the scale measuring information and decision-making is a cognitive assessment of the ability to apply principles of career-decision making and the knowledge of career developmental tasks and occupational knowledge that contribute to successful career planning (Super and Thompson, 1979).

Thompson and Lindeman (1981), as a result of research which indicated a need for a broader measure of the world of work entailing questions that were more diagnostic of the cognitive aspects of career developmental tasks and stages, divided the information dimension of the CDI into three different scales: decision making, world-of-work information, and knowledge of preferred occupational group. In addition they have added three combination scales--one combining the scales measuring attitude, one combining the scales measuring cognitive aspects of career maturity, and one combining the attitudinal and cognitive measures (except for knowledge of preferred occupational group) to approach a total score of career maturity.

According to Jordaan and Heyde (1979),

To be conceptually adequate, a measure of career maturity should correlate significantly but not highly with other measures of vocational maturity, should furnish information over and above that

provided by existing measures of the individual and his environment, and should be predictive of later career and occupational outcomes. Finally, since the term vocational maturity implies that traits, attitudes, and behavior which indicate it mature with age and experience, scores on measures of these characteristics should increase with age (p.152).

There are four well-known batteries or instruments used for assessing career maturity: (1) the Gribbons and Lohnes Readiness for Career Planning (RCP) Scale; (2) Westbrook's Cognitive Vocational Maturity Test; (3) Crites' Career Maturity Inventory (Attitude and Competency Scales); and (4) Super's Career Development Inventory (Super, 1974). Forrest (1971) administered the Gribbons and Lohnes Readiness for Career Planning (RCP) Scale, Westbrook's Cognitive Vocational Maturity Test (CVMT), the Career Maturity Inventory Attitude Scale (CMI), and the Career Development Inventory (CDI) to tenth graders in Flint, Michigan. The relationship of scores on the Career Development Inventory to scores on the CMI Attitude Scale, the Cognitive Vocational Maturity Test and the RCP Scale are reported by Forrest (1971, pp.82,86) as follows: total score on the CDI correlates .14 with the CMI Attitude Scale (N=90), .26 with the CVMT (N=19), and .75 with the RCP Scale (N=15). The total score on the CDI appears to have more in common with the global measure of the RCP than the more specific measures of the CMI Attitude Scale and the CVMT. As expected, since most of the items on the CVMT relate to information and decision-making, there is a high correlation between it and the Information and Decision-Making

Scales of the CDI (.63). Correlation of the CMVT with the two attitudinal scales of the CDI are positive but low (.31 and .20). Contrary to expectation, the Information and Decision-Making Scale (a cognitive scale) of the CDI correlates significantly (.42) with the CMI Attitude Scale, indicating that there may be cognitive substance to Crites' Scale as well as attitudinal. Both the CMI Attitude Scale and the Cognitive Scales of the CDI correlate significantly with mental ability (.37 and .46 respectively). The Attitudinal Scales of the CDI have correlates approximating zero with verbal ability. The scales of the Career Development Inventory, therefore, meet the criterion of being correlated with other appropriate measures of career maturity which is one indicator of conceptual adequacy.

Intellectual ability, achievement, socioeconomic status, and level of aspiration have been found to be significantly related to vocational behavior (Super et al., 1957; Super & Crites, 1962; Crites, 1971; Jordaan & Heyde, 1979). Measures of intellectual ability give some indication of how far up the occupational ladder an individual can go; level of aspiration indicates how far an individual would like to go; academic achievement gives some indication of the individual's eventual educational and occupational possibilities (Jordaan & Heyde, 1979). On the Career Development Inventory, only the total score and the cognitive scales of information and decision-making correlate significantly with intelligence as measured by scores on verbal ability tests (.46, .48, .49).

The Crites Maturity Inventory Attitude Scale, the most widely-used instrument for assessing career maturity, generally approaches or exceeds a correlation of .40 with measures of intellectual ability (Forrest, 1971); thus, intelligence appears to affect scores on the CMI Attitude Scale more than scores on the Career Development Inventory (Jordaan and Heyde, 1979).

School achievement as measured by grade-point average, correlates significantly (.50) with the Cognitive Scale of the Career Development Inventory (Super and Thompson, 1979). Jordaan and Heyde (1979) concluded that potential ability is less related to career maturity than manifest ability (ability indicated by school grades) and suggested that this is not unexpected since both career maturity and academic achievement represent successful coping with developmental tasks. In an investigation of academic achievement bias on the Vocational Preference Inventory and the Career Development Inventory, Rodgers and Lee (1976) pointed out that both instruments may be overly dependent on academic ability since they both related significantly to grade point averages. Jordaan and Heyde (1979) use the evidence that school achievement correlates only with the cognitive scale of the Career Development Inventory as additional support for the conceptual adequacy of the CDI since it furnishes information over and above what may be provided by the grade point average.

The data on the relationship of socioeconomic status to career maturity suggest that the relationship is less marked

than might be logically expected though it does appear stronger in late rather than early adolescence (Jordaan & Heyde, 1979). The data from which the Career Development Inventory was developed indicate that socioeconomic status as measured by father's occupational level correlated with only 1 of 19 factors from which the five dimensions of the Career Pattern Study evolved (Jordaan and Heyde, 1979). In a study involving both ethnic and socioeconomic factors, Myers, Lindeman, Forrest, and Super (1971) using the Career Development Inventory with large groups of white and black pupils in Flint, Michigan, found no difference between blacks and whites on career maturity scores, suggesting that in heterogeneous samples in which all socioeconomic levels are represented, race and career maturity are unrelated. Lower-class children tended to be somewhat less career mature than middle-class children. Socioeconomic status, according to Jordaan and Heyde (1979) appears to be a relatively insignificant determinant of career maturity among adolescents since it accounts for only a small proportion of the observed variance in career maturity.

Jordaan and Heyde (1979) noted that there might be a possibility that the greater maturity of some of the subjects studied in the Career Pattern Study might be due to higher aspirations. Individuals of superior ability tend to select occupations which require advanced planning to meet the prerequisites of academic preparation and training (Sanborn, 1979). Career-mature students who realistically aspire to a high-level occupation based on their capacities may also be

more motivated to consider the necessary decisions and preparations needed to make their choice a reality; thus they are likely to emerge as more career mature on standard measures of career maturity than peers who either limit themselves to occupational choices requiring little special knowledge or planning or who have unrealistic career ambitions (Jordaan & Heyde, 1979). The analysis of the data in the Career Pattern Study indicated that level of aspiration is related to factors of the Orientation to Planning dimension of career maturity.

In an analysis of the determinants of career behavior, Forrest (1971) stated that though socioeconomic status, intelligence, school achievement, and level of aspiration are all related to various aspects of career maturity, taken singly they account for only a small proportion of the variance in career maturity scores during the high school years. Even when these determinants are combined, they do not account for enough of the observed variance to suggest that special measures of career maturity are not needed.

As stated earlier, to be conceptually adequate, a measure of career maturity should show increases in scores as students progress in age. Increases of means occur on all scales of the Career Development Inventory with increase in grade level, although the amount of increase varies with each scale (Thompson & Lindeman, 1981).

The last criterion mentioned as being related to the conceptual adequacy of measures of career maturity is the ability

to predict later career and occupational outcomes. The data from the Career Pattern Study yielded five factor-derived criterion or outcome measures at age 25: career satisfaction, job satisfaction, attained status, career progress, and socioeconomic advancement (Jordaan, 1977). The results of a stepwise multiple regression analysis that relates the high school predictor measures to adult career outcomes are summarized by Jordaan and Heyde (1979):

1. Twelfth-grade data provide a better basis for predicting vocational status and progress at age 25 than ninth-grade data. This is as expected, since in the one instance the predictions cover ten years and in the other seven years.
2. In the ninth grade such conventional variables as grades, curriculum and parental occupational level are better predictors of vocational status and progress at age 25 than the novel vocational maturity variables. However, better predictions result when both types of data are used. This suggests that while vocational development has not proceeded far enough in early adolescence for differences in vocational readiness to have a potent effect on later events, it has proceeded far enough to account for some of the observed differences in adult success and satisfaction.
3. In the twelfth grade, the vocational maturity measures are appropriately superior to the conventional measures in predicting career satisfaction and job satisfaction and inferior to them in predicting attained status.
4. Three of the five criteria are better predicted by a combination of the two types of variables than by either type alone. The prediction of attained status and career progress is not improved by the inclusion of the vocational maturity measures.
5. The relationships of the twelfth-grade variables to the age 25 occupational and career criteria

are shown in the following multiple correlation coefficients which ranged

- (a) for the conventional variables, from .47 in the case of Job Satisfaction to .80 in the case of Attained Status, with a median R of .54
 - (b) for the vocational maturity variables, from .41 in the case of Socioeconomic Advancement to .67 in the case of Attained Status, with a median R of .60
 - (c) for the combined variables, from .54 in the case of Socioeconomic Advancement to .68 in the case of Career Satisfaction, with a median R of .64.
6. The number of variables needed to achieve Rs of this magnitude ranged from 4 to 6 in the case of the vocational maturity variables and from 4 to 8 in the case of the combined measures.
 7. The best predicted career and occupational outcomes using twelfth-grade variables are
 - Attained Status (.80 using conventional variables)
 - Career Satisfaction (.68 using both types of variables)
 - Career Progress (.65 using conventional measures; .64 using both types of measures)
 - Job Satisfaction (.63 using both types of measures).
 8. As might be expected the most difficult outcome to predict is Socioeconomic Advancement or Upward Mobility ($R=.54$, using both types of variables).
 9. All of the multiple correlation coefficients except the last exceed .60 (pp.167-168).

The Career Development Inventory appears to meet the criteria necessary for being a conceptually adequate measure of career maturity. Based on findings by Super and Jordaan (1978), Hamdani (1974) and Harris (1972), the Career Development Inventory is likely to be most useful as (a) a criterion measure in research and in counseling and career

education program evaluation; (b) survey data providing information on groups of students especially for curriculum and course planning; (c) a counseling tool providing diagnostic data and data predictive of later career and occupational success and satisfaction. The Career Development Inventory has generally shown increases on scores on most, but not all, scales after participation in various types of career education programs and activities. When differences are not reflected on specific scales, it is often attributable to noninclusion in the program or activity of material related to the scale.

Gifted Students

Who are the gifted and talented? Though definitions vary widely, the U.S. Office of Education's definition of gifted and talented is widely used in educational settings:

Gifted and talented children are those identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas of human endeavor, singly or in combination: general intellectual ability, specific academic aptitudes, creative or productive thinking, leadership ability, visual and performing arts, and psychomotor ability. (Marland, 1972, p.10).

Gallagher (1975) isolated the ability to manipulate learned symbol systems such as language, mathematics, music, chemistry, art, and social sensitivity since it permits the individuals to learn, create, and imagine without waiting for stimulus or direction from a teacher or the environment. The inclusion of symbol systems other than the traditional system of language leads to the broader definition of giftedness stated previously and is typical of the trend to move away from the operational definition of giftedness used until the middle 1960's which included "those children who performed in an advanced fashion on measures of verbal development and logical thinking as measured by standard I.Q. tests" (Gallagher, 1975, p.26).

