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SELF-ACTUALIZATION AS A FACTOR IN VOCATIONAL MATURITY IN YEAR 4 SECONDARY SCHOOL STUDENTS

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Thesis submitted to the School of Graduate Studies of the University of Ottawa in partial fulfillment of the requirements for the degree of Master of Arts.

Curriculum Studiorum

Marianne Holman (nee Schlegel) was born in Pittsburgh, Pennsylvania on December 16, 1930. She obtained the degree of Bachelor of Arts (Hons.) from the University of Western Ontario in 1952 and the Certificate of Education, High School Assistant's, Type A, from the University of Toronto in 1966.

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Abstract of

Self-Actualization as a Factor
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The purpose of this research was to investigate self-actualization as a factor in vocational maturity in Year 4 secondary school students. The research is based on the theories of Abraham Maslow and Donald Super.

Maslow believes that self-actualization is an outgrowth of gratification of basic needs and that all individuals are capable of some state of self-actualization. According to Maslow, self-actualizers are characterized by personal maturity and by goal-directed behaviour; they are influenced more by internal forces and are more present and future oriented. Super's concern for the capacity of young people to make sound decisions leading to future careers led him to investigate the continuum of vocational development. From research of Super and his colleagues were developed certain constructs and indices which the researchers deemed important to the acquisition of a satisfactory level of vocational maturity.

Based on the relationship between Maslow's and Super's theories and the related studies in these two areas, the hypothesis was formulated that:

High school students who display a high degree of self-actualization are more vocationally

mature than those who display a low degree of self-actualization.

The subjects for the study were drawn from five representative Ontario secondary schools. Two hundred and fourteen students registered in Year 4 of a secondary programme were tested with the Personal Orientation Inventory (POI) as a measure of self-actualization and with the Career Development Inventory (CDI) as a meaure of level of vocational maturity. Classification of subjects into high and low self-actualizers based on the two major scales of the POI produced samples of 20 male high self-actualizers, 27 male low self-actualizers, 42 female high self-actualizers and 34 female low self-actualizers. A univariate analysis of variance with vocational maturity as the dependent variable and self-actualization and sex as the independent variables revealed a significant different at the .05 level for high and low self-actualizers with high self-actualizers attaining higher levels of vocational maturity. There was not a significant difference in the sex factor, nor was there significant interaction.

A two-factor multivariate analysis of variance with self-actualization and sex as the two factors and the scores of the three sub-scales of the CDI as the dependent variables supported the results of the univariate analysis. This

multivariate analysis also suggested that Scale C of the CDI was the largest contributor to this significant difference, that Scale A contributed moderately to the difference and that Scale B's contribution was minimal.

In this study it is recommended that school systems provide opportunities and situations where students can gratify needs and can develop a realistic and planful approach to choosing a vocational preference. There is a requirement to explore other factors which may affect vocational development and to formulate programmes which will encourage and foster the acquisition of capacities and attitudes for making sound vocational decisions.

Suggestions for further studies in these areas are also included.

There is today a widespread interest in career development and in career education. With advanced technology and many new career paths available to them, students are faced with a vast spectrum of vocational choices. Curricula requirements often demand that these choices be made early in the students' educational careers.

Educators and counsellors are concerned with the many problems relevant to vocational decisions, such as: when should instruction in the special disciplines and in the various vocational and professional subjects begin; when should students be expected to choose between courses leading to different types of education and thus to different fields of work and occupations; are these students ready to make the choices demanded by the school system and by its organization of curriculum; how can educators assist students to be better prepared to make these decisions.

Although some research has been carried out on the aspect of vocational development to determine when students are sufficiently mature to make occupational decisions, very little research has been done on why some students are more vocationally mature at a certain chronological age than others. The question of why some students can more competently cope with curriculum choices and make sound decisions regarding their future careers is not yet resolved.

It is proposed in this paper through a study of self-actualization and its relationship to vocational maturity to explore one factor which might assist teachers and counsellors in developing attitudes and behaviours in students which will provide a basis for choosing curriculum paths leading to occupational fields appropriate to these students.

In the first chapter a critical review of the literature of Maslow's theory of self-actualization and Super's theory of vocational development is presented. This is followed by a description of the research problem and a statement of the research hypothesis. The second chapter contains an outline of the design of the study including sampling and procedures for collecting data, instrumentation, classification of subjects and planned statistical analysis. An analysis of the data, conclusions drawn fron the study and further recommendations for future studies are presented in the final chapter.

Chapter I

Theoretical Framework and Review of the Literature

The presentation of Maslow's theory of self-actualization and Super's theory of vocational development will be followed by an overview of studies which relate to these theories. A section is devoted to the rationale for establishment of a relationship between the theory of self-actualization and the theory of vocational development including a statement of the research hypothesis.

1. Maslow's Theory of Self-Actualization

The review of the theory of Abraham Maslow includes his theory of basic needs and how these needs interrelate and the emergence of meta-needs. Maslow's definition of self-actualization, the conditions under which one may attain self-actualization and the characteristics which Maslow ascribes to the self-actualized individuals are discussed. The implications of Maslow's theory for educators are also noted.

Maslow's theory of self-actualization is one of optimism and humaneness. He is concerned with the future of man, rather than the past; with the healthy person rather than the neurotic. Development of the individual, according to Maslow, is essentially a growth process with strong motivational force to use his capacities and potentialities to become a "better person" (1970, p. 150).

The basis of Maslow's self-actualization theory is a hierarchy of needs which he refers to as "basic needs" and "meta-needs" (Maslow, 1970, p. 35-51). The basic needs are: physiological needs; safety needs; belongingness and love needs; self-esteem needs. Self-actualization, which Maslow specifies as one of the higher-order or meta-needs, is an outgrowth of gratification of these basic needs.

The physiological needs, such as hunger and thirst, are prepotent and would dominate all behaviour if not gratified. Other needs would be suppressed and the major motivation would be to satisfy the physiological needs. If the physiological needs are relatively well gratified, there emerges a new set of needs, the safety needs. These include security; stability; protection; freedom from fear, anxiety and chaos; and the need for structure, such as law and order. If these needs are thwarted they may again become the exclusive organizers of behaviour, until at least partial gratification is attained. As this happens, and if the physiological needs are well satisfied, a new set of needs will emerge, the belongingness and love needs. The person will feel strongly the need to relate to people in general and to attain a place in his group or in his family. This need may be thwarted by up-rooting of the family and the move to a new locality, which is characteristic of a mobile society. Gratification

of the belongingness need comes through identification with persons through which the individual may overcome his feelings of alienation and loneliness. The fourth need in Maslow's hierachy is the self-esteem need, i.e. a desire for a stable, firmly based evaluation of oneself, for self-respect and for the respect of others. Satisfaction of the self-esteem need leads to feelings of self-confidence, worth, hopefulness and interest in the future, but thwarting of this need produces feelings of inferiority and weakness.

Maslow has pointed out that this hierarchy is not rigid and that most people are partially unsatisfied in one, or perhaps all, of the basic needs, and that behaviour is motivated by several or all of these needs (1970, p. 102). The emergence of the new need does not rely on complete gratification of the previous need, but only on partial gratification, and the degree of gratification will diminish with progress up the scale. This emergence is gradual and is motivated by the individual's desire for growth and for self-fulfillment (Loury, 1973, p. 168). Hence as the individual is gratified in the basic needs, he is motivated by "higher" needs, which Maslow terms meta-needs or meta-motivation. This leads to a state of self-actualization (Maslow, 1967, p.93).

Maslow defines self-actualization as "man's desire for self-fulfillment; as the tendency for him to become actualized in what he is potentially" (1970, p.150). All the basic needs then may be considered to be simply steps along the time-path

to self-actualization, under which these basic needs may be subsumed (Maslow, 1959, p. 123). This does not ensue automatically, as the individual must have some desire for growth, some goal for which he is striving. However, Maslow believes that all people are capable of self-actualization, and all people tend towards it (1970, p.128).

In order to attain self-actualization, Maslow describes certain conditions which must be inherent in the individual (1969, p.35). As well as being gratified in the basic needs, he must be free of illness, he must be positively using his capabilities, and he must be motivated by some values for which he strives, and to which he is loyal.

Maslow has also projected certain characteristics which he believes to be inherent in all self-actualized persons (1970, p.156-163). They have a more efficient perception of reality. They live more in the real world and are less threatened by the unknown. Self-actualizers also have a higher level of acceptance of themselves, of others and of nature. They can accept themselves as they are at all levels without feeling concern. Maslow describes self-actualizers as spontaneous individuals whose behaviour is marked by simplicity and naturalness, with lack of artificiality. They are problem-centered, rather than ego-centered. These individuals customarily have some mission in life, some task to fulfill, some problem outside themselves which enlists much

of their energies. These subjects are independent of others in that they make up their own minds, come to their own decisions, are self-starters and are responsible for themselves and their own destinies. They are relatively independent of their physical and social environment, and yet have a continued appreciation of nature and life around them, and a deep feeling of identification, sympathy and affection for others.

According to Maslow, those who have attained self-actualization will more often experience what he terms "peak experiences", than those who have not attained this state. He describes these transient experiences as feelings of limitless horizons opening up to the vision, the feeling of being simultaneously more powerful and also more helpless, the feeling of great ecstacy and wonder, the loss of placing in time and space with the conviction that something extremely important and valuable has happened (Maslow, 1970, p.164). The subject is to some extent transformed and strengthened in his daily life by such experiences. Although Maslow concedes that these episodes can come at any time in life to any person, he believes that self-actualized people will encounter these peak experiences more often and more intensely (1968, p.97).

In Maslow's theory the behaviour of self-actualized persons is characterized by the growth motivation, rather than the deficiency motivation, and their development and

continued growth is dependent on their own potentials and latent resources. Maslow describes self-actualizers as persons whose actions and experiences are in congruence with the existing self rather than being guided by forces alien to the self (Loury, 1973, p. 17). For Maslow high self-actualizers more closely approach the ultimate in personal maturity. He states that maturity, or self-actualization, is a means to transcend the deficiency needs (1968, p. 202).

Maslow believes that self-actualizers have some mission in life, some goal for which they are striving. Maslow states:

> All such people are devoted to some task, call, vocation, beloved work. One gets the feeling of a beloved job, and furthermore of something for which the person is a natural, something that he is suited for, something that is right for him, even something that he was born for (1969, p. 37).

In speaking of the values of self-actualizers Maslow writes, "we may add as another road to final values, the 'cause', the mission, the vocation, that is to say the 'work' of self-actualized people" (1969, p. 36). Perhaps Maslow was referring to all types of "beloved jobs", and not specifically to vocational occupations. However, as such a large segment of one's life is involved with vocation in occupation or career, it would seem that Maslow must also be including one's "job" or "vocation" in this sense.

Maslow was concerned with the implications of his theory for educators. In writing on this topic, Maslow states:

> Another goal which our schools and teachers should be pursuing is the discovery of vocation, of one's fate and pursuits. Part of learning who you are, part of being able to hear your inner voices, is discovering what it is that you want to do with your life (1971, p. 177).

Goble also applied Maslow's theory to education. Goble writes:

> Third Force psychological theory calls for a new kind of education. This education will put more emphasis on development of the person's potential, particularly the potential to be human, to understand self and others and to relate to them, to achieve the basic needs, to grow towards self-actualization (1970, p. 67).

