

THE UNIVERSITY OF MANITOBA

THE EFFECT OF A CAREER EDUCATION PROGRAMME ON THE CAREER  
ATTITUDE MATURITY OF GRADE NINE STUDENTS

BY

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## Abstract

The present investigation consisted of two separate, although not discrete, studies of career development. In the first study, Crites' Attitude Scale of the Career Maturity Inventory (CMI) was administered to 76 grade nine students (38 males, 38 females) before, during, and after a five-month career education programme, in order to assess the effect of the programme on the students' career attitude maturity. Since research findings regarding sex differences in career maturity are conflicting (Smith and Herr, 1972; Crites, 1973; Forrest and Thompson, 1974), a comparison was made between male and female scores on the Attitude Scale. Also, in view of data suggesting a positive relationship between aptitude and career maturity (Williams, 1967; Forrest, 1971; Crites, 1973), Differential Aptitude Test (D.A.T.) scores were correlated with student scores on Crites' Attitude Scale. In the second study, one essential aspect of the overall career education programme, the Work Exposure Project, was evaluated by questionnaires administered to students and participating employers. The results of the first study revealed a significant increase in career attitude maturity for the male experimental subjects over the five-month duration of the career education programme. However, no significant differences in career attitude maturity were found between the experimental and control groups following the same five-month period. Significant correlations were found between career attitude maturity scores and VR + NA composite scores on the Differential Aptitude Tests. The second study, i.e., the Work Exposure Project, was judged successful in terms of meeting the majority of a priori objectives for the project.

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## CHAPTER I

### INTRODUCTION

The concepts of career education and career development have taken on new meaning in the past decade, and current interest in these areas is widespread. This is clearly evident in the recent proliferation of work-study, work-experience, and vocational education programmes designed to assist young adults in preparing for their place in the job market. Educators today appear concerned about the need to provide all students with appropriate experiences to facilitate "vocational guidance", in keeping with Super's 1951 definition of the term as "the process of helping a person to develop and accept an integrated and adequate picture of himself and of his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society" (p. 92). Certain contemporary educators, such as Herr and Cramer (1972), have gone so far as to suggest that the entire system of education, from elementary, to junior high, to senior high, and to higher education, be organized around the elements of career education. They emphasized that a series of exposures to career development-oriented activities adapted to the developmental level of children and provided through different media would have an impact that isolated, compartmentalized experiences can never realize.

Super (1974) maintained that with the current re-emphasis upon career education programmes, educators have become particularly aware of the need to find conceptually sound and empirically valid procedures

for evaluating such programmes. These concerns have in turn resulted in the prevailing focus of attention by education evaluation specialists upon career development theory, as well as upon research and development work in the area of career or vocational maturity assessment. Super (1974) noted that "without a knowledge of career development and vocational maturity, there can be no such thing as genuine career education or career guidance" (p. 9).

### Overview of the Research

The present investigation involved two separate, although not discrete, studies of career development. In the first study, Crites' Attitude Scale of the Career Maturity Inventory (CMI) served as the dependent measure for evaluating the effect of an overall career education programme on the career attitude maturity scores of grade nine students. A related and semi-autonomous study involved the evaluation of an essential aspect of the overall career education programme, the Work Exposure Project.

### Career Attitude Maturity Study

#### Rationale and Objectives

Several instruments which measure career maturity are also recommended for use in evaluating career education programmes (Crites, 1973; Westbrook and Clary, 1967; Super and Forrest, 1972). The assumption here is that certain didactic treatments, such as career courses, help to improve student scores on tests of career maturity, or in other words, they are influential in increasing the career maturity of students exposed to specific treatments. With this in mind, a career

maturity inventory was chosen for this part of the research as the means of assessing the relationship between an overall grade nine career education programme and career maturity scores. Since research findings regarding sex differences in career maturity are conflicting (Smith and Herr, 1972; Crites, 1973; Forrest and Thompson, 1974), a second aspect of the career attitude maturity study involved a comparison of male and female scores on the Attitude Scale. Finally, as data (Williams, 1967; Forrest, 1971; Crites, 1973) suggests that a positive relationship between aptitude and career attitude maturity should be expected, Differential Aptitude Test (D.A.T.) scores were correlated with student scores on Crites' Attitude Scale.

#### Career Education Programme

The specific career education programme developed in the present study involved having students explore their interests, aptitudes, and values through self-report and objective-type interest inventories, films and speakers on careers, aptitude tests, and actual exposure to the world of work outside of school. The programme, which ran for about five months, consisted of three 35-minute classes per week. Specific elements of the course included the exploration of careers via packaged instruments such as CAREERSEARCH (Knicley and Brooks, 1975) and Job Experience kits (Krumboltz, 1970), both designed for classroom use. In addition, the programme included the administration of the Kuder Personal Preference Record, Holland's Self-Directed Search, the Differential Aptitude Tests, and the Work Exposure Project.

## Work Exposure Project

### Rationale and Objectives

The Work Exposure Project involved sending students (either singly or in groups of two or three) out into the community for one half-day of school time, in order to observe people at work and to interview them about their jobs. Following their visits to job sites, the students wrote subjective reports about their experiences for the purpose of publication in a career booklet.

Rationale for the project was based upon the assumption that on-site job visitations would give students a more realistic view of jobs than is generally provided through slide, film, and televised portrayals of occupations. The primary objective for the project was to enable students to obtain occupational information such as working conditions, job requirements, etc., by observing and speaking to people in their actual working environments. Secondary objectives pertained to the utilization of this information by the students in terms of facilitating further career exploration, communicating career goals to parents, and heightening student awareness of the relationship between school subjects and jobs. To evaluate the project, questionnaires based upon the project objectives were devised and administered to participating students and employers.

### Selected History and Theories of Career Development

The concepts of career development and career maturity are relatively new to the literature of vocational guidance. As recently as

twenty-five years ago, these concepts were largely unknown and unarticulated, although, as Crites (1973) pointed out, they were presaged by Carter's (1940) conceptualization of the formation of vocational attitudes in adolescence and Super's (1942) use of life stages in the analysis of vocational exploration and establishment. Prior to 1950, prevailing views of vocational behavior were almost entirely nondevelopmental in nature, drawing principal theoretical support from differential as opposed to developmental psychology. Vocational decision-making was viewed as a "time-bound, largely static event which occurred at the crossroads of life, usually upon high school graduation, when an adolescent took stock of himself and the world of work and then decided what he was going to do" (Crites, 1973, p. 5). Little attention was paid either to the antecedents or the outcomes of the choice act, as it was assumed that vocational choice was a more or less isolated incident in the ongoing life activities of the individual, with minimal bearing upon his subsequent success and satisfaction in life. The choice act was typified in the guidance literature of the 1930's and 1940's by the picture of a young man or woman standing at the junction of several career paths reflecting about which one to follow (Super, 1957; Crites, 1973). This non-historical notion of career choice dominated vocational psychology for several decades (Crites, 1965) and was institutionalized and maintained by the construction of a variety of trait-and-factor measures (aptitude, interest, and personality inventories) devised to implement the process of matching men with jobs (Crites, 1968). While this model still persists, Crites (1973) suggested that it is slowly diminishing in emphasis as contemporary views of career development intensify.

The trait-and-factor approach to career guidance has come to be regarded as an adjunct to, as opposed to the nucleus of, an individual's career development.

#### Occupation as a Process

Dysinger (1950) was among the first to observe that the choice of an occupation is a process rather than a one-time event. He suggested that commonly used terms such as "vocational decision" and "vocational choice" erroneously conveyed the notion of a unique moment in the life-span of an individual and that a need existed within the guidance movement to find a term, analogous to that of "socialization" in social development, to express the vocational implications of maturity. Vocational maturity, as outlined by Dysinger, consists of four more or less discrete stages of development: a phantasy phase, which parallels the duration of vocational daydreaming in childhood; the exploratory planning stage, where the adolescent begins to broaden vocational horizons in a more realistic sense; the period of general preparation, in which vocationally significant interests are crystallized and aptitudes are identified by the individual; and finally, the stage at which specific vocational preparation and placement occur. Each stage entails negative decisions which facilitate the narrowing of vocational choices and positive choices frequently follow a series of negative decisions. In addition, two vocational plans may exist simultaneously throughout these stages of development as insurance in the event of disappointment or failure with the preferred plan.

Super (1955) further advanced Dysinger's conceptualization of

vocational maturity, first by operationally defining the term within the framework of a vocational development continuum and second, by suggesting that career maturity is a measurable construct. Vocational development was viewed by Super as one aspect of individual development beginning early in life and proceeding along a curve until late in life. Analogous to the major life stages of growth, exploration, establishment, maintenance, and decline, as delineated by Buehler (1933), vocational development could also be divided into vocational life stages, each delimited by its singular characteristics. Super envisaged vocational maturity as the "yardstick" against which to gauge vocational development and as a guide for choosing appropriate measurement data. Super (1955) defined vocational maturity as "the term used to denote the degree of development, the place reached on the continuum of vocational development from exploration to decline;... vocational maturity may be thought of as vocational age, conceptually similar to mental age in early adolescence, but practically different in late adolescence and early adulthood because more distinctions can be made in the developmental curve at these stages" (p. 153).

#### Corollaries in Developmental Psychology

Super (1974) briefly noted other theories borrowed from developmental psychology which were significant in the formulation of his concepts of vocational development and vocational maturity. With respect to stages of development, Super cited Piaget's (Flavell, 1963) and Havighurst's (1953) emphasis on the importance of resolving the cognitive developmen-



tal problems and demands of one stage before coping with those of the next, as well as Erickson's (1963) theory that future growth is provided by the interaction between ego strength and the role demands according to organismic and societal timetables. The idea of future orientation was empirically identified by Buehler (1933) as an organizing attribute of adolescence and Hughes (1958) referred to future orientation as the "subjective career... the moving perspective in which the person sees life as a whole and interprets... meaning" (p. 63). Piaget is also cited regarding the developmental stage of adolescent exploration which he essentially describes as the stage of formal operations between the ages of 11 and 15, characterized by hypothesis formulation, testing, and elimination.

Other fundamental principles pertinent to Super's theory of vocational maturity and extracted from developmental psychology include the notions that the organism is essentially active, not passive, and constitutes what has been called an "open system" (Bertalanffy, 1961); the individual moves progressively from dependency to independence by acquiring skills and competencies necessary to perform adequately in ways valued by others; as the individual gains cognitive abilities which allow abstraction and generalization, he moves from a "now" to a "future" orientation; and finally, as the individual moves from immediate to delayed gratification in his affective and impulsive life, he can increasingly choose and commit himself to more refined social and personal goals (Harris, 1974).

#### The Vocational Maturity Quotient

Relative to the concept of mental maturity, Super (1955) also

theorized that, since the vocational life stage at which an individual is functioning may or may not be appropriate to his chronological age, it would be instructive to employ the concept of a vocational maturity quotient (VMQ). A VMQ was defined by Super as the ratio of vocational maturity to chronological age. As such, a VMQ indicates whether or not the vocational development of an individual is appropriate to his age as well as the relative degree of vocational development above or below the individual's chronological age. In addition, Super emphasized that vocational maturity is not to be confused with the concept of vocational adjustment, the latter being defined as the "adequacy of the handling of the vocational development problems encountered by the individual, regardless of his vocational maturity and chronological age" (1955, p. 153). Following this line of reasoning, Super (1957) differentiated between Vocational Maturity I (VM-I) and Vocational Maturity II (VM-II). Vocational Maturity I was conceptualized as the "life stage in which an individual actually is, as evidenced by the developmental tasks with which he is dealing in relation to the life stage in which he is expected to be, in terms of his age" (p. 132) and Vocational Maturity II as the "maturity of behavior in the actual life stage (regardless of whether it is the expected life stage), as evidenced by the behavior shown in dealing with developmental tasks of the actual life stage compared with the behavior of other individuals who are dealing with the same developmental tasks" (p. 132). Thus, while VM-I acknowledges the expectation that gross characteristics of vocational development are universally descriptive of broad chronological periods, VM-II focuses on the way in which a particular individual is coping with vocational development

in an ideographic sense (Herr and Cramer, 1972).

