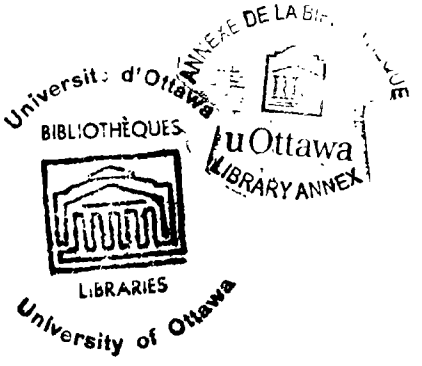
CLARITY OF SELF-CONCEPTS IN THE VOCATIONAL DEVELOPMENT OF MALE LIBERAL ARTS STUDENTS

by William W. Dick

Thesis presented to the Faculty of Psychology and Education of the University of Ottawa in partial fulfillment of the requirements for the degree of doctor of philosophy in Counselling Psychology



Ottawa, Canada, 1966

ACKNOWLEDGEMENTS

This thesis was prepared under the supervision of Professor Laurent Isabelle, Ph.D., of the Faculty of Psychology and Education of the University of Ottawa.

The writer is also indebted to Professor D.G. Appley, Ph.D., Director of the Department of Psychological Services, York University, Toronto, for her generous cooperation and assistance in using the Department's file data, equipment and other services and in making helpful suggestions regarding the design of the experiment.

A word of gratitude is also in order to the two persons at York University who served as judges in establishing the experimental groups, namely, Professor Gerald P. Cosgrave, Ph.D., vocational counsellor and research associate of the Department of Psychological Services, and Miss Josephine Ciebien, placement officer of the Canada Manpower Centre at York University.

CURRICULUM STUDIORUM

William W. Dick was born on October 28, 1926, at Portage la Prairie, Manitoba. In 1953 he received the Bachelor of Arts degree from University College, University of Toronto, and the Bachelor of Divinity degree from Emmanuel College, Victoria University, Toronto, in 1957.

In May, 1964, he was awarded the Master of Arts degree in Psychology by the School of Psychology and Education, University of Ottawa. His thesis was entitled Vocational Self-Concept In Terms of the Vocational Interests and Values of Seminarians and Ministers.

TABLE OF CONTENTS

Appendix page

LIST OF TABLES

Table page

Table page

INTRODUCTION

For many years prior to the turn of the century and continuing until at least the middle of the twentieth century, vocational psychology, more commonly referred to as vocational guidance, was considered to consist primarily of one straightforward and static operation, which has been likened to fitting square pegs into square holes. In other words, it was widely held that vocational guidance was comprised of the simple task of matching people's aptitudes and interests with appropriate occupations.

However, in recent years since mid-century, more dynamic and developmental concepts drawn from the study of personality and ego psychology have been introduced into the field of vocational psychology, long dominated by differential psychology. One of the main figures involved in attempting to bridge this gap between personality and vocational psychology has been Donald E. Super of Columbia University. Super's conceptual framework in its basic form portrayed occupational choice and adjustment to be the process of implementing the self-concept, a process which he traced over the entire life span of the human person.

By investigating various dimensions of the self-concept in relation to vocational development in a number of research projects, Super's theoretical formulations have met with considerable though far from exhaustive validation. In

the course of analyzing self-concept dimensions related to vocational behaviour, the peculiar characteristics or particular patterns of the dimensions themselves have appeared to be of some significance. These dimensions of the dimensions, or metadimensions, as Super calls them, have thus far hardly been subjected to systematic, scientific scrutiny.

The focal problem of this research exploration was to investigate one of these metadimensions of the self-concept, namely clarity, in relation to vocational development. This study of the clarity of vocational self-concepts as operationally defined, was limited to a sample of male liberal arts students, chronologically in the period of late adolescence and early adulthood.