In summary the foundation of Maslow's theory of self-actualization is the hierarchy of basic needs, from which emanate the higher-order needs, such as self-actualization. The characteristics of the self-actualized individual, as portraying by Maslow, are reviewed including the self-actualizer's devotion to a goal in life, a "beloved job." This latter characteristic of the self-actualizer and the significance of Maslow's theory to education are of particular interest in this research, as they relate to choice of career.

Following is a review of Super's theory of vocational development, a theory which also pertains to the education and goals of young people and to the development of attitudes and behaviours appropriate for choosing realistic vocations.

2. Super's Theory of Vocational Development

Donald Super's concern for the individual's ability to make the various decisions which are required of him regarding his vocation in life led him to study the career patterns of young people and to formalize his theory of vocational development. Super was concerned with whether the individual's level of vocational maturity was sufficient for him to cope adequately with choice-making tasks. If he was forced to make vocational choices before he was ready what would be the effect on him. What could be done to increase his readiness for decision-making (Super and Overstreet, 1960, p. 11).

Early in his career Super recognized the importance of differential psychology, or trait and factor theory, which involved matching the person with the occupation (Super, 1969, p. 2). The stress was mainly on the occupation and characteristics of people doing that type of work, essentially a psychology of occupations. However, Super realized that there was a lack of knowledge about how people choose, enter and progress in their occupations, and this stimulated his research in this field. He focused on the career, or the sequence of

occupations, jobs and positions occupied during the course of the person's working lifetime, and combined this with the psychology of occupations and self-concept theory to formulate a theory of vocational development (1969, p. 3).

The three main elements in Super's theory of vocational development are vocational maturity, the role of the self-concept, and the importance of life stages. These three constructs are discussed in detail in the following section.

Vocational maturity, as defined by Super, is the degree of development, the place reached on the continuum of vocational development, through the various life stages (1957, p. 186). According to Super, vocational development begins early in life and proceeds along a curve to late in life (1955, p. 151). Vocational development is also characterized by vocational behaviour, that is the interaction between the individual and his environment which is related to his vocation. This development does not take place independently, but is related to the development of capacities, abilities and interests and is a continuing process. Ability to perform new behavioural acts largely depends on capacities for behaviour which are already developed, and as the individual matures physically and psychologically, his vocational behaviour potential increases. The individual's level of vocational maturity, then, is measured by his behaviour as compared with others coping with the same tasks (Super and Overstreet, 1960, p. 2).

Super distinguished between vocational maturity and vocational adjustment. Vocational adjustment is the adequacy with which the individual copies with development problems, regardless of his vocational maturity and chronological age (Super, 1955, p. 153). Furthermore, it is the extent to which vocational behaviour results in the accomplishment of a vocational development task with long-term satisfaction to the individual in meeting his objectives (Super and Overstreet, 1960, p. 9). Vocational development, however, is a process of growth and learning through the encountering of vocational tasks and adjustments.

The vocational development tasks, as seen by Super, are, in order of hierarchy, crystallizing a vocational preference, specifying it, implementing it, stablizing in the chosen vocation, consolidating one's status and advancing in the occupation (1963, p. 78). He further elaborated on these tasks and indicated that the various attitudes and behaviours involved in vocational maturity tasks are characterized by awareness of the need to crystallize, use of resources, awareness of factors to consider in formulating a preference, awareness of contingencies which may affect goals, differentiation of interest and values, awareness of present-future relationships, formulation of a generalized preference, consistency of preference, possession of information concerning the preferred occupation, planning for the preferred occupation

and wisdom of the vocational preference (Super, 1963, p. 84). As can be seen, these attitudes involve awareness, planfulness, systematic information-seeking activities and realism (Super, 1963, p. 88).

Vocational maturity, then, can be judged first by the nature of the vocational development tasks with which the person is attemtping to cope, and more precisely by the vocational behaviour manifested by the person in coping with these tasks (Super, 1963, p. 79). As a result of his research Super hypothesized certain behaviours which he believed to be relevant to the development of vocational maturity. As a guide in developing a model for these behaviours Super relied on the following concepts:

> Development proceeds from random, undifferentiated activity to goal-directed specific activity;
>
> Development is in the direction of increasing awareness and orientation to reality;
>
> Development is from dependence to increasing independence;
>
> The mature individual selects a goal;
>
> The mature individual's behaviour is goal-directed (Super, 1974, p. 12).

Proceeding from these characteristics of a vocationally mature individual, Super formulated a model of the dimensions and indices of vocational maturity as shown in Table 1 (Super, 1974, p. 13-14). This model was empirically tested by Super and his associates in the analysis of data from the Career

Table 1

DIMENSIONS AND INDICES OF VOCATIONAL MATURITY*

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, p. 13-14

Pattern Study and was determined to be both structural and developmental. Super and his colleagues found planning or future orientation to be the first factor in the analysis of vocational maturity items, with exploration the second, and decision-making the third factor (Super, 1974, p. 12).

The second construct in Super's theory is the development of the self-concept and the role of the self-concept in determining the individual's choice of career. Super writes: "that in expressing a vocational preference a person puts into occupational terminology his ideas of the kind of person he is" (1969, p. 7). He defines self-concept as, "The individual's picture of himself, the perceived self, with accrued meanings--in some role, some situation, in a position, performing some set of functions or in some web of relationships" (1963, p. 18).

Central to Super's theory of vocational development are the processes of the formation of the self-concept, the translation of this self-concept into occupational terms and implementation of the self-concept in establishing oneself in an occupation (Super and Bohn, 1970, p. 148). The formation process includes exploration of the self and of the environment, the differentiation of the self from others, identification with others who can serve as models and the playing of selected roles with more or less conscious evaluation of the results and testing of reality. Although these activities are hierarchial in nature, some, such as

exploration, are on-going throughout life. Translation of the self-concept into occupational terms may be achieved through one or more processes: through identification with an adult role model, experience in a role in which one has been cast or awareness that some of one's attributes are appropriate for certain occupations.

The implementation process in the formation of the self-concept is mainly one of action as in obtaining specialized education or training required for the preferred occupation or in finding employment in it. Modifications to the self-concept will take place after entering the occupation as experience with the reality causes adjustments. Preservation of the self-concept comes with establishment in a chosen occupation (Super, 1963, p. 11-14).

Super theorizes that self-concept differs in level of complexity. The person may have a simple self-concept of himself -- he has big muscles -- which through abstraction and generalization becomes more complex -- he is strong. These complex self-concepts come together with a self-concept system which tells him the type of person he believes he is (Super, 1963, p. 18). Super points out that a person may have different self-concepts of himself in differing roles, that is, he has a high self-concept of himself as an athlete, but a poor self-concept of himself as a student. He also adds that the development of the self-concept must be accompanied by awareness on the part of the

individual, awareness of his own attributes and weaknesses and of his successes and failures.

Super defines vocational self-concept as the translation of self percepts into occupational terms. The person selects those various self-concept systems which are relevant to his vocational choice and successes. These may, or may not, be translated into vocational preference, but will affect his decisions and judgments as he matures vocationally (Super, 1963, p. 19).

The third construct in Super's theory is the principle of life stages. These involve the growth, exploration, establishment, maintenance and decline stages (Super and Bohn, 1970, p. 137). Super is more concerned with the exploration and growth stages, as that is when vocational development and maturity are taking place.

The growth stage involves the early years of the child and is characterized by role-playing. The exploration period which follows is a period of self-examination and occupational exploration, and is of prime importance in the vocational development of the individual. He tests himself out more realistically than before in various adult roles. He begins to think in terms of what interests him, and to take into account his success in these activities. The importance of his abilities and interests is recognized,

and he learns that society considers some goals more desirable than others. Whereas his vocational thinking had previously been based on immature roles, such as the need for affection, or the desire to be powerful, he now shifts his identification to more mature roles, gratifying his needs in the various ways suggested to him in his contacts with work at home and in society (Super and Bohn, 1970, p. 137). He develops a degree of self-understanding and of self-acceptance. As his age progresses, the importance of seeking an occupation becomes more real. There is increased orientation toward a vocational choice and increased consistency of vocational preferences. Planning and information-seeking become more relevant as he crystallizes the traits which apply to his vocational preferences. He adjusts his self-concept to reality (Super, 1955, p. 154).

The establishment stage is characterized by goal selection and goal-directed behaviour. This is a stablization period in which the individual attempts to make a secure place for himself and realizes a committment to his occupation. During the maintenance and decline stages quiescence in the career occurs followed by retirement from the career.

The importance of the self-concept and of the life stages constructs in the development of Super's theory is indicated in the following quotation:

> The postulate that in expressing a vocational preference, a person puts into occupational terminology his ideas of the kind of person he is, that, in entering an occupation, he seeks to implement his self-concept, and that in stablizing in a occupation he attempts to achieve self-actualization together with life stage theory has provided the framework not only for a large part of my 'Psychology of Careers' (1957) but also for my more recent theorizing and research (1963) (Super, 1969, p. 7).

In summary, the research of Super and his colleagues indicates that the vocationally mature person must be aware of the need to crystallize his vocational preference and that he must pursue goal-directed and meaningful activities in order to achieve this preference. He must engage in information-seeking activities and must be aware of contingencies which might affect his attainment of this goal. In general, he must face the reality of his decisions, relying on a healthy and well-adjusted self-concept to assist him in his period of exploration.

Super writes: "That in entering an occupation he seeks to implement a concept of himself; that in getting established in an occupation he achieves self-actualization"(1963, p. 1).

Super concluded that the high school years are essentially years of exploration, and that this underlines the importance of assessing the degree of vocational maturity attained when planning further exploration and when arriving at decision points. He proposed that as adolescents vary greatly in their levels of vocational maturity, in planfulness to their approach to life, in their tendencies to anticipate choices, in their exploration of alternatives and in their prepotency to acquire relevant information, it is imperative that educators acquire data on these characteristics when planning curricula; researchers need this information in evaluating programs and counsellors need it in advising students with regard to educational and vocational choices (Super, 1974, p. 21). This desire of Super to acquire more information regarding students' levels of vocational maturity led to the establishment of a Career Development Inventory, which will be discussed in detail in Chapter II.

Researchers have continued to be interested in the theory of Maslow and in the theory of Super. In the following section some studies related to these two theorists will be reviewed.

3. Studies Relating to Maslow's Theory of Self-Actualization and Super's Theory of Vocational Development

In the studies which follow: Centers and Bugental (1966) and Miller (1974) indicate the relationship of level of occupation and vocational maturity with Maslow's hierarchy of needs; Stephenson (1961) and Dipboye and Anderson (1961) base their research on the principle of the implementation of the self-concept in choosing a career; Resnick, Fauble and Osipow (1970) and Maier and Herman (1974) investigate the importance of self-esteem in the crystallization of vocational goals.

Centers and Bugental (1966) conducted a study based on the prediction that individuals at higher occupational levels would place a greater value on intrinsic job factors than would individuals at lower occupational levels. Subjects were classified into occupational groupings from the Dictionary of Occupational Titles (1949). For the purposes of their study they determined the sources of intrinsic job satisfaction to be self-expression (a chance to use one's skill or talent), interest-value of the work, and feeling of satisfaction derived from the work itself. Under extrinsic sources of job satisfaction they included: pay, security and satisfying co-workers.

The data were secured by personal interviews with 692 employed adults constituting a selected cross-section of employed males and females in Los Angeles, California. A questionnaire with the central focus on the intrinsic and extrinsic nature of job satisfaction was used as a measure of job motivation during the interviews.

