

EFFECTS OF TWO CAREER DEVELOPMENT PROGRAMS
ON CAREER MATURITY OF SEVENTH GRADE STUDENTS,

by

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Chapter 1

INTRODUCTION

Sidney Marland, the former Commissioner of Education, has been given credit for having launched the Career Education concept. In a speech given before the National Association of Secondary School Principals, in Houston, Texas, on January 23, 1971, Dr. Marland declared career education to be among his highest priorities. Since that prophetic speech, many educational writers have sought to define and explain career education. Marland himself made the following observations:

Career Education cannot be defined solely in Washington. Revolution doesn't happen because government suggests it . . . if Career Education is to be the revolutionary instrument that the time demands, it will be defined in hard and urgent debate across the land by teachers, and laymen, students, legislators, and administrators... (Marland, 1971)

Perhaps one of the more widely accepted definitions of career education is provided by the U. S. Chamber of Commerce:

. . . career education is the total effort of education and the community to help all individuals become familiar with the values of a work oriented society, to integrate such values into their personal lives in such a way that work becomes possible, meaningful, and satisfying to each individual.
(1975:4)

The phenomenal growth of the Career Education concept, stimulated by federally funded programs from the U. S. Office of Education, has posed the problem of identifying and developing instruments which provide valid

and reliable information to assess its effects. Researchers such as Super (1972), Crites (1973), and Westbrook (1973) have led the way in developing and refining reliable instruments for this purpose. Their views of career development as being both a cognitive and affective process support the interrelationship between these constructs in facilitating vocational maturity through career education programs. Crites (1973) pointed out the following:

The obvious interface between career maturity and career education should be explicated and emphasized. Together, career maturity and career education represent a synthesis of principles and procedures which should benefit the individual and society. (Crites, 1973:7)

DESCRIPTION OF THE PROBLEM SITUATION

Roanoke County, Virginia, began its developmental Career Education program by merging the informational aspects of the curricular Career Education program with the decision-making processes via the guidance program, with the objective to enable the student to utilize valid information in making realistic choices concerning his/her future.

In continuing the development of a kindergarten through grade twelve Career Education program, the Roanoke County School Division began pilot-testing a career orientation course entitled "A World of Choice: Careers and You" during the 1977-78 school year. Although the Career

Education program was infused into all components of the instructional program, it was felt that the "Careers and You" course would serve as a facilitator in bridging the gap between career awareness at the elementary level and career exploration at the junior high school level. The "Careers and You" course was developed and field tested by Virginia Polytechnic Institute and State University from 1974 through 1977.

During the 1978-79 school year "Careers and You" was taught to seventh grade students in two of the division's junior high schools, replacing the traditionally taught seventh grade exploratory program.

Historically, the seventh grade exploratory program had been a 36-week program with students spending nine weeks each in four different interest areas: art, music, industrial arts and home economics.

Since the focus of both the "Careers and You" and "Interest Block" programs was related to the division's Career Education program, the objectives of the seventh grade Career Education program, outlined below, were examined: (Roanoke County Schools, 1974)

1. Career Awareness:

The student explores the types of jobs which make up various classifications. He recognizes the relationship between occupational requirements and educational development. He understands the relationship between career choice, rewards, and individual lifestyle.

2. Self-Awareness:

The student refines his interests in work roles relative to the career clusters. Experiencing work tasks, he relates associated roles with his emerging values. He recognizes the worth of different value systems and learns to resolve problems of conflict.

3. Attitudes & Appreciations:

The student becomes aware of the importance of a job to himself and others. He recognizes that the fulfillment of responsibility for an assumed job yields rewards. He understands that tolerance for the differences of other people does not require acceptance of their values.

4. Decision Making:

The student explores career clusters in relation to his interests. He understands that personal values and characteristics influence decision making. He gathers and organizes information in order to respond to questions regarding career exploration. He determines a course of study for grades eight through twelve in conformance with a tentative career choice.

5. Economic Awareness:

The student becomes aware of social and economic relationships between lifestyles and career choice. He is able to demonstrate budgeting principles and recognizes the concept of economic security. He becomes aware of the economic interrelatedness of community, state, and national governments.

6. Beginning Competencies:

The student explores problem-solving situations in career areas, identifying objectives of assigned tasks, and organizing sub-task sequences. He applies a variety of communication and organization skills to tasks. He recognizes the relationship between educational achievement, occupational environment, and level of responsibility. He understands how behavior expresses attitudes about interpersonal relationships. He develops a component of career entry-level capability and becomes aware of the relationship between physical and occupational skills.

7. Employability Skills:

The student recognizes a relationship between task preferences and responsibilities assumed and between directing

and being directed. He recognizes a relationship between work interest and adjustment ability. He understands the effect of a person's appearance and behavior on the way others relate to him. He responds to job survey instruments and identifies job openings appropriate to his level of ability.

8. Educational Awareness:

The student recognizes various learning experiences and relates them to possible use in occupational groups. He understands that educational experiences and preparation are required for careers. He recognizes that external factors may affect his interest in certain occupations.

In examining the two seventh grade programs and their effects on the Career Education program, one might have expected that the "Careers and You" course would be the better facilitator in helping the school division implement its Career Education delivery system.

It was, however, inappropriate to compare the relationship between the two exploratory programs with the Career Education concept without evaluating the effect each program had on the common construct of career development and its subsequent measure of vocational maturity.

Another factor involved in introducing the "Careers and You" program within the school curriculum was the time element involved in teaching the program. "Careers and You" was designed to be taught in either an 18-week or a 36-week timeframe, with the second 18 weeks of the "Careers and You" program being a more in-depth study of the four basic units covered during the first 18 weeks. It was reasonable to assume that the second 18 weeks would prove beneficial in terms of student gains in career development.

STATEMENT OF THE PROBLEM

Due to the many facets involved in this investigation, the following two-fold problem was addressed:

When compared with a control group, (a) are measures of vocational maturity among seventh grade students affected by exposure to the "Careers and You" or "Interest Block" career education programs, and (b) are such measures affected by the length of program?

OBJECTIVES OF THE STUDY

This study attempted to measure the effects of the two exploratory programs on the vocational maturity development among seventh grade students in four junior high schools. Specifically, the study attempted:

1. To determine whether seventh grade students participating in "Careers and You" (E_1) had significantly higher mean scores in vocational maturity measures than students participating in a control group (C_1).
2. To determine whether seventh grade students participating in the "Interest Block" program (E_2) had significantly higher mean scores in vocational maturity measures than students participating in a control group (C_1).
3. To determine whether seventh grade students who had participated in "Careers and You" (E_1) had significantly higher mean scores in vocational maturity measures than students who had participated in the "Interest Block" program (E_2).

SIGNIFICANCE OF THE STUDY

If implemented on a division-wide basis, "Careers and You" will replace the currently taught seventh grade "Interest Block" program. In operating the "Interest Block" program, regular vocational exploratory offerings at the junior high level are often cancelled due to shortages of teacher time, this being the result of priority given to teachers' time in the "Interest Block" program. The "Careers and You" course was designed to be taught by any certified teacher regardless of subject matter qualification. This flexibility enhances the principals' options in staff allocations at the seventh grade level. Since both the "Careers and You" and "Interest Block" programs were being utilized for exploratory purposes, determining whether one was more effective than the other was considered to be of practical benefit to the school system.

Based upon the premise that "Careers and You" would prove more beneficial to the seventh grade students, the school division administration would be provided with the following justifications:

1. If the student gains were insignificant when comparing the 18-week and 36-week timeframe, operational cost would be considerably less.

2. Should the 36-week timeframe prove to be more beneficial in terms of student gains, justification for the added cost would be documented.

It was also speculated that this study would aid other school divisions with similar characteristics in determining whether to implement the "Careers and You" program and on the timeframe to be utilized.

ASSUMPTIONS

The basic assumptions for this study were as follows:

1. That the strengths and weaknesses in teaching variability occurred in both the experimental and control groups.
2. That reliable estimates of certain affective and cognitive characteristics of vocational maturity can be derived to an acceptable degree by the tests used in this study.

DEFINITIONS OF TERMS

The definitions of the terms in the study are as follows:

1. Career Education: "the totality of experiences through which one learns about and prepares to engage in work as part of his or her way of living." (Hoyt, 1974:5)
2. Career Development: a life-long process which involves a series of experiences, decisions, and interactions which together result in the formation of a worthwhile self-concept and provide for the implementation of that concept

both vocationally and avocationally. (Osipow, 1968, 1972)

3. Vocational Maturity: the developmental concept for measuring a student's degree of career development which includes behaviors in both cognitive and affective domains. (Westbrook, et al, 1973) In the context of this study, vocational maturity was defined as results of the Posttest measures on the CMI and CDI test instruments. Also, the terms vocational maturity and career maturity were used interchangeably in this study.

4. Seventh Grade "Careers and You" Program (E₁): a career orientation course developed and field tested by Virginia Polytechnic Institute and State University, designed to help orient students to many different types of occupations through simulated activity-based experiences.

5. Seventh Grade "Interest Block" Program (E₂): a 36-week activity oriented program where students spend nine weeks each in four different interest areas: art, music, industrial arts and home economics.

6. Control Group (C₁): seventh grade students participating in band and/or choir, two 36-week elective programs.

SCOPE AND LIMITATIONS OF THE STUDY

Limitations of the study follow:

1. Due to program constraints which prohibited totally random selection of participants for the study, generalizations concerning the populations involved pertained only to the Roanoke County/Salem City School Division.

2. This research was limited to the effects on the student population. No attempt was made to study the effects of the program on teachers, administrators or parents.

ORGANIZATION OF THE REMAINDER OF THE STUDY

The introductory chapter consisted of an explanation of the problem situation, statement of the problem, objectives of the study, significance of the study, assumptions, definitions of terms, and the scope and limitations of the study. The second chapter presents a review of the related literature. A detailed explanation of the methodology used in the study, including the treatments, hypotheses, population and sample, the design of the study, controls for the study, data and instrumentation, data collection procedures and the analysis of data is presented in Chapter 3. The description and statistical analyses of the data are reported in Chapter 4. Finally, Chapter 5 contains the summary, the conclusions drawn from the data, and implications and recommendations for further studies.