The definition of giftedness is profoundly important since identification procedures follow from the definition. Teacher observation and nomination were the most frequently used means of identification of gifted students in the United States for the first two decades of this century, though Gallagher (1975), in a review of studies which examined the accuracy of this identification method, found that the conclusion in most of the studies was that teachers overlook many gifted students that a well-designed test might find since teachers tend to overrate the dutiful, hard-working student. Experts in the field of giftedness tend to favor the use of individual intelligence tests and previously demonstrated accomplishments as means for identification of the gifted (Martinson, 1972). The current trend in identification is to use a

combination of identifying measures such as school grades, I.Q. scores and teacher observation of behavioral characteristics (Gallagher, 1975).

Behavioral and learning characteristics of gifted students have been obtained largely from the monumental longitudinal study of gifted children by Terman and his colleagues (Terman & Oden, 1947). These characteristics can be effectively utilized in identification measures when teachers are asked to rate students on the degree of presence of a particular characteristic. Seago (1979), compiled the following list of characteristics of gifted children:

Some Learning Characteristics of Gifted Children

Keen power of observation; naïve receptivity; sense of the significant; willingness to examine the unusual.

Power of abstraction, conceptualization, synthesis; interest in inductive learning and problem solving; pleasure in intellectual activity.

Interest in cause-effect relations, ability to see relationships; interest in applying concepts, love of truth.

Liking for structure and order; liking for consistency, as in value systems, number systems, clocks, calendars.

Retentiveness.

Verbal proficiency, large vocabulary; facility in expression; interest in reading; breadth of information in advanced areas.

Questioning attitude, intellectual curiosity, inquisitive mind; intrinsic motivation.

Power of critical thinking; skepticism, evaluative testing; self-criticism and self-checking.

Creativeness and inventiveness; liking for new ways of doing things; interest in creating, brainstorming, free-wheeling.

Power of concentration; intense attention that excludes all else; long attention span.

Persistent, goal-directed behavior.

Sensitivity, intuitiveness, empathy for others, need for emotional support and sympathetic attitude.

High energy, alertness, eagerness; periods of intense voluntary effort.

Independence in work and study; preference for individualized work; self-reliance; need for freedom of movement and action.

Versatility and virtuosity; diversity of interests and abilities; many hobbies; proficiency in art forms such as music and drawing.

Friendliness and outgoingness (pp.2-5).

Renzulli and Hartman (1971) developed a rating scale (Appendix A) to be used for identifying gifted students which asked teachers to rate certain learning, motivational, creativity and leadership characteristics as being seldom or never observed, occasionally observed, observed to a considerable degree, or observed almost all of the time.

Perhaps a basic question in identifying the gifted should be, "Why identify them?" Intricate identification procedures become merely exercises if programs are not adequate to meet the needs of those identified as gifted. Schools can change the content of material presented, the method of presentation or the learning environment in which education occurs. Acceleration of the gifted or special classes for gifted students in an attempt to alter learning environment was a

major focus of programs for the gifted in past decades. Julian C. Stanley (1977), developer of The Study of Mathematically Precocious Youth (SMPY) at The Johns Hopkins University strongly advocated acceleration as the method of challenging mathematically gifted youth in order to take advantage of their eagerness to move rapidly and to lessen the possibility of their being becoming bored and unmotivated due to being forced to cover course content at a "snail's pace." In the last few years, however, greater emphasis has been placed on change in content with stress on a higher level of abstract understanding and procedures that foster independent thinking and problem-solving behavior (Gallagher, 1975). The characteristics of gifted students must be a primary focus of any program designed to meet their needs.

In planning career development programs and activities for the gifted there are several special issues and problems that must be addressed. Rodenstein et al. (1977) reported four problems related to career development of the gifted: (1) multipotentiality; (2) pressure of expectations; (3) career as life style; and (4) career investment. Frederickson and Rothney (1972) identified the following issues as unique in career development for the gifted: (a) society expects more from the gifted person; (b) schools and parents tend to push too early on career decisions for the gifted; (c) there are so many possible career options that these will often confuse and frustrate the gifted student; (d) there is not one occupation that is

best fitted for the gifted student; (e) there are many areas in which a student can be gifted. Sanborn (1979) identified multipotentiality, investment of money, time and self in extended training, and pressure of expectations as problematic factors in the career development of the gifted. Jepsen (1979) specified multipotentiality, pressure, an elaborate and complex work value system, ego-involved work choices, and lack of role models as particular problems facing gifted students.

Concerning multipotentiality, French (1958) found a larger number of gifted than nongifted students with three or more scores over the seventieth percentile on the Kuder Preference Record. Barbe and Renzulli (1975) found multiple interest patterns among gifted and talented students. Sanborn (1979), basing his conclusions on research findings and case materials of the Research and Guidance Laboratory for Superior Students of the University of Wisconsin where some 3,000 gifted and talented students have been studied for the past 15 years, reports that scores of gifted and talented youths typically exceed those of their age mates in almost all areas covered by tests in common use.

He concludes that although there are some individuals who exhibit concentrated ability and interest in one area, they are by far the minority. Frederickson and Rothney (1972) report that a major portion of the abilities of gifted students lies in the top ten percent regardless of the intellectual area

being tested. The fact that many occupations are open to gifted youth due to their multipotentiality may result in difficulty in their evaluating and rank ordering their career choices in order to focus their efforts and aspirations in one direction.

Pressure from expectations of parents, schools, society and themselves is another area noted previously as problematic for gifted students. Rodenstein et al. (1977) pointed out that if gifted students are led to believe by those who view their potential as unlimited that it is inappropriate to consider any career choice that does not involve intellect or extensive educational training, free choice is an impossibility. Witty and Grotberg (1970) found that the pressure to conform to the career wishes of others can cause gifted and talented students to experience a fear of the future which is manifested in feelings of inadequacy about meeting the standards of others, finding roles compatible with their values or freeing themselves from the obligation of using their giftedness for society's sake.

Gifted and talented students are proportionately more likely than less able students to pursue careers that involve extended training or higher education, resulting in quite an investment of time and financial resources in addition to deferred gratification (Rodenstein et al., 1977). Ward (1961), commenting on data from the Terman study (1947), stated that the picture of the gifted child growing into adulthood remains one of general superiority with occupational choices lying in the upper levels on a standard scale. Eighty-six percent of

the employed men in 1955 who had been a part of Terman's original study were in the top two classifications on the Minnesota Occupational Scale which includes lawyers, university faculty, engineers, physicians, chemists, authors, teachers, clergymen, artists, composers, architects, owners and executives in industry and executives in banking and finance. Sanborn (1979) reported that follow-up studies at the Research and Guidance Laboratory for Superior Students show that 98% of the males and 97% of the females who graduated from high school from 1961 to 1972 continued their education in college and more than 70% enrolled in graduate or professional study after receiving their first degree. The great expenditures of time and finances, postponement of marriage and parenthood, and financial dependency on parents or scholarships which extensive training demands make it increasingly difficult to change career directions the further along the career track the student is (Hoyt & Hebel, 1974).

Zaffrann and Colangelo (1977) reported that in terms of the definition of superior intellectual or creative performance, there will be few if any adults who can provide models for the gifted youth's chosen career or who can empathize with their particular career development problems, thus limiting possibilities of support. Since it is common for the gifted to regard their work as a major means of self-expression and thus of a life style, it is essential for them to have all the support possible (Hoyt & Hebel, 1974).

The researchers who study unique problems and issues related to career development of the gifted tend to offer suggestions for appropriate career counseling. Herr and Watanabe (1979) suggested that gifted and talented students may require help with self-concept development as a prerequisite for consideration of educational and career alternatives. They suggest that gifted and talented students frequently are as illiterate about their personal characteristics and abilities as any other group of students and need help in identifying information and its implications for action. Sanborn (1979) stated that the confusion resulting from multiple abilities and interests faced by many gifted and talented youths might be reduced by a systematic approach to the problem of self-discovery as offered by a developmental guidance program which begins in early grades and continues throughout high school. He adds that the program should be aimed at helping students explore the more subjective personal dimensions related to career development in addition to the cognitive consideration of abilities and interests.

Many researchers attest to the benefits of having gifted and talented students shadow and work with adults engaged in occupations which are being considered by the youth (Frederickson & Rothney, 1972; Barbe & Renzulli, 1975; Herr & Watanabe, 1979; Hoyt & Hebel, 1974). If potential role models are not available, gifted and talented students should be directed to reading materials or visual aids which will

provide vicarious support for their career interests (Herr & Watanabe, 1979).

The call for individualized counseling whether it is delivered through one to one counseling or in a group is widespread. Since gifted and talented students exhibit a variety of patterns and degrees in their abilities, interests, creativity and psychomotor performances, it is imperative to assess and react to the unique needs of each student (Zaffrann & Colangelo, 1977; Herr & Watanabe, 1979; Newland, 1976; Hoyt & Hebel, 1974). In the process of individualizing counseling it is necessary that counselors remember that gifted students may not progress as rapidly in their emotional and social development as in their intellectual and creative areas; thus the same children who can conceive and implement a complicated research design might be grappling with the same identity, emotional, and physical-growing problems as their less able peers (Witty & Grotberg, 1970). Sharing their feelings and perceptions about their development with others in a group setting has been recommended as a way for gifted and talented students to break down their feelings of social isolation and loneliness (Zaffrann & Colangelo, 1977). Herr and Watanabe (1979) suggested that group work is necessary for gifted and talented students to develop personally as well as to explore their future.

Parent cooperation is a vital component in the career development of gifted youth. Sanborn, Pulvino and Wunderlin

(1971) reported that the importance of direct work with parents of gifted students in helping them understand the appropriate ways of helping their children in their career development cannot be overestimated. The findings of a National Education Association longitudinal study (1961) of students of I.Q.'s of 135 and above indicated that parental influence was more important in influencing college attendance and later occupational success than a high I.Q. Witty and Grotberg (1970) promoted counselor cooperation with parents both as a means of identifying the gifted and as a means for helping parents support their gifted children in actualizing their talents for society as well as for themselves.

The suggested strategies for career development chosen to meet the unique needs of gifted and talented youth follow from developmental counseling theory rather than a treatment model of counseling (Herr & Watanabe, 1979). McWilliams and Birth (1957) advocated breadth training for mentally advanced youth and that specific occupational choice should not be a major emphasis until after high school. Sanborn (1979) suggested that career counseling regarding long-range goal setting and exploratory vocational experience might be more necessary for gifted students than emphasis on specific occupational choices or skills. Terman and Oden (1954) strongly asserted that the best career training for gifted students is not that which encourages choice but that which helps them discover the broad general occupational fields

where their interests and abilities lie. Rothney and Koopman (1958) encourage counselors to help gifted students keep all roads open until they have examined many career possibilities. Rodenstein et al. (1977) stated that gifted students have a need for career information that will allow them to diversify their choice options and explore and experience numerous life styles and adult models. Frederickson and Rothney (1972) encourage counselors to be cognizant of the need for gifted and talented students to be emotionally ready for career development which means that though large amounts of occupational information might be presented, time for organization and integration must be allowed which is best provided by promoting activities that allow students to explore themselves and the world of work.