The findings of the study confirmed the researchers' predictions that white-collar workers consistently placed a greater value on intrinsic sources of job satisfaction, such as the skill required and the interest value of the work, whereas blue-collar workers placed a greater value on extrinsic sources of job satisfaction, such as financial and social considerations.

The researchers interpreted these results in terms of Maslow's need hierarchy, and purported that individuals in lower-level occupations are more likely to be motivated by lower order needs, such as security, because they are not sufficiently gratified to allow higher order needs, such as self-fulfillment, to become prepotent.

In a more recent study, Miller (1974), investigating the relationship of vocational maturity to work values, proposed that vocational maturity is positively associated with intrinsic work values and negatively associated with extrinsic work values. Miller based his hypothesis on

the literature of Crites (1969) and Super (1957), which asserts that in the process of vocational maturation adolescents become increasingly task oriented.

Miller chose a sample of 24 male and 28 female community college students enrolled in a non-credit remedial reading course. Vocational maturity was measured by the Vocational Development Inventory (VDI) (Crites, 1973). On the basis of item content and statements in the manual, the items in the Work Values Inventory (WVI) (Super, 1970) were classified into two categories -- intrinsic work values and extrinsic work values. The results indicated that the process of vocational maturation involves the development of work values which proceed from a global to a differentiated structure. The one extrinsic work value on the WVI which had the largest negative correlation with vocational maturity, as measured by the VDI, was the Associates scale. Miller explained the emphasis which vocationally immature students placed on having satisfying interpersonal relationships with co-workers as a result of the deprivation of the basic need for belongingness, as theorized by Maslow, and stated that Maslow's theory predicts the emergence of intrinsic work values upon the satisfaction of needs associated with extrinsic work values.

Dipboye and Anderson (1961) conducted a study based on Super's premise that an occupation becomes the means through which the individual attempts to implement his self-concept. The researchers believed that the perceptions which an adolescent has of the roles played by the members of various occupations have an important influence on his career choice. The purpose of their study was to examine how students view different careers as satisfying various needs, and how this effects occupational choices.

An instrument was constructed in which subjects were asked to choose phrases which they believed described a typical person engaged in a specific type of work. In this instrument the students' perceptions of an occupation were expressed in terms of its potential to satisfy their needs. The sample consisted of 448 high school seniors attending schools in New York state. The authors concluded that the subjects' perceptions of the various occupations influenced their career choices, and that these perceptions were indeed reliant on the potential of the occupation to satisfy certain manifest needs.

Stephenson (1961) based his study on Super's premise that in choosing an occupation one is, in effect, choosing a means of implementing a self-concept. He chose his subjects from the field of medicine as he felt that this is one occupation with a rigidly prescribed preprofessional training

period, and admittance to medical school is a realistic and valid manner of implementing an occupational choice. More specifically, he was interested in the question, "Has the vocational self-concept of the premedical student crystallized before application to a school of medicine?"

Stephenson submitted a questionnaire to 368 applicants to the University of Minnesota Medical School between the years 1947 and 1951, who had been refused admission, to determine their present field of study or occupation. The replies indicated that an overwhelming majority (80%) had either been granted admission to another medical school or were in a medically related occupation. His conclusion was that the self-concept is specific before application, and that there is a large degree of consistency and crystallization.

In a more recent study, Resnick, Fauble and Osipow (1970) based their research on Super's theory that vocational maturity is reflected in the competency with which an individual copes with vocational development tasks, and that in adolescence the major vocational tasks include the crystallization and specification of career goals. The researchers proposed that the impact of the self-concept on personal development is the rationale underlying Super's theory, and also that self-esteem is an aspect of the self-concept. Since the self-concept influences the nature and progress

through various developmental tasks, the authors hypothesized that positive and negative self-esteem would affect the rate of progress through vocational development tasks. More specifically, college students exhibiting high self-esteem would show more advanced vocational crystallization than those low in self-esteem.

The Biographical Inventory Questionnaire was specifically designed for this study to solicit information including certainty of career choice. The Kuder Preference Record (KPR) (Kuder, 1960) was used to assess differences in degrees of preference for various careers. It was assumed that scores above the 74th percentile indicated crystallization in that area. The Tennessee Self-Concept Scale (TSCS) (Fitts, 1965) provided a measure of self-esteem.

The subjects were 114 male and 102 female students enrolled in an introductory psychology course at Ohio State University. Forty-eight of the males were freshmen, 29 were sophomores, 20 were juniors, 15 were seniors and 2 were students already having a bachelor's degree. The female subjects consisted of 72 freshmen, 27 sophomores, 2 juniors and 1 senior.

The results supported the hypothesis that both males and females in the high self-esteem group expressed more certainty about their career plans than the low self-esteem

group, and led the researchers to presume that high self-esteem reflects crystallization of vocational goals.

In a similar study Maier and Herman (1974) explored the relationship of levels of vocational decidedness and level of satisfaction of one's vocational decidedness with self-esteem and dogmatism. The sample consisted of 141 freshmen students enrolled in a general English course at the University of Calgary. Form E of the Rokeach Dogmatism Scale (1960) was used to obtain a measure of dogmatism. Self-esteem was measured on the Total Positive Scale of the Tennessee Self-Concept Scale (TSCS) (Fitts, 1965). A questionnaire developed by Maier (1973) was used to determine the level of vocational decidedness and the individual's personal satisfaction with his ability to specify a vocational decision.

The results of the investigation, as reported by the researchers, showed the undecided students to be more dogmatic and lower in self-esteem than the decided students, indicating to the authors that the undecided student attaches higher than usual importance to the opinions and values of others. The authors point out that the results of this study support the investigation of Resnick, Fauble and Osipow (1970), and that a high level of self-esteem leads to a larger degree of vocational decidedness.

In summary, the results of the study of Centers and Bugental (1966) pointed out the relationship between Maslow's theory of need hierarchy and the level of the choice of occupation. Miller's study (1974) suggested that there is a positive relationship between gratification of needs, as described by Maslow, and the level of the vocational maturity of the individual. Dipboye and Anderson (1964) investigated need satisfaction as a factor in the choice of a career, and their research supported this proposed relationship. Stephenson (1961) was interested in the importance of the self-concept in choosing a career and the degree of crystallization of the vocational self-concept. Results of the studies of Resnick, Fauble and Osipow (1970) and of Maier and Herman (1974) demonstrate the importance of level of self-esteem in reaching vocational decisions.

4. The Research Problem

Super has theorized that the most important aspects in the vocational development of the individual are his level of vocational maturity, the life stages through which he passes, particularly the growth and exploration stages, and the concept which he has of himself both in his personal life and in his vocation. On the other hand, the gratification of needs leading to a state of self-actualization is the basis of Maslow's theory.

Maslow refers to self-actualizers as individuals with a mission in life, some goal for which they are striving, a "beloved job" (1969, pp. 36-37). Maslow also proposes that schools and teachers should be pursuing the discovery of vocation. In this context he states, "Part of learning who you are....is discovering what it is that you want to do with your life" (Maslow, 1971, p. 177).

Basic to Super's theory is goal-directed behaviour developing from dependence to increasing independence. Super writes, "in stablizing in an occupation he attempts to achieve self-actualization" (1969, p. 7). These statements would suggest that a relationship does exist between the theories of Maslow and Super.

Studies outlined in the previous section have supported a relationship between the level of need gratification and the process of developing vocationally. It has been shown that need gratification leads to vocational decidedness, and conversely that those individuals who are functioning at the lower-order need level are less able to choose realistic paths and less able to cope with vocational tasks. Super has described this ability to make sound vocational judgements as the individual's level of vocational maturity, his place reached along the continuum of vocational development. As self-actualization relies on need gratification, according to Maslow, this would suggest that self-actualization would

also be a factor in determining the individual's level of vocational maturity.

The connections which have been established between the theories of Maslow and Super and the conclusions which may be drawn from previous studies would suggest a relationship between levels of self-actualization and of vocational maturity. However, this relationship has not yet been established empirically. It is proposed in this research to conduct an empirical study to examine this relationship.

Maslow has stated that all individuals are capable of self-actualization, and that all people tend toward it (1959, p. 128). With regard to age, Maslow states that self-actualization is a growth process, and that young adults do not tend to reach such high levels of self-actualization as may be found in older persons (1970, p. 150). Subsequent studies have indicated that level of self-actualization does, in fact, increase with age (Knapp, 1976, pp. 85-86). However, studies conducted with high school subjects have demonstrated that levels of self-actualization can be differentiated in adolescents (Knapp, 1976, p. 57).

Super has proposed that adolescence is a period of exploration, and that these exploratory activities involve finding out about types of careers and about the kinds of education which prepare for these occupations (1957, p. 92). He further explains that these activities begin in junior high school, continue throughout high school and in the

various non-school activities in which teenagers engage (1957, p. 101). It would appear then that students currently enrolled in high school programs would have been exposed to some experiences with the tasks relevant to choosing an occupation and would have developed a measureable level of vocational maturity.

With this consideration and given the fact that level of self-actualization can be differentiated in adolescence, it is determined that the subjects for this study will be drawn from high school students who are presently in their fourth year of secondary education.

More specifically the research hypothesis for this study is as follows:

> High school students who display a high degree of self-actualization are more vocationally mature than those who display a low degree of self-actualization.

The design of this experimental study will be elaborated in Chapter II.

Chapter II

Design of the Study

Procedures for testing the research hypothesis are discussed in this chapter. These include the structure of the measuring instruments and their psychometric properties, the selection of subjects and the collection of data, classification of these subjects into high and low self-actualizers and the planned statistical analyses of the data.

1. Instrumentation

The Personal Orientation Inventory (POI) (Shostrom, 1962) and the Career Development Inventory (CDI) (Super, Bohn, Forrest, Jordaan, Lindeman and Thompson, 1971) were selected as the two measuring instruments for this study based on previous research which had reported satisfactory reliability and validity results, and on the basis of related literature recommending these instruments as suitable for research purposes. The review of each instruments includes the structure of the instrument, the method of scoring, reported validity and reliability studies and other research which has contributed information pertinent to the instruments.

The POI is a self-report inventory consisting of 150 two-choice comparative value and behaviour items. The examinee chooses the one statement in each pair which is more true of himself. The two major scales of the POI provide a score for inner-directedness (ID Scale), composed

of 127 items, and a score for time-competence (TC Scale) on the remaining 23 items. A score on each scale is derived from the total responses to the items which the author has determined are the positive trends toward inner-directedness and time-competence. The ID Scale is designed to measure whether an individual's mode of reaction is characteristically "self" oriented or "other" oriented, whereas the TC Scale reflects the degree to which the individual lives in the present, as contrasted with the past or future. Although this instrument provides scores on ten sub-scales which each measure an element of self-actualizing, studies by Damm (1969, 1972) have indicated that a simple combination of ID and TC raw scores is the best predictor of an overall measure of self-actualization. In view of the conclusions of Damm, and based on the recommendation of Shostrom (1966, p.6) that, for research purposes, only scores on the two major scales be considered, this procedure will be followed in this study.