The first chapter begins with an exposition of Super's self-concept theory of vocational development, leading into the specific operational definitions relative to the metadimension of self-concept clarity. Thereupon follows a review of the literature of reported research experiments which appear to be most closely related to the assessment of self-concept clarity in the context of vocational choice and development. The chapter is concluded with a formulation of the general hypothesis, which proposes to demonstrate experimentally that the metadimension of self-concept clarity is an index of varying patterns of vocational development.

In the second chapter the experimental design is outlined. The sample of male liberal arts students is described in detail. The tools used in the experiment along with the procedures and methods employed are elaborated upon. Five specific sub-hypotheses are then projected in an attempt to test the general hypothesis of the research experiment as formulated at the end of the first chapter.

The third chapter presents the experimental results according to the particular methods adopted in analyzing the data, both cross-sectionally and longitudinally.

The final chapter involves the reader in a discussion of the possible meaning and significance of the results. The results of the judges' ratings, in establishing the two experimental sub-groups on the metadimension of self-concept clarity, are critically evaluated. Further, the results are discussed in relation to the rejection or acceptance of the five sub-hypotheses. General observations regarding the clarity of self-concepts in vocational development, in the light of a partial confirmation of the general hypothesis, lead into the final summary and conclusions.

CHAPTER I

REVIEW OF THE LITERATURE

In order to indicate the specific field in which this research exploration into the clarity of self-concepts in vocational development is lodged, the formulations of self-concept theory relevant to vocational development will be outlined. Thereupon the reported findings of research experiments most closely related to the area of self-concept clarity reflected in vocational behaviour will be reviewed. This will lead into the general hypothesis underlying this research project.

1. Self-Concept Theory of Vocational Development.

During the past fifteen years the field of vocational psychology has been greatly influenced by the self-concept theory of vocational development as elaborated by Donald E. Super of Columbia University. The antecedents of Super's conceptualizations and of his earliest theoretical formulations have been reviewed in considerable detail by the present researcher in the first chapter of his earlier thesis.[1]

---

1 William W. Dick, Vocational Self-Concept in Terms of the Vocational Interests and Values of Seminarians and Ministers, unpublished Master's thesis, School of Psychology and Education, University of Ottawa, 1964, p. 1-13.

After a brief recapitulation of Super's earlier and more general theoretical framework, a review of his most recent elaborations of self-concept theory will be undertaken.

Super's[2] earliest published article on vocational adjustment contained the essence of his self-concept theory of vocational development. In this treatise Super theorized that in expressing a vocational preference, a person puts into occupational terminology his idea of the kind of person he is; that in entering an occupation, he seeks to implement a concept of himself; that in getting established in an occupation he achieves self-actualization. Thus Super held that the occupation makes possible the playing of a role appropriate to the self-concept.

The most comprehensive elaboration of Super's self-concept theory of vocational development appeared in his volume, The Psychology of Careers.[3] Using the self-concept as the organizing element, he traced career development through the entire life span of a person.

---

2 Donald E. Super, "Vocational Adjustment: Implementing a Self-Concept", in Occupations, Vol. 30, No. 2, November 1951, p. 88-92.

3 --------, The Psychology of Careers, New York, Harper and Brothers, 1957, x-362 p.

In a recent monograph, Super[4] and several of his research associates presented the elements of a self-concept theory of vocational development in the most systematically organized form. He has identified these elements as the processes of the formation, translation and the implementation of the self-concept.[5]

The phases of self-concept formation are described as exploration, self-differentiation, identification, role playing and reality testing.

The process of translation of self-concepts into occupational terms is portrayed to occur in several ways, through identification with an adult, through experience by being cast in a certain role and through a growing awareness of the fact that one has attributes which are said to be important in a certain field.

The implementation or actualization of self-concepts are held to be the result of the earlier processes, as professional training is entered or as education is completed and the young person moves into the world of work.

In the ensuing chapter of this monograph, Super[6] has sought to provide his theoretical constructs with operational

---

4 Donald E. Super, et al., Career Development: Self-Concept Theory, New York, College Examination Board, 1963, v-95 p.

5 Ibid., p. 11-14.

6 Ibid., Chapter 2, "Toward Making Self-Concept Theory Operational", p. 17-32.

definitions to facilitate the collection of objectively treatable data.