### Behavioral Indices of Vocational Maturity

Following Ginzberg and associates' (1951) model of vocational behavior during the exploration stage of development, Super (1955) postulated five dimensions of vocational maturity: Orientation to Vocational Choice (which relates to the individual's degree of concern with the need to make a vocational choice); Information and Planning (degree to which the individual is informed about occupations and is making or has carried out vocational plans); Consistency of Vocational Preferences (degree to which occupational interests have stabilized over time); Crystallization of Traits and Aptitudes (degree to which abilities and traits have taken shape, providing consistent individual support for action); and Wisdom of Vocational Preferences (degree of appropriateness of the occupational choice for the individual). These dimensions of vocational behavior outlined by Super are generally consistent with Baldwin's (1955) three basic features of mature behavior: cognition, goal selection, and goal-directed behavior.

In addition to defining and outlining dimensions of vocational maturity, Super also developed (as part of his longitudinal research project entitled the Career Pattern Study) a number of indices as possible measures of each dimension of vocational maturity in adolescence. The Career Pattern Study, which began in 1951, involved 142 eighth-grade and 134 ninth-grade boys in Middletown, New York, whom Super has followed and reported upon at various stages, up to age 25, in four separate monographs. While he has refined the indices for measuring vocational maturity, he has retained his five original dimensions of

maturity outlined earlier.

Gribbons and Lohnes (1968) replicated the early stages of Super's research by monitoring a sample of 57 boys and 54 girls from eighth grade to two years beyond high school employing a vocational maturity measure labelled Readiness for Vocational Planning (RVP). Their study, while revealing only small increases in vocational maturity from grade eight to grade ten, tended to corroborate major aspects of Super's vocational maturity theory. Gribbons and Lohnes (1968) concluded that vocational maturity is "a most meaningful developmental concept, that it is emergent with the passage of time, that it is persistent over time, and that it is differentiated into a multidimensional syndrome of traits, the kernel of which is informed planfulness" (p. 103).

Against the background of the pioneering theory and research emerging from Super's Career Pattern Study, Crites (1965) authored the first practical measure of vocational maturity, called the Career Maturity Inventory (CMI). Crites (1961) described career maturity as "the maturity of an individual's vocational behavior as indicated by the similarity between his behavior and that of the oldest individuals in his vocational life stage" (p. 259).

In summary, the concept of career or vocational maturity has evolved in the past quarter of a century in opposition to trait-and-factor theories prevalent in the 1930's and 1940's. Career or vocational maturity is viewed variously as the individual's degree of vocational development, his readiness for specific vocational tasks characteristic of his age or vocational life stage, and/or the degree to which he is coping ideographically with occupational choice problems.

### The Vocational Life Stage in Adolescence

The present research focuses on the adolescent vocational life stage of exploration. Super (1974) noted that the "exploratory" period of vocational development may in fact continue for several years after formal schooling is terminated and recommended that much of education be geared to facilitate planned exploration. Pietrofesa and Splete (1975) indicated that vocational experiences at the junior high level should provide the opportunity for students to choose broad occupational areas or clusters for in-depth exploration.

Harris (1974) stressed that the significance of the exploratory aspects of vocational development cannot be emphasized enough. He further suggested that our contemporary general education process is still too cognitively-oriented to provide truly exploratory experiences for students and that exploration must come at a time when the individual's energy levels are high and general habits are still flexible. School curricula should be reorganized in order to permit "more genuine doing activities to take their place alongside books as legitimate exploratory devices" (p. 94). Herr and Cramer (1972) further reinforced this notion by suggesting that the junior high school become a time for exploration, reality-testing, and movement "toward a conception of self as seen against a background of work" (p. 92).

### Models of Career or Vocational Maturity

#### Super's Career Pattern Study Models

Two models of vocational or career maturity emerged from Super's Career Pattern Study of ninth-grade boys, initiated in 1951. As Super (1974) observed, these models, along with all other current

working models of vocational maturity, are structural rather than developmental in nature, i. e., they focus on the factors which comprise vocational maturity during a specific life stage rather than examining the differential rates of development of the various factors over a life span. For his first model of career maturity (Appendix A), Super (1974) was guided by several theories of developmental psychology:

1. Development proceeds from random, undifferentiated activity, to goal-directed, specific activity;
2. Development is from dependence to increasing independence;
3. Development is in the direction of increasing awareness and orientation to reality (the mature individual cognizes the situation);
4. The mature individual selects a goal;
5. The mature individual's behavior is goal-directed. (Baldwin, 1967; Flavell, 1963; Havighurst, 1953)

In his first model of vocational maturity, Super established twenty indices of maturity for each of the six dimensions in the model (see Appendix A), but these indices were revised subsequent to empirical testing of the model with ninth grade boys. A factor analysis of the initially proposed indices of vocational maturity thus led to the formation of his second model (Appendix B). In this model, indices such as wisdom or realism of vocational preference do not appear due to the fact that they showed no intercorrelations with each other nor with other intercorrelated measures. Super (1974) suggested that, up to this point, models of vocational maturity were either extremely theoretical or they were based on limited empirical data at one age level.

### The Crites' Model

In an attempt to organize Super's dimensions of vocational maturity into a conceptual framework with heuristic value for measurement and theory, as well as usefulness in understanding research findings, Crites (1965) proposed a structural model of career maturity in adolescence (Appendix C). Through programmatic research, first at the University of Iowa and later at the University of Maryland, Crites sought to refine Super's model and to develop a battery of instruments designed to measure career choice competencies and career choice attitudes. In contrast to Super's (1960) Career Pattern Study, in which the vocational coping behaviors of an individual were compared with those of his age group, Crites viewed the appropriate comparison to be with the oldest individuals in the same vocational life stage. For example, ninth graders are compared on an age scale with twelfth graders.

The formal characteristics of Crites' model were patterned after Vernon's (1950) schema for the structure of intelligence, in which the lowest level incorporates the operationally defined variables of interest; the intermediate level symbolizes group factors derived from the interrelationships among the variables; and the highest level is delimited by the common variance among the group factors. Crites' model is thus a hierarchical one, based on the assumption that the variables and group factors are interrelated rather than discrete, in contrast to hypotheses suggesting that developmentally, the trend should be toward greater differentiation of specific behaviors (Crites, 1965).

Crites re-classified Super's indices of career maturity under four major headings: consistency of career choices, realism of career choices, career choice competencies, and career choice attitudes. He

accepted the Career Pattern Study method of assessing the first two categories and devoted his attention to the latter two areas dealing with the attitudinal and intellectual aspects of choice making. The career choice competencies and career choice attitudes groups were specifically derived from Super's Orientation to Vocational Choice, Information and Planning, and certain components of the Crystallization of Traits dimensions, as well as from concepts advanced by other theorists (Crites, 1964).

#### Other Structural Models

Super (1974) presented two structural models of vocational maturity derived from theory and refined in the light of empirical research. The first model (Appendix D) shows the structure of vocational maturity in ninth grade and the second (Appendix E) in the twelfth grade. In these models, the correlation coefficients are estimated hypothetical correlations, i.e., they are based on theory but are not characteristic of actual observed correlations of any one study. They represent a synthesis of salient factorial clusters from several studies.

#### The Developmental Model

In order to supplement existing structural models, Super (1974) proposed a theoretical developmental model of vocational maturity (Appendix F) in which he attempted to clarify the differential rates of development of the various factors. In particular, he designated factors in grade twelve which have not sufficiently matured by the ninth grade to justify their inclusion there. For example, certain types of information, such as data regarding occupational advancement, are irrelevant to fourteen-year-olds. The declining importance of parental socioeconomic status as youth attains greater independence in a demo-



cratic society is also illustrated in this model. Again, this is a hypothetical paradigm based on theory and modified by existing data.

#### Instruments for Measuring Career Maturity

Four of the best-known tests or inventories for measuring career or vocational maturity are the Career Maturity Inventory (CMI) (Crites, 1965), the Cognitive Vocational Maturity Test (CVMT) by Westbrook and Clary (1967), the Readiness for Vocational Planning Scale (RVP) by Gribbons and Lohnes (1968) and the Career Development Inventory (CDI) (Super and Forrest, 1972). Each of these inventories will be described in terms of its development, content, administration, and utility as a measuring device, with special attention being given to the test employed in the present study, Crites' Career Maturity Inventory (CMI).

#### The Cognitive Vocational Maturity Test (CVMT) (Westbrook and Clary, 1967)

The CVMT is a cognitive measure of vocational maturity, developed to assess one of the types of variables in Crites' refinement of the Career Pattern Study's model of vocational maturity, the information variables. In an attempt to adequately sample the universe of vocational information, Westbrook and his colleagues employed Roe's classification of occupations as well as the Dictionary of Occupational Titles and the Occupational Outlook Handbook, in devising their test for the measurement of vocational knowledge. Six areas which appeared to match closely the objectives of career education programmes were chosen for inclusion in the CVMT. They are: Fields of Work (knowledge of the occupations available in various fields of work); Job Selection

(the ability to choose the most realistic occupation for a hypothetical student who is described in terms of his abilities, interests, values, etc.); Work Conditions (knowledge of work schedules, income levels, physical conditions, job locations, etc.); Education Required (knowledge of the amount of education generally required for a wide range of occupations); Attributes Required (knowledge of the abilities, interests, and values generally needed for various occupations); and Duties (knowledge of the principal duties performed in a variety of jobs). Within each of these areas, items are arranged in order of increasing difficulty. The CVMT has a total of 120 items, takes about seventy-five minutes to complete, and may be group administered and scored by classroom teachers or counsellors. It is geared for grades six through nine, but may be useful at other levels if it appears to match the objectives of a given career education curriculum or career guidance programme. Care was taken to ensure that reading ability itself did not account for major variances in test scores.

The CVMT is recommended for use in three areas: first, as a screening device to assess overall group readiness for various educational-vocational decisions; second, as a diagnostic tool, to identify specific individual weaknesses in the six areas that require remediation; and third, as an instrument for evaluating the effectiveness of career education and development programmes.

The Readiness for Vocational Planning (RVP) Scale (Gribbons and Lohnes, 1968)

In contrast to other scales of career maturity, the RVP takes the form of a structured personal interview and requires some short-term training to ensure maximum validity and reliability of administration.

An interview protocol was chosen over a questionnaire format in order to reduce the resistance encountered when students are asked to record their ideas on paper and to allow for maximal opportunity for student self-expression and disclosure of thoughts and attitudes. Further, provided that rapport is established between the interviewer and interviewee, the RVP approach permits the clarification of vocabulary too difficult for some students and probing for more specific answers and ideas (Gribbons and Lohnes, 1968). Many of the questions in the RVP interview schedule represent modifications of interview protocol used in Super's Career Pattern Study (Super and Overstreet, 1960).

The RVP is appropriate for students in grades eight through twelve. The interview schedule contains approximately 50 questions (it varies slightly with subject grade level) and scoring is carried out by rating the quality of subjects' responses on a scale of 0 (indicating a lack of understanding or awareness) to 4 (applicable to accurate responses with qualifying explanations). The RVP is intended to assess various elements pertaining to the career choice process: factors in curriculum and occupational choice, verbalized strengths and weaknesses, accuracy of self-appraisal, vocational interests, values, and level of independence in decision-making.

#### The Career Development Inventory (CDI) (Super and Forrest, 1972)

The Career Development Inventory was created in order to measure the effects of exposing high school students to a computerized guidance programme entitled the Educational and Career Exploration System. It paralleled the theoretical observation that the concept of

vocational maturity not only described a developmental process, but as a measurable construct, it also served as an outcome variable, i.e., as a measure of the effectiveness of some experimental treatment.