Evidence of construct validity of the POI is presented by Shostrom (1964) in a study using the POI to differentiate three groups of adults who were clinically classified as "self-actualized", "normal", and "non-self-actualized." Results of this study are shown in Table 2. The POI significantly differentiated the self-actualized group from the non-self-actualizers on both major scales, as the self-actualized group means were greater than the normal group, and the

Table 2

POI Scale Means and Standard Deviations of Samples Classified as "Self-Actualizing", "Normal", and "Non-Self-Actualizing" in Shostrom's (1964) Study

POI Scales	Self-Actualizing (n = 29)		Normal (n = 158)		Non-Self-Actualizing (n = 34)	
	Mean	SD	Mean	SD	Mean	SD
Time-Competence	18.9	2.5	17.7	2.8	15.8	3.6
Inner-Directedness	92.9	11.5	87.2	13.6	75.8	16.2

non-self-actualized group means were below the normal group. Fox, Knapp and Michael (1968) report similar results, as the POI significantly differentiated a hospitalized psychotic group from both the normal and self-actualized groups of Shostrom.

Correlations of the POI with other instruments have upheld the concurrent validity of this instrument. Braun and Asta (1968) investigated the POI and the Gordon Personal Inventory (GPI) (Gordon, 1956), and found significant positive correlations with the Original Thinking Scale, in consistency with Maslow's emphasis on the creativeness of the self-actualizing individual. With a sample of 84 volunteer undergraduate students, Knapp and Comrey (1973) studied the relationship of the POI to the Emotional Stability Scale of the Comrey Personality Scales (CPS) (Comrey, 1970), and found correlation coefficients of 0.50 and 0.43 with the time competency and inner-directed scales respectively, supporting their hypothesis that overall estimates of self-actualization are positively related to stability. Correlation studies with the Edwards Personal Preference Schedule (EPPS) (Edwards, 1959) have shown positive relationships to Autonomy and Aggression and negative correlations with Abasement and Order (LeMay and Damm, 1969). The POI has been shown to be negatively related to the concept of neuroticism in a study of Knapp (1965) using the Eysenck Personality Inventory (EPI)

(Eysenck and Eysenck, 1963) as a measure of neuroticism, and has been shown to be positively related to the concept of the "well-adjusted" person as defined by the Dymond (1954) Q-Sort Adjustment Scale (Mattocks and Jew, 1974).

Various studies have investigated the predictive validity of the POI. In the educational field, studies involving use of the POI in relation to student effectiveness and teacher effectiveness have been reported, particularly in the field of counselling and encounter groups. For instance, Alperson, Alperson and Levine (1971) examined the effect of an encounter group experience on POI scores among high school students, and found significant increases in scores on the two major scales.

Test-retest reliability coefficients for the POI reported by Shostrom based on a sample of 48 college students from a study by Klavetter and Mogar (1967) are 0.77 for the inner-directed scale and 0.71 for the time competence scale with a time lapse of one week. In a study with 46 nursing students, Ilardi and May (1968) report test-retest reliability coefficients of 0.71 on the inner-directed scale and 0.55 on the time competence scale over a 50-week time period. In a study with 172 junior and senior university students, Wise and Davis (1975) report test-retest reliability coefficients of 0.88 on the inner-directed scale and 0.75 on the time competence scale over a two-week time period. The same study produced internal

consistency estimates of 0.84 on the inner-directed scale and 0.50 on the time competence scale using the split-half method with the Spearman-Brown Prophecy Formula applied.

The POI has been characterized as being particularly resistant to "faking good." As reported by Shostrom (1974), Knapp administered the POI to beginning psychology students with instructions to respond as though they were applying for a job and wanted to make a good impression. Comparison of these results with scores of similar students who had not received the "fake good" instructions demonstrated that results of the "fake good" group were not in the direction of greater self-actualization. Similar studies have supported the findings of Knapp (Foulds and Warhime, 1971), (Braun and LaFaro, 1969).

Although no sex differences are reported in the POI manual, significant sex differences have been found in studies by LeMay and Damm (1969) and by Wise and Davis (1975). Schroeder (1973), in a study of 590 freshmen college students, found significant differences for men and women on eleven of the twelve scales of the POI with females scoring higher on each scale.

The POI, then, has been shown through extensive research to have a satisfactory level of validity and reliability and to be particularly resistant to faking. The use of this instrument in studies of high school students indicates that

the POI has the ability to differentiate levels of self-actualization in this age group as reported by Knapp (1976, p. 57). Therefore, it would appear that the POI is a satisfactory instrument to use as a measure of level of self-actualization in this research.

The Career Development Inventory (CDI) (Super, Bohn, Forrest, Jordaan, Lindeman and Thompson, 1971) is used as the measurement of vocational maturity in this study. This is an unpublished test designed for research purposes and based on the research in the psychology of vocational development as conducted by Super and his associates. The test used in this study is the version as adapted by Lokan (1976) and is applicable only to Ontario school students.

This instrument consists of three scales totalling 91 items, and measures the important aspects of vocational maturity in adolescents as theorized by Super. Scales, subscales and allocation of items in the CDI are shown in Table 3. Scales A and B are attitudinal; Scale C is cognitive. Scores on Scale A, a self-rating scale represent levels of awareness of the need for planning and making choices, while scores on Scale B, also a self-rating scale, indicate the quality of resources already used or recognized to be potentially available. Scores on Scale C indicate the amount of occupational information acquired, together with knowledge of how this may be integrated

Table 3

SCALES, SUBSCALES AND ITEM ALLOCATION IN THE CAREER DEVELOPMENT INVENTORY

Scale	Subscale	No. of Items In Subscale	No. of Items In Scale
A. Planning Orientation	Specificity of Planning	14	
	Concern with Choice	8	
	Definiteness of Plans	1	
	Specificity of Information	10	33
B. Resources for Exploration	Awareness of Resources Available	14	
	Actual Use of Resources Available	14	28
C. Information and Decision-Making	Occupational Information (General)	18	
	Knowledge of Decision-Making Principles	12	30
TOTAL			91

with other information in making sound educational and vocational decisions. Scale A has five possible responses for each question, evaluated on a five-point scale, and the score for this scale is the sum of the value of each response. Each question in Scale B also has five choices, evaluated on a five-point scale, and each response is multiplied by an assigned weighting and then added to derive the score for this scale. These weightings vary from one to four, and are assigned by the authors of the test based on their judgement of the relative "quality" of the resources. Thompson reports that empirical confirmation of these judgemental weights came from the item analyses and the factor analysis of the various sub-scores in the instrument (1979).

A total score for vocational maturity may be obtained by addition of the scores on the three scales. However, Super and Forrest (1972) recommend that, because of the disproportional variance contribution of each scale to the total score, scores be converted to standard scores, such as T-scores, when the total score is required for statistical purposes. This recommendation is followed in this study.

Content validity of the CDI is established by the expert judgement of Super and his colleagues, as items were selected to best assess the attitudes and behaviours considered to be the most important aspects of the construct of vocational maturity (Super and Forrest, 1972, p. 10).

Thompson also reports that, "The resulting score scales are psychometrically good--in terms of reliability, factor data and construct validity" (1979).

In an effort to establish criterion-related validity, four other variables, which were considered by Super and his colleagues to be relevant to vocational maturity, were examined. The variables were: a rating of the level of father's occupation, a rating of the student's own vocational preference level, aptitude as measured by the SRA-Verbal test and grade-point average for ninth grade courses. Results from 200 tenth grade students indicated that all scales of the CDI were virtually unrelated to levels of father's occupation and own vocational preference. Scales A and B were also unrelated to verbal aptitude and grade-point average, whereas the cognitive scale, Scale C, was moderately correlated with the latter two variables. Super noted that the low correlation between the CDI scales and the level of father's occupation and own vocational preference, which are measures of present or hoped for socio-economic level, indicated a degree of culture-fairness in the CDI (1972, p. 31). Super considered the fact that the attitudinal scales of the CDI were unrelated to aptitude and achievement, whereas the cognitive scale of the CDI was moderately related to these two characteristics, as evidence of the criterion validity of the instrument (1972, p. 32).

Super considered that one relevant indicator of validity of an age-related developmental variable, such as vocational maturity, is increase in the level of that variable with age and experience, and that within groups of similar age scores should be relatively stable over short periods of time, but they should increase across age groups (1974, p.58). To study grade and age differences in CDI scores, the instrument was administered to groups of students in the tenth and twelfth grades in a suburban high school and in the eighth grade in an adjacent junior high school. Results of these tests are shown in Table 4. Super observed that these results indicate a fairly uniform, significant and substantial increase in scores across increasing grade levels for the three scales, and that this indicates that the CDI does measure maturing attitudes and cognitions shown to be related to vocational development (Super, 1974, p. 58).

Construct validity of the CDI is evidenced by comparison of sub-groups of the tenth grade sample of 200 students, for which results were given in Table 4, with three other instruments in various stages of development. These instruments were the Attitude Scale of the Vocational Development Inventory (VDI-AS) (Crites, 1971), the Readiness for Career Planning (RCP) scale (Gribbons and Lohnes, 1968), and the Cognitive Vocational Maturity Test (CVMT) (Westbrook, 1970).

TABLE 4

ANALYSIS OF VARIANCE

OF MEAN RAW SCORE DIFFERENCES ON CDI

FOR GRADES EIGHT, TEN, AND TWELVE

AS REPORTED BY SUPER (1974)

Scale	Eighth Grade N	Eighth Grade Mean	Tenth Grade N	Tenth Grade Mean	Twelfth Grade N	Twelfth Grade Mean	Degrees of Freedom	F
A	79	92.03	74	104.28	74	116.60	2,224	29.51**
B	78	208.47	66	226.00	78	257.32	2,219	28.10**
C	82	12.36	69	16.97	74	19.87	2,222	56.81**

** $p < .01$

All three CDI scales and the total score were found to be moderately correlated with the global RCP scale (r ranged from 0.61 to 0.75 for n = 15). It should be noted that this test was performed on a very small sample. Only Scale C, the cognitive scale, was clearly related to the CVMT (r = 0.63 for n = 32), both being cognitive measures. Neither of the two attitudinal scales, Scale A and Scale B, nor the total CDI score, was found to be related to the Attitude Scale of the VDI, though the cognitive scale C was found to be moderately related (r = 0.42 for n = 100). Subsequent investigations by Super led him to believe that the VDI-AS was, in fact though not in theory, largely a cognitive scale (Super and Forrest, 1972, p. 37).

Test-retest reliability coefficients for the CDI on a group of 82 tenth grade students were 0.85 for Scale A, 0.82 for Scale B, 0.71 for Scale C and 0.87 for the total CDI score with a time lapse of from two to four weeks (Super and Forrest, 1972, p. 21). Lokan reported similar results with a time lapse of from 15 to 19 days (1976, p. 87). Stability of the scores over six months was indicated by Super for a sample of 400 students with results of 0.71 for Scale A, 0.63 for Scale B, 0.67 for Scale C and 0.72 for the total score (Super and Forrest, 1972, p. 23). Super concluded that vocational maturity is thus a rather stable characteristic over a six-month period.

Although no internal consistency reliability coefficients are reported by Super and Forrest, Lokan found internal consistency reliability coefficients of 0.93, 0.84 and 0.71 on the three scales respectively (1976, p. 87).

The CDI was constructed to provide that sex bias differentiation in its scales would be as low as possible. Super and Forrest report that tests for significance of differences between means and between variances of samples of 200 boys and 200 girls with the CDI revealed no sex differences (1972, p. 24). However, further studies where the CDI was used as a measure of vocational maturity have indicated sex differences, and Lokan advises treating males and females separately in any statistical analysis (1977, p. 74).