Chapter 2

REVIEW OF THE LITERATURE

This section consists of a review of literature which is relevant to this study. It was evident from the literature search that studies on the "Careers and You" and "Interest Block" programs as they relate to career maturity were not available and, therefore, pointed out the need for research in this area.

This literature review begins with the theoretical framework of career development by briefly summarizing the more prominent career development theories. The construct of vocational maturity and its measurement follows with detailed discussions of the two instruments used in this research study.

Finally, the relevance of Career Education Programs to Vocational Maturity is assessed by examining the pertinent studies related to the effect of career education programs on vocational maturity.

THE PROCESS OF CAREER DEVELOPMENT

There has been a considerable amount of research on career development conducted over the past decades. Such authors as Ginzberg, Roe, Holland, Super, Havighurst, Tiedeman and O'Hara have provided the theoretical framework which,

according to the literature, has long been recognized as a lifelong process beginning in the preschool years and continuing through a succession of stages to maturity. Crites (1969) points out that while no precise definition exists of what constitutes a career development theory, all theories of career development and occupational choice were formulated to explain how individuals choose occupations and why they select and eventually enter different occupations. Osipow (1968) proposed that theories of career development fall into four categories: 1) trait-factor, 2) sociological theories, 3) self-concept theories and 4) personality-related theories. The first two of these focus upon the psychological and sociological relationships between the individual and his work. The last two deal with how people select, prepare for, enter, and advance in a career.

Ginzberg, et al (1951) were among the first to articulate a career development theory and gather data on that theory. They suggested that career development was a ten-year irreversible process which essentially had three periods: fantasy, tentative, and realistic. The four basic tenets of their theory were:

- 1) Occupational choice is a developmental process which typically takes place over a period of time.
- 2) The process is largely irreversible.

3) The process of occupational choice ends in a compromise between interests, capacities, values and opportunities.

4) There are three periods of occupational choice.

The Ginzberg group was concerned with how and why people choose and adjust to career occupations.

Roe (1956) viewed career development as a self-categorization process based on interests, attitude, abilities and other personality factors which have their origins in early childhood. She feels the individual's occupation or career is a primary source of need satisfaction. Roe employed Maslow's (1954) hierarchical classification of needs:

1. Physiological needs
2. Safety needs
3. Need for belonging and love
4. Need for importance, respect, self-esteem, independence
5. Need for information
6. Need for understanding
7. Need for beauty
8. Need for self-actualization

Roe claimed that these needs develop to a great extent from the attitudes of the parents toward the child during the child's early formative experiences. She outlined three basic divisions of attitudes:

- A. Emotional concentration on the child
 - 1. Overprotection
 - 2. Overdemanding
- B. Avoidance of the child
 - 1. Emotional rejection of the child
 - 2. Neglect of the child
- C. Acceptance of the child
 - 1. Casual acceptance of the child
 - 2. Loving acceptance

According to Roe:

Depending upon which of the home situations is experienced, there will be developed basic attitudes, interests and capacities which will be given expression in the general pattern of the adult's life, in his personal relations, in his emotional reactions, in his activities, and in his vocational choice.
(Roe, 1956:217)

Holland (1959) describes his theory as an heuristic theory of personality types and environmental data. He proposes six personality types which are associated with self-conceptions. The six personality types used are: realistic, intellectual, social, conventional, enterprising, and artistic. Holland believes that individuals who are in the process of making a vocational choice search for situations which satisfy their adjustive orientations. According to Holland's theory, stereotypes of occupations guide the individual's decisions in selecting vocations in which he/she may engage.

Holland (1959) summarized his theory in these words:

People search for environments and vocations that will permit them to exercise their skills and abilities, to express their attitudes and values, to take on agreeable problems and roles, and to avoid disagreeable ones. A person's behavior can be explained by the interaction of his personality and his environment. (Holland, 1959:6)

Super's (1963) "Self Concept Theory" of career development views the process as sequential life stages or events. Eventually, career is translated as self-concept implementation of the individual, this stage being viewed as offering the individual the greatest congruence between self-attributes and job requirements. Super (1963) made the following observations about his "Self Concept Theory" which is considered to be the key to its understanding:

In expressing a vocational preference, a person puts into occupational terminology his idea of the kind of person he is; that in entering an occupation, he seeks to implement a concept of himself; that in getting established in an occupation he achieves self-actualization. The occupation thus makes possible the playing of a role appropriate to the self-concept." (Super, 1963:22)

Havighurst (1964) considers vocational development to be a life-long process. He suggests that there are six stages in one's vocational development. These are:

Stage 1: ages 5-10. In this stage, which Havighurst calls the "identification stage", the young boy identifies himself with a worker, usually his father. At this stage his understanding of the idea of "work" is limited to

the concept that a man works to support his family.

Stage 2: ages 10-15. In this stage of "acquiring basic talents of industry", the child begins to learn work habits. For example, he may have a paper route or chores to do in his home or schoolwork to complete at home. These activities represent work to him, and they should create in him basic habits of organizing his time and energy. At this level he should learn to attack and complete his work without being specifically told to do so. This developmental task is particularly important, for if it is not accomplished during this stage, the child will have difficulty accepting the responsibilities of work in later stages.

Stage 3: ages 15-25. In this stage the individual acquires identity as a worker within the occupational structure. This is the time for actually selecting an occupation and preparing for it. The woman's role in work at this stage, as well as at the next two stages, may be in the working world or in the home.

Stage 4: ages 25-40. During this stage of "becoming a productive person" (which is dependent on successful completion of the two preceding stages), the individual reaches his peak in terms of skill and ability. He also makes the greatest progress in the occupational world. Work is the main force of his life at this time.

Stage 5: ages 40-70. At this stage, referred to by Havighurst as "maintaining a productive society", the individual is more certain about his own vocational development. He is no longer as concerned as he was previously with his personal productivity. At this stage he can concentrate on ways in which he can contribute to society. The father can give more time to service organizations, labor unions, and community projects. He can give more attention to rearing his family, improving his community, and attempting to provide a better society for his children to live in. The mother whose children have now left home has an opportunity to return to work or to give more time to community services.

Stage 6: after 70. At this stage, called by Havighurst the period of "contemplating a productive life", the individual can take more time to observe life around him. If he has been a productive worker in the first five stages, he tends to be more contented at this level.

Tiedeman and O'Hara (1963) basically support Super's maturational aspects of career development. Believing, however, that Super's career development propositions do not portray the relationship of personality and career as it is "forged within the process of choosing", Tiedeman and O'Hara deal with this dimension in terms of (1) purpose; (2) authority; (3) responsibility; and (4) acceptance of the position one has evolved in life. They describe career development as a series of sequential life stages of events. The individual's meaning is in congruence with society's meaning. According to Tiedeman and O'Hara, the problem of deciding is divided into two aspects:

1. Anticipation - includes exploration, crystallization, choice and specification.

2. Implementation and Adjustment - includes induction (discovery explanation), transition (relevance for goal) and maintenance of goal.

Hansen (1976) postulates that Tiedeman and O'Hara have added a dynamic dimension to the study of vocational behavior, for it has helped one to look at vocational life stages and developmental tasks associated with them from early childhood to old age. It has defined a new construct of career maturity against which to measure the mastery of vocational development tasks.

Osipow (1968) concluded that of all the theories he reviewed, it appeared that Super's theory was the most adequate. Osipow stated:

As a conceptual model, Super's theory seems to be the most highly developed and advanced. This is reflected in its explicitness, its fairly high degree of empirical support, and its substantially larger number of applications to human affairs. (Osipow, 1968:223)

THE CONSTRUCT OF VOCATIONAL MATURITY AND ITS MEASUREMENT

Super has generally been given credit for introducing the vocational maturity construct. As Super began to refine his basic self concept theory of career development he placed more emphasis on vocational choice as a process. In doing so, he shifted from vocational choice to vocational development and introduced vocational maturity as a concept measuring the degree of development (Prince, 1978).

Super (1955) identified five major dimensions of vocational maturity during adolescence:

1. Orientation to Vocational Choice
2. Information and Planning
3. Consistency of Vocational Preference
4. Crystallization of Traits
5. Wisdom of Vocational Preference

Crites (1965) elaborated on Super's Orientation, Information and Crystallization dimensions of Vocational

Maturity and proposed that they be further analyzed into what might be called Vocational Choice Competencies and Vocational Choice Attitudes. Along with Super's Consistency and Wisdom variables, these revised dimensions were incorporated into his construct of vocational maturity as seen in Figure 2.1.

Westbrook and Parry-Hill (1973) in their construction and validation of The Cognitive Vocational Maturity Test made the following observations concerning vocational maturity:

The construct of vocational maturity includes behaviors in both the cognitive (Bloom, 1956) and affective (Krathwohl, et al, 1964) domains. Variables such as Problem-Solving, Planning, Occupational Information, Self-Knowledge, and Goal Selection (Crites, 1965) cover knowledges and abilities in the cognitive domain of vocational maturity, while variables such as Involvement, Orientation, Independence, Preference, and Conception (Crites, 1965) can be classified in the affective domain.

Crites (1973) pointed out that a vocational maturity quotient could be derived much like the I.Q., which would express the ratio of the individual's standing on a behavioral scale of career development to his/her expected status, as indexed by his/her chronological age.