The Career Development Inventory is an objective, multifactor, self-administering, paper-and-pencil instrument for measuring the vocational maturity of male and female adolescents. The test provides three scale scores, two of which are attitudinal in nature and one of which is cognitive. Scale A, Planning Orientation, contains 33 items related to concern with occupational choice, specificity of planning, and a self-estimated rating of occupational information. Scale B, Resources for Exploration, has 28 items involving a self-rated assessment of resources for use in vocational planning. It is designed to measure the quality of resources which are actually used as well as those which are potentially useful to the individual in career exploration. Scale C, Information and Decision Making, is composed of 30 items and assesses the student's possession of actual occupational information and his knowledge of how to integrate personal and occupational information into educational and vocational decisions. Thus, Scale A measures the student's attitudes toward planning and choosing an occupation, Scale B estimates the quality of individually used and potentially available resources, and Scale C assesses the quality of occupational information acquired by the student together with the awareness of its decision-making utility. The CDI therefore taps both attitudinal and cognitive aspects of vocational maturity.

Questions on Super's Career Development Inventory are not sex-differentiated. The reading level is set at grade six and the

vocabulary and content make it applicable for both junior and senior high students. Administration is self-explanatory and total testing time is from thirty to forty minutes. A college form is also available with appropriate post-secondary terminology. Since hand scoring is tedious, a computer-based format is obtainable. The completion of all items is essential to scoring.

Super (1974) noted that, in addition to its original use in evaluating a computer-based counselling system, the CMI has also been used to evaluate courses in career development for inner-city ninth graders in a career education project in New York City and for suburban ninth graders on Long Island. The content of the CDI makes it suitable for evaluating the impact of many types of educational and vocational guidance programmes, services, and activities intended to augment the vocational development of students in junior and senior high school or in the first year of post-secondary school education. In addition, the CDI may be used to assess the degree of career maturity attained by different groups of students classified by age, grade, sex, work experiences, etc., for the purpose of curriculum planning. Finally, it is intended for use with individual students in determining their readiness for certain learning and exploratory experiences which are likely to remedy deficiencies or build on existing strengths.

#### The Career Maturity Inventory (CMI) (Crites, 1965)

The Career Maturity Inventory was originally entitled the Vocational Development Inventory (VDI). Crites altered the title to signify that the CMI measures career behaviors which mature over time, as opposed to vocational education or occupational status variables.

There are two parts to the CMI: the Attitude Scale and the Competence Test, designed to measure the group factors "career choice attitudes" and "career choice competencies" in Crites' model of career maturity.

Rationale for the Career Maturity Inventory was based on several assumptions concerning the developmental nature of vocational behaviors. These assumptions included the theory that vocational behaviors mature over time in a systematic fashion and that career development is typically a unidirectional process terminating in the achievement of some end-state or objective. Further, while vocational behaviors need not develop uniformly during any given life stage, they generally should not reverse themselves. Thus, only those items which demonstrated a monotonic relationship (i.e., either increased or decreased) with age and which differentiated among the various levels in the educational structure during late childhood and adolescence were chosen for use in the CMI. Cross-sectional and longitudinal methods of data collection were employed to ensure that CMI items could be initially standardized cross-sectionally and then re-standardized longitudinally as core samples were retested from one school year to the next. The standardization population was drawn from students in grades five through twelve as well as from college students.

The Competence Test, in particular, was developed to quantify "comprehension and problem-solving abilities as they pertain to the (career) choice process" (Crites, 1965, p. 7). This part of the CMI is composed of five subtests, each of which measures a sequential element in career decision-making: self-appraisal, occupational information, goal selection, planning, and problem-solving. Administration of the battery takes approximately two and a half hours (one half-hour per

subtest) and scoring may be done by hand or machine. While the principle utility of the Competence Test lies in the diagnosis of specific problems in the career decision-making process, the test may also be used as a "needs" assessment to determine effective curricular and guidance activities for students. The Competence Test provides a relevant basis for evaluating the extent to which career education objectives have been met.

#### The Attitude Scale of Crites' Career Maturity Inventory

The Attitude Scale is a paper-and-pencil inventory consisting of fifty True-False statements of attitudes toward work. It was constructed to "elicit the attitudinal or dispositional response tendencies in (career) maturity which are non-intellective in nature, but which may mediate both choice behaviors and choice aptitudes (competencies)" (Crites, 1965, p. 7). Items for the test were chosen primarily from verbalizations made by clients in career counselling as well as from career autobiographies and case summaries. The five main clusters or dimensions into which the attitudes on the scale have been divided include:

- (1) involvement in the choice process;
- (2) orientation toward work;
- (3) independence in decision-making;
- (4) preference for vocational choice factors;
- and (5) conceptions of the choice process (Crites, 1974, p. 29).

The Attitude Scale yields a global and monotonically grade-related score of the maturity of career attitudes and takes about twenty minutes to administer. It was standardized on 2822 students in grades five through twelve during the 1961-62 academic year in Cedar Rapids, Iowa.

### Reliability of the Attitude Scale

Test-retest reliability for the Attitude Scale has been demonstrated in a number of large sample studies (N's ranging from 255 to 1349) with students in grades six through twelve. The correlation coefficients over these studies ranged from a low of .65 to a high of .84 with the mean correlation being .74. Super and Crites (1962) pointed out that these coefficients are comparable to other non-intellective measures and are what might be expected theoretically for a factorially complex scale.

### Validity of the Attitude Scale

Crites (1974) noted that the content validity of the Attitude Scale was established by selecting the attitudes it is designed to measure from contemporary theories of career development. He cited a study by Hall (1962) in which expert judges (such as counselling psychologists) agreed with the empirically-derived scoring key for the Attitude Scale three times out of four. Criterion-related validity for the Attitude Scale has been shown by correlating it with other measures of similar variables such as realism in vocational aspiration and consistency, decision, and realism in career choice. For example, significant correlations have been found to exist with Miller and Haller's Occupational Scale (Bathory, 1967) and with Gribbons and Lohnes' Readiness for Vocational Planning (RVP) Scale (Cooter, 1966). And finally, construct validity of the Attitude Scale may be assessed by its interrelationships with an extensive "nomonological network" of variables which have been correlated with it. These variables include socio-economic status, previous work experience, intelligence, special



aptitudes, interest profile stability, personality traits, general adjustment status, academic achievement, ratings in vocational training, job success, and composites of variables derived from factorial and multiple regression analyses (Crites, 1974).

#### Career Attitude Maturity as a Dependent Measure

Crites (1973) noted that attempts to change Attitude Scale scores, from lesser to greater career maturity, through direct manipulations of the individual's external environment have been of two types: some form of counselling experience, either individual or group, or some form of didactic exposure, such as an occupational information course or career game. Results from both research methods have been mixed. Bovee (1967), for example, reported significant gains in career attitude maturity for two experimental groups, one with pre-counselling-plus-counselling and the other with counselling only as compared with an uncounselled control group in a Pre-Post-Test design. Similarly, Asbury (1967) and Gilliland (1966) reported higher Post-Test scores on the Attitude Scale for students who had received counselling as opposed to those who did not. Goodson (1969) conducted a "gains" analysis of Pre- and Post-Test scores on the Attitude Scale for three experimental groups and one control group including college freshmen enrolled in an eight-week orientation course. He not only found that significant gains in maturity were made by the experimental groups, but that the controls regressed in career attitude maturity in the course of the experiment.

Myers (1966) pre- and post-tested subjects over a period of approximately seven months with the intervening experience for his

experimental group consisting of participation in a Neighborhood Youth Corps Project with adjunctive counselling. Contrary to the studies by Asbury, Bovee, and Goodson, however, he found no significant differences in gains for the experimental groups versus an equivalent control group (N= 49). Further, Schmieding and Jensen (1968) employed the Attitude Scale for a Post-Test only analysis of a 22-hour "occupations class" for eleventh and twelve grade Indian students, extending over an eight-week period with one experimental and one control group (34 students per group). The results revealed no significant differences between the two groups, leading the investigators to conclude that "... it would appear that short-term treatment has a limited influence on firmly established impressions and attitudes" (Crites, 1971, p. 55). Shirts (1966) was also unsuccessful in demonstrating that career attitude maturity is enhanced by an experimental treatment, which consisted of having students play the Life Career Game (Boocock, 1964).

In summary, Crites (1973) indicated that some types of interventions (both counselling and didactic) increase vocational maturity as measured by the Attitude Scale, while others do not.

#### Sex Differences In Career Attitude Maturity

Research findings and opinions concerning the existence and importance of sex differences in the maturation of vocational attitudes are contradictory. Crites (1973) reported negligible differences between the sexes in the standardization sample for the CMI-Attitude Scale (males and females only differed on two items out of 50), leading him to conclude that sex may not be an important factor in career attitude maturity. Similarly, Super (Forrest and Thompson, 1974) indicated

that there were no significant differences in the means and variances between males and females on any of his Career Development Inventory scales, two of which measure attitudinal aspects of career maturity. Both Super and Crites, therefore, found a lack of discrimination on the basis of sex in research samples for their inventories of career maturity, suggesting the use of both tests for coeducational groups.

However, in a study designed to determine if different patterns of vocational attitude maturity exist between adolescent boys and girls, Smith and Herr (1972) reported statistically significant mean differences in maturity associated with sex membership. Their data indicated that, in addition to scoring higher on Crites' Attitude Scale, girls tend to have less variance in their career attitude maturity scores. Further, Smith and Herr found a tighter clustering of Attitude Scale scores for both sexes at the tenth grade than at the eighth grade level, indicating greater homogeneity of attitudes at the higher grade level.

These apparent contradictions regarding sex differences in career maturity prompted the inclusion of sex difference analyses in the present study.

#### The Relation Between Intellectual Factors and Career Attitudes

Studies of intellectual variables related to the Attitude Scale have dealt almost exclusively with relationships between intelligence or scholastic aptitude and career attitudes. In a group of 257 ninth grade boys, Dutt (1968) reported an  $r$  of .42 between the Otis Quick-Scoring Mental Ability Tests and the Attitude Scale. Cover (1968) found a correlation of .45 between the Attitude Scale and the Cooperative School and College Ability Tests (SCAT) for 162 high school senior

males. In another sample of 1116 twelfth graders, Tamminen and Miller (1968) indicated an  $r$  of .40 with the Minnesota Scholastic Aptitude Test (MSAT) and the Attitude Scale, and Hoyt (1962) reported correlations ranging from .25 to .53, with a mean  $r$  of .37, for the Attitude Scale and the Dailey Vocational Guidance Tests in fifteen vocational training schools. Crites (1973) noted that the average  $r$ 's for college students have been lower due to the greater group homogeneity in ability, such as in the study conducted by Carek (1965) in which a correlation of .17 was found to exist between the American College Testing Program (ACT) composite scores and scores on the Attitude Scale for 346 male freshmen and sophomores. Further, Williams (1967) indicated a correlation of .20 with the Scholastic Aptitude Test-Verbal and the Attitude Scale in a sample of 215 male sophomores in college. And finally, Forrest (1971) found a significant relationship ( $r$ 's of .42) to exist between the Attitude Scale and the cognitive Scale C of Super's Career Development Inventory. He also reported moderate correlations between the Attitude Scale and verbal aptitude as well as between the Attitude Scale and grade-point average, and concluded from these findings that the Attitude Scale appears to be in fact, although not in design or theory, largely a cognitive scale.

These results of research on the Attitude Scale are also consistent with findings reported by Super and Overstreet (1960) on the Indices of Vocational Maturity and by Gribbons and Lohnes (1968) on the Readiness for Vocational Planning (RVP) scales, in which verbally expressed career attitudes have been shown to relate to verbal intelligence or aptitude. Crites (1973) suggested that these results are to be expected if it is to be assumed that attitudes mediate decision-making.