Westbrook (1973) has presented a favourable review of the CDI, citing many desirable features, such as, its ease of administration, its inclusion of both attitudinal and cognitive scales, its reading level, its foundation in significant theory and research and its potential for use in a variety of contexts.

Lokan (1976), with permission of Super, made changes in 32 items in the CDI in order to improve its appropriateness for use in Canada. Among these modifications were spelling changes, for example, "counselor" to "counsellor",

and vocabulary changes, such as "college" replaced by "university." In Scale C some items needed to be altered because of inappropriate content. For instance, an American publication, Lovejoy's College Guide, was replaced by Horizons, a handbook provided to schools by the Ontario Ministry of Education. Lokan points out that this change precludes the use of the modified version of the test in other than Ontario schools. Results of Lokan's testing with the revised CDI including test-retest reliability coefficients, internal consistency coefficients and item difficulty analyses were similar to Super's results, and so it was determined that the modifications made to the instrument for use in Canada did not effect its appropriateness as a research instrument.

A copy of the modified version of the CDI is attached in Appendix A.

2. The Sample and the Collection of Data

For purposes of testing in this study, five coeducational secondary schools representing three different school boards in Ontario were contacted, and arrangements were made for the testing program. The only criterion was that all students should be registered in Year 4 of a secondary program. Students in each school were selected by the Principal and Guidance Counsellor in accordance with their timetable

requirements. In two schools all students registered in Year 4 were made available for testing, whereas in the three remaining schools only a portion of the Year 4 students could be released from regular class time. All subjects were tested with both the POI and the CDI.

The dates of testing, approximate enrollment in each school and the number of males and females who were tested are shown in Table 5. Approximately 65 minutes were allotted for the completion of both tests in each school, and an attempt to maintain uniformity in instructions and time for completion of the tests was made throughout the testing program.

Tests were scored and results obtained on the two major scales of the POI and all scales of the CDI. It was discovered that two male students in School No. 4 and one female student in School No. 5 had not completed all scales of the CDI, and all results of these three students were excluded from the sample. Therefore, the total number of students included for the statistical analysis for information returned to schools was 87 males and 127 females.

As most students in the sample requested that their results be returned to them, information for each student showing individual scores on each scale of the two tests together with instructions for interpreting the scores was returned to the Guidance Departments in the schools. Attached

Table 5

INFORMATION ON SCHOOLS AND NUMBER OF SUBJECTS IN THE SAMPLE

School No.	Approximate Enrollment	Date of Testing	No. of Subjects	
			Male	Female
1	400	78 04 25	27	29
2	400	78 05 02	11	37
3	400	78 04 26	18	18
4	1200	78 04 27	20	16
5	600	78 05 11	13	28
TOTAL			89*	128**

* Two male subjects did not complete all scales of the CDI, and thus were not included in the statistical analysis.

** One female subject did not complete all scales of the CDI, and thus was not included in the statistical analysis.

to this information were data on the means and standard deviations on the two major scales of the POI and the three scales of the CDI for males and females in the five schools and for total males and females in all schools.

A percentile scale for all five scales of the two instruments based on the 214 students who completed both tests, together with instructions for interpretation of means, standard deviations and percentiles, was included. A copy of the package of information which was returned to schools is attached in Appendix B. This information was made available to Principals and Guidance Counsellors as well.

3. Classification of the Subjects Into High and Low Self-Actualizers

In order to classify the subjects in the sample into high and low self-actualizers, scores for all subjects on the TC and ID scales of the POI, which had been administered to the 214 subjects as the measure of self-actualization, were listed from highest to lowest for each subject. Based on the results of studies which had revealed sex differences in the POI as cited previously, it was determined that scores on the inner-directed scale and on the time competence scale of the POI for all males and all females in the sample would be listed separately, and that any statistical analyses of the scores on these scales would be calculated for males and for females separately.

Medians, means and standard deviations on the TC and ID scales of the POI were calculated for all males (n = 87) and for all females (n = 127). Results of these calculations for medians, means and standard deviations are shown in Table 6. Inspection of these results reveals only a small difference between males and females on the ID scale, but a larger discrepancy in both the median and the mean between males and females on the TC scale. For this reason in establishing the criteria for division of subjects into high and low self-actualizers it was decided to leave a buffer zone of one standard deviation on the TC scale, but not on the ID scale.

For purposes of this research, all subjects, both male and female, who scored 17 or above on the TC scale of the POI and 80 or above on the ID scale were classified as high self-actualizers, and all male and female subjects who scored 14 or below on the TC scale and 79 or below on the ID scale were classified as low self-actualizers. This establishment of a buffer zone of approximately one standard deviation on the TC scale between high and low classifications would ensure that the two groupings were distinct from one another, and would minimize the danger of including students in the high and low classifications who did not belong to one of the groupings.

Table 6

MEDIANS, MEANS AND STANDARD DEVIATIONS ON POI SCALES

	Median		Mean		Standard Deviation	
	Male*	Female**	Male	Female	Male	Female
TC Scale	14.60	16.08	14.75	15.63	3.17	3.19
ID Scale	79.13	79.38	78.98	80.09	8.79	10.78

* n = 87

** n = 127

Inspection of the scores for all students in the sample revealed that 20 male subjects and 42 female subjects had scores of 17 or above on the TC scale together with scores of 80 or above on the ID scale, whereas 29 males and 35 females had scores of 14 or below on the TC scale together with scores of 79 or below on the ID scale. Further inspection of the scores for these subjects revealed that one male score on the ID scale and one female score on the TC scale fell more than one-half of a standard deviation from the nearest score at the ends of the respective scales. No obvious reason could be determined for these outlying scores, and the two subjects were excluded from the sample. Further study of the subjects disclosed one additional male low self-actualizer who was a mature student registered in Year 4 of a secondary school while actively serving in the Canadian Armed Forces. As this subject had already chosen a vocation, it was decided that he was not representative of the population, and thus should be excluded from the sample. A chart indicating the number of subjects classified as high and low self-actualizers, both male and female, for the purposes of statistical analyses is shown in Table 7. There would appear to be sufficient discrimination established between the high and low self-actualizing groups to guard against misclassification of subjects or inclusion of doubtful subjects.

Following is an overview of the statistical procedures.

Table 7

SUBJECTS CLASSIFIED AS HIGH AND LOW SELF-ACTUALIZERS ON TC SCALE AND ID SCALE OF POI

	Male	Female	Total
High Self-Actualizers	20	42	62
Low Self-Actualizers	27	34	61
Total	47	76	123

4. Statistical Procedures

Lokan has recommended blocking for sex in any statistical analysis of the CDI scores based on her previous research, and this procedure was followed in any statistical analyses of scores on the three scales and on the total score of the CDI.

As shown in the information returned to students in Appendix B, means and standard deviations calculated for all scales of the CDI and the two major scales of the POI indicate only small discrepancies among the five schools tested. Therefore, it was judged that the differences among schools were not sufficiently large to warrant blocking for schools in the statistical analyses of the data.

At the end of Chapter I the research hypothesis was specified as follows:

> High school students who display a high degree of self-actualization are more vocationally mature than those who display a low degree of self-actualization.

For the purposes of this research high school students refer specifically to Year 4 secondary school students registered in five representative secondary schools in Ontario.

Super has recommended that a standardized total of the three sub-scales of the CDI will result in a measure of

vocational maturity in adherence with vocational development and research incorporating both the attitudinal and cognitive aspects (Super and Forrest, 1972, p. 6). As the major focus of this research was to examine vocational maturity in a global sense, the primary statistical analysis was performed on the total standardized score of the CDI as a measure of vocational maturity.

In order to test the research hypothesis, this hypothesis was converted to its null form, and a two-way univariate analysis of variance was performed on the total standardized scores of the CDI with self-actualization and sex as the indpendent variables and vocational maturity as the dependent variable.

Correlations of scores on the three scales of the CDI for 213 subjects were calculated as shown in Table 8. As may be expected the correlation between Scales A and B, the two attitudinal scales, is higher than the correlations between Scale A and C, the cognitive scale, and between Scale B and Scale C. However, all scales are positively correlated to some extent.

As the composition of the CDI provides scores on three sub-scales, it is possible to conduct supplementary analysis on these three scores in order to further explore the contribution of these three scales when considered simultaneously. Therefore, a two-factor multivariate analysis of variance with

Table 8

CORRELATIONS BETWEEN SCALES A, B AND C OF CDI

	B	C
A	0.53	0.29
B		0.19

self-actualization and sex as the two factors and the standardized scores of Scales A, B and C of the CDI as the dependent variables was performed.

In order to investigate the particular linear combination of the three sub-scales that maximally differentiates between high and low self-actualizers, the multivariate analysis was followed by discriminant analysis.

A review of the two measuring instruments, a description of the sample, procedures for collection of data and for classification of the sample into high and low self-actualizers were discussed in this chapter, as well as the planned statistical analyses. The results of the data analyses and discussion of these results are included in Chapter III.

Chapter III

Presentation and Discussion of Results

This chapter includes the presentation and discussion of descriptive results, as well as the results of the univariate and multivariate analyses of variance.

1. Descriptive Results

In Table 9 the means and standard deviations for Scales A, B and C and the total score of the CDI are presented.

The means on Scales A and C for high and low self-actualizers are consistent with the research hypothesis, as results for both male and female high self-actualizers indicate higher scores on the measure of vocational maturity than those attained by the male and female low self-actualizers. On Scale B the mean for female high self-actualizers is greater than the mean for female low self-actualizers, which follows the indications of the study. However, on Scale B scores for the male low self-actualizers produced a higher mean than that of the male high self-actualizers. An inspection of the scores of the male subjects who were classified as high and low self-actualizers suggested possible explanations for these results.

A review of the subjects who had been classified as low male self-actualizers revealed that five of these

Table 9

MEANS* AND STANDARD DEVIATIONS

ON SCALE A, SCALE B, SCALE C AND TOTAL SCORE OF CDI

Classification	Scale A		Scale B		Scale C		Total Score	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Male High SA (n = 20)	115.35	15.12	255.85	44.98	18.60	3.55	146.40	18.97
Male Low SA (n = 27)	114.54	21.29	271.33	34.63	16.82	5.58	146.61	23.61
Female High SA (n = 42)	120.79	23.79	287.64	53.50	19.76	3.70	157.91	25.98
Female Low SA (n = 34)	108.77	20.51	263.24	52.52	16.68	4.20	141.23	24.86

*Means for Scales A, B and C are shown as raw scores.
Means for Total Score are shown as T-scores.

subjects were foreign students who had been in Canada for less than one year. It is possible that, for these subjects whose native tongue is Chinese, difficulties may have occurred in the language interpretation of the POI, and that these subjects should not, in fact, have been classified as low self-actualizers. Reference is made in the literature (Super, 1974, p. 130) to the fact that items in the CDI may reflect a white middle-class bias, and this may have been a factor in the scores attained by these students on Scale B of the CDI. Also, it is later revealed in the results of the multivariate analysis that Scale B discriminates only slightly between high and low self-actualizers (Table 15).

2. Univariate Analysis of Variance

In accordance with the recommendation in the Preliminary Manual of Super and Forrest (1972), for the purposes of the univariate analysis of variance all scores on Scales A, B and C of the CDI were transformed into T-Scores and then summed to derive a total score for level of vocational maturity.