In view of the fact that the design of the present research on the clarity of self-concepts in vocational development originated and emerged directly from this specific theoretical framework, a detailed elaboration of the definition and assessment of self-concepts will be presented in the next section of this chapter.

While Super has definitely ventured forth into new and unexplored territory in his theoretical formulations, some similarities can be detected in the writings of other psychologists. Erikson,[7] using another set of terms and being concerned mainly with ego psychology, held that the attainment of an occupational identity is crucial for the fulfillment of ego identity.

Tiedeman and O'Hara,[8] who have adapted and applied Erikson's developmental structure of psychosocial crises to vocational psychology, consider career development as the process of fashioning a vocational identity through the differentiation and integration of personality as one confronts the problems of work in living.

---

7 Erik Erikson, "Identity and the Life Cycle", in Psychological Issues, Vol. 1, 1959, p. 1-171.

8 David V. Tiedeman and Robert P. O'Hara, Career Development Choice and Adjustment, New York, College Entrance Examination Board, 1963, vii-108 p.

2. Definition of Self Terms and Assessment of Self-Concepts.

Before launching into a description of the manner of assessing self-concepts, be it through dimensions or meta-dimensions, it appears appropriate to make a brief excursion into the area of the precise definition of terms. This seems particularly necessary in this area of psychology in which terms such as self and self-concept are defined and used in many different ways.

In the present study based strictly on Super's self-concept theory of vocational development, a close adherence to his definition and usage of terms was pursued. To distinguish first, between "self" and "self-concept", the self is what the person is, whereas the self-concept is how the person sees or perceives himself.

As this research was concerned exclusively with the self-concept, the extended definition of Super is given as follows:

> A self-concept is the individual's picture of himself, the perceived self with accrued meanings. Since the person cannot ascribe meanings to himself in a vacuum, the concept of self is generally a picture of the self in some role, some situation, in a position, performing some set of functions or in some web of relationships.[9]

From this it follows that each person has a number of self-concepts, one for each role or position in which he finds

---

9 Super, et al., Op. Cit., p. 18.

himself. In this study the focus is primarily upon the person's vocational self-concept. This term is defined by Super as follows:

> The term vocational self-concept denotes the constellation of self attributes which the individual considers to be vocationally relevant, whether or not they have been translated into a vocational preference.[10]

The various self-concepts of an individual person are more or less related, organized or integrated by what is referred to as the self-concept system. Thus, at any point in time, a person has a number of self-concepts, but only one self-concept system. Super[11] has set out these definitions of self-terms in outline form.

He has further noted that self-concepts differ in the level of complexity and may be divided into lower-level or simple self-concepts and higher-level or complex concepts.[12] Lower-level self-concepts are derived from a large number of related self-percepts or self-descriptions. An interest or personality inventory, being a self report of sorts, consists of a large number of lower-level concepts.

Higher-level self-concepts are simple or lower-level self-concepts which have been organized into complex

---

10 Ibid., p. 20.

11 Ibid., p. 19. (See Appendix 1, Table I.)

12 Ibid., p. 4 and p. 18.

self-concepts through abstraction and generalization. Higher-level self-concepts have been organized by the person within the framework of a role, such as "I am the kind of person who should be a lawyer." As will be seen shortly, the present research study was, in essence, intended to test whether or not two groups of persons judged to be different in terms of the degree of clarity of their higher-level self-concepts, would also prove to differ correspondingly, as to their lower-level self-concepts.

Any attempt to assess self-concepts or various aspects of the same, must of necessity involve some method of self report. Super[13] makes a necessary distinction between reported self-concepts and inferred self-concepts. The latter are the scales of interest inventories or adjective checklists, in which simple self-descriptions made by a person have been converted by others into inferences about him. Reported self-concepts are those of which the individual is more fully or more directly aware. The main thrust of this research was to investigate the differences between self-concepts of persons at varying levels of awareness of clarity.