The Vocational Exploration Group

The Vocational Exploration Group is a structured group experience designed to help five or six persons simultaneously explore their job interests, satisfiers, and goals as well as learn more about themselves and the world of work as they participate in tasks and activities conducted by a trained leader (Daane, 1972).

A survey of research on the Vocational Exploration Group (VEG) (Daane, 1976) indicates that there is evidence that the VEG process helps participants to expand their understanding of the self-work relationship. While the VEG has been used in a variety of settings with participants from age 12 through

adult, it has been found to be particularly effective with middle and secondary school students who are just beginning to explore job opportunities and to clarify their interests and goals since the VEG encourages students to learn more about jobs, explore their expectations for jobs, and find out how their particular personality plays an important role in career choices (Wittmer, Myrick & Loesch, 1974).

The VEG has been studied as a method of increasing the career maturity of participants. Yates, Johnson and Johnson (1979) studied the effects of the use of the VEG on the career maturity of ninth-grade students enrolled in a rural school. The results as determined by scores on the Career Maturity Inventory (Crites, 1973) given as a pre- and posttest indicated that there was significant positive movement for the participants in the VEG process on the majority of the scales of the Inventory while the control group's scores remained constant.

The same researchers in a follow-up study on the effectiveness of the VEG as an aid in increasing career maturity found that the initial positive improvement was maintained for six months (Yates et al., 1981). Beach (1975) in a state-wide study of 406 high school students found that participants in the VEG showed significant gains as compared to a control group on scores of components of career maturity both immediately following the VEG experience and six weeks later. In a study to determine the effectiveness of the VEG in increasing knowledge of self and knowledge of work, components of career maturity, Bergland and Lundquist (1974) found that

of the 63 high school students used in the study, participants in the VEG were more able to differentiate among requisite job interests and skills, and more able to identify job satisfiers and functions than the control group. In a study of 89 community college students, Frost (1972) compared the scores on Crites' Vocational Maturity Inventory (now named Career Maturity Inventory) of participants in the VEG to scores of a control group. Results indicate that the VEG participants scored significantly higher on the Inventory than the control group.

Not all researchers reported gains on scores of career maturity as related to participation in the VEG. Crow (1973) studied the effects of the VEG experience on control expectancy, self-esteem, and vocational maturity of high school students by randomly assigning 300 eleventh and twelfth grade high school students to three groups: (1) VEG; (2) semi-structured vocational counseling experience; or (3) no treatment control. All subjects were given a pretest, a posttest immediately following treatment, and a four-month delayed posttest on several criterion instruments including the Crites Vocational Maturity Inventory Attitude Scale. The data analyses did not reveal any significant differences among groups on indicators of career maturity. Williard (1976), studying the effects of the VEG process on the career

maturity of 40 ninth-grade students, found no significant differences between their scores on the Crites Maturity Inventory Attitude Scale and the scores of 40 subjects in a control group. Sklare-Lancasta (1976), studying the effects of the Vocational Exploration Group process on the career maturity of high school sophomores, subjected 40 subjects to the VEG experience and compared their scores on the Crites Career Maturity Inventory-Attitude Scale to the scores of 40 subjects in a control group. Analyses of the data revealed no significant difference between scores of the two groups. Daane (1976) concluded that the VEG appears successful with measures of career awareness that involve both concepts of self and work but not as successful with measures calling for a focused attitude on work alone since job-self personalization appears to be the major benefit from the VEG experience.

Though the VEG is not designed to be a replacement for comprehensive career education and guidance programs but a part of such a program, at least one researcher has attempted to compare gains in self-knowledge and self-assessment related to careers of students subjected to two types of career exploration methods. Fifty-seven ninth-grade students were randomly assigned to either the VEG program or to an exploratory program involving visits to job sites, listening to speakers representing varied occupations, and reading and composing papers on selected careers. Analyses of the data indicated that VEG participants increased significantly more

than participants involved in the alternate method in self-knowledge and self-assessment related to careers (Daane, 1976).

In any group process, the differences in group leaders must be considered when evaluating results of the process. Powell (1973) studied 48 group leaders to determine the degree of influence which VEG leaders have upon the openness levels of group participants. The 240 VEG treatment subjects and 240 control subjects were randomly selected and randomly assigned to either treatment or control groups. Following treatment, the Rokeach Dogmatism Scale was administered to all subjects in the sample. The analyses of the data revealed that the VEG treatment subjects were significantly more open than the control subjects and that the leader personality was not a significant factor in developing the change. Powell (1973) asserts that the VEG program itself was responsible for the change and suggests that leadership style may not be a crucial factor in the VEG process.

A review of the research on the VEG indicates that little has been done to assess its differential effectiveness with subgroups of students of the same age such as gifted and talented, college bound, and vocational students. Neeley and Kosier (1975), however, used a sample of 470 students, enrolled in the eighth through twelfth grades and belonging to one of the following categories: physically impaired, mentally impaired, academically disadvantaged, learning disabled, emotionally impaired, and economically disadvantaged. Students

participating in the VEG were given a pre-, post- and two-week delayed post assessment of career information and understanding skills. Analyses of the data indicated that there were significant gains in acquiring career information and understanding due to the VEG experience.

CHAPTER III

METHODOLOGY

This chapter describes the research procedures used in the study. The selection of subjects, the instrument, the treatment, the research process, and the statistical procedures employed are topics discussed in the following section.

Subjects

One hundred fifty students enrolled in the ninth grade at Paisley High School, a school in the Winston-Salem/Forsyth County System composed of grades nine and ten, and at Summit School, a kindergarten through ninth grade private school in Winston-Salem, North Carolina, served as subjects for the study. The students consisted of the following groups: (1) gifted and talented; (2) college-bound; (3) vocational. Fifty students were assigned to each group. Twenty-five students in each group were randomly assigned to a control group and twenty-five were assigned to the treatment group. Criteria for the allocation to groups were established.

Students designated for the gifted and talented group were currently enrolled in the gifted and talented program in the Winston-Salem/Forsyth County School System or met the requirements for qualification for this program. The requirements for entry into the gifted and talented program in Winston-Salem/Forsyth County involve scoring at least 19 points

out of a possible 23 points earned in the following areas:

(a) intelligence (from 0 to 5 points given in relation to percentile scores earned on the Short Form Test of Academic Aptitude); (b) teacher recommendation (from 0 to 5 points given as a result of teacher ratings on the Renzulli-Hartman Scale for Rating Behavioral Characteristics of Superior Students (Appendix A)); (c) performance (from 0 to 5 points given in relation to grades earned in math, language arts, and social studies) (Appendix B); and (d) achievement (from 0 to 8 points given in relation to percentile scores earned on the reading and math sections of the Comprehensive Test of Basic Skills). The Student Identification Profile used to record the points earned in the four areas listed above is included as Appendix C.

Students designated for the college-bound group were students currently enrolled in academic courses designated as college preparatory who stated that their post-high-school plans included college and who were not in the gifted and talented program. To insure that the college-bound group did not include subjects who qualify for the gifted and talented program, only students who had fewer than 9 points on the Student Identification Profile when the scores for Intelligence Quotient and Achievement/Aptitude were combined were included in the college-bound group. Scores on these two areas were available from the Paisley students' files and were obtained for Summit students by administering and scoring the appropriate tests.

Students designated for the vocational group were students

in the vocational track who stated that they probably would not attend college after graduation from high school and who had fewer than 9 points on the Student Identification Profile when the scores for Intelligence Quotient and Achievement/Aptitude were combined.

Since students from two schools were used in the sample, descriptive data were collected to insure that the sample was relatively homogeneous in respect to the characteristics necessary for the study. Students at both Paisley and Summit designated for the college-bound group had scores on the Comprehensive Test of Basic Skills ranging from the sixth to ninth stanine and the I.Q. scores for these students ranged from 105 to 120. Students at both Paisley and Summit designated for the gifted and talented group had scores on the Comprehensive Test of Basic Skills ranging from the eighth to the ninth stanine and I.Q. scores ranging from 120 to 150. All of the students designated for the vocational group came from Paisley and this group had scores on the Comprehensive Test of Basic Skills ranging from the first to the fifth stanine and I.Q. scores ranging from 90 to 105.

Two hundred and thirteen ninth-grade students were initially selected for the study to assure that complete scores from 180 students divided into the appropriate groups would be obtained. The entire ninth grade at Summit School (48 students) participated in this study of whom 35 met the criteria for inclusion in the college-bound group and 13 met the criteria for gifted. The remaining students in

the sample were drawn from the 370 students enrolled in the ninth grade at Paisley High School.

Forty-five of the 48 students at Summit were included in the treatment group and 3 who were not present for the VEG process were not used in the study.

One of the counselors at Paisley randomly selected 45 students from a sampling frame composed of 70 students enrolled in academic English classes. The scores of these students on the aptitude and achievement tests mentioned previously were checked to ensure that no students earned a total of nine points which would indicate that they might possibly qualify for the gifted group. Five students were eliminated from the sampling frame due to this process. From the 40 remaining students, 35 were randomly selected to participate in the study. Since 35 college-bound Summit students had been assigned to the treatment group, the 35 college-bound students at Paisley were assigned to the control group.

The counselor at Paisley used sampling frames of students enrolled in gifted English classes and English classes for vocationally tracked students from which to select a random sample of gifted and vocational students. Sixty gifted students were randomly selected from which 35 were randomly assigned to the control group and 25 to the treatment group; 10 gifted students at Summit had also completed the VEG process. Since Summit had no students who met the criteria for the vocational group, the counselor randomly selected 70

Paisley students who met the criteria for the vocational group as outlined for this study and randomly assigned 35 to the treatment group and 35 to the control group.

The following table shows the initial allocation of the subjects used in this study:

Table 1: Allocation of Subjects from Paisley (P) and Summit (S), by Group (Gifted, College-Bound, Vocational) and Treatment (VEG, Control).

	VEG	Control
Gifted	P=22 S=13	P=35 S= 0
College-Bound	P= 0 S=35	P=35 S= 0
Vocational	P=35 S= 0	P=35 S= 0

The researcher discovered that though 35 vocational students had been selected for the treatment group, only 25 completed the process (pretest, VEG group, posttest), so in order to make the groups equal and avoid further delay, the scores of 25 students in each of the other groups--gifted (treatment and control); college-bound (treatment and control), vocational (control)--were randomly selected. Thus, scores on the Career Development Inventory of 150 students were sent for scoring by the Psychological Corporation of America in Palo Alto, California.

Though the possibility of confounding school and treatment variables exists since the treatment and control groups were not equal at Summit and Paisley, the researcher felt that the criteria used to designate groups eliminated the likelihood of such confounding. In addition, use of the same VEG leaders with treatment groups at both schools and the similarity of the schools in respect to curriculum (except for vocational subjects offered at Paisley and not at Summit), self-contained classrooms, and guidance programs reduces the probability of confounding school and treatment variables.

Instrument

The Career Development Inventory (CDI) was administered to all students in the study as a measure to determine difference in career maturity among the groups and as a measure of the effect of the treatment, the Vocational Exploration Group experience, which was provided for 75 of the 150 students.