## CHAPTER II

## METHOD

Career Attitude Maturity StudySubjects

Ss for the experimental group were 76 grade nine students (38 males, 38 females) attending Pembina Crest Junior High School which is located in a predominantly middle class community in Winnipeg. The average age of the students participating in the study was 14.5 years. Control groups A and B, each consisting of 38 males and 38 females, were chosen from near-by schools. None of the students (experimental or control) had received any systematic career education or career counselling prior to the treatment period and only the experimental subjects received the five-month career education treatment.

Treatment

The overall treatment given to the experimental Ss consisted of a five-month career education course which included three 35-minute classes per week from the beginning of January to the end of May. An overview of the treatment protocol is presented in Figure 1.

Measuring Instrument

Crites' Attitude Scale (Form IV) (Appendix G) of the Career Maturity Inventory (CMI) was employed as the dependent measure of career attitude maturity. The Attitude Scale was judged appropriate for grade nine students on the basis of its content, vocabulary, and relative brevity.

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
<u>IN-CLASSROOM CAREER ACTIVITIES</u> (Classes were 35 minutes long and met three times per week.)	For three weeks prior to the start of the Work Exposure Project, students did research on occupations of their choice in the CAREERSEARCH Kit (Knicley & Brooks, 1975).	← STUDENTS EXPLORED VARIOUS OCCUPATIONS VIA SLIDES, FILMS, AND SPEAKERS ON CAREERS →				
		The experimental and control groups took the Kuder Personal Preference Inventory.	The experimental Ss completed Holland's Self-Directed Search.			
<u>WORK EXPOSURE PROJECT</u>	Each student chose a single job site to visit for one half day during the school term from February to May and prepared a list of questions to be answered when at the job site.	← JOB SITE VISITATIONS → (One visitation only was made by each of the 76 students. Following their visitations, students wrote subjective reports about their half-day experiences. Their reports were edited and then re-written by the students.)				Students and participating employers evaluated the Work Exposure Project. Students organized reports into chapters for publication in a career booklet.
<u>CAREER ATTITUDE MATURITY STUDY</u> Test administration schedule.	The Differential Aptitude Tests (D.A.T.) were given to the experimental and control groups. The experimental Ss only were given Crites' Attitude Scale.			Experimental and Control Group A Ss were given Crites' Attitude Scale.		Experimental, Control A, and Control B Ss were given Crites' Attitude Scale.

Note. Only the 76 experimental subjects received the overall treatment described above. Control Group A and Control Group B subjects did not receive any systematic career counselling or career education during the school year.

Figure 1. Experimental treatment protocol.

### Procedure

The Attitude Scale was administered to the experimental subjects in January, 1977, just prior to the start of the career education course. At the beginning of April, the same scale was readministered to the experimental group and was also administered for the first time to the subjects in Control Group A. Finally, in mid-June, the scale was once again administered to the experimental and Control Group A subjects. Also at this time, the scale was administered to a second control group, Control Group B, which was added to the study in order to be able to assess the possible reactive effects of pre-testing on Control Group A and on the experimental group. The Differential Aptitude Tests (D.A.T.) were administered to all Ss across groups in January.

### Hypotheses and Experimental Designs

Experimental designs were formed to study the hypotheses stated below. As noted, designs for each of these hypotheses are presented in Appendix H.

#### Research Hypothesis

If grade nine students are exposed to an experimental treatment, consisting of a five-month career education programme, then there will be (a) a significant difference in the experimental subjects' pre- and post-treatment career attitude maturity scores, as measured by Crites' Attitude Scale; and (b) a significant difference between the experimental, Control A, and Control B subjects' career attitude maturity scores, as measured by Crites' Attitude Scale.

### Null Hypotheses

1. There will be no significant differences in career attitude maturity (mean scores) (a) between the experimental, Control A, and Control B groups in June; or (b) between males and females in June (Figure A, Appendix H).

2. There will be no significant differences in career attitude maturity (mean scores) (a) between the experimental and Control A groups in April or June; or (b) between males and females in April (Figure B, Appendix H).

3. There will be no significant differences in career attitude maturity (a) between the January, April, and June mean scores for the experimental subjects; or (b) between the male and female experimental subjects in January (Figure C, Appendix H).

4. No significant correlations will be found to exist between the male and female career attitude maturity scores and male and female VR + NA composite scores on the Differential Aptitude Tests (D.A.T.) for the experimental group in January, April, or June; for Control Group A in April or June; or for Control Group B in June (Figure D, Appendix H).

### Data Analysis

Analyses of variance (ANOVAs) were performed on the career attitude maturity scores obtained by the experimental and control Ss. However, since the control and experimental groups were found to be significantly different in terms of aptitude, analyses of covariance (ANCOVAs) were also performed on the career attitude maturity data, in order to statistically control for the differences in aptitude.



## Work Exposure Project

### Subjects

Ss for the Work Exposure Project were the same 76 grade nine students who served as the experimental group for the Career Attitude Maturity Study. There were no control groups for the project.

### Measuring Instruments

Two separate questionnaires, one for students (Appendix I) and one for participating employers (Appendix J), were utilized to assess the effectiveness of the project.

### Procedure

During the first three weeks of the project in January, 1977, students chose occupational areas to investigate from the CAREERSEARCH kit (Knicley and Brooks, 1975). Following this initial research, students were informed that, as part of the career course requirements, they were to choose one job site to visit for one half-day only during the school term, in order to observe people at work and to interview them about their jobs. All students were expected to write about their experiences for the purpose of publication in a career booklet.

Students selected job sites to visit and drew up lists of questions they might like answered once at the job sites, as well as materials (such as cameras, tape recorders, etc.) that they would use to collect data. Two or three classes were spent discussing techniques of interviewing and methods of effective picture-taking. As visits to job sites were subject to the availability and convenience of employers, all 76

students did not go out on the same day. All visitations were completed, however, by the end of May.

Students and participating employers were administered separate questionnaires on which they were asked to rate statements on a five-point scale ranging from "strongly agree" to "strongly disagree". The statements related directly to the project hypotheses (Appendices I and J).

### Hypotheses

- I. As a result of a half-day work exposure experience, students will:
  1. increase their awareness of the characteristics of job environments (physical settings), job responsibilities, and job prerequisites (such as the education or skills needed to get the jobs);
  2. better appreciate the relationship between school subjects and jobs;
  3. be motivated to further explore jobs on their own;
  4. be better prepared to evaluate the suitability of jobs for themselves;
  5. discuss job and career interests with their parents;
  6. know some of the undesirable as well as the desirable aspects related to jobs.
  
- II. As a result of a half-day work exposure experience, employers will:
  1. feel that students gained a reasonable idea of what their jobs involve;
  2. have a better understanding of students' attitudes toward work;
  3. feel that grade nine students are sufficiently mature to benefit

from a work exposure approach to career education;

4. feel that work exposure is an effective means of providing information about their jobs to students;

5. express willingness to participate in similar programmes in the future.

#### Data Analysis

Due to the nature of this part of the study and the type of data available, only descriptive statistics were employed. The frequency of response in each category (from "strongly agree" to "strongly disagree") was determined and simple percentages calculated (Appendices I and J).

## CHAPTER III

## RESULTS

Career Attitude Maturity Study

A 2(sex) X 3(time) repeated measures analysis of variance (ANOVA) was performed on the career attitude maturity scores obtained by the experimental subjects in January, April, and June. In this analysis, the dependent variables were the career attitude maturity scores with the independent variables being subject sex and test time (January, April, and June). The analysis failed to reveal any significant main effects due to sex or time. However, the sex X test time interaction was statistically significant. The analysis is presented in Table 1 and the results are graphically displayed in Figure 2.

In view of the statistically significant sex X test time interaction for the experimental subjects, tests of simple main effects were also performed on the January, April, and June career attitude maturity scores for the experimental males and females. The results of these analyses, presented in Table 2, did not reveal any significant between-group differences for the males and females at January, April, or June. In addition, no significant within-subject differences were revealed for the female experimental subjects over time. However, significant differences did emerge from the tests of simple main effects for the male experimental subjects over time. In view of this finding, Scheffé tests were calculated to determine the specific time at which the significant differences occurred. These analyses revealed significant

Table 1

Summary of the Analysis of Variance on the January,  
 April and June mean career attitude maturity  
 scores for the experimental SS

Source	SS	df	MS	F	p
Sex (S)	30.95	1	30.95	< 1	.44
Error	3827.74	74	51.73		
Time (T)	24.48	2	12.24	1.54	.22
T X S	48.66	2	24.33	3.06	.05
Error	1174.19	148	7.93		

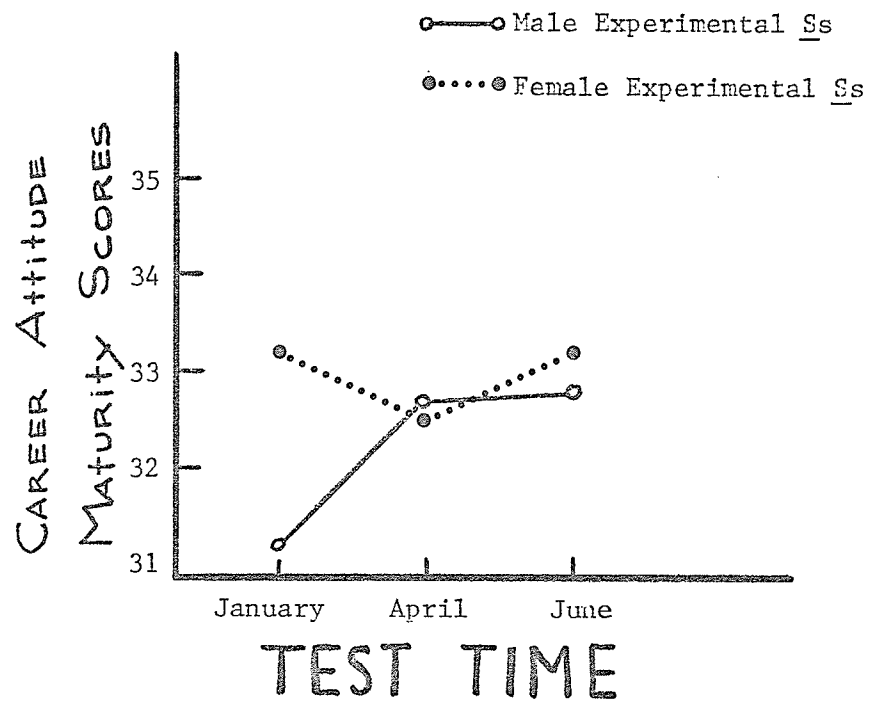


Figure 2. Mean career attitude maturity scores for male and female experimental Ss as a function of test time.

Table 2

Summary of the Simple Main Effects and Scheffé Tests  
on the January, April, and June mean scores in  
career attitude maturity for the experimental Ss

Source	SS	df	MS	F	p
<u>Simple Main Effects</u>					
Between Group					
Sex at January	76.00	1	76.00	3.37	n.s.
Sex at April	.08	1	.08	0.04	n.s.
Sex at June	3.04	1	3.04	0.14	n.s.
Pooled Error	5001.93	222	22.53		
Within Subject					
Sex X Time					
Time for Males	61.05	2	30.53	3.85	.05
Time for Females	12.41	2	6.21	0.78	n.s.
<u>Scheffé Tests for Males</u>					
January vs. April				1.50*	n.s.
January vs. June				1.61*	.05
April vs. June				0.60*	n.s.
Jan. vs. <u>(April + June)</u>				1.55**	.05

2

\*Critical Value = 1.59

\*\*Critical Value = 1.37

differences between the January and June experimental male career attitude maturity scores, as well as between the male experimental scores for January and the average score for April and June combined. The analyses are presented in Table 2.