Perhaps the construct of vocational maturity is best expressed by the following:

The concept and measurement of vocational maturity are outgrowths of research in the psychology of career or vocational development. When career development is viewed as the accomplishment of series of vocational tasks in an orderly sequence of life stages it then becomes important, both theoretically and practically,

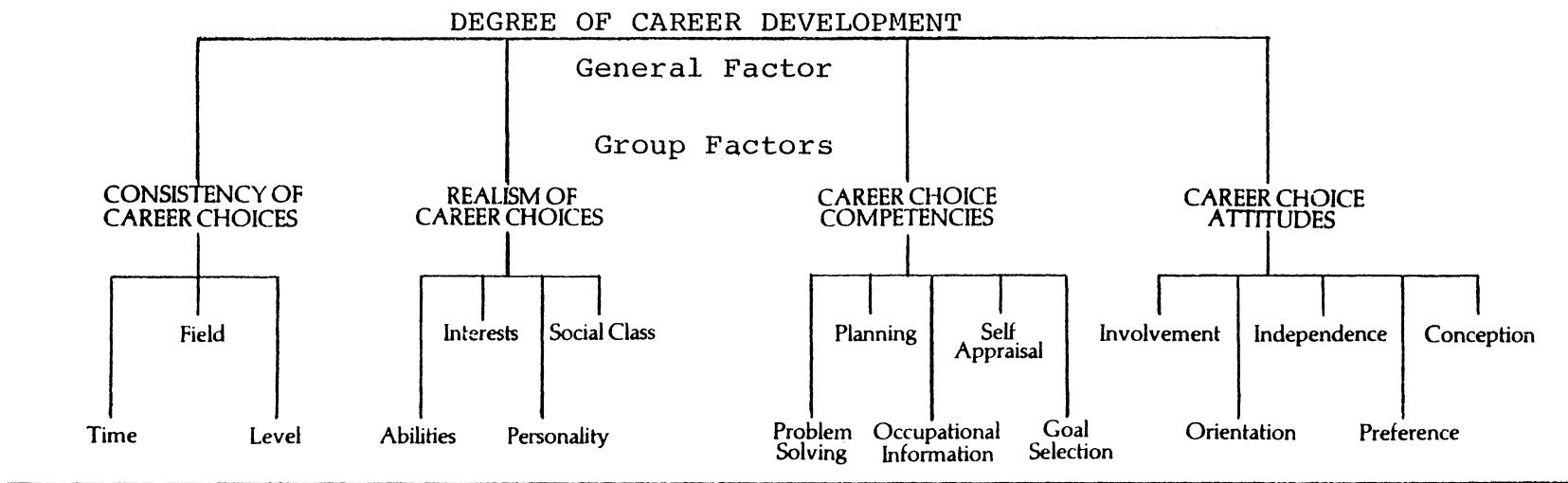


Figure 2.1

A MODEL OF CAREER MATURITY IN ADOLESCENCE

* Crites, THEORY & RESEARCH HANDBOOK, Page 6

not only to view the individual in terms of his actual life stage, but to assess his behavior in coping with the vocational developmental tasks of this stage in comparison with the coping behavior of others in the same stage. (Super, 1972:1)

In attempting to measure the effects of various programs on vocational maturity as described by Super, researchers have relied heavily on two basic instruments which have received national recognition. These instruments are: The Career Development Inventory (CDI) and the Career Maturity Inventory (CMI).

Career Development Inventory

The Career Development Inventory (CDI) developed by Super & Associates was constructed as an objective, multifactor, self-administering, paper-and-pencil inventory designed to measure the vocational maturity level of adolescent boys and girls (Super, 1972). According to test documentation it yields three scale scores, two of them attitudinal and one cognitive, plus a total score. Scale A (Planning Orientation) of the inventory is attitudinal in nature and seeks to determine whether students have given any thought to occupational planning. Scale B (Resources for Exploration) is also attitudinal in nature and represents a self-rated assessment of the available resources for use with and potentially usable resources for career exploration. Scale C (Information and Decision Making) is cognitive in nature and deals

with: a) specific knowledge of occupations, and b) solving problems related to career choice by using casestudy type statements.

The reliability of the Career Development Inventory was ascertained by using the test-retest method, measuring the consistency of subjects' responses over a short time. The test-retest sample consisted of 82 male and female tenth graders, selected from classes in four different schools representative of Genesee County School District, Genesee, Michigan. The interval between test sessions varied from two to four weeks. Table 2.1 represents the reliability coefficients and, as can be seen, all scales have a reliability coefficient above .70, which is considered a minimum level desired in an instrument to be used in group assessment (Super, 1972).

The Career Development Inventory was also shown to have medium high stability coefficients over a six-month period. Between 952 and 1411 boys and girls completed the Career Development Inventory during a six-month timeframe with approximately 1000 of the group having the normal school educational and vocational guidance experiences while the others spent two two-hour sessions at a computer terminal using the IBM Educational and Career Exploration System designed as an interactive system to provide exploratory and hence maturing experiences (Super, 1972). As can be seen from Table 2.2, there were no differences between

Table 2.1

Test-Retest Reliability Coefficients of the
 Career Development Inventory Scales
 Obtained from 82 Tenth Graders
 After an Interval of Two to Four Weeks

Scale	N	r
A	62	.85 **
B	65	.82 **
C	48	.71 **
Total	36	.87 **

** p < .01

Table 2.2

Stability of the Career Development Inventory
Over Six Months

Scale	10th Grade Boys & Girls No. Subjects	r
Scale A (Planning Orientation)		
Experimentals*	369	.71
Controls	1010	.71
Total	1379	.71
Scale B (Resources for Exploration)		
Experimentals	378	.63
Controls	1023	.63
Total	1401	.64
Scale C (Information and Decision Making)		
Experimentals	406	.67
Controls	1005	.68
Total	1411	.68
Scale D (Total)		
Experimentals	260	.72
Controls	692	.70
Total	952	.71

*Experimentals spent two two-hour sessions in educational and vocational exploration at a computer terminal.

the stability coefficients of experimentals and controls.

When tested for sex differences among 200 boys and 200 girls, no significant differences were found between means or between variance on the Career Development Inventory. Therefore (according to Super), the Career Development Inventory does not discriminate between the sexes and may be used with coeducational groups.

The content validity of the Career Development Inventory has been established by a panel of experts over a period of several years, involving subsequent revisions as explained by Super:

Items for scale A and B were selected or drafted by the team of authors, in the main from theoretically-derived and empirically refined scales used in previous instruments. (Super, in Davitz and Ball, 1970; Super and Overstreet, 1960; Thompson, et al, 1970; Jordan and Heyde, in process) (Super, 1972:30)

He further states:

Both the decision making and the information items in Scale C were selected from a pool of items created for the earlier version of the instrument; these items were individually studied for psychometric and conceptual adequacy by the authors, and unsatisfactory items were eliminated. (Super, 1972:30)

To determine the criterion-related validity of the Career Development Inventory, Super tested the correlations of the Career Development Inventory scales for 236 male and female tenth graders with four concurrent criterion variables as shown in Table 2.3 on the following page.

In essence Table 2.3 pointed out the lack of correlation between the level of the students' fathers' occupations

Table 2.3

Multiple Correlation Coefficients and Beta Weights
 for Career Development Inventory Scales
 Level of Father's Occupation, Vocational Preference
 Level, SRA-Verbal Stanine, and Grade-Point Average
 for 236 Tenth Graders

	LFO		VPL		SRA-V		GPA	
Item	Coef.	b	Coef.	b	Coef.	b	Coef.	b
R	.21*		.29**		.43**		.46**	
R ²	.04		.08		.19		.22	
Scale A		.10		.13		.12		.05
Scale B		.00		.12		.01		.11
Scale C		.16		.15		.38		.40

*p < .05; **p < .01

Note: For consistent interpretation the signs have been reversed for the beta weights of Level of Father's Occupation and Vocational Preference Level, both of which are inversely scored.

and that of their own and also showed no correlation of present and hoped for socio-economic level. It was also observable that the attitudinal scales were similarly unrelated to verbal aptitude and to GAP, while the cognitive scale was appropriately moderately related to the two status and behavioral characteristics.

The construct validity of the Career Development Inventory was accomplished by establishing relationships with other tests known to assess the traits of vocational maturity. Super (1972) used the following instruments:

The Attitude Scale of the Vocational Development Inventory (Crites, 1965, 1969), the individually administered and subjectively scored Readiness for Career Planning Scale (Gribbons and Lohnes, 1968, 1969), and The Cognitive Vocational Maturity Test (Westbrook and Cunningham, 1970). Super summarizes the relationship of the three instruments as follows:

In summary, two attitudinal scales of the Career Development Inventory relate highly to the designedly global RCP scale, as does also the Career Development Inventory's cognitive scale. The latter relates most strongly to the designedly cognitive CVMT. The relationship with the VDI-AS suggests that the latter is contrary to its author's intent, a largely cognitive scale. (Super, 1972:40)

To determine the reading level difficulty Super used the Dale-Chall method which relies on a combination of length of sentence and familiarity of words to fourth

grade students. According to Super (1972), the reading difficulty level of the Career Development Inventory items ranged from the fifth grade level through most of the test up to the eighth grade level in Scale C, with the overall readability of the Career Development Inventory at the sixth grade level.

Career Maturity Inventory

The Career Maturity Inventory (CMI) was developed by John Crites and published by CTB/McGraw Hill. The literature is inundated with research studies using the CMI as the basic mode of data gathering. The first data for this instrument, which was formerly entitled the Vocational Development Inventory, were collected in 1961. The CMI consists of an Attitude Scale and a Competence Test.

The first data collected on the Attitude Scale were in the fall of 1961 when the preliminary forms of the Attitude Scale were administered at a senior high school in Cedar Rapids, Iowa (Crites, 1965). Since that time, according to Crites, more than 200 studies have been conducted.

The Attitude Scale consists of fifty attitudinal questions which were designed to elicit the feelings, the subjective reactions, and the dispositions that an individual has toward making a career choice and entering the world of work. In developing the Attitude Scale and its

subsequent measure of Vocational Maturity in the affective domain, Crites (1973) rationally deduced five variables as shown in Table 2.4.

To establish standardization, Crites used the 1961-1962 academic year in Cedar Rapids, Iowa, and sampled five elementary schools from among the twenty-five in the system plus all the junior and senior high schools. Data were obtained from these schools for statistical analysis purposes.

The reliability and validity of the Attitude Scale have been supported with more than a decade of research. The author emphasized his belief in the reliability and validity of the Attitude Scale when he made the following assertion:

Research findings that have been accumulating on the CMI for more than a decade, dating back to the first administration of the Attitude Scale in 1961-1962, indicate that it is a reliable and valid measure of career maturity. (Crites, 1963:4)

More specifically, the Kuder-Richardson Formula 20 was used to calculate the internal consistency estimates of the Attitude Scale. As can be seen by Table 2.5, the mean reliability calculated for grades 6-12 was .74.