The CDI/School Form consists of eight scales:

- CP - Career Planning: 20 items
- CE - Career Exploration: 20 items
- DM - Decision-Making: 20 items
- WW - World of Work Information: 20 items
- PO - Knowledge of preferred occupational group:
40 items
- CDA - Career Development Attitudes: CP and CE
combined
- CDK - Career development - knowledge and skills:
DM and WW combined
- COT - Career Orientation Total: CP, CE, DM, and
WW combined

The Career Planning Scale (CP) is comprised of 20 self-rating items which relate to the type and degree of planning in which students have engaged. The items also elicit responses from the students concerning their knowledge of the training, preparation, and kind of work actually done in the type of work they are considering for a career. These items are conative rather than cognitive since they assess attitudes and reported planfulness.

The Career Exploration Scale (CE) is also a 20-item self-report scale. The first 10 questions ask students the type of sources for career information they would use in planning their work or future education and the last 10 items ask students to evaluate the usefulness of information they have already received from sources of career information. This scale is attitudinal rather than cognitive since it measures the quality of exploratory attitudes.

The Decision-Making Scale (DM) is composed of 20 very brief narratives concerning students making career decisions. Students are asked to choose the best solution for solving the career problems presented in the narratives which provides a measurement of their ability to apply knowledge and insight to career planning and decision-making. The DM Scale, through item and scale analysis, has been shown to load heavily on the cognitive factor.

The World-of-Work Information Scale (WW) is composed of 20 items. The first 10 items assess the knowledge of

career developmental tasks of the exploratory and early establishment stages and the other 10 items test students' knowledge of the occupational structure of sample occupations and the techniques for acquiring and holding a job. Since this scale tests the career awareness and occupational knowledge that contribute to successful career planning, it is considered a cognitive scale.

The Knowledge of the Preferred Occupational Group (PO) is a 40-item scale relating to the students' knowledge of the job characteristics, psychological requirements, education, training, duties, and employment prospects of the group of occupations that currently interest them. Before answering the questions students select their preferred occupational group from a list of 20 groups adapted from the Career Planning Questionnaire of the Differential Aptitude Test (Psychological Corporation, 1972) which are listed on the back of the answer sheet for the Career Development Inventory.

The Career Development-Attitudes Scale (CDA) combines the Career Planning and Career Exploration Scales which are highly intercorrelated, thus increasing its reliability as a conative measure.

The Career Development-Knowledge and Skills Scale (CDK) combines the Decision-Making Scale with the World of Work Scale making a cognitive scale with increased reliability.

The Career Planning Total Scale (COT) combines the career planning, career exploration, decision-making, and world of work scales to provide a composite measure of four important aspects of career maturity.

The Career Development Inventory is untimed though it usually takes approximately one hour to complete and administration involves only clarification of the directions and ordinary proctoring. Reusable test booklets contain the items and responses are recorded on separate answer sheets which are designed for machine scoring. Standard scores with a mean of 100 and a standard deviation of 20 are reported. The norms for the School Form were based on scores from a group of 5,039 students in grades nine through twelve.

The scoring service provides a computer print-out including (a) the individual report which gives a student's standard scale scores and percentiles for each of the eight CDI scales, and (b) a group roster which alphabetically lists names of students with their scores, their occupational group preference, their grade, their sex and their school program (e.g., gifted and talented, college-bound, vocational). A group's means and standard deviations are reported and the print-out includes rosters for each group for answer sheets submitted in presorted groups.

The reliability of the Career Development Inventory in terms of the internal consistencies of the five scales (CP, CE, DM, WW, and PO) and the reliability estimates of the combined scales (CDA, CDK, and COT) indicate that the Inventory is a reliable measure of the general construct of career maturity. The measure of internal consistency for the combined scales ranges from .79 to .88 with a median of .86. The CP, CE, and WW scales have median reliabilities of .89, .78, and .84 respectively. The DM scale with a median reliability estimate of .67 and the PO scale with a median reliability estimate of .60 suggest that caution should be used for exercising judgments about individual students based on these scales, though the values are satisfactory for analyzing group differences. Data concerning the stability of scores on the Inventory over time indicate that the scores are highly stable over periods of up to six months.

The content validity of the CDI can be determined by whether or not qualified judges agree that the items relate to the variables of career maturity. The items in the CDI are based on data obtained from the Career Pattern Study conducted by Super and Overstreet in 1960. They defined career maturity as the "readiness to cope with the career development tasks that are appropriate to one's stage in life: to make the required career decisions as one progresses through school into the world of work, and through early and mature adulthood into later maturity and retirement" (Thompson and Lindeman, 1981,

p. 16). The Career Pattern Study resulted in a model containing five dimensions of career maturity: planfulness, exploration, decision-making, information and reality orientation. The CDI contains items which expert judges agree pertain to the first four dimensions represented in the model. The Inventory does not include a scale to measure reality orientation.

Construct validity, the extent to which an instrument measures a well-defined educational or psychological construct, can be assumed if the instrument exhibits characteristics predictable from the definition and implications of the construct. Since career maturity is a developmental construct, it should increase as students progress grade-wise. Data indicate that indeed grade means on all scales, separate and combined, show a pattern of differences consistent with the developmental focus of the construct of career maturity.

Career development theory predicts minimal sex differences. Data indicate that there are few differences within grade attributable to sex differences, although in grades 11 and 12 females tend to score higher than males on the cognitive scales. This is consistent with sex differences found in academic achievement; furthermore, the cognitive scales of the CDI are more highly correlated with academic measures than the conative scales. More work needs to be done in the area of sex differences to further define the construct.

In the norming group, students were identified as belonging to one of five programs: General, College Preparatory, Vocational/Technical, Business or Honors. Curricular

differences would be expected to produce some differences on the CDI Scales. Data substantiate that these differences occur in a direction which adds to the evidence of the construct validity of the instrument. Students in honor programs tended to score highest on the cognitive scales and students in college preparatory and business programs tended to score higher than students in general and vocational programs on these scales. The students in the vocational/technical programs tended to score higher on the conative scales than other students, perhaps due to the fact that their projected entry into the work force sooner than students in other programs would necessitate earlier planning and exploration.

Factor analyses of the five CDI scales by sex and grade produce consistent results ranging from .62 to .89 of loadings on the two desired factors of attitude and cognition which supports the construct validity of the CDI.

The CDI was designated to measure components of vocational development. There are those who would judge that the CDI is a valid instrument for measuring outcomes or changes due to career development programs or experiences particularly since the scales relate to the goals of most career educational curricula (Thompson & Lindeman, 1981).

Since the instrument is relatively new, resulting from research begun in 1951 by Super and his colleagues and revised most recently in 1981, it would be likely that studies using the Career Development Inventory would avoid replication of previous

studies, thus assuring that any results obtained from the studies would add new information to the literature.

Treatment

Twenty-five students in each group represented in the study (gifted and talented, college-bound, vocational) were assigned to a Vocational Exploration Group (VEG). The VEG program developed by Daane (1972) is a structured, small group career education experience designed to help persons explore the world of work in relation to their own needs, interests, and skills and to develop attitudes and competencies which will aid in making realistic career decisions. Trained leaders lead participants through eighteen tasks and activities which last for approximately two hours and stimulate students to (a) examine their attitudes relating to learning about jobs; (b) familiarize themselves with various job types, (c) familiarize themselves with demands and satisfiers of various jobs, (d) expand the number of jobs for which they can determine demands and satisfiers, and (e) make appropriate plans for seeking additional job-related information (Yates, Johnson & Johnson, 1979).

The 18 procedures with a brief explanation of each condensed from Vocational Exploration Group: Self-Instruction Leader Module (Myrick & Wittmer, 1979), follows:

Procedure 1: Explain Purpose of Group

The leader explains that the group is designed to acquaint participants with a number of jobs and to explore whether any of

the jobs have meaning for them. Participants are told that they will be involved in the group for about two hours and will be talking about jobs and developing new ways to think about them. The leader concludes this procedure by stating that at the end of the group, each participant will be asked, "What will you do now, and what help will you need?" The problem for each individual will become the problem of the group.

Procedure 2: Introduction by Members

The leader asks participants to spend a few moments talking to a person next to them concerning what they have done and what they think about in order to introduce them to the group. After about four minutes, the dyads introduce each other to the group.

Procedure 3: Million Dollar Story

The leader asks persons to continue introducing themselves to the group by telling what they would do with a million dollars if they had it to spend as they wished.

Procedure 4: Job Matrix

The leader introduces a chart which classifies work in terms of function (whether the job involves data, people, or things) and entry level (what training, education and experience usually is required for entry into the job). Participants think of jobs and place them in appropriate places on the chart. An example of the job matrix follows:

Job Matrix

<u>Entry</u>	<u>Function</u>		
	<u>Data</u>	<u>People</u>	<u>Things</u>
Train on job	file clerk	receptionist	electronics assembler
Special skill	bookkeeper	nurse's aid	barber
College	librarian	teacher	engineer

Procedure 5: Naming Most and Least Liked Jobs

The leader asks each participant to name the job they would like most and the job they would like least.

Procedure 6: Cool Seat

Each participant is asked to take a turn sitting in the cool seat which puts other members on the hot seat since they must tell their impressions of which job the person in the cool seat would be best suited for, and which job they would be least suited for. Persons in the cool seat are asked to make no response as the impressions are given.

Procedure 7: Response to Cool Seat

The leader invites participants to question each other concerning their impressions or to elaborate on previous comments.

Procedure 8: Job Inventory Part I

The leader hands out a form on which are spaces for the participants to list jobs that they are considering for themselves. The form includes a space in which participants classify their potential job by function (data, people, things) and

required entry level (training on job, special skill, college). The form is designed so that a carbon copy is made as participants write the original.

Procedure 9: Job Information Books

The leader hands out booklets containing information on hundreds of jobs. The information includes classification by function and required entry level (mentioned previously) and by interests/skills and job satisfiers (concepts to be introduced in following procedures). Participants are asked to scan the book, selecting jobs of particular interest and noting whether they agree with the classification of the job as stated in the booklet. There is a short break period (procedure 10) after this procedure.

Procedure 11: Job Satisfiers

The leader introduces the concept of job satisfaction--what people get out of work. A chart listing job satisfiers often named by people is shown and explained. These satisfiers are teamwork (working with others to do the job), craftwork (completing the work all by yourself), prestige (respect from others because you do the job), money, distant supervision (working fairly free from supervision), leadership (directing other people on the job), service (being of personal help to another), and close supervision (having a supervisor ready to help when needed). Participants are asked to state which satisfier is most important to them, least important to them, and which one falls in the middle in terms of importance.

Procedure 12: Interests/Skills

The leader introduces the concept that workers use varying interests and skills in different jobs. Each participant is asked to examine the following list of interests and skills which are displayed on a chart and then select one that is most important and one that is least important: working with numbers, using tools and/or machines, assisting or directing other workers, studying and remembering, relating and communicating with others, working with chemicals or elements, art, drawing, painting or design, finger-hand dexterity, keeping records accurately, and selling to others.

Procedure 13: Jobs and Training

The leader asks participants to name four jobs, one that they like and have the skill and training for now, one that they like but would need more training for, one that they don't like that they have enough skill or training for now and one that they don't like and would require more skill and training.

Procedure 14: Job Inventory Part II

The leader asks participants to complete the second section of the Job Inventory Form which involves listing jobs and classifying them by function, required entry level, job satisfiers, and interests and skills.