Before a univariate analysis of variance can be performed on the total score of the CDI, it is assumed that the distribution of the dependent variable, that is, the level of vocational maturity, is normal. One indication of this normality of distribution is the measure of skewness and

kurtosis within the sample. The skewness of a normal curve is 0, and the kurtosis of a normal curve is 3 (Ferguson, 1959, p. 69). A comparison of the skewness and kurtosis levels for Scales A, B and C and the standardized total score of the CDI for all subjects as given in Table 10, with these criteria reveal only slight differences from the normal curve. This would indicate that the assumption of a normal distribution in this sample is probably met.

To further test for normality a Goodness-of-Fit test using the Chi Square test for normality of grouped data was applied (Keith, 1972, p. 219). This test produced a Chi Square value of 19.46 with 17 degrees of freedom, which is not significant at the .05 level. This would support the assumption of a normal distribution.

A further assumption in the application of an analysis of variance is that the variances in the population from which the samples are drawn are equal. Previous studies have revealed, however, that unless sample sizes differ radically, such as in the ratio of 2:1, the significance level of the univariate analysis is only slightly affected (Scheffé, 1959, p. 340). It will be noted that sample sizes in this study, as shown in Table 7, vary only to a moderate degree. Also, standard deviations on the total score of the CDI, as reported in Table 9, would indicate that variances in the samples are homogeneous. For the purposes of this

Table 10

INDICES OF NORMALITY OF DISTRIBUTION ON CDI

Scale	Skewness	Kurtosis
A	0.16	3.25
B	0.14	2.85
C	-0.49	2.73
Total Score	0.12	2.85

study, it is assumed that the assumption of homogeneity of variance is met.

A univariate analysis of variance with self-actualization and sex as the independent variables and vocational maturity as the dependent variable was performed using Finn's NYBMUL program (1968). For purposes of this analysis, an unweighted means analysis was used, as recommended when there is not a direct relationship between sample sizes and the population from which those samples are drawn (Carlson & Timm, 1974, pp. 563-570). Results of this univariate analysis of variance are given in Table 11. The univariate analysis of variance does not reveal a significant difference for the sex factor nor is there significant interaction. However, results of this analysis do indicate a significant difference for the self-actualization factor, and therefore the null hypothesis is rejected. Thus, the results do support the research hypothesis that:

> High school students who display a high degree of self-actualization are more vocationally mature than those who display a low degree of self-actualization.

3. Multivariate Analysis of Variance

A moderate correlation between pairs of scales of the CDI has been found, as shown in Table 8. With the univariate

Table 11

UNIVARIATE ANALYSIS OF VARIANCE

ON TOTAL SCORE OF CDI

(n = 123)

Source of Variation	No. of D.F.	Sums of Squares	Mean Squares	Value of F Ratio	Value of p
SA	1	2,607.228	2,607.228	5.076*	0.026
SEX	1	792.108	792.108	1.542	0.217
SA x SEX	1	1,896.124	1,896.124	3.690	0.057
ERROR	119	61,119.233	513.607		

* $_{.05}F_{1,119} = 3.92$

analysis of variance it was determined that there is a significant difference in the level of vocational maturity between high and low self-actualizers when the total score of the CDI is used as a measure of level of vocational maturity. It was decided to also conduct a two-factor multivariate analysis of variance with self-actualization and sex as the factors and the standardized scores on Scale A, Scale B and Scale C of the CDI as the dependent variables in order to determine whether there are differences on these individual scales when considered simultaneously. This multivariate analysis was performed using Carlson and Timm's FRMLM program (1974) and Wilks' Lambda criterion and also the NYMBUL program for multivariate analysis (Finn, 1968).

Results of the multivariate analysis for Wilks' Lambda criterion are shown in Table 12. The critical value for Wilks' Lambda with 1 and 119 degrees of freedom at the .05 level is 0.936 (Timm, 1975, Table IX). When using Wilks' Lambda criterion an effect is significant if its value is lower than the critical value. Therefore, the multivariate analysis indicates that the self-actualization factor is significant, although the sex factor is not significant nor is there significant interaction. This analysis concurs with the results of the univariate analysis and further supports the research hypothesis.

Table 12

TWO-FACTOR MULTIVARIATE ANALYSIS OF VARIANCE ON SCALES A, B AND C OF CDI

Source of Variation	Wilks' Lambda	Parameters p	q	n	p-level
SA	.915*	3	1	119	.01<p<.05
SEX	.986	3	1	119	n.s. at .05
INTERACTION	.959	3	1	119	n.s. at .05

* Critical Value of Wilks' Lambda with 1 and 119 degrees of freedom at the .05 level is 0.936

To further investigate the particular linear combination of Scales A, B and C of the CDI that maximally differentiates between the high and low self-actualizing groups, it was decided to inspect the discriminant function for the self-actualization factor. This information was obtained from the NYBMUL program for multivariate analysis of variance (1968). Discriminant function coefficients are listed in Table 13.

A mean on the discriminant function is derived from the following formula, where D is the discriminant function and C represents the discriminant function coefficient for the individual scales of the CDI:

$$D = C_A(Mean_A) + C_B(Mean_B) + C_B(Mean_B)$$

With the application of this formula and substitution of the standardized scale means as shown in Table 14 and discriminant function coefficients as listed in Table 13, means on the discriminant functions for high and low self-actualizing groups can be computed. These means on the discriminant functions yield a mean difference of 5.25, as the mean for high self-actualizers is 49.48 and the mean for low self-actualizers is 43.23. It should be noted that these means on the discriminant function are computed values for comparison purposes only and should not be compared with the means for high and low self-actualizers as shown in Table 14. Bartlett's test of significance of the

Table 13

DISCRIMINANT FUNCTION COEFFICIENTS
FOR SELF-ACTUALIZATION FACTOR

Scale	Discriminant Function Coefficients (Standardized)
A	.424
B	.393
C	.898

Table 14

MULTIVARIATE ANALYSIS SUMMARY
OF STANDARDIZED MEANS
FOR SCALES A, B AND C OF CDI

	Standardized Means (Based on T-Scores)		
Scale	High SA	Low SA	Mean Difference
A	50.50	47.35	3.14
B	49.64	48.98	0.66
C	52.98	47.22	5.76

discriminant function yields a Chi Square value of 10.468 with 3 degrees of freedom (NYBMUL, 1968). This value is significant at the .05 level.

Correlations between the discriminant function and the three individual scales of the CDI are computed and are given in Table 15. Although all scales of the CDI are positively correlated with the discriminant function, it will be noted that there is a higher correlation with Scale C than with either Scale A or Scale B. These correlations would suggest that the primary reason for the significant difference in the level of self-actualization between high and low self-actualizers may be attributed to Scale C, with some contribution from Scale A, but little contribution from Scale B.

In summary this chapter has contained a review of the results of the statistical analyses of the data together with a discussion of these results. Descriptive results revealed higher means on all scales of the CDI for high self-actualizers than those attained by low self-actualizers, with the exception of the B scale for the male groups. The univariate analysis of variance with self-actualization and sex as the independent variables and vocational maturity as the dependent variable indicated a significant difference in level of vocational maturity between high and low self-actualizers, but no significant difference in the sex factor or in interaction. A two-factor multivariate analysis of variance

Table 15

CORRELATIONS OF DISCRIMINANT FUNCTION WITH SCALE A, SCALE B AND SCALE C OF CDI

Scale	γ
A	+.510
B	+.113
C	+.922

was performed with self-actualization and sex as the two factors and the individual scales of the CDI as the measures of vocational maturity as the other factor. This analysis supported the results of the univariate analysis of variance and subsequent discriminant analysis indicated that Scale C of the CDI was the largest contributor to this difference, and that Scale A contributed only moderately whereas Scale B's contribution was minimal.

The following section contains a summary of the research together with conclusions which may be abstracted from the statistical analyses and their possible implications for educators. Suggestions for further research in this field are also included.

Maslow proposes that each individual is governed by a hierarchy of basic needs beginning with physiological needs and ascending through safety needs, belongingness and love needs to self-esteem needs. His theory implies that only when these basic needs are gratified can the individual's higher-order needs, or growth needs, be expressed. Self-actualization, as defined by Maslow, is an outgrowth of the gratification of basic needs, and is the individual's desire for self-fulfillment; the tendency for him to become actualized in what he is potentially. Maslow believes that all people are capable of self-actualization, and that all people tend toward it.

According to Maslow self-actualized individuals are more personally mature and are more goal-directed. Their actions and behaviours are more congruent with the existing self, and are influenced more by internal forces than by external forces. Their lives are directed more toward the present and the future, seldom dwelling on the past.

The other aspect of the individuals studied in this research is their place along the continuum of vocational development, as theorized by Super. Super proposed several vocational tasks which are relevant to the individual's growth toward developing vocationally, and he measures the degree of growth by assessing the subject's level of vocational maturity in coping with these tasks.

As persons who have achieved a more self-actualized state are, according to Maslow, more goal-directed and more growth-directed, it is probable that these individuals would also be more career-oriented and would be more readily challenged by the vocational tasks which lead to vocational choice and development. The focus of this study, then, was to determine if high school students who display higher levels of self-actualization are more vocationally mature than those who display lower levels of self-actualization.

Two measuring instruments, the Personal Orientation Inventory (POI) and the Career Development Inventory (CDI), were administered to 214 Ontario high school students in their fourth year of secondary education. The POI, designed by Shostrom as a measure of self-actualization, contains two major scales: the time competence scale which measures the degree the subject is present or future oriented, and the inner directed scale which measures the degree the subject is motivated by internal forces. Scores on these two scales of the POI formed the basis for classification of subjects into high and low self-actualizers, and produced a sample of 20 male high self-actualizers, 27 male low self-actualizers, 42 female high self-actualizers and 34 female low self-actualizers.

The CDI was designed by Super and his colleagues as a measure of level of vocational maturity. This instrument is composed of three scales totalling 91 items. Scale A is a measure of the level of awareness of the need for planning and making choices, and Scale B indicates the quality of resources already used or recognized to be potentially available. Scales A and B are both attitudinal scales. Scale C, a cognitive scale, assesses the amount of occupational information acquired together with how this may be integrated with other information in making sound educational and vocational decisions. A total score for vocational maturity may be obtained by summing the standardized individual scale scores. The authors of the CDI purport that this total standardized score, incorporating both the attitudinal and cognitive aspects of vocational development theory, yields a reliable and theoretically sound global measure of vocational maturity (Super & Forrest, 1972, p. 12). As the major focus of this study was to investigate the relationship between self-actualization and levels of vocational maturity in the global sense, this standardized total score was utilized in the primary analysis.

Total scores on the CDI were analyzed for the two classifications of self-actualizers with blocking for sex. A univariate analysis of variance on the total scores of the CDI indicated significant difference for high and low

self-actualizers with high self-actualizers attaining a higher level of vocational maturity. However, there was no significant difference between the sexes, nor was there significant interaction. A multivariate analysis of variance on the three subscales of the CDI followed by discriminant analysis supported the results of the univariate analysis and suggested that Scale C of the CDI, the cognitive scale, contributed significantly to the difference in level of vocational maturity between high and low self-actualizers. Scale A contributed only moderately to this difference, and Scale B's contribution was minimal. Thus the research hypothesis that students who display a high degree of self-actualization are more vocationally mature than those students who display a low degree of self-actualization was supported.