According to Crites this mean coefficient indicated a desirable level of reliability due to the fact that the Attitude Scale was constructed to measure related items of vocational attitudes rather than identical clusters (1973:14).

Table 2.4
Variables in the Attitude Scale of the CMI

Dimension	Definition	Sample Item
Involvement in the choice process	Extent to which individual is actively participating in the process of making a choice.	"I seldom think about the job I want to enter."
Orientation toward work	Extent to which individual is task--or pleasure-oriented in his attitudes toward work and the values he places upon work.	"Work is dull and unpleasant," and "Work is worthwhile mainly because it lets you buy the things you want."
Independence in decision making	Extent to which individual relies upon others in the choice of an occupation.	"I plan to follow the line of work my parents suggest."
Preference for career choice factors	Extent to which individual bases his choice upon a particular factor.	"Whether you are interested in a job is not as important as whether you can do the work."
Conceptions of the choice process	Extent to which individual has accurate or inaccurate conceptions about making a career choice.	"A person can do any kind of work he wants as long as he tries hard."

Table 2.5

Internal Consistency Coefficients
for the Attitude Scale

Grade	N	r_{tt}
6	255	.84
7	1328	.70
8	1307	.68
9	1349	.65
10	1313	.72
11	1059	.77
12	781	.75
	Mean =	.74*

*Computed using an r to z transformation

Crites (1973:14-21) discussed three specific kinds of validity related to the Attitude Scale: content, criterion-related, and construct. In describing the content validity he made the following observation:

...the content of items written for the Attitude Scale was explicitly deduced from central concepts in career development theory, conceptual or "literary" definitions (Underwood, 1957; Table I), and then gathered from relevant instances of verbal vocational behavior. From a pool of approximately 1,000 items, 100 were selected according to Flanagan's (1951) procedure for the initial standardization. This constitutes presumptive substantive evidence, therefore, that the Attitude Scale samples content that is theoretically relevant and representative (1973:15).

He followed the above statement with empirical evidence which supported the same conclusions.

In a study of the agreement between the empirical scoring key for the Attitude Scale and a rationally derived one, Hall (1962) asked ten expert judges (five male and five female counseling psychologists) to indicate which they considered to be the more mature response to each attitude item. The criterion of interjudge agreement used was agreement between eight out of ten judges, or 80 per cent. To determine agreement between the two keys, he simply calculated the number of times the empirical and rational endorsements were the same. Of the fifty items in the Attitude Scale the judges agreed with the standardization sample thirty-seven times, including all of the seven items which were scored in the True position. In other words the percentage of agreement was 74 per cent (Crites, 1973:15).

In reporting the criterion-related validity of the Attitude Scale Crites related specific studies in which the Attitude Scale was compared to several extraneous variables. Specifically, Bathory (1967) correlated it with the Occupational

Aspiration Scale (Miller and Haller, 1964), which was a measure of realism of aspirations. In groups of ninth graders ($N=79$) and twelfth graders ($N=58$), he obtained r 's of .39 ($p < .01$) and .11 N.S., respectively.

In another study of the interrelationships of the Attitude Scale and consistency, decision and realism in career choice, Hollender (1964) found significant covariation of career attitude maturity with all of these criterion variables in a sample of 1,648 males and females in grades 6 through 12, stratified by quartiles on scholastic aptitude (Crites, 1973:15-16). In the following statements, which are from this same treatise, Crites further discussed the criterion-related validity of the Attitude Scale.

...Multiple t tests between high and low groups within each grade established that students making more realistic career choices generally score higher on the Attitude Scale, irrespective of aptitude level. Similarly, Carek (1965) studied the relationship of decisiveness in career choice to the Attitude Scale in a group of 346 male college students and has reported a biserial r of .25 between CMI total score and being decided about career. (Crites, 1973:16)

The developer of the CMI described the criterion-related validity research on his Attitude Scale even further, by citing the work of Cooter and Wilstach as follows:

...Some preliminary data have also been collected on the Attitude Scale in relation to the other measures of career maturity. For example, Cooter (1966) found an r of .38

(p .01) between career attitude maturity and Gribbons and Lohnes' Readiness for Vocational Planning (RVP) scales. However Wilstach (1967) reported nonsignificant r's between the Attitude Scale and Super's indices of Vocational Maturity (IVM). (Crites, 1963:16)

In summary, Crites indicated that the N's for many of the studies conducted on criterion-related validity were too small and hence their findings should be replicated, but he emphasized that they "generally indicate that the Attitude Scale has demonstrated criterion related validity" (1973:16).

The construct validity of the Attitude Scale was explored at length by Crites (1973:16-21). His discussion on the topic can best be capsulized by his own summary statement:

Taken in toto, the accumulated research on the Attitude Scale supports its construct validity: in general, it appears to be related to variables to which, theoretically, it should be related and unrelated to variables to which it should not be related. (Crites, 1973:21)

The Competence Test of the Career Maturity Inventory is made up of the following sections: 1) "Knowing Yourself" (Self-Appraisal), 2) "Knowing About Jobs (Occupational Information), 3) "Choosing a Job" (Goal Selection), 4) "Looking Ahead" (Planning), and 5) "What Should They Do?" (Problem Solving). Crites (1973) made the following observation about the five sub-tests:

...all five parts of the Competence Test are relatively homogeneous sets of items and, therefore, it can be assumed that within a subtest the items measure essentially the same variable. (1973:33)

In accomplishing the Standardization of the Career Maturity Inventory, Crites (1973) tested approximately 2000 students in the Santa Ana, California, School District during May, 1972, pointing out that this community was not necessarily representative of some larger populations. Its population makeup was largely that of a middle-class suburban school system which included various ethnic and racial groups. In his initial investigation he used neither racial group nor sex in his statistical validation and reliability analyses. However, according to Crites (1973), the items which survived the standardization should be generally applicable across grades 6 through 12.

The author of the Career Maturity Inventory pointed out that of the three types of reliability estimates specified in the APA test standards (1966), only internal consistency coefficients were presently available on the Competence Test (Crites, 1973). However, data on test-retest stabilities are being collected.

As can be seen in Table 2.6, the Kuder-Richardson Formula 20 values were calculated for each grade level standardization sample (N's ranged from 120 to 475) to determine the homogeneity of items in the subtests. With only two exceptions, the internal consistency

Table 2.6
 Internal Consistency Coefficients (KR 20) for
 the Competence Test

Part	Grade						
	6	7	8	9	10	11	12
Self-Appraisal (Part 1: Knowing Yourself)	.81	.77	.79	.78	.85	.79	.73
Occupational Information (Part 2: Knowing About Jobs)	.81	.81	.81	.85	.87	.88	.88
Goal Selection (Part 3: Choosing A Job)	.75	.83	.86	.89	.89	.87	.90
Planning (Part 4: Looking Ahead)	.82	.83	.86	.88	.89	.90	.90
Problem Solving (Part 5: What Should They Do?)	.58	.63	.72	.73	.82	.78	.80

coefficients range from .72 to .90. The two low coefficients were found to be for the "Problem Solving" subtest when administered to sixth and seventh grade students. Taken as a whole, the Kuder-Richardson Formula 20's indicated that the Competence Test is made up of a relatively homogeneous set of items within each subtest and that all the subtest items measure essentially the same variables (Crites, 1973:30-33).

Even though the validation of the Competence Test is not complete, there is some substantiation to support its validity. Since the subtests were conceived to define and quantify the more prominent cognitive aspects of vocational maturity, the deliberate conceptual deduction of the Competence Test supports the test's substantive validity as a measure of relevant variables in contemporary career development theory (Crites, 1973). After empirical testing Crites made the following observation concerning the content validity of the Competence Test:

The parts consist of items which make both genotypic and phenotypic psychological sense; and they measure variables which change systematically between Grade 6 and 12 according to generally accepted criteria of developmental curves. (Crites, 1973:33-34)

To assure criterion-related validity of the Competence Test, Crites selected items which were monotonic functions of grade. According to Crites (1973:34), this type of validity has been met inasmuch as the percentages of overlap range from 33% to 56%, with the median being

approximately 43% (see Table 2.7). Therefore, Crites made the following observation:

...the relationships of the Competence Test to grade as a criterion of development are about what would be expected theoretically, given the monotonic model and individual differences in career maturity. (1973:34)

The career choice competency dimension of career maturity was used to test the construct validity of the Competence Test. Product moment correlations among the subtests were obtained with r's ranging from .25 to .73 with a mean of .54 which coincided with the approximate theoretical expectation of the test developer. Even though factor analysis has not been performed on the Competence Test, Crites believes that if the data are cautiously interpreted, it appears to be consistent with the construct of career choice competencies which the Competence Test was devised to measure (Crites, 1973).

THE RELEVANCE OF CAREER EDUCATION PROGRAMS TO VOCATIONAL MATURITY

Crites (1973) has postulated the interface between career development and career education, stressing that the emphases and proposed outcomes of career education were parallel, if not identical, with the process conceptualized in career development theory. In other words, an effective career education program should foster and further the career development of students and, hence, improve their level of vocational maturity. There have

Table 2.7
 Percentages of Score Distributions Overlap Among
 Competence Test Parts for Adjacent Grades

Part	Grades					
	6-7	7-8	8-9	9-10	10-11	11-12
Self-Appraisal (Part 1: Knowing Yourself)	35	40	47	34	37	46
Occupational Information (Part 2: Knowing About Jobs)	39	36	47	42	36	44
Goal Selection (Part 3: Choosing A Job)	39	48	47	43	42	42
Planning (Part 4: Looking Ahead)	45	50	54	36	42	43
Problem Solving (Part 5: What Should They Do?)	36	42	56	46	33	44

been several studies in recent years on various career education programs and their effect on vocational maturity.