Procedure 15: Job Choice Summary

The leader reviews the four areas (job functions, job satisfiers, interests/skills and training) that have previously

been discussed and participants are asked to name a job which would meet their needs in all or almost all of the four areas.

Procedure 16: Expanded Choice

The leader asks the participants to name three more jobs they would consider.

Procedure 17: Next Step

The leader asks participants to look at the third section of the Job Inventory Form which has a space for writing down a job goal if appropriate or writing down a job they would like to think more about. Participants tell the group their job goal or tentative choice before writing them on the form. The leader now asks each participant what they could do in the next two weeks to further their goal or tentative decision. In addition they are asked to consider, write down, and share with the group how and when they will further their goal.

Procedure 18: Closing

The leader reviews the plans for the next step and has each group member restate their desired next step. Participants are asked to offer helpful suggestions to each other concerning plans for the next step. The leader takes up the carbon copy of the Job Inventory Form to keep on file for further conferences with the students. Participants are encouraged to continue their job exploration.

Group leaders are trained in leader behaviors that facilitate personalization of the VEG process. These behaviors include the following:

(1) Making a period. Since positive attention to a group member often encourages further conversation, it is sometimes helpful to simply acknowledge a member without expanding on what they have said (e.g., "Thank you for sharing that." "I see what you mean"). The effect is acceptance by recognizing people for what they have contributed but there is no encouragement for them to expand on their ideas. Making a period is particularly helpful when a person's comments are quite deep, or perhaps in advance of where the group seems to be going. It is sometimes helpful in working with a person who tends to talk a lot or tends to dominate the group. Making a period enables the group to move on but prevents the social void that occurs when there is no response to what a person has contributed to the group.

(2) Questioning. The question is a tool for gaining additional information from group members. A good question also serves as a guide to the nature of the information desired by the questioner. The most facilitative questions are those which are person-centered, open-ended, and nonthreatening to the group member. "What, where, when, or how" questions tend to be nonthreatening while "why" questions sometimes connote disapproval or disappointment and put members on the defensive. When used discriminantly, however, "why" questions can at times create excitement when the group is dragging.

(3) Doing a Repeat. Repeating the main idea of what a group member has said, especially if "fresh" words are substituted to

clarify and summarize the content, both permits the group member to correct an idea if it is inaccurate and communicates the idea that the leader is really listening without evaluating what the person is saying.

(4) Reflecting and Understanding of Feelings. This facilitative response communicates understanding of the emotion or feeling behind a statement and the use of even a few responses of this type enhances group interaction, acceptance, and involvement.

(5) Pairing. Pairing responses, statements which accentuate the relationship between information about one member and information about another member, enhances group cohesiveness and permits the leader to bring out similarities and differences while maintaining a positive atmosphere. Pairing responses are non-evaluative since the link between members is neither good nor bad but a statement acknowledging the existence of commonality or lack of it. Pairing shows that the leader is aware of the group and its members, as well as a particular person.

(6) Advising and Evaluating. This type of leader response communicates what a group member ought to do and in most cases is not recommended during the VEG process since it tends to impede exploration and often precipitates defensiveness. VEG leaders should minimize the number of advising statements and only use them if they conclude that the advice is relevant, logical, practical, and timely.

Process

After the selection and assignment of students to the appropriate groups using the criteria stated earlier, the Career Development Inventory was administered. During the last week in February, 1982, all 48 Summit ninth graders were given the Inventory and 45 subsequently participated in VEG groups led by three trained facilitators who led eight groups comprised of five or six students. During the first week in March, all 48 students were given the Career Development Inventory as a posttest.

During the third week in March, all of the Paisley students who had been selected for the study took the Inventory and those who were in the treatment group participated in the VEG process. The same trained leaders who conducted the VEG groups at Summit led the Paisley groups. To avoid leader bias toward any particular group (gifted, college-bound, or vocational), the students were mixed. At Summit, the groups were composed of gifted and college-bound students and at Paisley the groups were composed of gifted and vocational students. During the fourth week in March, all Paisley students who were participating in the study took the Career Development Inventory. At the posttesting of both Summit and Paisley students, participants completed the Student Information Sheet (Appendix D).

To verify that all students in the VEG groups received a relatively similar experience, the Director of Publications

at Summit whose duties often entail observing and reporting on group activities was asked to observe each of the three VEG leaders as they led their groups. Though at least one study has shown that leader personality is not a significant factor in the changes measured by VEG participants (Powell, 1973), the researcher felt that some observation regarding leader differences should be noted. The Director of Publications was given a VEG manual containing the procedures used in the VEG (Daane, 1972) which leaders are to read verbatim as they guide the groups and was directed to refer to it as she observed each leader for 15 minutes. After the observations, she completed an observation form (Appendix E).

Her observations indicated that the leaders followed the manual closely, and though she noted that there was a difference among style of leaders in respect to warmth of voice, casual body posture, and amount of eye contact, she noted no difference in ability to keep the groups moving. She concluded that though there were some observable differences among the leaders, the VEG group members seemed to experience a very similar process.

Research Design and Statistical Procedure

The major research questions for this study were:

1. What is the level of career maturity of gifted students?

2. Is there a main effect for groups (gifted, college-bound, vocational)? If so, which differences between means contributed to the results?
3. Is there a main effect for treatment?
4. Is there an interaction between group (gifted, college-bound, vocational) and treatment (Vocational Exploration Group, Control)?

These questions were addressed by a 3 x 2 factorial design using Analysis of Covariance (ANCOVA) (Kerlinger, 1973) as the major statistical procedure for analyzing the data. Edwards (1950) pointed out that this procedure allows for adjustments in the data for an experimental variable which may condition the outcome of the dependent variable. The design also permits the detection of smaller differences between the experimental conditions, thus increasing the efficiency of the experiment by isolating the source of variation that is due to the subject's initial ability on some measure. The analysis of covariance permitted both main effects and interaction effects to be noted, in addition to purging the post-test scores of any pretest influence. The covariate (pretest scores on the Career Development Inventory) was entered into the computer before the main effects which provides a more conservative analysis of the data (Kerlinger, 1973). Previous to this step, the assumption that no covariate x

factor interaction was tested. The scores on the three composite scales of the Career Development Inventory, the Career Development Attitude Scale, the Career Development Knowledge and Skills Scale, and the Career Orientation Total Scale were utilized as measures of three separate dependent variables.

When results indicated a significant difference among adjusted means involving more than two groups, the Tukey Method (Glass & Stanley, 1970) was utilized to isolate the comparison between means which contributed to the significance of the obtained results. In addition to contrasts involving the comparison of means scores of gifted students to other groups, additional contrasts such as the comparison of mean scores of college-bound students to mean scores of vocational students were noted. Research questions 2, 3, and 4 were addressed by the analysis of covariance.

The scores on the three composite scales on the Career Development Inventory were obtained by having the instruments machine-scored. To answer research question 1, the means of the gifted group on the three scales were compared to the means of the norming group using t tests to determine the significance of the difference.

In addition, data obtained from the Student Information Sheet (Appendix D) were reported. This data concerned the number of parents expressing their opinions regarding specific careers which their children should pursue.

CHAPTER IV

ANALYSIS OF THE DATA

This chapter describes the results of the data analyses for the research questions posed in this study.

Research Question I

WHAT IS THE LEVEL OF CAREER MATURITY OF GIFTED STUDENTS?

The mean scores of the gifted group on the career maturity scales (career development attitude, career development knowledge and skills, career orientation total) were compared to the mean scores of the norm group (see Table 2). Significant differences were found between the mean scores of the gifted and the norm group on all three scales.

Career development attitude. On the career development attitude scale, the mean for the gifted (M=105) was significantly greater than the mean for the norm group (M=95.4, $p=.05$).

Career development knowledge and skills. On the career development knowledge and skills scale, the mean for the gifted (M=119) was significantly greater than the mean for the norm group (M=94.9, $p=.01$).

Career orientation total. On the career orientation total scale the mean for the gifted (M=115) was significantly greater than the mean for the norm group (M=93.8, $p=.001$).

Table 2: Differences in Career Development Attitude Scores, Career Development Knowledge and Skills Scores, and Career Orientation Total Scores Comparing Gifted (N=50) and Norm (N=1,249) Groups

	Mean	Standard Deviation	df	t
<u>Career development attitude</u>				
Gifted	105.0	19.0	1,297	3.384*
Norm	95.4	19.7		
<u>Career development knowledge and skills</u>				
Gifted	119.0	7.0	1,297	8.759**
Norm	94.9	19.4		
<u>Career orientation total</u>				
Gifted	115.0	13.0	1,297	7.775***
Norm	93.8	19.1		

*Significant at .05 level
 **Significant at .01 level
 ***Significant at .001 level

Research Question 2

IS THERE A MAIN EFFECT FOR GROUPS (GIFTED, COLLEGE-BOUND, VOCATIONAL)? IF SO, WHICH DIFFERENCES BETWEEN MEANS CONTRIBUTED TO THE RESULTS?

An analysis of covariance was used to compare scores on the career maturity scales (career development attitude, career development knowledge and skills, career orientation total) of the three groups (gifted, college-bound, vocational) (see Tables, 3, 5, and 7 for ANCOVA results).

Career development attitude. Since the results of the ANCOVA (see Table 3) indicated that there was a difference in at least one of the comparisons ($p=.012$) the Tukey method was applied to isolate the comparison between means which contributed to the significance of the obtained results. (See Table 4 on results of Tukey method.) Any absolute difference between means that exceeded 6.115 was significant at the .05 level and a difference that exceeded 7.611 was significant at the .01 level. Results indicated that career development attitude scores of the gifted students were significantly greater ($p=.05$) than scores of vocational students. Career development attitude scores between gifted and college-bound students or between college-bound and vocational students did not differ significantly.

Career development knowledge and skills. Since the results of the ANCOVA (see Table 5) indicated that there was a

Table 3: Differences in Career Development Attitude Scores among Gifted, College-Bound, and Vocational Students

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Career Development Attitude pretest	25788.211	1	25788.211	151.134	.000
Group (gifted, college-bound, vocational)	1548.805	2	774.402	4.538	.012
Treatment (control, VEG)	97.878	1	97.878	.574	.450
Group x Treatment	740.931	2	370.466	2.171	.118
Residual	24400.307	143	170.632		
Total	52576.188	149	352.860		

Table 4: Differences in Mean Scores on Career Development Attitude Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC)

Contrast	Mean Difference
$\bar{X}_{GT} - \bar{X}_{VOC}$	107.77 - 100.18 = 7.59*
$\bar{X}_{GT} - \bar{X}_{COL}$	107.77 - 105.82 = 1.95
$\bar{X}_{COL} - \bar{X}_{VOC}$	105.82 - 100.18 = 5.64

*Significant at the .05 level

Table 5: Differences in Career Development Knowledge and Skills Scores among Gifted, College-Bound, and Vocational Students

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Career development knowledge and skills pretest	51483.457	1	51483.457	439.663	.000
Group (gifted, college-bound, vocational)	2605.433	2	1302.717	11.125	.000
Treatment (control, VEG)	837.063	1	837.063	7.148	.008
Group x treatment	96.181	2	48.091	.411	.664
Residual	16744.949	143	117.098		
Total	71939.492	149	482.815		

difference in at least one of the comparisons ($p=.000$), the Tukey method was applied to isolate the comparison between means which contributed to the significance of the obtained results. (See Table 6 for results of Tukey method).