Further, a 2 (time) X 2 (group) X 2 (sex) repeated measures ANOVA was performed on the April and June career attitude maturity scores for the experimental group and the first control group (Control Group A). Here again, the career attitude maturity scores served as the dependent variables with the independent variables consisting of test time (April and June), group (Experimental and Control Group A) and sex (male versus female). The analysis revealed a significant group main effect with the Control A subjects showing higher career attitude maturity scores than the experimental subjects. Neither the sex nor time main effects were significant. In addition, none of the second or third order interactions were significant. The analysis is presented in Table 3 and the results in Figure 3.

Finally, a 2 (sex) X 3 (group) ANOVA was performed on the June career attitude maturity scores for the experimental, Control Group A, and Control Group B subjects. The dependent variables were the career attitude maturity scores with the independent variables being subject sex and group. The subject sex and group main effects were not significant. In addition, the subject sex X group interaction was not significant. The analysis is presented in Table 4 and the results in Figure 4.

Pearson Product Moment correlation coefficients were calculated between Differential Aptitude Test (D.A.T.) VR + NA composite scores



Table 3

Summary of the Analysis of Variance on the April and June career attitude maturity mean scores for the experimental and Control Group A Ss

Source	SS	df	MS	F	p
Group (G)	234.59	1	234.59	6.04	.015
Sex (S)	3.57	1	3.57	< 1	.762
G X S	7.89	1	7.89	< 1	.653
Error	5751.20	148	38.86		
Time (T)	4.03	1	4.03	< 1	.476
T X G	2.06	1	2.06	< 1	.610
T X S	0.27	1	0.27	< 1	.854
T X G X S	9.24	1	9.24	1.17	.281
Error	1165.89	148	7.88		

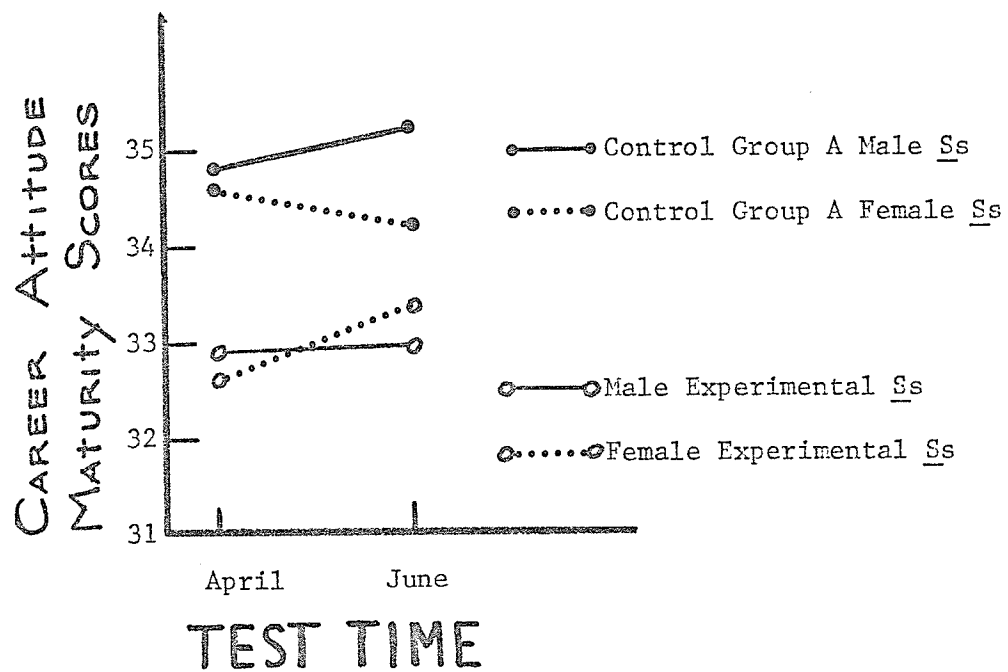
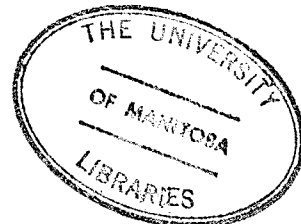


Figure 3. Mean career attitude maturity scores for the experimental and Control Group A Ss as a function of test time.

Table 4

Summary of the Analysis of Variance on the June mean career attitude maturity scores for the experimental, Control A, and Control B Ss

Source	SS	df	MS	F	p
Group (G)	100.38	2	50.19	2.29	.103
Sex	12.79	1	12.79	< 1	.445
G X S	21.55	2	10.77	< 1	.612
Error	4857.16	222	21.88		



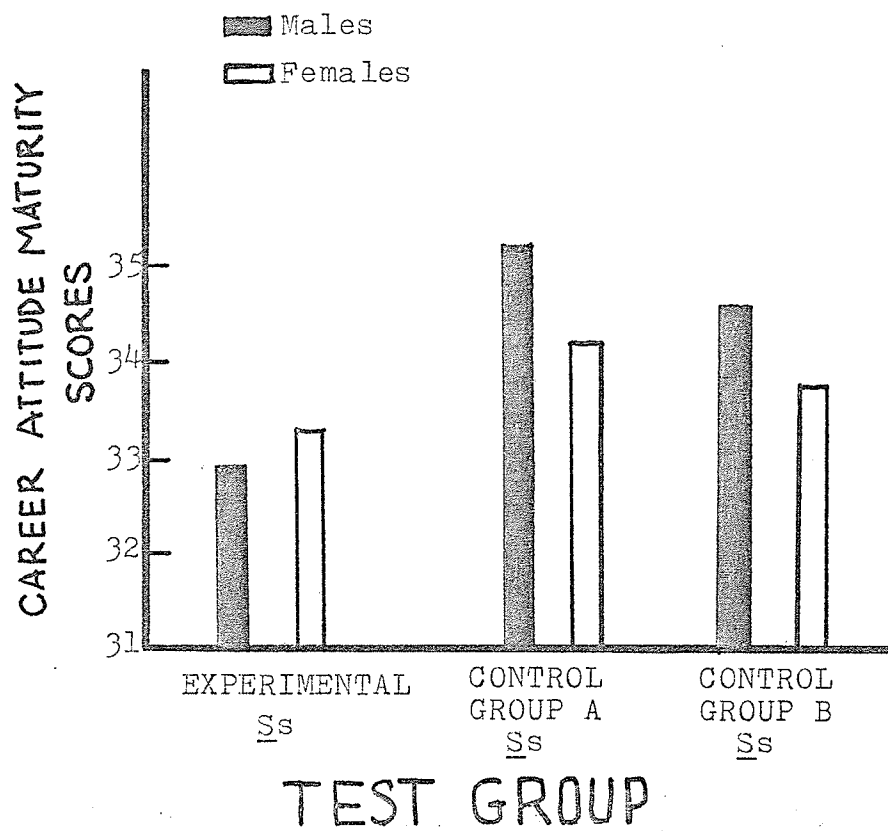


Figure 4. June career attitude maturity mean scores for the experimental and control groups.

and the experimental subjects' career attitude maturity (C.A.M.) scores in January, April, and June; the Control Group A subjects' C.A.M. scores in April and June; and the Control B subjects' C.A.M. scores in June. Separate correlations were calculated for males and females. These correlations are presented in Table 5. They reveal significant positive correlations between D.A.T. scores and C.A.M. scores in January, April, and June for the female experimental subjects. However, none of the D.A.T.-C.A.M. correlations in January, April, and June were significant for the male experimental subjects. The D.A.T.-C.A.M. score correlations in April and June were both significantly different from zero for the female Control Group A subjects while only the June C.A.M. scores and D.A.T. scores were significantly related for male Control A subjects. Finally, the D.A.T. and June C.A.M. scores for both male and female Control Group B subjects were significantly related.

In order to assess the possibility of D.A.T. score differences between the groups, a 2 (sex) X 3 (group) ANOVA was performed on the D.A.T. scores from the experimental, Control A, and Control B subjects. This analysis revealed that significant differences existed between the groups with respect to D.A.T. scores. The analysis failed, however, to reveal a significant main effect due to sex or a significant sex X group interaction. This analysis is presented in Table 6. In view of this finding, the data analyzed above with the analyses of variance were reanalyzed using analyses of covariance in order to statistically control for differences in D.A.T. scores. In these three analyses, to be reported below, D.A.T. scores served as the covariate.

Table 5

Correlation Coefficients Between Career Attitude Maturity (C.A.M.)  
Scores and VR + NA Composite Scores on the Differential  
Aptitude Tests (D.A.T.)

January C.A.M. Scores (Female Experimental <u>Ss</u> ).....	.47**
April C.A.M. Scores (Female Experimental <u>Ss</u> ).....	.50**
June C.A.M. Scores (Female Experimental <u>Ss</u> ).....	.48**
January C.A.M. Scores (Male Experimental <u>Ss</u> ).....	.23
April C.A.M. Scores (Male Experimental <u>Ss</u> ).....	.23
June C.A.M. Scores (Male Experimental <u>Ss</u> ).....	.29
April C.A.M. Scores (Female Control A <u>Ss</u> ).....	.40**
June C.A.M. Scores (Female Control A <u>Ss</u> ).....	.39*
April C.A.M. Scores (Male Control A <u>Ss</u> ).....	.17
June C.A.M. Scores (Male Control A <u>Ss</u> ).....	.42**
June C.A.M. Scores (Female Control B <u>Ss</u> ).....	.34*
June C.A.M. Scores (Male Control B <u>Ss</u> ).....	.62**

\*  $p < .05$

\*\*  $p < .01$

Table 6

Summary of the Analysis of Variance on the VR + NA composite  
D.A.T. scores for all Ss

Source	SS	df	MS	F	p
Subject Sex (S)	770.00	1	770.00	1.45	n.s.
Group (G)	3916.01	2	1958.00	3.68	<.05
S X G	2860.43	2	1430.22	2.69	n.s.
Error		222	531.46		

A 2 (sex) X 3 (time) repeated measures analysis of covariance (ANCOVA) was performed on the career attitude maturity scores obtained by the experimental subjects in January, April, and June. The results of this analysis are similar to the ANOVA results reported above. The subject sex and time main effects were not significant although the sex X time interaction did reach statistical significance. This analysis is presented in Table 7.

The 2 (time) X 2 (group) X 2 (sex) repeated measures ANCOVA on the April and June career attitude maturity scores for the experimental and Control A subjects revealed no significant main effects or interactions whatsoever. Thus, when the effect of differences in D.A.T. scores is statistically controlled, the apparent difference between the experimental and Control A subjects with regard to career attitude maturity disappears. The analysis is presented in Table 8.

Finally, a 2 (sex) X 3 (group) ANCOVA was performed on the June career attitude maturity scores for the experimental, Control A, and Control B subjects. As in the ANOVA, no significant main effects or interactions were found. The analysis is presented in Table 9.



Table 7

Summary of the Analysis of Covariance on the January, April and June Career Attitude Maturity Scores of the Experimental Ss with Differential Aptitude Test (D.A.T.) scores as the covariate

Source	SS	df	MS	F	p
Sex (S)	5.45	1	5.45	<1	.722
D.A.T. Scores	708.93	1	708.93	16.59	.000
Error	3118.81	73	42.72		
Time (T)	24.48	2	12.24	1.54	.217
T X S	48.66	2	24.32	3.07	.050
Error	1174.19	148	7.93		

Table 8

Summary of the Analysis of Covariance on the April and June Career Attitude Maturity Scores of the Experimental and Control Group A Ss with Differential Aptitude Test (D.A.T.) Scores as the Covariate

Source	SS	df	MS	F	p
Group (G)	72.93	1	72.93	2.23	.138
Sex (S)	3.57	1	3.57	< 1	.741
G X S	1.12	1	1.12	< 1	.853
D.A.T. Scores	941.96	1	941.96	28.79	.000
Error	4809.24	147	32.72		
Time (T)	4.03	1	4.03	< 1	.476
T X G	2.06	1	2.06	< 1	.610
T X S	0.27	1	0.27	< 1	.854
T X G X S	9.24	1	9.24	1.17	.281
Error	1165.89	148	7.88		

Table 9

Summary of the Analysis of Covariance on the June Career Attitude Maturity Scores of the Experimental and Control Groups with Differential Aptitude Test (D.A.T.) Scores as the Covariate

Source	SS	df	MS	F	p
Group (G)	28.93	2	14.47	< 1	.451
Sex (S)	1.46	1	1.46	< 1	.777
G X S	2.60	2	1.30	< 1	.931
D.A.T. Scores	854.85	1	854.85	47.20	.000
Error	4002.30	221	18.11		

Work Exposure Project

The results of the students' responses to the Work Exposure Project questionnaire are presented in percentile form in Appendix I. In most cases (seven out of ten), at least 75% of the students were in agreement (agreement refers to the combined responses in the "strongly agree" and "agree" categories) with each of the statements on the questionnaire. However, only 59% of the students agreed with statement three, "I have a better understanding now of how school subjects relate to jobs". Twenty-four percent of the students were undecided on that statement. Further, only 67% of the students found it easy to talk to adults about their jobs (19% were undecided), and only 31% indicated that their career visit resulted in a discussion of jobs and careers with their parents (statement seven). Forty-two percent, in fact, disagreed with that statement.