A recent study by Hamby (1977) was conducted to determine significant differences in students' vocational maturity as a result of exposure to the concept of career education. Implementing a comparative study approach utilizing a pretest-posttest design, the researcher concluded that students in the experimental group, who experienced the exemplary career education project, showed no significant differences in vocational maturity as measured by the Attitude Scale of the Career Maturity Inventory.

Lewis (1977) attempted to determine the effects of a locally developed career orientation program which was infused with the social studies and the mathematics-science-health curricula of the fifth, sixth and seventh grades in Danville, Virginia. The researcher used the Career Maturity Inventory and Science Research Associates' Achievement Series as instruments for the pretest-posttest control group design. Although no evidence was found to support the effectiveness of the career orientation program in enhancing career development or increasing academic achievement, the program did not seem to be detrimental to the normal progress of the fifth, sixth, and seventh grade students.

Kershner and Blair (1976) undertook an evaluation of the experience based career education program administered in Philadelphia by Research for Better Schools under a grant from the National Institute of Education. As a part of the evaluation, they investigated the effect of the career education program on the vocational maturity of tenth, eleventh and twelfth grade students. Using a .10 alpha level, they compared pretest and posttest scores on the Career Maturity Inventory. For a combined group of tenth and eleventh grade students (who were in their first year of the program), significant pretest to posttest changes were identified on all Career Maturity Inventory measures. There were no significant pretest to posttest changes found in the twelfth grade students (who were in the second year of the program).

Even though the literature is contradictory as to whether career education programs significantly increase the individual level of vocational maturity, there is evidence to support its relevance to vocational maturity. Prince (1978) compared the career maturity of eighth grade students among four career education approaches and concluded that all were similarly effective in developing the career maturity of students in a positive direction.

Dugger and Ressler (1977), after field testing the career orientation course "A World of Choice - Careers and You" in more than twelve school divisions throughout the

Commonwealth of Virginia in 1975-76 and again in 1976-77, concluded that even though not statistically significant, based upon the findings of the Career Development Inventory, it appeared that: 1) There was evidence of a change in attitude toward occupational planning; 2) There was a definite change in students' awareness of appropriate sources of help and direction concerning occupational choice; and 3) There was an awareness on the part of students for the need to do occupational planning, the role of exploratory courses and the need to do the things which would eventually make them "valued employees", regardless of the occupation.

SUMMARY

The prominent career development theories have described vocational behavior as a continuum, beginning early in life and continuing throughout various stages. Super's self-concept theory has emerged as one of the more widely accepted theories within the educational community. In placing more emphasis on vocational choice as a process, Super shifted to vocational development and introduced vocational maturity as a concept measuring the degree of development.

The emerging concept of vocational maturity as the developmental concept for measuring a student's degree of vocational development has led to the refinement of

several assessment instruments. Among these, the Career Development Inventory (CDI) and the Career Maturity Inventory (CMI) have been the most frequently used. Their use in career education studies has been helpful in determining where students are on a continuum of career development. The literature also purports the effectiveness of these instruments in identifying existing relationships between career education programs and experiences.

The research studies discussed in this chapter were inconclusive and often contradictory with respect to the effectiveness of career education on a student's vocational maturity level. The literature did, however, point out positive influences between career education programs and student outcomes which have added further understanding to the relationship between career development and career education.

Chapter 3

METHODOLOGY USED IN THE STUDY

This study was undertaken as a means to determine the effects of two orientation/exploratory programs on vocational maturity among seventh grade students in a suburban school district in Southwestern Virginia.

THE TREATMENTS

The experimental groups involved in the study were composed of seventh grade students participating in the "Careers and You" (E_1) and "Interest Block" (E_2) programs.

Careers and You (E_1)

The program being considered in Roanoke County Schools as a replacement for the Interest Block program was field tested in Virginia under the title Clusters Approach to Career Orientation (CACO). Funded by the State Vocational Research Division, the project began its three-year tenure in August, 1974, under the leadership of Dr. William E. Dugger, joined later by Dr. Ralph Ressler of Virginia Polytechnic Institute and State University.

The basic rationale underlying the CACO curriculum was three fold:

1. Students leaving elementary school have arrived at a self-concept -- even though incomplete and changeable.

2. Junior high/middle school students are at the "tentative decision" stage of their career development, and

3. The two major career selection variables that educators can provide are simulated experiences and adult career goals.

As a result of three years of research, development, field-testing (12 school divisions across the state), and revision, the original CACO project became operational in the Virginia Public Schools in September of 1977 as a course entitled "A World of Choice: Careers and You".

Designed to be taught for either one semester (18 weeks) or a full year (36 weeks), "Careers and You" emphasized four major instructional areas:

1. That students begin to understand themselves and analyze their interests, abilities, values and needs as they relate to life roles.

2. That students become aware of work styles as they relate to the individual. (Some persons like to persuade others; some like to investigate; some like to work alone at machines or at compiling information.)

3. That students begin to see the difference in kinds of work found in the 15 occupational clusters and how work modes can be "matched" with the clusters.

4. That students have a chance to tie together their new knowledge of self, work styles and cluster interests so that they can pick out in-school and out-of-school career-related experiences.

Roanoke County Schools operated its "Careers and You" program on the full-year basis during which each of the four instructional areas occurred twice. The activities

were carried out in one 50-minute period, five days per week, with optional days built into the schedule to allow for assemblies, snow days, etc. Class sizes were maintained at 20 to 25 students per class. Each student received a student workbook which required a minimum amount of reading. Assignments in the workbook involved simulated career education activities.

Interest Block (E₂)

The seventh grade interest block program evolved in Roanoke County as an activity-oriented program designed to give students brief experiences in four elective subjects. By so doing, it was theorized that students would be able to make more knowledgeable choices among the elective courses available to them as eighth and ninth graders. A typical seventh grader received nine weeks of instruction in the following areas:

Home Economics 7

This course provides for an overview of home economics through experiences dealing with social skills, entertaining, grooming, simple food preparation, simple sewing techniques, babysitting and consumer awareness.

Art 7

This course introduces students to the elements of art. Projects include the areas of drawing, painting, printing, clay and fibers. Emphasis is on design.

Music 7

This course provides an overview of the many different kinds of music styles, and an attempt is made to expose the student to classical, rock, jazz, and music of the American Theatre, and to develop an appreciation of these art forms.

Industrial Arts 7

Students spend approximately 2 weeks in each of the following areas: Communications, Construction, Manufacturing and Transportation.

The Interest Block program has been operated at various times on six-weeks, nine-weeks and twelve-weeks bases. It has been used as a scheduling device to balance class loads and to remove students from the study hall. At the present time, the recommended operating time is nine weeks; however, the schedule is left to the discretion of each individual school principal.

THE HYPOTHESES

In order to test the statistical significance of the findings of this study, the following hypotheses were developed and stated in the null form (see Table 3.1):

H_0_1 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Careers and You" program and 18-week control group.

H_0_2 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 36-week control group.

H_0_3 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Interest

Block" program and 18-week control group.

H_0_4 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Interest Block" program and 36-week control group.

H_0_5 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Careers and You" program and 18-week "Interest Block" program.

H_0_6 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 36-week "Interest Block" program.

H_0_7 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 18-week "Careers and You" program.

H_0_8 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Interest Block" program and 18-week "Interest Block" program.

H_0_9 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week control group and 18-week control group.

Table 3.1

CMI AND CDI HYPOTHESES TABLE

	18-week "Careers and You"	18-week "Interest Block"	36-week "Interest Block"	18-week Control Group	36-week Control Group
18-week "Careers and You"		5		1	
36-week "Careers and You"	7		6		2
18-week "Interest Block"				3	
36-week "Interest Block"		8			4
36-week Control Group				9	

NOTE: The table above is a graphic representation of the dependent variable measures in each hypothesis and their relationship to each of the independent variables. The numbers in the table reference the corresponding numbered hypothesis statement on the preceding page.

POPULATION AND SAMPLE

The population from which the sample was drawn was defined as those seventh grade students participating in "Careers and You", "Interest Block", and students who did not participate in any formal Career Education program from four junior high schools within the local school division. The determination of the four schools was based on the fact that two of the schools would be pilot-testing the "Careers and You" program during the 1978-79 school year. In each of the four schools there existed a seventh grade program for those students who wished to participate in Band and/or Choir. These control group students, therefore, did not receive instruction in either "Careers and You" or the "Interest Block" program.

A typical seventh grade student received two 50-minute periods of language arts, one 50-minute period of math 7, one 50-minute period of science 7, one 50-minute period of social studies, one 50-minute period of health and physical education, and, depending on which school, received either a 50-minute period of "Careers and You", Band or Choir, or the "Interest Block" program.

The seventh grade teaching staff involved in the study among the four junior high schools represented the fine arts as well as the practical arts subject areas. Each teacher was certified in his/her subject matter area,

and it was assumed that teacher differences between the four schools were equalized. The teachers who taught the Careers and You course were involved in in-service workshops which qualified them to teach the Careers and You course.

Figure 3.1 represents the student population and sample size breakdown among the experimental and control groups involved in the study. The student populations from schools one and three were considered to be upper middle socio-economic status, and the populations from schools two and four were considered to be lower middle socio-economic status.

An original sample of 100 subjects for each treatment was randomly selected. The sample size was later adjusted as a result of attrition as shown in Figure 3.1. This adjustment had no adverse effect on statistical procedures employed.

Selection of subjects was achieved through the utilization of a school division computer. An alphabetized listing of participants from the four schools involved in the study was compiled. As indicated in Figure 3.1, the students had been prescheduled into one of the three groups by the respective school guidance counselors. This information was translated to computer input by utilizing punched cards. The cards from each school were sorted by groups and an alphabetical listing was assembled, with each student

Groups	Careers and You	Interest Block	Choir & Band	Accumulative Totals	Sample Size
E ₁ School 1 School 2	110 180	- -	- -	290	72
E ₂ School 3 School 4	- -	109 123	- -	232	72
C ₁ School 1 School 2 School 3 School 4	- - - -	- - - -	117 48 74 93	332	72
TOTALS	290	. 232	332	854	216

Figure 3.1

Student Population and Sample Size Breakdown
Among the Experimental and Control Groups

NOTE: Students from schools one and three were considered to be upper middle socio-economic status, and the populations from schools two and four were considered to be lower middle socio-economic status.

being assigned an identifying integer. The same procedure was used to obtain the "Interest Block" (E_2) and Control (C_1) participants. Because the research design required post-testing at 18-week and 36-week intervals, the participants in each group were also divided by "even" and "odd" groups. This procedure was accomplished by using the table of random numbers to establish a beginning point. To determine which group would be posttested at the 18-week interval, a "flip of a coin" was used.