Any absolute difference between means that exceeded 5.066 was significant at the .05 level; any difference that exceeded 6.306 was significant at the .01 level and any difference that exceeded 6.765 was significant at the .001 level. Results indicated that career development knowledge and skills scores of the gifted students were significantly higher ($p=.001$) than scores of vocational students. In addition, the scores of the college-bound students were significantly higher ($p=.001$) than scores of vocational students. Career development knowledge and skills scores between the gifted and college-bound students did not differ significantly.

Career orientation total. Since the results of the ANCOVA (See Table 7) indicated that there was a difference in at least one of the comparisons ($p=.000$), the Tukey method was applied to isolate the comparison between means which contributed to the significance of the obtained results. (See Table 8 for results of the Tukey method). Any absolute difference between means that exceeded 5.147 was significant at the .05 level; any difference that exceeded 6.406 was significant at the .01 level, and any difference that exceeded 6.872 was significant at the .001 level. Results indicated that the career orientation total scores of the

Table 6: Differences in Mean Scores on Career Development Knowledge and Skills Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC)

Contrast	Mean Difference
$\bar{X}_{GT} - \bar{X}_{VOC}$	110.72 - 97.71 = 14.29*
$\bar{X}_{GT} - \bar{X}_{COL}$	110.72 - 107.10 = 3.62
$\bar{X}_{COL} - \bar{X}_{VOC}$	107.10 - 95.71 = 11.39*

*Significant at the .001 level

Table 7: Differences in Career Orientation Total Scores among Gifted, College-Bound, and Vocational Students

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Career orientation total pretest	40629.621	1	40629.621	336.205	.000
Group (gifted, college-bound, vocational)	3207.891	2	1603.946	13.272	.000
Treatment (control, VEG)	614.776	1	614.776	5.087	.026
Group x Treatment	519.879	2	259.939	2.151	.120
Residual	17281.238	143	120.848		
Total	62326.832	149	418.301		

Table 8: Differences in Mean Scores on Career Orientation Total Scale among Gifted (GT), College-Bound (COL), and Vocational (VOC)

Contrast	Mean Difference
$\bar{X}_{GT} - \bar{X}_{VOC}$	110.89 - 97.33 = 13.56*
$\bar{X}_{GT} - \bar{X}_{COL}$	110.89 - 107.47 = 3.42
$\bar{X}_{COL} - \bar{X}_{VOC}$	107.47 - 97.33 = 10.14*

*Significant at the .001 level

gifted students were significantly higher ($p=.001$) than scores of vocational students. In addition, the scores of the college-bound students were significantly higher ($p=.001$) than scores of vocational students. Career orientation total scores between the gifted and college-bound groups did not differ significantly.

Research Question 3

IS THERE A MAIN EFFECT FOR TREATMENT?

An analysis of covariance was used to compare scores on the career maturity scales (career development attitude, career development knowledge and skills, career orientation total), of the two treatment groups (VEG and Control). See Tables 3, 5, and 7 for ANCOVA results. The means and standard deviations of the gifted VEG group and gifted Control group are reported in Table 9.

Career development attitude. The results of the ANCOVA (see Table 3) indicated that there was no significant difference ($p=.450$) between the VEG group and the Control group in their career development attitude scores.

Career development knowledge and skills. The results of the ANCOVA (see Table 5) indicated that there was a significant difference ($p=.008$) between the VEG group and the Control group on their career development knowledge and skills scores.

Table 9: Differences in Career Development Attitude Scores, Career Development Knowledge and Skills Scores, and Career Orientation Total Scores Comparing Gifted VEG Group (N=25) and Gifted Control Group (N=25)

	Mean	Standard Deviation
<u>Career development attitude</u>		
VEG	105.0	19.0
Control	114.0	15.0
<u>Career development knowledge and skills</u>		
VEG	123.0	6.0
Control	118.0	9.0
<u>Career orientation total</u>		
VEG	120.0	12.1
Control	118.0	13.9

Career orientation total. The results of the ANCOVA (see Table 7) indicated that there was a significant difference ($p=.026$) between the VEG group and the Control group on their career orientation total scores.

Research Question 4

IS THERE AN INTERACTION BETWEEN GROUP (GIFTED, COLLEGE-BOUND, VOCATIONAL) AND TREATMENT (VOCATIONAL EXPLORATION GROUP, CONTROL)?

An analysis of covariance was used to compare the interaction effects of group (gifted, college-bound, vocational) x treatment (Vocational Exploration Group, Control) on the scores of the career maturity scales (career development attitude, career development knowledge and skills, career orientation total). Table 10 shows the adjusted means for all treatment x group combinations.

Career development attitude. The results of the ANCOVA (see Table 3) indicated that there was no interaction ($p=.118$) between group and treatment which affected career development attitude scores; thus, any differences in career development attitude scores are due to group or treatment differences in and of themselves, and not to any particular combination of the independent variables.

Table 10: Adjusted Means on the Career Development Attitude Scale, Career Knowledge and Skills Scale, and Career Orientation Scale for Treatment (Control, Vocational Exploration Group) X Group (Gifted, College-Bound, Vocational) Combinations

Group	Treatment	
	Control Group	Vocational Exploration Group
<u>Scale: Career development attitude</u>		
Gifted	106.96	108.58
College-bound	104.71	106.63
Vocational	99.37	100.99
<u>Scale: Career knowledge and skills</u>		
Gifted	108.35	113.09
College-bound	104.73	109.47
Vocational	93.34	98.08
<u>Scale: Career orientation total</u>		
Gifted	108.86	112.92
College-bound	105.44	109.50
Vocational	95.30	99.36

Career development knowledge and skills. The results of the ANCOVA (see Table 5) indicated that there was no interaction ($p=.664$) between group and treatment which affected career development knowledge and skills scores; thus, any differences in career development knowledge and skills scores are due to group or treatment differences in and of themselves and not to any particular combination of the independent variables.

Career orientation total. The results of the ANCOVA (see Table 7) indicated that there was no interaction ($p=.120$) between group and treatment that affected career orientation total scores; thus, any differences in career orientation total scores are due to group or treatment differences in and of themselves and not to any particular combination of the independent variables.

Additional Analysis

Data obtained from the Student Information Sheet (Appendix D) provided information regarding one aspect of parental involvement in career choice. Students were asked to state whether or not their parent had ever expressed a desired career choice for their children, and if so, they listed the careers their parents had mentioned. See Table 11 for percentage of students by group (gifted, college-bound, vocational) and sex (boys, girls) whose parents expressed a career choice for them.

Table 11: Students by Group (Gifted, College-Bound, Vocational) and Sex (Boys, Girls) Whose Parents Suggested Career Choice (in Percent)

Group	<u>SEX</u>	
	Boys	Girls
Gifted	23.1	35.0
College-bound	10.5	25.0
Vocational	38.1	41.3

Parents of the vocational students in the study were reportedly more direct (40% overall) in stating their career choice for their children than parents of gifted or college-bound students. Parents of girls in this group (see Table 11) were particularly vocal in their expression of career choice. Some of the careers which parents suggested for the girls in the vocational group were computer programmer, Army, nurse, secretary, cosmetologist, health occupation, coach, police person, model, and seamstress. Parents of boys in the vocational group suggested careers for their children such as chef, investment counselor, Army, T.V. repairman, computer programmer, aerospace engineer, Marine Corps, mechanic, and cabinetmaker.

Parents of gifted students expressed their career desires for their students at a percentage rate less than parents of vocational students but more than parents of the college-bound group (25.5% overall). Parents of gifted girls expressed their preference at a much higher rate than parents of boys in the group (see Table 11). Some of the suggestions of the parents for their gifted girls were artist, doctor, veterinarian, medical researcher, lawyer, journalist, scientist, and computer scientist. Suggestions from parents of gifted boys included computer programmer, scientist, artist, journalist, doctor, dentist, engineer, computer scientist and lawyer.

Parents of college-bound students were reportedly the most reticent (18.6% overall) regarding expression of career choice for their children. Parents of girls in this group made suggestions such as lawyer, doctor, and "anything that makes money." Parents of boys suggested medicine, law, violinist.

Particularly noteworthy is the percentage rate at which parents of girls expressed their career choice for their children. It is interesting to note that no parent in any of the groups was reported as specifying that their female child choose teaching, a traditionally female occupation, as a career and many of the reported suggestions were for traditionally nonfemale occupations.

CHAPTER V

DISCUSSION AND CONCLUSIONS

This chapter presents a discussion of the results of this study of the career maturity of gifted students. Conclusions are drawn based on the analysis of the data and implications for future research are explored.

The major findings of the study are summarized as follows:

1. Gifted students scored significantly higher than the norming group on the three composite scales of career maturity: the Career Development Attitude Scale, the Career Development Knowledge and Skills Scale, and the Career Orientation Total Scale.
2. There was a main effect due to group (gifted, college-bound, and vocational) on the three composite scales of career maturity.
 - a. Gifted students scored significantly higher than vocational students on attitudinal aspects of career maturity.
 - b. Gifted students scored significantly higher than vocational students but not significantly higher than college-bound students on the knowledge and skills aspect of career maturity.

- c. Gifted students scored significantly higher than vocational students but not significantly higher than college-bound students on the Career Orientation Total Scale.
3. There was a main effect due to treatment (Vocational Exploration Group, Control) on the Career Development Knowledge and Skills Scale and on the Career Orientation Total Scale but not on the Career Development Attitude Scale.
4. There was no significant interaction between group (gifted, college-bound, vocational) and treatment (Vocational Exploration Group, Control) which affected the outcome of the scores on any of the scales used in this study.

Career Maturity of Gifted Students

Thompson and Lindeman (1981) indicate that differences in means among students in different academic programs should be expected and support the construct validity of the Career Development Inventory; thus, it is not surprising that the mean scores of gifted students in this study were significantly higher on the three composite scales of career maturity than the mean scores of the norming group. The cognitive scale, the Career Development Knowledge and Skills Scale

(CDK), reflected the greatest difference which follows from the correlation ($r=.63$) between intelligence and career maturity, especially its cognitive dimensions, noted by Super and Overstreet (1960). Thus, the observations reported by Sanborn (1979) that the scores of gifted students exceed those of their peers in almost all tests of aptitude and achievement commonly used, appear to be valid for scores on the Career Development Inventory of the sample used in this study (see Table 2).

When the difference in career development attitude scores among gifted, college-bound and vocational subjects in this study were analyzed (see Table 3), the conclusion that there were significant differences between the scores of the gifted and the vocational students but not between any other groups was noted. Thompson and Lindeman (1981) report that in grades 10, 11 and 12, vocational students tend to score higher on attitudinal scales than college preparatory or honors students, perhaps because their entrance into the work force tends to be sooner and thus would require more exploring and planning than other students. They do not include scores of honor students in their reports of scale scores by program in the ninth grade, however. The fact that attitudinal scores of gifted students in the present study were higher than vocational students might be explained by the

fact that even vocational students are a few years off from entering the work force in the ninth grade and furthermore, their curricular choices up until that point have not precluded keeping other program opportunities as viable options. As the student progresses through the grades, more definite curriculum choices affecting post high school plans must be made. Perhaps, then, the advanced planning and exploring required for vocational students (Thompson & Lindeman, 1981) does not become a critical factor until the later years of high school.