Super[14] has further distinguished between the dimensions and the metadimensions of self-concepts and self-concept systems as follows:

---

13 Ibid., p. 20.

14 Ibid., p. 23-31.

> The dimension of the self-concept which must be studied if we are to know that which an individual translates into a vocational self-concept, are clearly the dimensions of personality, the traits which people attribute to themselves [...]
>
> But there are other dimensions of the self-concept which are not included in the various trait lists. [...] These are the dimensions of the dimensions, that is the metadimensions of self-concepts.[15]

The metadimensions of the self-concepts are the characteristics of the traits which people attribute to themselves.

Super[16] holds that these distinctions between dimensions and metadimensions, and between self-concepts and self-concept systems are of fundamental importance for the pursuit of systematic and fruitful research in self-concept theory and measurement.

In developing his theory of the metadimensions of self-concepts and self-concept systems, he has delineated these in tabular form.[17] From among the seven listed metadimensions of self-concepts, namely, self-esteem, clarity, abstraction, refinement, certainty, stability and realism, the present research study sought to focus on one of these, that of clarity.

---

15 Ibid., p. 24.

16 Ibid., p. 25.

17 Ibid., p. 25. (See Appendix 1, Table 2).

3. The Metadimension of Clarity of Self-Concepts.

Super[18] defines clarity of self-concept as awareness of the nature of self-attributes. He considers clarity to be a very basic metadimension, for it there is a lack of clarity, other metadimensions such as abstraction and realism and so forth cannot well be judged.

He further theorizes that clarity of the self-concept is a metadimension which may be expected to increase with age and to be related to intelligence and to adjustment.[19] He proposes that clarity may be related to having a vocational preference, to the consistency of vocational preferences, to ease of vocational decision making. It was this last statement which comprised the operational definition of clarity as applied to the higher-level self-concepts of the sample of male liberal arts students.

4. Research Experiments Related to the Assessment of the Clarity of Self-Concepts.

At present no research studies have been reported in the literature which were specifically set up to investigate the metadimension of clarity of self-concepts as formulated by Super. However, there are a few studies which are very closely related to a study of self-concept clarity.

---

18 Ibid., p. 25.

19 Ibid., p. 26.

O'Hara and Tiedeman[20] have reported a research investigation in which they tested an earlier hypothesis of Super and his associates which touched on clarity of self-concepts, arising out of their large-scale, longitudinal Career Pattern Study, and expressed as follows:

> Self-concepts begin to form prior to adolescence, become clearer in adolescence and are translated into occupational terms in adolescence.21

In testing this hypothesis, Tiedeman and O'Hara studied a sample of 1,021 boys distributed from grades nine to twelve, in order to ascertain whether or not there would be an increase in agreement between self-estimates and objective data measuring their interests, capacity, values, and reality orientations. According to their findings, insight into vocational interests reached its peak by grade ten and insight into work values in grade twelve. Insight into general values changed little during the high school years, while insight into social status tended to decline. Insight into aptitudes showed a steady increase during the four years of high school. Generally speaking, their findings confirmed the hypothesis only partially and tentatively.

---

20 Robert P. O'Hara and David V. Tiedeman, "Vocational Self-Concept in Adolescence", in Journal of Counselling Psychology, Vol. 6, No. 4, 1959, p. 292-303.

21 Donald E. Super, et al., Vocational Development: A Framework for Research, Monograph 1, New York, Bureau of Publications, Columbia University, 1957, p. 91.

However, the major criticism of their procedure is that they studied vocational development in a cross-sectional way, using different persons in each grade. In contrast to this, the present research involved college males in late adolescence and early adulthood, but using the same persons over a two-and-a-half year period, thus making possible a more legitimate, longitudinal study of vocational development.