THE DESIGN OF THE STUDY

It was recognized at the outset of this study that soundness in the research design would be influenced by the quality of the questions posed and the capability of the design to control variance. As Kerlinger (1973) pointed out:

Research design is the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. (Kerlinger, 1973:300)

A well designed experiment, it was believed, must be free from bias and must be devised in such a way that the researcher could determine that the observed differences were the result of the treatment.

To answer the two-fold research question and control the variance involved in this study, a 2×3 factorial design was used, as shown in Figure 3.2.

The design paradigm, as seen in Figure 3.2, was derived from Kerlinger's "Design 19.7" (1973:342) Compromise Experimental Group - Control Group Design. According to Kerlinger:

The true experiment requires the manipulation of at least one independent variable, the random assignment of subjects to groups, and the random assignment of treatment to groups. When one or more of these prerequisites is missing for one reason or another, we have a compromise design. (Kerlinger, 1973:341)

Randomized assignment of subjects to groups was not possible, causing an inherent weakness in the design. This weakness is common in the type of educational research which must conform to administrative constraints which are characteristic of public schools.

The dependent variable being measured in the factorial design was that of vocational maturity. Vocational maturity was considered to be a dependent attribute and continuous variable. The Career Development Inventory and the Attitude Scale of the Career Maturity Inventory were the two instruments used to gather the dependent measures.

As evidenced in Figure 3.2, there were two independent variables which were manipulated by the researcher. The treatments involving "Careers and You", "Interest Block" and control were all independent, categorical and active variables. The second independent variable was the time-frame involved with the various programs, which was considered categorical and active.

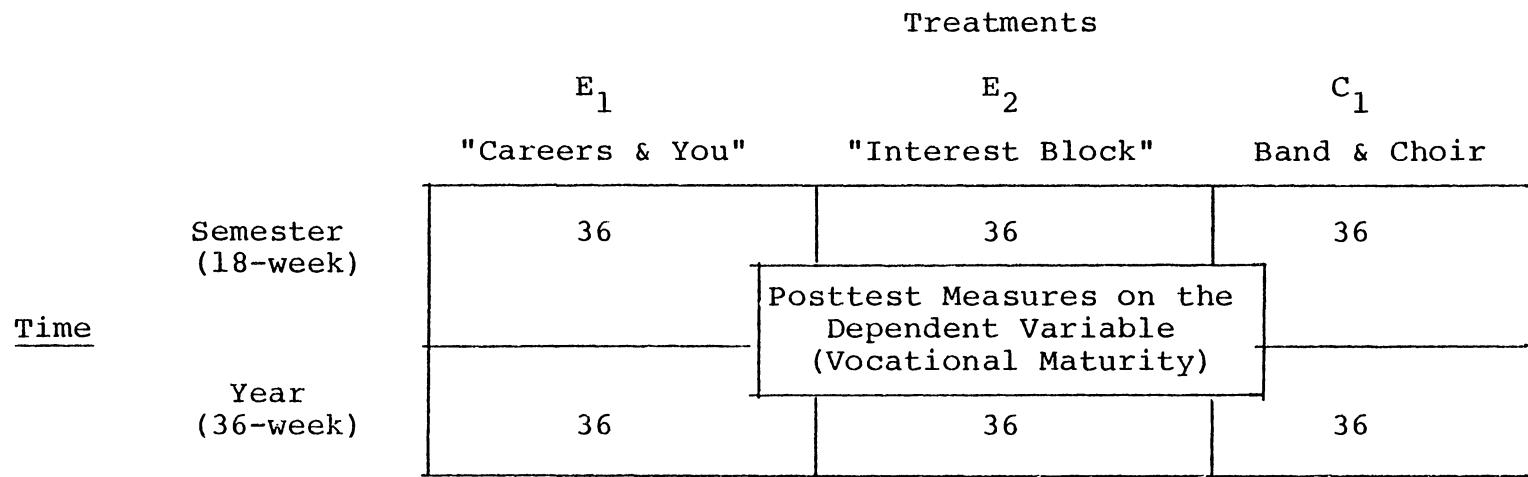


Figure 3.2

2 x 3 Factorial Design Paradigm

CONTROLS FOR THE STUDY

Validity of the design was strengthened by the application of several control factors. It was assumed that subjects in the band and/or choir programs were possibly better readers than subjects from the experimental groups. This condition could have resulted in bias to the dependent measure. To control for this possible bias, the test items were read to each group involved in the study, negating any reading advantage or disadvantage inherent within any group.

Another extraneous variable concerning the control subjects was that of socio-economic status. It was perceived that the band participants could possibly come from a higher socio-economic background. However, as pointed out by Franklin (1975) in a study of Career Maturity among 500 seventh, eighth and ninth grade students, there were no significant differences in the career maturity level of those students as a function of socio-economic status. In a related study of the effects of Vocational Maturity among college students, Tilden (1976) also found vocational maturity to be unrelated to socio-economic status. Therefore, the socio-economic factor did not appear to constitute a threat to the equivalency of vocational maturity between the three groups. In any school system student preferences, to a certain extent, determine the elective programs being

offered. It was reasonable to assume that student involvement in the band and/or choir programs was a reflection of individual interest or lack thereof.

There were two possible threats to the internal validity associated with this study: statistical regression and selection maturation interaction.

Statistical regression was controlled by randomly selecting the students for the testing procedures employed in the study. Reactive results caused by regression were judged by the researcher to be small.

In controlling for selection-maturation interaction, the dependent variable measure of vocational maturity was considered to be the best control factor. As the literature pointed out, Vocational Maturity is a measure of career development which, as identified by Stevenson (1974), reflects a continuous developmental process and a sequence of choices which form a pattern throughout one's lifetime and which represent one's self-concept. This definition seems to strongly indicate that, regardless of treatment, each individual will gain in vocational maturity over a period of time. It was reasonable to assume that the groups in this research study possessed the same characteristics and would gain in vocational maturity regardless of any particular treatment.

DATA AND INSTRUMENTATION

After careful consideration of the various instruments available to measure the effect on the dependent variable (Vocational Maturity), a combination of two instruments was selected. The Career Development Inventory was used in its entirety while only the Attitude Scale of the Career Maturity Inventory was used. The reliability and validity estimates of these two instruments have been reported in Chapter 2 and, therefore, only a brief synopsis of each will follow.

Career Development Inventory

For the purpose of this study the total career development scale of the CDI was used to ascertain the dependent variable measures. This scale, as pointed out by Super (1972), is an arbitrary combination of the three scales and is justified by their intercorrelations as vocational maturity measures and by the approximately equal number of items on each factor scale. Super further pointed out the following:

A factor analysis of the three scales for a sample of 200 boys and girls produced one factor accounting for 57% of the variance. This finding provides the rationale for presenting a total score for the three scales and calling it an indication of vocational maturity in general. (Super, 1972: 26)

Thus, while the three scales of the Career Development Inventory represent readily assessed important aspects of vocational maturity, the aggregate of the scales represents an overall measure of vocational maturity as defined by the individual scales.

Attitude Scale of the Career Maturity Inventory

The decision to use the Attitude Scale of the Career Maturity Inventory in addition to the Career Development Inventory was based on the affective factors inherent within the "Careers and You" program. The "Careers and You" program was developed as an attitudinal based career orientation program, and it was felt that the Attitude Scale would measure the vocational maturity effects of "Careers and You" with more accuracy than the Career Development Inventory. Although this was not substantiated with empirical evidence, the school division's thirteen guidance coordinators, at their annual workshop in August, 1978, did support this feeling after carefully analyzing the 50-item Attitude Scale.

The CMI Attitude Scale deals primarily with affective areas and subjective reaction toward career advice and the world of work. The following five attitudinal clusters compose the scale:

1. Involvement in the career choice process.
2. Orientation to the world of work.

3. Independence in decision making.
4. Preference for career choice factors.
5. Conceptions and career choice processes.

The CDI and CMI have received national recognition for their demonstrated abilities in measuring vocational maturity. In a 1975 publication by Development Associates, Inc. entitled "Evaluation and Educational Decision-Making - A Functional Guide to Evaluating Career Education", both the CDI and CMI were highly recommended for evaluating students who participated in different orientation/exploratory career education experiences.

DATA COLLECTION PROCEDURES

Collection of data began in September 1978 and continued at intervals until May 1979, as shown in Figure 3.3. Pretests on the Career Development Inventory and the Attitude Scale of the Career Maturity Inventory were given on selected dates to all three groups in the four junior high schools. Separate testing took place in each school for each group involved in the study.

Prior to testing, workshops were held with the guidance counselors who were responsible for administering the testing instruments. In these workshops, strategies for administering the test were developed. It was agreed by all school guidance coordinators that the following techniques would be observed:

Groups	SEPT 1978 Pretest	Treatment 1st Sem	JAN 1979 Posttest	Treatment 2nd Sem	MAY 1979 Posttest	Type
E ₁	O _b	X	O _a Even	X	O _a Odd	"Careers and You"
E ₂	O _b	X	O _a Even	X	O _a Odd	"Interest Block"
C ₁	O _b		O _a Even		O _a Odd	Band & Choir

Figure 3.3

6

CMI and CDI Observation Schedule

1. The designated testing area would be the school cafeteria.

2. Class schedules would be adjusted during the days of test administration to insure against interruption.

3. During the test administration adequate monitoring would be available to assist the tester.

4. Adequate seating and proper distance between students would be maintained.

5. Ventilation, temperature and lighting would be controlled at all times during the test administration.

6. Reading difficulties, along with possible group differences, would be controlled by having each question read by the test proctor.