Since there was no difference between career development attitude scores between gifted and college-bound students or college-bound and vocational students, the groups appear more alike in respect to career development attitude than they perhaps will be in later years; thus, programs whose objectives relate to strengthening the attitudinal aspects of career maturity would appear to be appropriate for students in all of the groups investigated in this study. Kerr (1981) suggested that though gifted students are at least as emotionally mature as their age-mates, they still experience career decision-making as a problem since the decision requires adult attitudes and competencies. Programs then which provide experiences to foster interest in planning ahead and sharpen students' awareness of long-range vocational consequences which relate to present academic decisions would be particularly beneficial for gifted students as well

as students in other curricula. Kerr (1981) concluded that career education for the gifted should be flexible, open, and innovative and must provide for independent inquiry. The inquiry method appears to be particularly appropriate for fostering planfulness and exploration, the two components of the attitudinal scale on the Career Development Inventory.

On the Career Development Knowledge and Skills Scale, the scores of the gifted and college-bound students were higher than the scores of the vocational students (See Table 5). Thus, gifted and college-bound students showed greater strength than vocational students in knowledge and skills related to career planning, occupations, and techniques for getting and holding a job. Career education programs whose objectives relate to increasing the knowledge and skills of students in varying curricular groups should respond to differences as noted in this sample. Vocational students, for example, might need guidance in assessing their strengths and weaknesses related to a specific career--basic career planning skills. Gifted and college-bound students, however, might benefit more from a program which sharpened their awareness of the long-range occupational consequences of current academic decisions. For example, they could be presented with the kinds of professions that might be closed to persons not having appropriate high school and college mathematics (Kerr, 1981).

In attempting to offer a possible explanation for no significant differences between scores of gifted and college-bound on the Career Development Knowledge and

Skills Scale, this researcher scrutinized the questions composing the cognitive scales of the Inventory. The nature of the questions and the limited choice of answers might not provide an adequate basis for discriminating differences in knowledge and skills beyond some critical point. The format for the questions on the decision-making scale, which is one of two scales combined to form the Career Development Knowledge and Skills Scale, involves the presentation of 20 brief sketches of people making career decisions with four alternative solutions from which the student selects the best answer. The alternatives are such that one answer appears to be obviously better than the others in many instances; thus, students with relatively high verbal ability, whether in the college-bound or gifted program, would tend to select this answer. For example, one item presents a situation where a person has just been told that a company is looking for workers in a particular occupation that will pay well. The respondent is asked to decide which of the following would be the most important thing for a person interested in the job to find out: (1) where the work takes place; (2) how much training is required; (3) what the work actually entails; or (4) what the pay is.

In addition, questions on the World of Work Information Scale, the other of the two scales which is combined to form the Career Development Knowledge and Skills Scale, have alternatives that would appear to discriminate between students

of high and low verbal ability and decision-making skills, but do not appear discriminating enough to differentiate between students with powerful critical thinking skills and those with sound verbal ability. For example, one item asks respondents to choose whether persons in a professional occupation such as medicine usually get their training in (1) high schools, (2) community colleges or technical schools, (3) four-year colleges or universities; or (4) graduate or professional schools.

Since the career orientation total score (see Table 7) is a composite of all the conative and cognitive scales of the Inventory, it is not surprising that the differences noted in scores follows the pattern observed on other scales, i.e., scores between gifted and vocational students and between college-bound and vocational students show a significant difference while scores between gifted and college-bound do not reflect a significant difference. The pattern seems to indicate that somewhat similar career development programs for gifted and college-bound students could be utilized, while programs for vocational students should emphasize different content or decision-making processes. Caution should be used, however, since the ceiling on the Career Development Inventory might be too low to differentiate adequately between students with good verbal ability and those with powerful critical thinking skills. If this is true, additional measures of career maturity which would be sensitive to differences among students with high ability should be utilized

to help design career development programs that would best address the needs of gifted students.

Gifted Students and the Vocational Exploration Group

The Vocational Exploration Group (VEG), the treatment used in this study, proved to have a significant effect on the career development knowledge and skills and career orientation scores (see Tables 5 and 7) though not on the career development attitude scores (see Table 3). The VEG emphasizes knowledge of self and knowledge of work in an attempt to foster job self-personalization. Since gifted students often are as illiterate about their personal characteristics and abilities as their age-mates (Herr & Watanabe, 1979), the personal component of the VEG is probably particularly effective. Comments from gifted students in the study seem to point toward this conclusion:

It was interesting to see how other people in the group viewed me. I was amazed that several people saw me as a newspaper editor, and I have never thought seriously about that before (ninth-grade boy).

I liked trying to match people to jobs that I thought would fit them. We certainly came up with more possibilities than I ever thought possible (ninth-grade girl).

It was neat to have everybody concentrating on me. I felt important even though I still can't figure out why somebody saw me as a banker (ninth-grade girl).

Vun Tassel-Baska (1981), formulating a K-12 career education model for the gifted, suggested that in grades 9 through 12 it is appropriate to provide small-group counseling on the integration of skills for life planning. The VEG, with

its emphasis on teaching a method of categorizing careers into occupations that deal primarily with data, people or things and with its focus on helping participants examine their job interests, satisfiers, and goals, is a structure which facilitates life-planning skills. Gifted students who participated in the study said:

I had never really thought much about a job satisfier, other than money. I thought it was interesting that other kids in the group seemed more turned on by thinking of a job where they could be their own boss than one which would bring in the big bucks (ninth-grade boy).

I found out that jobs that interest me don't match what I supposedly can do the best. Now what? (ninth-grade boy).

One kid in the group is going to set me up to visit her father at work (he's a pediatric surgeon) cause that's what I want to be (ninth-grade girl).

Though the VEG is certainly not a replacement for a career education program, it does appear to be effective in terms of providing gifted students with a short-term career education focus. Miller (1981) suggested that because the gifted can learn rapidly, sensing relationships and incongruities easily, they need career education that is not too simplistic or dull. Since the VEG provides structure and content on which the participants build but is embellished by what the participants offer, it allows gifted students to avoid material that they might consider stodgy or repetitive. If gifted students were homogeneously grouped in Vocational Exploration Groups, the pace and depth at which they might cover the material could be particularly significant.

Differential Effects of Participation in the Vocational Exploration Group

Tables 3, 5 and 7 indicate that there is no interaction between group and treatment that would affect scores on the Career Development Attitude Scale, the Career Development Knowledge and Skills Scale or the Career Orientation Total Scale. Thus, the main effect variables (group and treatment) are significant in and of themselves and across conditions in terms of their effect on the subjects' career maturity scores. Any significant change in the subjects' career maturity scores is due to either the group or the treatment and not to any particular combination of these main effect variables.

Parental Involvement in Career Decisions

Parents of vocational students expressed their career choice for their children at a higher percentage rate (see Table 11) than parents of gifted or college-bound students. Perhaps the current high unemployment rate prompts these parents to voice their choices more directly than they would if the labor market were more lucrative.

The percentage rate at which parents of girls in each group (gifted, college-bound, vocational) expressed their career choice was higher than the parents of boys in the respective groups (See Table 11). The expectation that girls will work rather than automatically opt not to pursue a career outside the home seems inherent in the parents' expression of choice.

Parents of gifted girls may be providing significant support by expressing their desires for a career for their children. Kerr (1981) reports that low societal expectations for gifted girls represent a vast waste of resources. Fox, Brodin and Tobin (1979) found that by seventh grade 98 percent of gifted boys expected to have a full-time career compared to only 46 percent of gifted girls who had that expectation. It appears that many gifted women do not choose to struggle against the pressures of sex role socialization to attain a full-time career, though Sears and Barbee (1977), in a follow-up study of Terman's gifted women who were in their early sixties, found that full-time homemakers were less satisfied and joyful than gifted women who had had careers. Kranz (1975), moreover, found that successful achievement among gifted women seemed to be the result of three factors: divergent thinking; a sense of personal autonomy; and support of parents, spouses, and friends. Parents of gifted girls who stated expectations concerning careers as expressed in this study may be providing such support.

Summary

Like other studies which report the superiority of gifted students in areas covered by aptitude tests in common use, (Barbe and Renzulli, 1975; Frederickson, 1972; Sanborn, 1979), this study confirms that gifted students excelled the norm group on all the scales used to measure career maturity. In addition, the gifted students scored significantly

higher than vocational students on all of the scales, including the attitudinal scale on which Thompson and Lindeman (1981) stated that vocational students often score higher due to the increased possibility of their entering the work force sooner than other students.

Though the means for gifted students were higher than for college-bound students on all scales of the Career Development Inventory, none of the differences between means of the gifted and college-bound were significant, indicating either a great similarity between the two groups or an inability of the instrument itself to discriminate between the two groups.

The Vocational Exploration Group (VEG) proved to be effective in improving scores of participants on the Career Development Knowledge and Skills Scale and on the Career Orientation Total Scale. Other authors who report gains on scores of career maturity are Beach (1975), Bergland and Lunquist (1974), Daane (1976), Yates, Johnson and Johnson (1979). This researcher, like Crow (1973) and Skalare-Lancasta (1976), found no gain on the attitudinal scale of the Career Development Inventory related to participation in the Vocational Exploration Group. This supports Danne's (1976) claim that the VEG appears successful with measures of career awareness involving self and work but not so successful with measures focusing on attitudes toward work alone.

Though the purpose of this study was not to design a career development program for the gifted, it should be noted

that the VEG meets the criteria for appropriate career training for the gifted as stated by Rodenstein and Colangelo (1977) and Terman and Oden (1954) which involved training that encourages exploration of broad general occupational fields, interests, and abilities rather than specific career choice.

Implications for Future Research

A number of suggestions for future research emerge from consideration of the results of this study:

1. The fact that no significant differences between the gifted and college-bound were observed on any of the aspects of career maturity investigated in this study indicates that other career maturity assessment instruments should be used in a similar research design and results compared to see if the similarity of gifted and college-bound were due to an inability of the Career Development Inventory to discriminate between these groups.
2. In order to avoid leader bias toward any of the groups (gifted, college-bound, vocational), subjects were mixed in Vocational Exploration Groups. For example, two gifted students and two vocational students were assigned to a group. The relative effectiveness of placing only gifted or college-bound or vocational students in a VEG group should be investigated. A similar research design

adding the variable, type of group (mixed, homogeneous), might be used.

3. Since gifted adolescent girls may encounter peer opposition against high career aspirations, especially from males (Entwistle & Greenberger, 1972), the relative effectiveness of placing only gifted girls in a VEG group should be investigated.
4. The fact that attitudinal aspects of career maturity appeared to be less sensitive to change due to the Vocational Exploration Group than cognitive aspects suggests that research needs to be conducted to identify what type of career development education affects attitude toward career development.