The results of the employers' responses are presented in Appendix J. At least 79% of the employers agreed with nine out of the ten statements on the employer questionnaire. On statement three, "As a result of the [work exposure] experience, I have a better understanding of students' attitudes toward work", however, only 50% of the employers agreed and 41% were undecided on that statement.

## CHAPTER IV

## DISCUSSION

The results of the present investigation provide only partial support for the hypothesis that the career attitude maturity scores of the grade nine experimental students would increase following the five-month career education programme outlined in the foregoing. Namely, despite the fact that the career attitude maturity scores of the female experimental subjects did not change significantly from baseline over the five month period, the male experimental subjects did indeed show a significant increase in career attitude maturity following the introduction of the course. This was shown by the significant change in their career attitude maturity scores over time in the simple main effects analysis performed on the scores from January, April, and June. Pairwise comparisons employing Scheffé's procedure revealed that the June scores were significantly higher than the pre-course baseline scores obtained from the male experimental subjects in January. It should also be noted that the single largest stepwise increase in the male career attitude maturity scores occurred between the January baseline and April retest, although this difference did not quite reach statistical significance. This finding may be of pragmatic importance in that the majority of the career education course was completed by April. Presumably, the remainder of the course and/or the additional consolidation time between April and June resulted in the marginal gain in career attitude maturity scores which ultimately resulted in signi-

ficant differences in the scores from January to June.

One question which immediately arises concerns whether the increase in the male career attitude maturity scores was a result of the career education course or simply the result of maturation of the students. Unfortunately, this question may only be addressed indirectly, as curriculum restrictions did not permit an experimental design in which half the experimental subjects might have served as non-career education course controls. However, a purely maturational hypothesis appears unlikely as an explanation for the increase in the experimental male career attitude maturity scores. An examination of the career attitude maturity scores from the Control A male and female subjects over the April to June temporal interval does not reveal any tendency for career attitude maturity to change significantly over brief time periods as a function of maturation. It is also evident from the results of the Control A subjects as well as from the results of the female experimental subjects that simply taking the Crites' Attitude Scale does not necessarily result in increasing scores on subsequent testings. Hence, a testing or reactive explanation (Campbell and Stanley, 1966) for the male experimental subjects' increase in career attitude maturity does not appear to be adequate.

It may thus be tentatively concluded that the career education course or, more likely, some aspect of it, was effective in enhancing the career attitude maturity of the male experimental subjects. However, it is not entirely clear why the programme appeared to be effective with only the males. An examination of Figure 2 shows that the male experimental subjects entered the course at an appreciably (and nearly

significantly) lower baseline level of career attitude maturity than the female experimental subjects. And, in spite of the fact that a definitive explanation for the apparent differential effectiveness of the course is not possible, it does not appear unreasonable to speculate that the career education programme might be effective in enhancing career attitude maturity of only those students below some critical level of career attitude maturity. From this view, the female experimental subjects were presumably above the critical level and hence did not show increases in career attitude maturity scores following the programme. One possible implication of this explanation is that the career education programme might be more appropriate for use with younger junior high school students in order to enhance career attitude maturity.

Further research employing the Crites' Attitude Scale should take into account the following factors. First, it is important to pay particular attention to ensuring that the experimental and control subjects are comparable in terms of aptitude. This is relevant in that the present study as well as past research (Dutt, 1968; Tamminen and Miller, 1968; Forrest, 1971) has shown a positive relationship between aptitude and career attitude maturity. Secondly, care should be taken to ensure that adequate control groups are included in the study from the outset. Although this suggestion appears obvious, it is often very difficult to attain such conditions in educational research. Further, as Crites' Attitude Scale may have limited applicability in detecting some of the more subtle changes that occur in students' attitudes over time, future investigators might be advised to employ a series of career maturity inventories, as opposed to using a single instrument.

As outlined in the Results section, a series of correlations were calculated relating career attitude maturity scores and verbal reasoning plus numerical ability (VR + NA) scores from the Differential Aptitude Tests (D.A.T.). Separate correlations were calculated as a function of sex (male, female), test time (January, April, and June) and group (Experimental, Control A, and Control B). It was found that of the twelve correlation coefficients calculated, six were significantly different from zero at the .01 level of alpha while two were significant at the .05 level. Interestingly, the four remaining non-significant coefficients pertained to male subjects only. Positive relationships were not found to exist between D.A.T. and C.A.M. scores for the experimental males at January, April, or June, nor for the Control A males at April (Table 5). A precise interpretation of this finding, however, remains unclear. Taken overall, the present correlational data is consistent with the findings of Dutt (1968) and Cover (1968) showing a positive relationship between career attitude maturity and aptitude. It might also be pointed out that these findings are consonant with Forrest's (1971) view that the Crites' Attitude Scale is in fact, although not in design, a cognitive scale.

Given the above correlational evidence of a significant positive relationship between career attitude maturity and Differential Aptitude Test scores, and the fact that a significant difference between the group existed with respect to aptitude (Table 6), it was deemed advisable to reanalyze the data utilizing analyses of covariance (with Differential Aptitude Test scores as the covariate) in order to statistically control for the aptitude differences. The reanalysis of the data using analyses of covariance (ANCOVAs) altered the results obtained from



the ANOVAs in only one instance. Namely, the significant group effect in career attitude maturity in the 2 (sex) X 2 (time: April and June) X 2 (group: Experimental and Control A) ANOVA failed to reach statistical significance in the ANCOVA suggesting that the significant ANOVA was an artifact introduced by confounding career attitude maturity and aptitude.

In addition to the focus on career attitude maturity, the present study was also designed to provide a work exposure experience with the intention of facilitating a practical and realistic awareness of various occupations. A series of programme objectives were translated into separate questionnaires which were completed at the end of the project by the students and employers, respectively. The response of the students and employers to the questions formed the basis of an assessment of the effectiveness of the work exposure project.

In general, it would appear from the student and employer evaluations that the work exposure project was successful in terms of meeting the majority of pre-established objectives of the project. Eighty-eight percent of the students agreed that the project increased their knowledge of what certain jobs entailed and 82% felt that the project enhanced their knowledge of job requirements (such as the education or skills needed to get the job). Fifty-nine percent agreed that they had a better understanding of how school subjects related to jobs and 77% indicated greater interest in learning about jobs than before the project.

Eighty-two percent found that the project provided personally relevant information about jobs, but only 67% felt that it was easy to talk to adults about their jobs. Not surprisingly, only 31% of the students noted that their career visits increased communication between themselves

and their parents about jobs; 53%, in fact, disagreed with that view, probably reflecting a desire for autonomy from parental influences at this time. It should be noted that the career education programme neither formally encouraged nor discouraged student communication with their parents. Seventy-five percent agreed that the project provided information regarding job advantages and disadvantages and 95% of the students indicated that they had enjoyed the experience.

Approximately 90% of the participating employers responded to the evaluation questionnaire and, in general, they were equally positive in their assessment of the project. Eighty-two percent agreed that students gained reasonable notions about their jobs during the work exposure experience and 94% indicated that their time spent with students was worthwhile. Fifty percent of the employers found that the project provided them with a better understanding of students' attitudes toward work (41% of them were undecided and 9% disagreed with the statement). These particular attitudes may relate to the brevity of their exposure to the students and thus their lack of opportunity to truly assess students' attitudes toward work. Seventy-nine percent of the employers indicated that students had made good use of their (the students') time in learning about jobs; 88% agreed that grade nine students are sufficiently mature to benefit from a work exposure experience; and 97% felt that work exposure is an effective means of providing information about their jobs to students. Finally, 94% agreed that in principle, they would welcome the opportunity to participate in a similar type of work exposure project again.

In view of the success of the work exposure approach to career education utilized in the present study, it is recommended that more time be provided for junior high school students to explore the world of work outside the classroom. Since preparation and follow-up activities are time-consuming, an inter-disciplinary approach involving several teaching staff members is desirable. Subject-area teachers, for example, could provide opportunities for students to study occupations allied to their particular fields, such as art, French, physical education, etc. The social studies teacher might stimulate job exploration via student research on local customs and industries and the English teacher might incorporate the reporting of work exposure experiences as part of a lesson on essay writing with emphasis upon accuracy, correct spelling, and grammar.

One of the primary objectives of the work exposure project was to provide students with realistic information about occupations. However, since questionnaires were the only indices of project effectiveness along this dimension, future studies might include other measures with which to contrast data obtained from the work exposure project questionnaires. An experimental group, for example, might go out into the community to gather data about specific jobs, while control groups record their feelings and observations about those same occupations via television programmes, career filmstrips, brochures, or computerized career information. Data from each control group could then be compared to that obtained from the experimental group to determine if, in fact, students gain realistic information from classroom career activities and from television. Combined with data on specific dimensions of career

maturity, such as the level of occupational information factor in Crites' (1965) Competence Test, future research may shed more light on the particular types of career-oriented activities which are most productive and interesting to junior high school students.

- Asbury, F. A. An experimental study of guidance treatments to accelerate vocational development in eighth grade males in Appalachia. Unpublished doctoral dissertation, University of Kentucky, 1967.
- Baldwin, A. L. Behavior and development in childhood. New York: Dryden, 1955.
- Baldwin, A. L. Theories of child development. New York: Wiley, 1967.
- Bathory, M. J. Occupational aspirations and vocational maturity. Paper presented at a meeting of the American Vocational Association, Cleveland, Ohio, December, 1967.
- Bertalanffy, L. Modern theories of development. New York: Harper, 1961 (Torchbook #554).
- Boocock, S. S. Simulation games: Bringing the world into the classroom. Vassar Alumnae Magazine, 1964, 44, 20-23.
- Bovee, C. C. A study of the preparation phase of the Presbyterian guidance program in the Synod of Georgia. Unpublished doctoral dissertation, University of Georgia, 1967.
- Buehler, C. Der menschliche lebenslauf als psychologisches problem. Leipzig: Hirzel, 1933.
- Campbell, D. T. & Stanley, J. C. Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1966.
- Carek, R. The interrelations between social desirability, vocational maturity, vocational realism, and vocational decision. Unpublished master's thesis, University of Iowa, 1965.
- Carter, H. D. The development of vocational attitudes. Journal of Consulting Psychology, 1940, 4, 185-191.
- Cooter, R. D. Occupational level preferences among adolescents. Unpublished manuscript, Swarthmore College, 1966.