These findings are of relevance to educators of adolescents. School programs today are very diverse, and students must often make decisions among various options. These choice patterns largely determine what career opportunities are available after graduation and what types of post-secondary educational courses are open to the students. As well, in a time when employment is not secured simply by training for a particular type of work and when job requirements are rapidly changing, students are often perplexed by the vast spectrum of career fields which are available to them. As Super has explained, students who are more advanced

on the continuum of vocational development can more readily make vocational judgements and resolve the vocational decisions which will ultimately affect their career choices. It is imperative, therefore, that educators provide opportunitites for students to develop in vocational maturity.

In order to assist students to reach a level on the vocational development continuum where they can realistically make vocational decisions, educators must provide students with opportunities to cope with vocational tasks, to have access to vocational resources and to have opportunities to become familiar with various career patterns.

As this study has demonstrated, there is a relationship between students who are more highly self-actualized and those who are more vocationally mature. It is important, then, that a climate for development of students who are self-reliant and goal-directed be a requirement of any school system. According to Maslow, the foundation of the emergence of the self-actualizing characteristics is the gratification of the individual's basic needs. Educators must, then, create a school situation to meet these basic needs where students feel that they are part of the system, and indeed feel secure in their environment. The attitudes of administrators and teachers within an educational structure should convey an atmosphere of respect and understanding. Programs within the school must afford opportunities for building of self-worth and confidence.

The Ontario Ministry of Education in the Curriculum Guideline for the Intermediate Division, Guidance, 1978, stresses the importance of recognizing needs of students and the development of a positive and realistic self-concept (p. 3). This document also outlines the responsibilities of educators--Principals, Guidance counsellors and classroom teachers--in providing experiences which foster self-awareness, the acquisition of decision-making skills and opportunities for investigation of career information and planning (pp. 4-13). A more detailed course guideline, entitled "Career Development and Planning", is proposed by the Ontario Ministry of Education as an experimental course in Years 3 and 4 of the secondary schools. This guideline contains specific suggestions and exercises which assist students in assessing their personal goals and values, and stimulate their interest in vocational decisions.

Although it would appear that career information is largely the responsibility of the Guidance Department in secondary schools, every educator must be aware of his responsibility to provide students with an environment where the knowledge and attitudes applicable to making sound vocational decisions will be fostered. Classroom situations must be provided where students feel secure and stable and where success fosters self-esteem. The relationship between the teacher and the student must be one of respect and

understanding. Then will students be hopeful about their future and have the capacities and interests to plan for their future careers in a meaningful way.

Although it has been substantiated in this research that self-actualization is one factor which is related to the level of vocational maturity, further research might investigate other factors which are relevant to maturity in making vocational decisions. Also, there is a need to investigate and formulate specific programs which can be implemented in our educational institutions to provide students with attitudes and capacities that will further assist them in choosing realistic and wise career paths.

This study was concerned specifically with Year 4 secondary school students. Further research might examine the relationship between the self-actualization and vocational maturity variables with different age groups. In this study it was noted that means and medians on the self-actualization variable were higher for females than they were for males (Table 6). Further studies might wish to further explore this variable in respect to the sex factor.

Discriminant analysis of results in this study indicated that Scale C of the CDI, the cognitive scale, was the greatest contributor to a significant different in level of vocational maturity between high and low self-actualizers at the Year 4

secondary school level. It might be of interest to investigate why the decision-making scale is relevant to this age group, and if the same results would be obtained with different age groups.

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Appendix A

CAREER DEVELOPMENT INVENTORY (CDI)

CAREER DEVELOPMENT INVENTORY

Form 1

Donald E. Super
Martin J. Bohn, Jr.
David J. Forrest
Jean-Pierre Jordaan
Richard H. Lindeman
Albert S. Thompson

Teachers College, Columbia University
New York, New York

* * * * * * * * * * * * * * * *

INTRODUCTION

The questions you are about to read ask you about school, work, your future career, and some of the plans you may have made. The only right answers are the ones which are right for you. Later, some questions ask about career facts; others ask you to judge students' plans. Give the best answers you can.

Answers to questions like these can help teachers and counsellors offer the kind of help which high school students want and need in planning and preparing for a job after graduation, for vocational and technical school training, or for going to college or university.

THE FIRST STEP

Check your booklet to make sure it has 13 pages, all in the right order.

Now look at the green and yellow sheets you have been given. Please fill in your name, school and home form at the top of each of these sheets.

You may then fill in the rest of the information asked for on the green sheet.

PLEASE DO NOT WRITE ON THIS BOOKLET.

DO NOT OPEN IT UNTIL YOU ARE TOLD TO BEGIN.

HOW TO ANSWER

1. All your answers go on the yellow Answer Sheet.

2. The questions in the Inventory are arranged in sections. In each of Sections I through V, you are given a set of statements at the beginning of the section to show the possible answers for the questions in that section. The sets of statements are not the same for all the sections, so PLEASE READ THEM CAREFULLY.

   For most of the remainder of the Inventory, each question has its own set of answers. However, please note that the questions in Section VII have a set of answers at the beginning of the section, and that the questions in Section VIII are set out differently from those in all the other sections. Again, PLEASE READ THE INSTRUCTIONS CAREFULLY.

3. After you choose an answer to a question, find the number of the question on the Answer Sheet and circle the appropriate letter opposite that number. If you make a mistake, cross out the wrong answer clearly and circle the right one.

4. Answer all questions. If you are not sure about an answer, make the best guess you can. There is no time limit, but work as rapidly as you can; the first answer that comes to you is often the best one.

The questions begin on the next page.

SECTION I

Students differ considerably in the amounts of thinking and planning they do about their future careers.

Here are five statements showing different amounts of thinking and planning:

(A) I have not given any thought to this.

(B) I have given some thought to this, but haven't made any plans yet.

(C) I have some plans, but am still not sure of them.

(D) I have made definite plans, but don't know how to carry them out.

(E) I have made definite plans, and know what to do to carry them out.

For EACH QUESTION (questions 1 through 14) in this first section, choose the statement which is closest to showing the amount of thinking and planning you have done.

* * * * * * * * * * * * * *

I. HOW MUCH THINKING AND PLANNING HAVE YOU DONE IN THE FOLLOWING AREAS?

1. Finding out about educational and occupational possibilities by going to the library, sending away for information, or talking to somebody who knows about the possibilities.

2. Talking about career decisions with an adult who knows something about me.

3. Taking high school courses which will help me decide what line of work to go into when I leave school, community college or university.

4. Taking high school courses which will help me later in university, in job training, or on the job.

5. Taking part in school or out-of-school activities which will help me in university, in training, or on the job.

6. Taking part in school or after school activities (for example, science club, school newspaper, Sunday School teaching, volunteer nurse's aide) which will help me decide what kind of work to go into when I leave school.

7. Getting a part-time or summer job which will help me decide what kind of work I might go into.

8. Getting a part-time or summer job which will help me get the kind of job or training I want.

Here are five statements showing different amounts of thinking and planning:

(A) I have not given any thought to this.

(B) I have given some thought to this, but haven't made any plans yet.

(C) I have some plans, but am still not sure of them.

(D) I have made definite plans, but don't know how to carry them out.

(E) I have made definite plans, and know what to do to carry them out.

9. Getting money for university, college or training.

10. Dealing with things which might make it hard for me to get the kind of training or the kind of work I would like.

11. Getting the kind of training, education, or experience which I will need to get into the kind of work I want.

12. Getting a job once I've finished my education and training.

13. Doing the things one needs to do to become a valued employee who doesn't have to be afraid of losing his job or being laid off when times are hard.

14. Getting ahead (more money, promotions, etc.) in the kind of work I choose.

SECTION II

High school students differ greatly in the amount of time and thought they give to making choices. Use the statement below to compare yourself to the typical students of your sex in your grade on each of the following kinds of choices (questions 15-21).

Compared to my classmates I am .....

(A) much below average, not as good as most
(B) a little below average
(C) average
(D) a little above average
(E) much above average, better than most

..... in the amount of time and thought I give to:

15. Choosing high school courses.

16. Choosing high school activities.

17. Choosing out-of-school activities.

18. Choosing between university, community college, business college, work, military service, marriage, homemaking, etc.

19. Choosing a university, community college, branch of Military service, husband or wife, etc.

20. Choosing an occupation for after high school, university, college or job training.

21. Choosing a career in general.

22. How would you rate your plans for after high school?

(A) Not at all clear or sure.
(B) Not very clear
(C) Some not clear, some clear.
(D) Fairly clear.
(E) Very clear, all decided.

III. Below are five possible answers to use in answering questions 23 through 33, questions about how much you know about the occupation you said you like best on the green sheet. Mark the number of your choice on the Answer Sheet.

I know .....

(A) hardly anything
(B) a little
(C) an average amount
(D) a good deal
(E) a great deal

..... about:

23. What people really do on the job.

24. Specialities in the occupations.

25. Different places where people might work in this occupation.

26. The abilities and traits needed in the occupation.

27. The physical working conditions.

28. The education or training needed to get into the occupation.

29. The courses offered in high school that are the best for the occupation.

30. The need for new people in the occupation.

31. Different ways of entering the occupation.

32. The starting pay in the occupation.

33. The chances for getting ahead in the occupation.

IV. Here are five answers which can be used for questions 34 through 47. Use these answers to show whether or not you would go to the sources of information listed below for help in making your job, university, or other training plans.

I would .....

(A) definitely not
(B) probably not
(C) not be sure whether to
(D) probably
(E) definitely

..... go to:

34. Father or male guardian.
35. Mother or female guardian.
36. Brothers, sisters, or other relatives.
37. Friends.
38. Team coaches or Physical Education teachers.
39. Other teachers.
40. Minister, priest, or rabbi.
41. School counsellors.
42. Private counsellors, outside of school.
43. Books with the information I needed.
44. Audio or visual aids like tape recordings, movies, or computers.
45. University or community college calendars.
46. Persons in the occupation or at the university or college I am considering.
47. TV shows, movies, or magazines.

V. Here again are five answers which are to be used with the following items. This time use the statements to show which of the sources of information below have already given you information which has been helpful to you in making your job, university or other training plans.

I have obtained .....

(A) no useful information
(B) very little useful information
(C) some useful information
(D) a good deal of useful information
(E) a great deal of useful information

..... from:

48. Father or male guardian.

49. Mother or female guardian.

50. Brothers, sisters, or other relatives.

51. Friends.

52. Team coaches or Physical Education teachers.

53. Other teachers.

54. Minister, priest, or rabbi.

55. School counsellors.

56. Private counsellors, outside of school.

57. Books with the information I needed.

58. Audio or visual aids like tape recordings, movies, or computers.

59. University or community college calendars.

60. Persons in the occupation or at the university or college I am considering.

61. TV shows, movies, or magazines.

SECTION VI.

Here, each question (Nos. 62-66) has its own set of possible answers.

62. Which of the following is the best source of information about job duties and opportunities?

(A) The Encyclopedia Britannica
(B) World Almanac
(C) Scholastic Magazine
(D) Occupational Monographs
(E) The Occupational Index

63. Which one of the following would be most useful for detailed information about getting into university or college?

(A) The World Book Encyclopedia
(B) Webster's Collegiate Dictionary
(C) Horizons
(D) Reader's Digest
(E) The Education Index

64. Which one of the following pairs of occupations involves the same level of training and responsibility?

(A) Tailor, Sales Clerk
(B) Engineer, Accountant
(C) Tailor, Engineer
(D) Accountant, Sales Clerk

65. The occupational fields expected to grow most rapidly during the next ten years are:

(A) Professional and service.
(B) Sales and crafts.
(C) Crafts and clerical.
(D) Labour and sales.