DATA ANALYSIS

Data analysis was conducted using the Virginia Polytechnic Institute and State University Computer Facilities. The computer program "Statistical Analysis System" (SAS, 1976 version) was used in analyzing the acquired data.

Once pretest scores were obtained, the one-way analysis of variance (ANOVA) statistical technique was used to test the equivalence of the three groups involved in the study. An alpha level of .05 had been established prior to data treatment. The posttest scores were analyzed using the two-way analysis of covariance technique with

the Newman-Keuls post hoc test being planned in the event of F test significance.

SUMMARY

In this chapter the experimental and control groups were reviewed and nine null hypotheses were presented. Also, the population and sample, design of the study, controls for the study and data and instrumentation were explained. Finally, the data collection procedures and statistical analysis were discussed. Findings of this study obtained from the analysis will be addressed in Chapter 4.

Chapter 4

ANALYSIS OF DATA

This chapter contains statistical analyses and interpretation of the research findings. There were two independent variables under investigation: (1) the type of instructional programs being offered, identified as Careers and You (E_1), Interest Block (E_2), Control Group (C_1); and (2) the length of time the program was offered, identified as either 18 weeks or 36 weeks. The dependent variable was posttest scores on the Total Scale of the Career Development Inventory (CDI) and the Attitude Scale of the Career Maturity Inventory (CMI). Pretest and post-test scores were computed for each student by the Test Scoring Service at Virginia Polytechnic Institute and State University.

The computer program "Statistical Analysis System" (SAS, 1976 version) was used in analyzing the accumulated data. An analysis of variance was used in checking for group mean equivalency on pretest scores. A two-way analysis of covariance, supplemented with the Newman-Keuls Post Hoc Test, was used to test the nine null hypotheses.

RESULTS OF FACTORIAL ANALYSIS OF COVARIANCE

The decision to use the analysis of covariance technique was determined by the researcher's desire to

statistically increase the sensitivity of the dependent variable measures and to reduce the bias inherent within intact groups. This was accomplished by adjusting treatment means for the covariate. Elashoff (1969) supports this rationale, but not without caution. She states:

The analysis of covariance is based on the assumption that individuals are randomly assigned to treatment groups and that all groups are treated exactly the same except for treatments. However, covariance adjustment procedures are often recommended for reducing bias due to the covariate in studies where the experimenter must work with intact groups. Covariance analysis can indeed be useful where assignment to groups is not random but the results must be interpreted with caution. (Elashoff, 1969:386)

The assumptions required for analysis of covariance are basically threefold:

1. There is a linear relationship between the covariate and the dependent variable. Past experience has shown that pretest and posttest scores do in fact support this assumption. Therefore, it was not deemed necessary to perform a test for linearity.

2. The assumption that posttest scores are normally distributed with a common variance.

3. Treatments do not influence the covariate. Since this assumption was considered by the researcher to be uncertain, an analysis of variance was performed on the pretest scores to determine group mean equivalency.

Group Mean Equivalence

Inasmuch as the subjects involved in the study could not be randomly assigned to groups, an analysis of variance was used to test group mean equivalence on the data of both the CDI and CMI Attitude Scale pretest scores.

Results obtained on the CDI pretest scores (see Table 4.1) indicated group equivalency among the three groups. Therefore, statistical analysis of the posttest scores for the 18 and 36-week time intervals were analyzed using a two-way analysis of covariance with the pretest scores used as the covariate.

While a comparison of the pretest scores on the CDI met the statistical requirement of homogeneity, a comparison of the pretest scores on the CMI Attitude Scale did not (see Table 4.2). Post hoc analysis using the Newman-Keuls test (see Table 4.3) indicated the statistical difference to be between group E₁ (Careers and You) and group E₂ (Interest Block). Further analysis suggested that even though there was a significant F value at the 0.05 level on the CMI Attitude Scale pretest data, the magnitude of the difference was very small. The R² value of the difference was 0.04 which, statistically, did not indicate a high degree of strength. Therefore, valid posttest comparisons were judged to be statistically appropriate. However, because of previously noted group inequivalency on the CMI Attitude Scale pretest scores,

Table 4.1

TEST OF GROUP EQUIVALENCE ON THE
CDI PRETEST SCORES

Source of Variation	df	SS	MS	F Value	Significance Level
Between Groups	2	3003.731	1501.866	0.51	0.5984
Within Groups	213	621545.806	2918.055		
Total	215	624549.537			

Table 4.2

TEST OF GROUP EQUIVALENCE ON THE
CMI ATTITUDE SCALE PRETEST SCORES

Source of Variation	df	SS	MS	F Value	Significance Level
Between Groups	2	324.593	162.296	4.59*	0.01
Within Groups	213	7535.167	35.376		
Total	215	7859.760			

R-Square = 0.04

* p < .05

Table 4.3

NEWMAN-KEULS POST HOC TEST
 ON THE CMI ATTITUDE SCALE PRETEST SCORES

Subset 1	Interest Block (E_2)	Control Group (C_1)
Group Mean	27.64	29.03

Subset 2	Control Group (C_1)	Careers & You (E_1)
Group Mean	29.03	30.64

Ranges for the .05 Level -	2.81	3.34

Homogeneous subsets are those groups whose highest and lowest means do not differ by more than the shortest significant range for a subset of that size.

null hypotheses relating to the between-group comparisons were analyzed with caution.

Group Effect

When the three group posttest scores on the CDI and CMI Attitude Scale were analyzed, no significant differences were found. The results of the two-way analysis of covariance yielded an $F = 0.84$; $P = 0.43$ for the CDI (see Table 4.4), and $F = 0.86$; $P = 0.42$ for the CMI Attitude Scale (see Table 4.5). Therefore, rejection of the null hypotheses relating to treatment effects with time being held constant could not be supported. Those hypotheses were as follows:

H_0_1 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Careers and You" program and 18-week control group.

H_0_2 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 36-week control group.

H_0_3 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Interest Block" program and 18-week control group.

Table 4.4

TWO-WAY FACTORIAL ANALYSIS OF COVARIANCE
 ON THE CDI POSTTEST SCORES

Source of Variation	df	Adjusted SS	F Value	Significance Level
Time	1	59.509	0.02	0.88
Group	2	4206.134	0.84	0.43
Time & Group	2	3346.025	0.67	0.51
Pre- <u>CDI</u>	1	210224.607	83.83 **	0.0001

** p < .01

Table 4.5

TWO-WAY FACTORIAL ANALYSIS OF COVARIANCE
 ON THE CMI ATTITUDE SCALE POSTTEST SCORES

Source of Variation	df	Adjusted SS	F Value	Significance Level
Time	1	11.354	0.36	0.55
Group	2	54.945	0.86	0.42
Time & Group	2	1.245	0.02	0.98
Pre- <u>CMI</u>	1	1087.815	34.04 **	0.0001

** p < .01

H_0_4 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Interest Block" program and 36-week control group.

H_0_5 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 18-week "Careers and You" program and 18-week "Interest Block" program.

H_0_6 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 36-week "Interest Block" program.

Time Effect

Analysis of the time effect on the CDI and CMI Attitude Scale posttest scores, adjusted for pretest scores, showed no differences. The data yielded an $F = 0.02$; $P = 0.88$ for the CDI (see Table 4.4) and $F = 0.36$; $P = 0.55$ for the CMI Attitude Scale (see Table 4.5). Again, rejection of the null hypotheses relating to time effect, with groups being held constant, was not indicated. Those hypotheses were as follows:

H_0_7 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Careers and You" program and 18-week "Careers and You" program.

H_0_8 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week "Interest Block" program and 18-week "Interest Block" program.

H_0_9 : There is no difference in mean scores on the Total Scale of the CDI and the Attitude Scale of the CMI among seventh grade students in the 36-week control group and 18-week control group.

Time-Group Interactions

Although time-group interactions were not hypothesized in this study, the researcher tested for the various interactions that might occur and found none. In any two-way ANOVA, it is important to ascertain whether interaction is occurring which might camouflage main effect differences which appear to be non-significant. In this study, interaction was not detected. It was safe to conclude, therefore, that there were no hidden main effect differences, and that the failure to reject any of the hypotheses was further supported.

SUMMARY

Statistical results of the factorial analysis of covariance performed on the data were reported in this chapter. It was shown that, in analyzing the pretest data, an inequivalency in group mean on the CMI Attitude

Scale was detected. However, the strength was proven to be very small, and valid posttest comparisons were judged to be statistically appropriate. The CDI pretest data indicated equivalency among groups.

Using a two-way analysis of covariance to test the null hypotheses, the investigator failed to reject any of the nine hypotheses. These results were very firm in that the alpha levels obtained were so far removed from the predetermined .05 level as to dispel any reservations concerning the outcomes.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter begins with the researcher's summary of the study, followed by the basic conclusions extracted from the analysis of the data. Finally, a list of recommendations is set forth based upon the findings and the observations obtained from the study.

SUMMARY OF THE STUDY

The purpose of this study was to investigate the effects of two career orientation and exploratory programs on the vocational maturity level of seventh grade students. Two independent variables were addressed, using a 2 x 3 factorial design to analyze adjusted treatment effects upon the dependent variable of vocational maturity. The independent variables were the treatments consisting of "Careers and You", "Interest Block", "Control Group" and the timeframe involved with the various programs. These two independent variables were classified as active and categorical, respectively.

By artificially manipulating the time interval, the researcher was able to analyze the effects of time on the dependent variable. The importance of time in assessing the merits of the treatments has implications for curriculum design, both for the career component and

for the overall seventh grade program. Since career orientation and exploration was a goal of the school system, and, because seventh grade students in the school division were allowed only one elective offering, the format and structure were deemed important.

The experimental groups were composed of seventh grade students participating in the "Careers and You" and "Interest Block" programs, while the control group consisted of students in band and/or choir who did not receive instruction in either of the two treatment groups. The participants selected for the study were students from four junior high schools within the local school division. Each participant was pretested on both the CDI and CMI Attitude Scale test instruments. Results of the pretest mean scores for the groups indicated significant differences on the CMI Attitude Scale scores between the "Careers and You" and "Interest Block" groups. Inasmuch as the strength of the difference was small ($R^2 = 0.04$), valid posttest comparisons were considered to be statistically appropriate.