- Cover, J. A. The relationship of alienation from society and selected variables to vocational maturity in male high school seniors. Unpublished doctoral dissertation, University of Oregon, 1968.
- Crites, J. O. A model for the measurement of vocational maturity. Journal of counseling psychology, 1961, 8, 255-259.
- Crites, J. O. Proposals for a new criterion measure and research design. In H. Borow (Ed.), Man in a world at work. Boston: Houghton Mifflin, 1964, 324-340.
- Crites, J. O. Measurement of vocational maturity in adolescence: I. Attitude Test of the Vocational Development Inventory. Psychological Monographs, 1965, 79 (2 Whole No. 595).
- Crites, J. O. Appraising the appraisal instruments. American Vocational Journal, December, 1968.
- Crites, J. O. The maturity of vocational attitudes in adolescence. Washington, D. C.: APGA Monograph, 1971.
- Crites, J. O. Theory and research handbook: Career maturity inventory. Monterey, California: CTB/McGraw Hill, 1973.
- Crites, J. O. The career maturity inventory. In Super, D. E., Measuring vocational maturity for counseling and evaluation. Washington, D. C.: National Vocational Guidance Association Monograph, 1974, 25-39.
- Dutt, K. Report of preliminary results on vocational readiness of eighth- and ninth-grade vocational-technical students. Unpublished manuscript, Easton, Pennsylvania, 1968.
- Dysinger, W. S. Maturation and...vocational guidance. Occupations, 1950, 29, 198-201.

- Erikson, E. H. Childhood and society. New York: Norton, 1963.
- Flavell, J. H. The developmental psychology of Jean Piaget. New York: Van Nostrand, 1963.
- Forrest, D. J. The construction and validation of an objective measure of vocational maturity for adolescents. Unpublished doctoral dissertation, Teachers College, Columbia University, 1971.
- Forrest, D. J. & Thompson, A. S. The career development inventory. In Super, D.E., Measuring vocational maturity for counseling and evaluation. Washington, D.C.: National Vocational Guidance Association. Monograph, 1974, 53-66.
- Gilliland, B. E. An evaluation of the effects of small group counseling with Negro adolescents. Unpublished doctoral dissertation, University of Tennessee, 1966.
- Ginzberg, E., Ginzberg, S.W., Axelrod, S., and Herma, J. L. Occupational choice. New York: Columbia University Press, 1951.
- Goodson, W. D. A study to determine the value of vocational college orientation groups by a comparison of various approaches. Unpublished doctoral dissertation, Brigham Young University, 1969.
- Gribbons, W. D., and Lohnes, P. R. Emerging careers: A study of 111 adolescents. New York: Teachers College Press, 1968.
- Hall, D. W. Vocational development in adolescence: The measurement of vocational maturity. Unpublished master's thesis, University of Iowa, 1962.
- Harris, D. B. Developmental psychology looks at career development. In Super, D. E., Measuring vocational maturity for counseling and evaluation. Washington, D.C.: National Vocational Guidance Association Monograph, 1974.

- Havighurst, R. J. Human development and education. New York: Longmans Green, 1953.
- Herr, E. L. and Cramer, S. H. Vocational guidance and career development in the schools: Toward a systems approach. Boston: Houghton Mifflin Company, 1972.
- Hoyt, K. B. Specialty oriented student research program. Iowa City, Iowa: University of Iowa Press, 1962.
- Hughes, E. C. Men and their work. New York: Free Press of Glen Cove, 1958.
- Knicley, B. and Brooks, G., CAREERSEARCH Kit. Ontario: Scholastic Book Services, 1975.
- Krumboltz, J. Job experience kits. Chicago: Science Research Associates, 1970.
- Myers, W. P. The effect of a neighborhood youth corps upon vocational development variables of rural southern appalachian youth. Unpublished doctoral dissertation, University of Tennessee, 1966.
- Pietrofesa, J. and Splete, H. Career development: Theory and research. New York: Grune & Stratton, 1975.
- Schmieding, O. A. and Jensen, S. F. American Indian students: Vocational development and vocational tenacity. Vocational Guidance Quarterly, 1968, 17, 120-123.
- Shirts, R. G. Career simulation for sixth-grade pupils. Final report, Department of Education, San Diego County, Vocational and Technical Education Grant No. HRD-131-65, U.S. Department of Health, Education, and Welfare, 1966.
- Smith, E. D. and Herr, E. L. Sex differences in the maturation of vo-



- cational attitudes among adolescents. Vocational Guidance Quarterly, 1972, 20, 177-181.
- Super, D. E. The dynamics of vocational adjustment. New York: Harper, 1942.
- Super, D. E. Vocational adjustment: Implementing a self-concept. Occupations, 1951, 30, 88-92.
- Super, D. E. Dimensions and measurement of vocational maturity. Teachers College Record, 1955, 57, 151-160.
- Super, D. E. The psychology of careers. New York: Harper & Row, 1957.
- Super, D. E. Measuring vocational maturity for counseling and evaluation. Washington, D. C.: National Vocational Guidance Association Monograph, 1974.
- Super, D. E. and Crites, J. O. Appraising vocational fitness. (Rev. ed.) New York: Harper & Row, 1962.
- Super, E. E., Crites, J. O., Hummel, R. C., Moser, H. P., Overstreet, P.L., Warnath, C. F. Vocational development: A framework for research. New York: Columbia University, 1957 (CPS Monograph I).
- Super, D. E. and Forrest, D. J. Career development inventory: Form 1: Preliminary manual for research and field trial. New York: Teachers College, Columbia University, 1972.
- Super, D. E. and Overstreet, P. L. The vocational maturity of 9th grade boys. New York: Columbia University, 1960.
- Tamminen, A. W. and Miller, G. D. Guidance programs and their impact on students. St. Paul, Minnesota: Minnesota Department of Education, 1968.
- Vernon, P. E. The structure of human abilities. London: Methuen, 1950.

- Westbrook, B. W. and Clary, J. R. The construction and validation of a measure of vocational maturity. Raleigh, North Carolina: Center for Occupational Education, North Carolina State University, 1967.
- Williams, R. H. The relationship between the vocational development and scholastic achievement of male college students. Unpublished doctoral dissertation, New York University, 1967.

## APPENDIX A

## Super's First Model of Vocational Maturity

## Dimension I. Orientation to Vocational Choice

- IA. Concern with Choice
- IB. Use of Resources

## Dimension II. Information and Planning

- IIA. Specificity of Information
- IIB. Specificity of Planning
- IIC. Extent of Planning Activity

## Dimension III. Consistency of Vocational Preferences

- IIIA. Consistency within Fields
- IIIB. Consistency within Levels
- IIIC. Consistency within Families

## Dimension IV. Crystallization of Traits

- IVA. Patterning of Interests
- IVB. Interest Maturity
- IVC. Liking for Work
- IVD. Patterning of Work Values
- IVE. Discussion of Rewards of Work
- IVF. Acceptance of Responsibility

## Dimension V. Crystallization of Traits

- VA. Independence of Work Experience

## Dimension VI. Wisdom of Vocational Preferences

- VIA. Agreement: Ability and Preference
- VIB. Agreement: Interests and Preference
- VIC. Agreement: Interests and Fantasy Preferences
- VID. Agreement: Level of Interests and Preference
- VIE. Socioeconomic Accessibility

Super (1974)

## APPENDIX B

## Super's Factor Analytic Model of Vocational Maturity in Ninth Grade

## Factor I. Planning Orientation

- A. Acceptance of Responsibility
- B. Specificity of Information (more immediate types)
- C. Specificity of Planning
- D. Steps Taken to Obtain Information
- E. Awareness of the Need for Choices

## Factor II. The Long View Ahead

- A. Awareness of the Need for Ultimate Choices
- B. Specificity of Information (remoter types)
- C. Entry Planning
- D. Awareness of Factors in Choice
- E. Awareness of Contingency Factors
- F. Acceptance of Responsibility

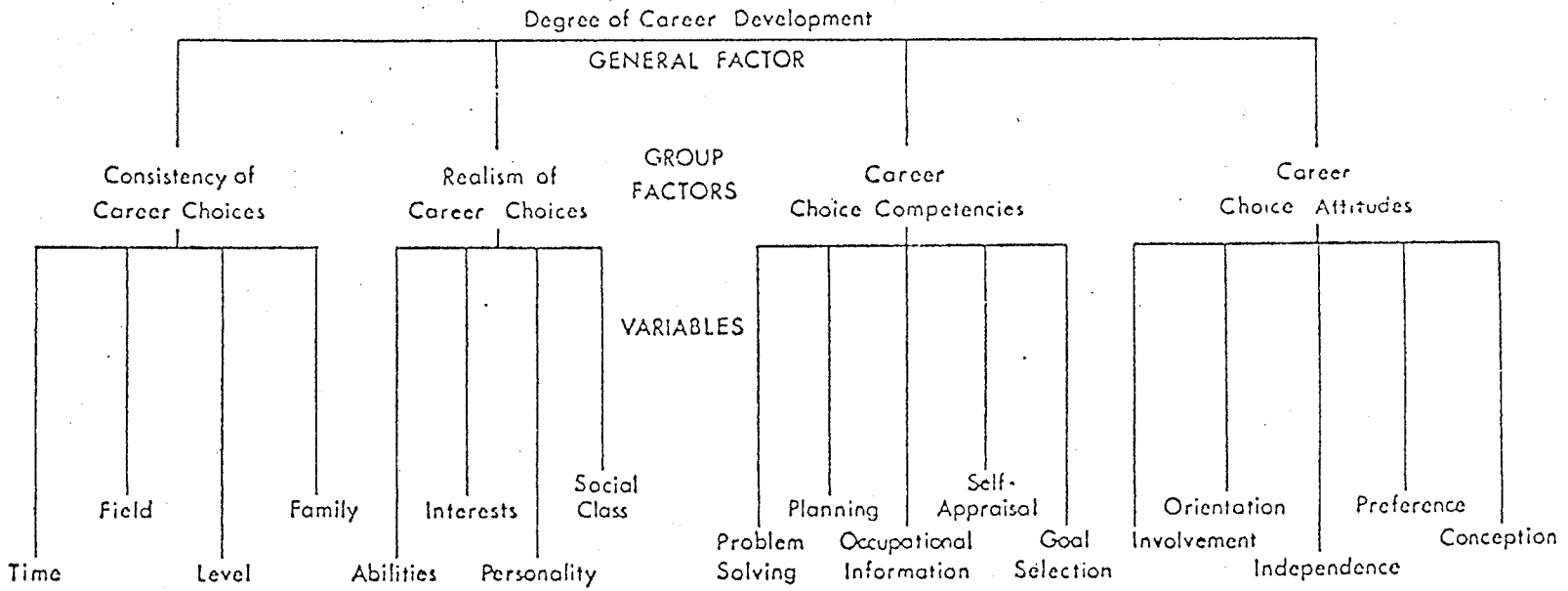
## Factor III. The Short View Ahead

- A. Specificity of Planning
- B. Awareness of the Need for Immediate Choices
- C. Acceptance of Responsibility for Choice
- D. Steps Taken to Obtain Information for High School

## Factor IV. The Intermediate View

- A. Awareness of Factors in Choice
- B. Awareness of Need for Intermediate Choices
- C. Specificity of Post-High School Plans
- D. Awareness of Contingency Factors

Super (1974)



Crites (1965)

## APPENDIX D

## A Theoretical Structural Model of Vocational Maturity: Grade 9

First-Order Factor	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
A. Planfulness: Distant Future	....	.45	.45	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	0	0	0	0	0
B. Planfulness: Intermediate Future	....	.45	.25	.25	.25	.25	.25	.25	.25	.20	.20	.20	.25	.25	0	0	0	0	0
C. Planfulness: Present	....	.25	.25	.25	.20	.20	.20	.15	.15	.15	.20	.20	0	0	0	0	0	0	0
D. Exploration: Querying	....	.45	.45	.25	.25	.25	.20	.20	.15	.25	.25	0	0	0	0	0	0	0	0
E. Exploration: Resources	....	.45	.25	.25	.25	.20	.20	.15	.25	.25	0	0	0	0	0	0	0	0	0
F. Exploration: Participation	....	.25	.25	.25	.20	.20	.15	.25	.25	0	0	0	0	0	0	0	0	0	0
G. Information: Education & Training	....	.45	.45	.25	.25	.25	.25	.25	0	0	0	0	0	0	0	0	0	0	0
H. Information: Entry Requirements	....	.45	.45	.25	.25	.25	.25	0	0	0	0	0	0	0	0	0	0	0	0
I. Information: Duties	....	.45	.25	.25	.25	.25	0	0	0	0	0	0	0	0	0	0	0	0	0
J. Information: Supply & Demand	....	.45	.25	.25	.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K. Information: Conditions	....	.25	.25	.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L. Information: Advancement	....	.25	.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. Decision Making: Principles	....	.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N. Decision Making: Practice	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O. Reality Orientation: Self-Knowledge	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P. Reality Orientation: Realism	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q. Reality Orientation: Consistency	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R. Reality Orientation: Crystallization	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S. Reality Orientation: Work Exp.	....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Super (1974)