66. Between 1910 and 1970, the industry employing the greatest number of workers changed from:

(A) Agriculture to wholesale and retail trade.
(B) Manufacturing to agriculture.
(C) Wholesale and retail trade to manufacturing.
(D) Agriculture to manufacturing.

SECTION VII.

Occupations are different in the amount of education required for employment. Five different amounts of education are listed below. For each of the following occupations (questions 67-74), mark on your Answer Sheet the amount of education usually required.

Amount of Education:

(A) High School Graduation Diploma
(B) Apprenticeship Training
(C) Technical School or Community College (2 years)
(D) University Degree (3 or 4 years)
(E) Professional training beyond a 3 or 4 year University Degree

Occupation:

67. Stenographer.
68. Dental Technician.
69. Family Doctor (Physician).
70. Mail Carrier.
71. Plumber.
72. Computer Operator.
73. Bank Clerk.
74. Social Worker.

SECTION VIII.

Many occupations use special tools. Below is a list of special tools or equipment and a list of occupations. Match the occupation in Column A with its equipment (Column B).

COLUMN A Occupation :	COLUMN B Equipment :
75. Electrician	(A) Tracing Wheel
76. Bookkeeper	(B) Ammeter
77. Bricklayer	(C) Centrifuge
78. Dressmaker	(D) Trowel
79. Medical Technician	(E) Ledger

SECTION IX.

Here again, each question has its own set of answers.

80. In the ninth and tenth grades, plans about jobs and occupations should:

(A) be clear
(B) not rule out any possibilities
(C) keep open the best possibilities
(D) not be something to think about.

81. Decisions about high school courses can have an effect on:

(A) the diploma one receives
(B) the kind of training or education one can get after high school
(C) later occupational choices
(D) how much one likes school
(E) all of these.

82. Decisions about jobs should take into account:

(A) strengths, or what one is good at learning and doing
(B) what one likes to do
(C) the kind of person one is
(D) the chances for getting ahead in that kind of job
(E) all of these.

83. One of the things that great artists, musicians and professional athletes have in common is the desire to:

(A) make money
(B) have large audiences
(C) be the best there is at what they do
(D) teach others to do what they do.

84. J. D. might like to become a computer programmer, but knows little about computer programming and is going to the library to find out more about it. The most important thing for J. D. to know about this occupation is:

(A) the nature of the work involved
(B) the rate of pay
(C) the hours of work
(D) the place (or places) where one can get the right training.

85. M. S. likes high school biology and general science courses best, and likes to do schoolwork alone in order to be able to concentrate. Such a person, beginning to think about a future occupation, should consider:

(A) Accountant
(B) High School Science Teacher
(C) Medical Laboratory Technician
(D) Nurse.

86. P. T. is the best speaker on the school debating team, described in the school yearbook as "our golden-tongued orator -- a real nice person who can listen as well as talk -- could sell refrigerators to the Eskimos". P. T. will probably graduate in the bottom half of the class, although test scores show superior ability. P. T.'s only good grades (mostly B's) are in business subjects, poorest grades (mostly D's) are in English and social studies.

P. T. desires to become a trial lawyer. Which of the following reasons shows best why this desire is not very realistic?

(A) With grades like these, it is difficult to get into a university.
(B) P. T.'s poorest grades are in the subjects that are most important for law.
(C) There is much more to being a lawyer than being good at public speaking.
(D) All of the above are good reasons for thinking that this student will have a hard time becoming a trial lawyer.

87. The facts about P. T. suggest that he or she should think about becoming:

(A) an accountant
(B) a sales representative
(C) an actor or actress
(D) a school counsellor
(E) a lawyer.

88. A. M. is very good with skilled handwork and there isn't anybody in the class who has more mechanical aptitude or is better at art. A. M. also does very well in math. A. M. likes all of these things.

What should this student do?

(A) Look for an occupation which will use as many of these interests and abilities as possible?
(B) Pick an occupation which uses math since there is a better future in that than in art or in working with one's hands?
(C) Decide now on one of these activities because of ability or interest, and then pick an occupation which uses that kind of asset?
(D) Put off deciding about the future and wait until interest in some of these activities declines?

89. E. R. took some tests and got scores which show promise in clerical work. The student says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of person who likes variety. I think a travelling job would suit me fine". E. R. should:

(A) disregard the tests and do what he or she wants to do.
(B) do what the tests say, since they know best.
(C) look for a job which will use the clerical abilities but not keep him or her pinned to a desk.
(D) ask to be tested with another test, since the results of the first ones are probably wrong.

90. B. R. gets very good science grades but doesn't care too much about these subjects. The subject liked best is art, even though grades in it are only average. This student is most likely to do well in an occupation if he or she:

(A) forgets about interest in art since he or she is so much better in science.
(B) doesn't worry about grades in art, because if you like something you can become good at it.
(C) looks for an occupation which uses both art and science, but more science than art.
(D) looks for an occupation which involves both science and art, but more art than science.

91. L. F. professes not to care much about what kind of work is available to him or her on leaving school as long as it involves working with people. If this is all this student cares about he or she is likely to make a bad choice because:

(A) this kind of work usually requires a university degree.
(B) employers usually want people with definite interests and objectives.
(C) jobs involving work with people are looked down on, since they usually don't pay as well as scientific work.
(D) occupations in which one works with people can be very different from each other in the abilities and interests which are needed.

THANK YOU.

Appendix B

RESULTS RETURNED TO SCHOOLS

Name_____ School No. _____

RESULTS OF MEASUREMENTS OF SELF-ACTUALIZATION AND OF VOCATIONAL MATURITY

How to Interpret Your Results:

1. Read the description of the scales of the two tests on page 2. Your scores are given following each scale.

2. Compare your results with those on the summary sheets on pages 3 and 4. Results for your school are found under the number appearing at the top of this page. Results for all students in five schools are given at the bottom of page 4.

   The mean is the arithmetic average of all scores in the group. The standard deviation is a measure of how much the scores in that group vary around the mean.

3. If you have any questions regarding your results, please discuss them with your Guidance Counsellor or write to me at the address given below.

   Remember there is nothing wrong with being low in self-actualization or low in your level of vocational maturity. It is just the way you are.

THANK YOU FOR PARTICIPATING IN THIS TESTING PROGRAM

(Mrs.) Marianne Holman
64 Mary Street
Petawawa, Ontario
K8H 1S1

Test for Level of Self-Actualization

PERSONAL ORIENTATION INVENTORY (POI)

Time Competence Scale (TC Scale) - The self-actualizing person is primarily time competent, and thus appears to live more fully in the here-and-now. Aspirations are tied meaningfully to present working goals. The time incompetent person is more concerned with the past or the future relative to the present.

Your score on this scale is _____.

Inner-Directed Scale (ID Scale) - The inner-directed person appears to go through life apparently independent, and is guided by internal motivations rather than external influences. The other-directed person is more influenced by opinions of others, whether they be parents, teachers or peers.

Your score on this scale is _____.

Test for Level of Vocational Maturity

CAREER DEVELOPMENT INVENTORY (CDI)

Scale A - Planning Orientation - represents the degree of informed planfulness, and involves relating information about one's self and potential vocations. It includes measures of concern with choice, specificity of planning, and self-estimated amount of occupational information.

Your score on this scale is _____.

Scale B - Resources for Exploration - represents an assessment of the used and available resources for use with these planning activities, resources from which a student learns about educational opportunities, occupations, and himself/herself. It reflects attitudes of concern, inquiry and trial.

Your score on this scale is _____.

Scale C - Information and Decision Making - assesses the student's possession of actual occupational information and knowledge of how to integrate personal and occupational information into educational and vocational decisions.

Your score on this scale is _____.

MEANS AND STANDARD DEVIATIONS FOR STUDENTS ON

PERSONAL ORIENTATION INVENTORY AND CAREER DEVELOPMENT INVENTORY

School No. 1 No. of Males - 27 No. of Females - 29

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	14.41	2.81	16.67	2.47
ID Scale	79.26	9.41	80.90	11.59

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	121.40	21.27	112.97	20.17
Scale B	275.33	50.37	270.20	48.04
Scale C	19.07	3.14	17.69	4.23

School No. 2 No. of Males - 11 No. of Females - 37

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	13.82	4.40	15.19	3.83
ID Scale	80.09	7.40	78.54	10.90

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	113.27	14.40	117.37	23.57
Scale B	264.00	40.45	278.22	56.83
Scale C	14.73	4.45	18.14	4.60

School No. 3 No. of Males - 18 No. of Females - 18

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	14.33	2.89	15.78	3.15
ID Scale	75.56	7.20	81.44	12.01

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	121.56	21.70	113.33	21.94
Scale B	282.28	54.45	274.06	57.07
Scale C	16.94	5.95	18.56	3.79

MEANS AND STANDARD DEVIATIONS FOR STUDENTS ON

PERSONAL ORIENTATION INVENTORY AND CAREER DEVELOPMENT INVENTORY

School No. 4 — No. of Males - 18 — No. of Females - 16

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	16.11	3.14	15.44	3.98
ID Scale	82.61	7.92	80.94	9.96

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	115.05	17.00	115.44	19.82
Scale B	267.72	46.16	277.56	62.26
Scale C	18.72	3.77	17.50	3.61

School No. 5 — No. of Males - 13 — No. of Females - 27

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	14.92	2.96	15.67	2.50
ID Scale	77.15	10.54	79.93	9.81

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	115.46	15.96	112.89	22.76
Scale B	254.92	35.67	277.37	42.00
Scale C	18.77	4.90	17.67	3.85

Total Students in All Schools — No. of Males - 87 — No. of Females - 127

Personal Orientation Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
TC Scale	14.75	3.17	15.63	3.19
ID Scale	78.98	8.79	80.09	10.78

Career Development Inventory

	Males		Females	
	Mean	S.D.	Mean	S.D.
Scale A	119.24	20.69	114.60	21.71
Scale B	270.69	47.08	274.75	52.94
Scale C	17.91	4.09	17.97	4.54

Following is a percentile scale for the TC Scale and the ID Scale of the Personal Orientation Inventory and Scale A, B and C of the Career Development Inventory. These percentiles are based on the total number of students who completed all scales on both tests (n=214).

How to Interpret the Percentile Scale:

1. Find your score (or the closest score) on the appropriate test scale.
2. Align this score with the percentile in the first column.
3. This indicates what percentage of the students scored below your score on that scale.

e.g. If your score on the ID Scale is 79, 50% of the 214 students scored below 79 on that scale. Your score is at the 50th percentile on that scale.

Percentile	TC Scale	ID Scale	Scale A	Scale B	Scale C
100	22	101	163	408	27
95	20	96	153	359	24
90	19	93	143	338	23
85		90	138	325	22
80	18	89	132	314	
75		88	129	303	21
70		85	127	298	
65	17	83	125	291	20
60		82	122	285	
55	16	80	119	276	19
50		79	117	272	
45	15	78	114	267	18
40		77	110	260	
35	14	75	107	255	17
30		74	103	249	16
25	13	73	101	242	15
20	12	71	98	231	14
15	11	68	95	221	13
10	10	66	91	209	12
5	9	63	82	190	10