One-half of the participants in the three groups were posttested on the CDI and CMI Attitude Scale at an 18-week time interval, while the remaining participants were tested at the end of a 36-week interval. Posttest analysis was conducted using a two-way analysis of

covariance, with the pretest scores being used as a covariate to adjust for group bias and to add sensitivity to the dependent variable measure.

Nine hypotheses (see pages 47 and 48) were formulated to test for between-group and within-group differences. A preselected .05 alpha level was used.

CONCLUSIONS

The findings of this study were separated into two distinct classifications: one, pertaining to the hypotheses being tested, and second, the investigator's observations relating to the findings of the study.

Hypotheses

The dependent variable, Vocational Maturity, was the focus of all nine hypotheses. Technically, it was considered to be a dependent attribute and continuous variable. Measurement was accomplished by utilizing the CMI Attitude Scale and CDI test instruments.

The first six hypotheses dealt with comparisons among the three groups on the Total Scale of the CDI and the Attitude Scale of the CMI. Because the F values showed no significant group effect, hypotheses one through six failed to meet the rejection criteria.

Null hypotheses seven through nine pertained to effects of the length of program within the various groups. Results indicated by both the CDI and Attitude Scale of the CMI were not significant. Therefore, hypotheses seven through nine failed to meet the rejection criteria.

Investigator's Observations

The unexpected conclusion that neither type of instructional program nor timeframe for offering the programs affected the vocational maturity level of seventh grade students should not be interpreted as conclusive evidence that positive benefits have not been derived.

The concept of vocational maturity might be considered as an elastic one. Measurement at best, according to Super (1972), is still in an early stage of development. Consequently, measurement of sensitivity to changes in vocational maturity has not yet reached a level of high precision.

The decision to use both the CDI and Attitude Scale of the CMI was based upon the researcher's desire to select the most appropriate measuring devices available at the initiation of the study. The literature was confounded as to effectiveness of these instruments. There were studies in similar programs which indicated significant gain scores on the CMI and CDI, while other studies using

the same instruments did not report significant gain scores.

Since Super (1963) and Crites (1973) reported Vocational Maturity to be a product of chronological advance, one would tend to expect higher mean scores from pretest to posttest measures. Although not necessarily significant, an increase in a positive direction would still be a reasonable expectation if the evaluation instruments were reliable in assessing the dependent measures, and, if the population characteristics could be considered normal. When the pretest to posttest raw mean scores were examined, this basic tenet was in evidence with the exception of the "Careers and You" 18 and 36-week CMI Attitude Scale scores and the "Careers and You" CDI 36-week scores (see Tables 5.1 and 5.2). Although the decrease from pretest to posttest scores, in all three cases, was less than one unit, the fact that a status quo situation was indicated was nonetheless quite puzzling.

There were three external factors worthy of note: (1) the exposure of students to the career education program, beginning as early as kindergarten and continuing through the sixth grade; (2) that seventh grade students in this study appear to have achieved an eighth grade level of vocational maturity as indicated in the CDI table (see Table 5.3); and (3) there was strong evidence

Table 5.1

CAREER DEVELOPMENT INVENTORY
PRETEST-POSTTEST MEAN SCORES

Groups	18 Week (1) Pretest Means	18 Week (2) Posttest Means	36 Week (1) Pretest Means	36 Week (2) Posttest Means
Careers & You	338.67	349.47	349.39	349.36
Interest Block	332.81	337.97	340.72	356.19
Control	351.72	365.56	332.75	352.03

Table 5.2

CAREER MATURITY INVENTORY ATTITUDE SCALE
 PRETEST-POSTTEST MEAN SCORES

Groups	18 Week (1) Pretest Means	18 Week (2) Posttest Means	36 Week (1) Pretest Means	36 Week (2) Posttest Means
Careers & You	30.53	30.36	30.75	30.00
Interest Block	27.81	30.25	27.47	29.47
Control	29.50	31.11	28.56	30.47

Table 5.3
NON-STATISTICAL COMPARISON OF MEANS
ON THE CDI

Groups	Present Study		Manual Table of Total Scale	
	Raw Mean Scores	Seventh Grade	Mean Scores on CDI	Eighth Grade Tenth Grade
Careers & You	349.36			
Interest Block	347.08		347.73	395.97
Control	358.79			

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Note: CDI Research Manual, Table 6, page 25.

that teacher support for the Careers and You program was lacking in one of the two treatment groups.

If kindergarten through sixth grade career education exposure impacted upon seventh grade pretest CDI scores, then it may be reasonable to question whether a single, one-year treatment would have measurable effect on the vocational maturity level of children who have had extensive career education exposure prior to the treatment.

Some lack of teacher support is not an uncommon condition in any educational setting. It was unusual in this study in that, rather than being equally distributed among the treatment groups, this lack of support was concentrated within one treatment group at one school. This concentration of attitude could not have been anticipated in the research design. This flaw was recognized as having a possible detrimental effect on the testing environment.

It should be emphasized that these observations are points of interest only and do not presume to alter the conclusions reached in this study. However, other investigators may wish to consider these factors when formulating research designs for future studies.

RECOMMENDATIONS AND IMPLICATIONS

Based upon the statistical findings and observations determined by the researcher, the following recommendations and implications were formed:

1. No significant differences in career maturity levels among students in the three instructional programs (Interest Block, Careers and You, Band and Choir) nor time-frame (18 weeks vs. 36 weeks) for offering the programs were detected. The implications of these findings for parents whose children choose Band or Choir as an elective offering in lieu of a career development program are reassuring. So far as this study can ascertain, these parents need not be concerned that their children's career maturity will be impaired by their interest in Music.

2. Since the outcomes are about the same, the decision by a school division to replace the "Interest Block" program with that of "Careers and You" should be analyzed in regard to program costs; e.g., comparative in-service cost requirements, capital outlay expenses, and consumable supply costs.

3. The decision to implement any career education program should reflect empirical evidence, local priorities and professional judgment and not necessarily hinge on the question of whether the program is yielding better career maturity scores. To obtain the benefits of both career development programs, school divisions might consider offering students 18 weeks of "Careers and You" and 18 weeks of "Interest Block" programming. The advantages of such an arrangement include the continued provision for occupational orientation and a degree of self-understanding

as it pertains to work which is taught in the "Careers and You" program. The 18-week Interest Block program would continue to offer students pre-exploratory experiences in four elective subjects which should help them to make more knowledgeable choices among the elective courses at the upper grade levels. Of course, the length of these Interest Block programs would, out of necessity, have to be shortened to four and one-half weeks. With proper planning, the transition from the customary nine-week program to the suggested four and one-half-week program should not prove too difficult.

4. Additional research should investigate treatments beyond the scope of this study to isolate program benefits which are apparently present, but which do not emerge from the measures conducted here. Future studies of these treatments might include formative procedures such as anecdotal data, planned observations and other activities which may supplement the more rigid and formal experimental design.

5. This study should be replicated with more stringent control in regard to random assignment of subjects to groups, and groups to treatments. This perhaps could be accomplished by centering the study at one school setting rather than two or more. The assumption is made that local school division approval could be secured and adjustments in the selection and scheduling process used by that school could be randomized.

This study should also be replicated in a school division where a less extensive kindergarten through sixth grade career education program exists. If, as observed by the researcher, this extensive career education exposure impacted upon the dependent variable of career maturity, then controlling this extraneous variable should yield a clearer picture of program results.

6. The precision of current instruments by which the construct of vocational maturity is measured should continue to be thoroughly investigated. Also, in this regard, a careful content analysis of the instruments used in this study compared with the content of the courses should be conducted to insure content validity of the dependent variable being measured.

7. In future studies when random selection procedures are not possible and intact groups must be used, the researcher should isolate intelligence scores as an additional covariate in the statistical analysis. In this way intelligence can be controlled, if in fact it does impact upon the dependent measures. It would appear the current literature in this regard leaves some room to question whether intelligence and career maturity are related beyond the purely cognitive arena.

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EFFECTS OF TWO CAREER DEVELOPMENT PROGRAMS
ON CAREER MATURITY OF SEVENTH GRADE STUDENTS

by

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(ABSTRACT)

The purpose of this study was to investigate the effects of two career orientation and exploratory programs on the vocational maturity level of seventh grade students. Two independent variables involving type of program and length of program were manipulated by the researcher by using a 2 x 3 factorial design to analyze adjusted treatment effects upon the dependent variable of vocational maturity.

The experimental groups were composed of seventh grade students participating in the "Careers and You" and "Interest Block" programs, while the control group consisted of students in band and/or choir who did not receive instruction in either of the two treatment groups. The participants selected for the study were students from four junior high schools within the local school division. Each participant was pretested on both the Career Development Inventory and Career Maturity Inventory Attitude Scale test instruments. Results of the pretest mean scores for the groups indicated significant differences on the CMI Attitude Scale scores between the "Careers

and You" and "Interest Block" groups. Inasmuch as the strength of the difference was small ($R^2 = 0.04$), valid posttest comparisons were felt to be statistically appropriate.

One-half of the participants in the three groups were posttested on the CDI and CMI Attitude Scale at an 18-week time interval, while the remaining participants were tested at the end of a 36-week interval. Posttest analysis was conducted using a two-way analysis of covariance, with the pretest scores being used as a covariate to adjust for group bias and to add sensitivity to the dependent variable measure.

Nine hypotheses were tested at alpha equals .05 with the following results:

The first six hypotheses dealt with comparisons among the three groups on the Total Scale of the CDI and the Attitude Scale of the CMI. Because the F values showed no significant group effect, hypotheses one through six failed to meet the rejection criteria.

Null hypotheses seven through nine pertained to effects of the length of program within the various groups. Results indicated by both the CDI and Attitude Scale of the CMI were not significant. Therefore, hypotheses seven through nine failed to meet the rejection criteria.