The career development of gifted youth is an important challenge to education. Though assessing the level of career maturity is just one step in implementing programs that foster career awareness, exploration, and development, it is an important step. Gifted youth should have the opportunity to participate in programs that address their particular career development needs. It is hoped that the results of this study might be useful in implementing such programs.

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These consist of pages:

The Renzulli-Hartman Scale for Rating Behavioral

Characteristics of Superior Students

Pages 113-116

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APPENDIX B
 CLASSROOM PERFORMANCE EVALUATION FOR G/T
 CANDIDATES (GRADES 7-9)

 Student Name

Indicate the letter grade this student is averaging in the following subjects at this point in the school year. (Consider this year's grades only.)

Convert each grade to its numerical equivalent:
 A = 5; B = 4; C = 3; D = 2.

	Grade	Numerical Equivalent
Math	_____	_____
Language Arts or English	_____	_____
Social Studies	_____	_____
Total		_____ ÷ 3 = _____

STUDENT IDENTIFICATION PROFILE

GIFTED/TALENTED PROGRAM

118

NAME: _____ D.O.B: _____ GRADE: _____ RACE: _____
 PARENT: _____ SCHOOL: _____
 ADDRESS: _____ ADDRESS: _____
 _____ Phone: _____
 _____ zip _____ zip

I. Intelligence Quotient

Test Name	<u>SFTAA</u>	_____	_____	_____	
Date Given	_____	_____	_____	_____	
IQ Score	_____	_____	_____	_____	Points
Percentile	_____	_____	_____	_____	<input type="text"/>

II. Performance

Number of Points Earned Shown on "Performance Evaluation for G/T Candidates" (Round off to nearest whole number) Points

III. Teacher Recommendation - Circle the figures covering the range of the scores in each of the following four areas on the Renzulli-Hartman.

	POINTS					
	(5)	(4)	(3)	(2)	(1)	
Learning Scale Score	32	31-28	27-24	23-20	19-16	
Motivational Scale Score	36	35-32	31-28	27-24	23-18	
Creativity Scale Score	40	39-36	35-32	31-28	27-20	Points
Leadership Scale Score	40	39-36	35-32	31-28	27-20	<input type="text"/>

Point Totals _____

Total Renzulli-Hartman _____

IV. Achievement/Aptitude

Test Name	<u>CTBS</u>	_____	_____	
Date Given	_____	_____	_____	
Reading Raw Score	_____	Percentile	_____	Points
Math Raw Score	_____	Percentile	_____	Average Percentile _____

TOTAL
POINTS

SBC recommends this student for G/T placement. (You may enclose additional evidence to support your recommendation of this student as a G/T candidate.)

SBC does not recommend this student for G/T placement.

SBC SIGNATURES

NAME

POSITION

APC Signatures

APC certifies this student as G/T

APC does not certify this student as G/T

DATE: _____

EXPLANATION OF POINT SYSTEM

I. Intelligence

- 96% and up = 5 points
- 93% - 95% = 4 points
- 89% - 92% = 3 points
- 85% - 88% = 2 points
- 77% - 84% = 1 point

II. Performance

Conversion scale is shown on Evaluation Form

III. Recommendation

- Renzulli Points
- 17 - 20 = 5 points
 - 13 - 16 = 4 points
 - 8 - 12 = 3 points
 - 5 - 7 = 2 points
 - 1 - 4 = 1 point

IV. Achievement/Aptitude

- 96% and up = 8 points
- 93% - 95% = 7 points
- 89% - 92% = 6 points
- 85% - 88% = 5 points
- 77% - 84% = 4 points

APPENDIX D

Student Information Sheet
(Please Print)

1. Name: _____
2. Address: _____
3. Sex: Circle one--Male Female
4. Age: _____
5. Father's Occupation: _____
6. Mother's Occupation: _____
7. Number of older brothers and sisters: _____
8. Number of younger brothers and sisters: _____
9. Have either of your parents said that they want you to choose any particular career? Circle one: Yes No.
If you circled yes, what career(s) have they suggested that you choose? _____

APPENDIX E

VEG Observer Form

Please answer briefly.

1. Were the procedures listed in the VEG manual followed closely by each leader. If not, what variations did you note.

2. What difference in leader style did you note (e.g., amount of eye contact, warmth of voice, ability to keep group moving, relaxed body posture, etc.)

3. What is your conclusion concerning the similarity of the VEG groups?

APPENDIX F

Standard Scores on Career Development Inventory:
 Career Development Attitudes (CDA), Career
 Development Knowledge and Skills (CDK),
 Career Orientation Total (COT)

Gifted-Pretest

Student	CDA	CDK	COT
1	97	116	108
2	74	104	86
3	102	124	117
4	99	124	115
5	124	119	127
6	119	105	114
7	90	124	109
8	92	119	107
9	116	124	125
10	105	113	111
11	148	131	149
12	107	121	118
13	108	113	113
14	118	124	126
15	78	116	96
16	115	114	118
17	110	120	118
18	98	113	106
19	85	107	95
20	135	124	137
21	113	124	123
22	105	122	117
23	125	117	126
24	65	137	102
25	88	117	103
26	107	124	119
27	100	113	110
28	78	122	100
29	112	113	116
30	101	129	119
31	120	115	122
32	112	118	119
33	120	119	124
34	123	111	121
35	123	121	127
36	113	104	110
37	109	111	113
38	78	114	95
39	119	127	129
40	63	127	95

Gifted-Pretest

Student	CDA	CDK	COT
41	84	118	102
42	119	129	130
43	59	122	89
44	115	124	124
45	122	123	128
46	137	126	139
47	108	113	113
48	113	131	127
49	90	118	105
50	104	122	117

College-Bound Pretest

Student	CDA	CDK	COT
1	79	105	90
2	115	98	107
3	110	122	120
4	104	117	113
5	76	110	91
6	111	116	117
7	103	127	119
8	95	87	88
9	85	127	108
10	101	119	112
11	91	120	107
12	124	79	101
13	92	98	93
14	100	118	111
15	82	106	93
16	109	119	117
17	106	123	119
18	80	110	94
19	94	104	98
20	116	104	112
21	109	117	116
22	130	116	128
23	116	104	112
24	109	117	116
25	130	116	128
26	116	129	128
27	72	111	90
28	89	110	99
29	64	92	72
30	72	117	94
31	117	109	116
32	80	113	96
33	96	66	75

College-Bound Pretest

Student	CDA	CDK	COT
34	98	128	116
35	86	121	105
36	99	103	101
37	133	115	129
38	99	120	112
39	94	131	116
40	100	89	92
41	133	114	129
42	91	108	99
43	116	125	126
44	87	128	110
45	89	99	92
46	117	97	108
47	116	120	122
48	101	117	112
49	105	115	112
50	123	85	103

Vocational Pretest

Student	CDA	CDK	COT
1	91	83	82
2	112	62	82
3	91	78	79
4	78	65	63
5	78	75	69
6	116	113	118
7	114	82	96
8	105	70	83
9	88	86	83
10	91	69	74
11	82	91	83
12	122	71	94
13	122	75	97
14	110	71	87
15	83	66	67
16	93	78	81
17	100	121	113
18	93	102	96
19	105	101	103
20	105	109	108
21	133	79	106
22	111	105	110
23	75	71	65
24	108	116	115
25	66	51	47

Vocational Pretest

Student	CDA	CDK	COT
26	79	73	69
27	68	66	58
28	109	73	87
29	104	64	78
30	101	71	81
31	99	92	94
32	110	61	80
33	97	74	81
34	74	98	82
35	130	81	105
36	102	78	86
37	127	64	92
38	119	95	108
39	104	87	94
40	109	97	103
41	105	72	84
42	119	101	112
43	90	104	96
44	118	61	85
45	137	98	120
46	90	104	96
47	98	78	84
48	113	95	104
49	118	90	104
50	84	108	94

Gifted Posttest
VEG

Student	CDA	CDK	COT
1	99	121	112
5	141	118	137
7	81	123	103
8	105	124	118
9	91	129	112
10	114	123	123
12	85	121	104
15	106	121	117
16	117	114	119
17	114	127	126
21	107	125	120
23	125	113	123
24	70	131	101
25	90	119	106
26	118	120	124
27	108	121	118
28	77	127	104
30	124	129	133

Gifted Posttest
VEG

Student	CDA	CDK	COT
34	125	130	134
39	123	117	125
40	77	129	105
41	83	113	98
42	113	137	114
47	119	120	124
48	112	131	127

Gifted Posttest
Control

Student	CDA	CDK	COT
2	79	106	91
3	118	115	120
4	117	126	127
6	105	106	107
11	142	127	143
13	106	113	112
14	117	127	128
18	91	115	104
19	96	106	101
20	133	132	141
22	123	122	128
29	102	112	108
31	125	124	130
32	117	129	129
33	132	122	133
35	125	118	127
36	118	111	117
37	104	111	109
38	99	108	104
43	106	111	110
44	104	129	121
45	132	129	138
46	130	129	137
49	103	125	117
50	131	120	131

College-Bound Posttest
VEG

Student	CDA	CDK	COT
12	144	105	129
3	99	112	106
4	104	110	109
6	136	127	139
7	102	122	116
10	94	116	106
14	129	124	133
20	118	114	120
22	144	108	131
24	69	115	90
25	79	110	93
27	96	117	108
28	122	104	116
29	91	115	104
31	104	116	112
33	108	103	106
35	120	133	133
37	85	104	93
38	146	115	137
40	95	120	109
45	116	124	125
46	120	121	126
47	114	131	128
49	111	113	114
50	135	98	120

College-Bound Posttest
Control

Student	CDA	CDK	COT
1	106	122	118
2	124	71	95
5	79	107	91
8	110	114	115
9	88	106	96
11	84	126	107
13	99	108	104
15	84	110	96
16	119	112	119
17	103	116	112
18	110	85	95
19	76	119	97
21	113	105	111
23	98	129	117
26	74	85	74
30	98	76	82
32	92	116	105

College-Bound Posttest
Control

Student	CDA	CDK	COT
34	109	122	119
36	98	124	114
39	116	80	96
41	82	118	100
42	75	122	99
43	104	92	97
44	132	119	131
48	59	102	76

Vocational Posttest
VEG

Student	CDA	CDK	COT
39	116	104	114
2	96	65	74
4	80	80	72
6	111	91	100
8	91	79	81
9	101	95	97
14	122	66	91
15	93	71	76
16	91	68	73
18	113	112	115
25	72	65	59
27	63	61	51
28	115	69	88
29	117	61	84
30	107	85	94
31	101	66	78
32	88	59	65
34	77	122	100
35	99	69	79
36	114	129	127
38	84	56	61
42	110	76	90
44	113	106	111
45	126	64	92
47	77	94	81

Vocational Posttest
Control

Student	CDA	CDK	COT
1	83	63	64
3	100	61	74
5	84	73	72
7	100	90	93
10	63	67	55
11	84	104	92
12	99	71	80
13	101	76	84
17	95	126	114
19	94	78	81
20	108	106	108
21	118	68	90
22	84	74	73
23	78	68	66
24	86	109	97
26	86	75	74
33	102	67	79
37	101	87	91
40	129	83	106
41	86	67	69
43	122	94	109
46	151	97	128
48	90	92	88
49	118	91	105
50	108	71	86