## APPENDIX E

## A Theoretical Structural Model of Vocational Maturity: Grade 12

First-Order Factor	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
A. Planfulness: Distant Future	....	.45	.45	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.20	.20	.20	.20	.20
B. Planfulness: Intermediate Future	....	.45	.25	.25	.25	.25	.25	.25	.25	.25	.25	.20	.25	.25	.20	.20	.20	.20	.20
C. Planfulness Present	....	.25	.25	.25	.25	.25	.25	.25	.20	.20	.20	.25	.25	.20	.20	.20	.20	.20	.20
D. Exploration: Querying	....	.45	.45	.25	.25	.25	.25	.20	.20	.20	.20	.25	.25	.20	.20	.20	.20	.20	.20
E. Exploration: Resources	....	.45	.25	.25	.25	.25	.20	.20	.20	.20	.25	.25	.20	.20	.20	.20	.20	.20	.20
F. Exploration: Participation	....	.25	.25	.25	.25	.20	.20	.20	.20	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20
G. Information: Education & Training	....	.45	.45	.45	.45	.25	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
H. Information: Entry Requirements	....	.45	.45	.45	.25	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
I. Information: Duties	....	.45	.45	.25	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
J. Information: Supply & Demand	....	.45	.25	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
K. Information: Conditions	....	.25	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
L. Information: Advancement	....	.25	.25	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
M. Decision Making: Principles	....	.45	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
N. Decision Making: Practice	....	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
O. Reality Orientation: Self-Knowledge	....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
P. Reality Orientation: Realism	....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
Q. Reality Orientation: Consistency	....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
R. Reality Orientation: Crystallization	....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
S. Reality Orientation: Work Exp.	....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30

Super (1974)

## APPENDIX F

A Theoretical Developmental Model of Vocational Maturity  
In Adolescence

Dimension or Second Order Factor	First Order Factor	Correlation with Appropriately Varying Criteria at Age 25*						
		Grade: 8	9	10	11	12	13	14
Planfulness or Time Perspective	A. Distant Future	.25	.25	.25	.30	.35	.35	.40
	B. Intermediate Future	.05	.10	.15	.15	.20	.25	.25
	C. Present	.20	.20	.25	.25	.30	.30	.35
Awareness of Life Stages and Tasks (Attitude)	D. Querying	.25	.25	.25	.30	.30	.35	.40
	E. Resources	.25	.25	.25	.30	.35	.35	.40
	F. Participation	.20	.20	.25	.25	.30	.35	.40
Exploration (Attitude)	G. Education & Training	.15	.20	.25	.25	.30	.35	.40
	H. Entry Requirements	.05	.10	.15	.20	.25	.30	.35
	I. Duties	.05	.10	.15	.20	.25	.30	.40
	J. Supply and Demand	.05	.10	.15	.20	.25	.30	.35
	K. Conditions	0	0	0	.15	.20	.25	.30
Information Educational and Occupational (Cognitive)	L. Advancement	0	0	0	0	.10	.15	.20
	M. Principles	.15	.20	.25	.25	.30	.35	.40
	N. Practice	.10	.15	.20	.25	.30	.35	.40
Decision Making (Cognitive)	O. Self-Knowledge	.10	.10	.15	.15	.20	.25	.30
	P. Realism	0	0	0	.15	.20	.20	.25
	Q. Consistency	0	0	0	.20	.20	.25	.25
	R. Crystallization	0	0	0	.20	.20	.20	.25
	S. Work Experience	0	0	0	.15	.20	.25	.25
Reality Orientation (Late-Maturing)	Intelligence	.45	.45	.45	.45	.50	.55	.45
	Grades	.50	.50	.50	.55	.55	.55	.45
	SES	.30	.30	.30	.25	.25	.20	.20

Super (1974)



## APPENDIX G

The Attitude Scale of Crites' Career Maturity Inventory

- T F 1. Once you choose a job, you can't choose another one.
- T F 2. In order to choose a job, you need to know what kind of person you are.
- T F 3. I plan to follow the line of work my parents suggest.
- T F 4. I guess everybody has to go to work sooner or later, but I don't look forward to it.
- T F 5. A person can do any kind of work he wants as long as he tries hard.
- T F 6. I'm not going to worry about choosing an occupation until I'm out of school.
- T F 7. Your job is important because it determines how much you can earn.
- T F 8. Work is worthwhile mainly because it lets you buy the things you want.
- T F 9. The greatest appeal of a job to me is the opportunity it provides for getting ahead.
- T F 10. I often daydream about what I want to be, but I really haven't chosen a line of work yet.
- T F 11. Knowing what you are good at is more important than knowing what you like in choosing an occupation.
- T F 12. Your parents probably know better than anybody which occupation you should enter.
- T F 13. If I can just help others in my work, I'll be happy.
- T F 14. Work is dull and unpleasant.
- T F 15. Everyone seems to tell me something different, until now I don't know which kind of work to choose.
- T F 16. I don't know how to go about getting into the kind of work I want to do.
- T F 17. Why try to decide upon a job when the future is so uncertain?
- T F 18. I spend a lot of time wishing I could do work that I know I cannot ever possibly do.
- T F 19. I don't know what courses I should take in school.
- T F 20. It's probably just as easy to be successful in one occupation as it is in another.
- T F 21. By the time you are 15, you should have your mind pretty well made up about the occupation you intend to enter.

- T F 22. There are so many things to consider in choosing an occupation, it is hard to make a decision.
- T F 23. I seldom think about the job I want to enter.
- T F 24. It doesn't matter which job you choose as long as it pays well.
- T F 25. You can't go very far wrong by following your parents' advice about which job to choose.
- T F 26. Working is much like going to school.
- T F 27. I am having difficulty in preparing myself for the work I want to do.
- T F 28. I know very little about the requirements of jobs.
- T F 29. The job I choose has to give me plenty of freedom to do what I want.
- T F 30. The best thing to do is to try out several jobs, and then choose the one you like best.
- T F 31. There is only one occupation for each person.
- T F 32. Whether you are interested in a particular kind of work is not as important as whether you can do it.
- T F 33. I can't understand how some people can be so set about what they want to do.
- T F 34. As long as I can remember I've known what kind of work I want to do.
- T F 35. I want to really accomplish something in my work -- to make a great discovery or earn lots of money or help a great number of people.
- T F 36. You get into an occupation mostly by chance.
- T F 37. It's who you know, not what you know, that's important in a job.
- T F 38. When it comes to choosing a job, I'll make up my own mind.
- T F 39. Choose an occupation which gives you a chance to help others.
- T F 40. When I am trying to study, I often find myself daydreaming about what it will be like when I start working.
- T F 41. I have little or no idea of what working will be like.
- T F 42. Choose an occupation. then plan how to enter it.
- T F 43. I really can't find any work that has much appeal to me.
- T F 44. Choose a job in which you can someday become famous.

- T F 45. If you have some doubts about what you want to do, ask your parents or friends for advice and suggestions.
- T F 46. Choose a job which allows you to do what you believe in.
- T F 47. The most important part of work is the pleasure which comes from doing it.
- T F 48. I keep changing my occupational choice.
- T F 49. As far as choosing an occupation is concerned, something will come along sooner or later.
- T F 50. Why worry about choosing a job when you don't have anything to say about it anyway?

APPENDIX H  
EXPERIMENTAL DESIGNS

## GROUP

		Experimental	Control Group A	Control Group B
X M U S	Males	32.92*	35.18*	34.63*
	Females	33.32*	34.24*	33.76*

\* Mean score in career attitude maturity

Figure A. Experimental Design for Hypotheses One and Two.

## TIME

		April	June
Experi- mental <u>Ss</u>	Males	32.82*	32.92*
	Females	32.63*	33.31*
Control Group A <u>Ss</u>	Males	34.71*	35.18*
	Females	34.58*	34.24*

\*Mean score in career attitude maturity

Figure B. Experimental Design for Hypotheses Three and Four.

## TIME

XMAS

Experimental  
Male Ss

	January	April	June
Experimental Male <u>Ss</u>	31.32*	32.82*	32.92*
Experimental Female <u>Ss</u>	33.32*	32.63*	33.32*

\* Mean score in career attitude maturity

Figure C. Experimental Design for Hypotheses Five and Six.

## GROUP

Correlation Coefficients Between VR + NA Composite D.A.T. Scores and Career Attitude Maturity Scores	Experi- mental <u>Ss</u> in January		Experi- mental <u>Ss</u> in April		Experi- mental <u>Ss</u> in June		Control A <u>Ss</u> in April		Control A <u>Ss</u> in June		Control B <u>Ss</u> in June	
	M	F	M	F	M	F	M	F	M	F	M	F
	0.23	0.47**	0.23	0.50**	0.29	0.48**	0.17	0.40*	0.42**	0.39*	0.62**	0.34*

\*  $p < .05$ \*\*  $p < .01$ 

Figure D. Experimental Design for Hypothesis Seven.

APPENDIX I  
STUDENT EVALUATIONS

Work Exposure Project

Following their visitations, all students completed the questionnaire below based on how they felt about their half-day experiences. The figure in each box represents the percentage of total students holding those particular attitudes about each statement.

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1. I now have a better idea of what the job involves.	33%	55%	11%	1%	0%
2. I learned about the job requirements (such as the education or skills needed to get the job).	32%	50%	10%	8%	0%
3. I have a better understanding now of how school subjects relate to jobs.	18%	41%	24%	15%	2%
4. Because of my career visit I am more interested in learning about jobs.	27%	50%	16%	5%	2%
5. I now have a better idea as to whether or not I'd like <u>this</u> job for myself.	41%	41%	14%	2%	2%
6. I found that it was easy to talk to adults about their jobs.	30%	37%	19%	10%	4%
7. My career visit resulted in a discussion of jobs and careers with my parents.	9%	22%	16%	42%	11%
8. I now see some of the advantages related to this job.	18%	57%	16%	9%	0%
9. I now see some possible <u>undesirable</u> aspects related to this job.	21%	54%	17%	4%	4%
10. I enjoyed the experience	69%	26%	4%	1%	0%



EMPLOYER EVALUATIONS

## Work Exposure Project

Thirty-four (out of thirty-eight) employers returned their questionnaires on the Work Exposure Project. The figure in each box below represents the percentage of total employers holding those particular attitudes about each statement.

	STRONGLY AGREE	AGREE	UNDECIDED	DISAGREE	STRONGLY DISAGREE
1. During the half-day work exposure, students gained a <u>reasonable</u> idea of what my job involves.	14%	68%	6%	12%	0%
2. I personally feel that the time I spent with the students was worthwhile.	35%	59%	3%	3%	0%
3. As a result of the experience, I have a better understanding of students' attitudes toward work.	18%	32%	41%	9%	0%
4. I feel that the students made good use of their time in learning about my job.	23%	56%	18%	3%	0%
5. In my judgement, grade nine students are mature enough to benefit from a work exposure experience.	38%	50%	12%	0%	0%
6. Work Exposure is an effective means of providing information about my job to students.	44%	53%	3%	0%	0%
7. In principle, I would welcome the opportunity to participate in <u>this</u> type of work exposure project again.	35%	59%	6%	0%	0%