In another study, which appears to be closely related to the present one, Norrell and Grater[22] tested the hypothesis that: "Self-awareness or insight into vocational interests, as measured by agreement between self-estimates and scores on Strong's Vocational Interest Blank, is related negatively to needs which inhibit self-awareness." The personality needs in question were measured by the Edwards Personal Preference Schedule, twelve scales of which were rated by a group of psychologists for their positive or negative effect on insight. Their reported results show that the trend for all the hypotheses was in the expected direction, but only three of the twelve need scales statistically differentiated the high and low awareness groups. These three scales were the need for succorance, order and change. In the present research, the same need scales were investigated as to their

---

22 O. Norrell and H. Grater, "Interest Awareness as an Aspect of Self-Awareness", in Journal of Counselling Psychology, Vol. 7, No. 4, 1960, p. 289-292.

relationship to self-concept awareness or clarity, but using the Gough and Heilbrun Adjective Checklist instead of the Edwards Personal Preference Schedule.

Other research findings which appear to be related indirectly or negatively to self-concept clarity have been reported in the area of vocational certainty and indecision.

Ashby, Wall and Osipow[23] compared three groups of entering college freshmen possessing varying degrees of identification of educational-vocational goals on a variety of personality, achievement, school and family factors. The Decided Group comprised of eighty-one males and twenty-seven females were students who expressed a high degree of certainty about their educational-vocational plans and were enrolled in curricula oriented toward some relatively clear field, such as business, engineering or teaching.

The Undecided Group, made up of twenty-six males and three females were students who had difficulty in identifying an entry program in the university and chose instead to enroll in the Division of Counselling, specifically set up to allow students to clarify their goals during an exploratory period. The Undecided Group also identified themselves as uncertain or unclear about their educational-vocational plans.

---

23 Jefferson D. Ashby, Harvey W. Wall and Samuel H. Osipow, "Vocational Certainty and Indecision in College Freshmen", in The Personnel and Guidance Journal, Vol. 44, No. 10, June 1966, p. 1037-1041.

A third group called Tentative was identified. This group composed of seventy-nine males and twelve females possessed some educational-vocational goal with a moderate degree of certainty and so they also enrolled in the Division of Counselling.

Two major differences among the three groups are reported: the most undecided group was more dependent, or manifested a greater need for support and encouragement than the other two groups, but was equal to the most decided group in academic achievement; the middle or tentatively decided group however, was not as successful in academic achievement as the most and least decided groups.

These findings call into question any significant relationship as existing between the degree of decisiveness of vocational goals and academic achievement or success, the former apparently leaving little, if any, effect on the latter. Thus, these researchers might have found it more fruitful to investigate other variables in the area of personality and self-concept dimensions.

In his earlier research with a sample of seminarians, the present writer[24] found significant differences in vocational interest and value patterns between two groups of seminarians divided on the basis of their stated vocational

---

24 Dick, Op. Cit., p. 59-67.

preferences. The group (N:35) expressing a first preference for the pastoral ministry, assumed to be an indication of a clear vocational self-concept, scored significantly higher on the Minister and Social Welfare Scales of the Strong Vocational Interest Blank than the other group (N:22) that expressed other first preferences such as theological teaching, conference administration, etc. The latter group, while expressing vocational preferences within the field of church vocations, was held to be lacking a clear-cut vocational self-concept. These results led the author to engage in the present research project in which an investigation of the clarity of self-concepts was extended to a less homogeneous sample of liberal arts students.

5. General Hypothesis and Summary.

The general hypothesis tested in the research experiment under study was formulated as follows: The metadimension of the clarity of vocational self-concepts operationally defined is an index of significantly varying patterns of vocational development among a sample of male liberal arts students.

In this chapter an exposition of the self-concept theory of development and the most relevant research experiments were presented, thus laying the groundwork for the specific area of the metadimension of self-concept clarity

and concluding with the general hypothesis which was projected for experimental investigation. The next chapter will elaborate upon the approach adopted in attempting to test the theoretical constructs outlined thus far.

CHAPTER II

EXPERIMENTAL DESIGN

In this chapter the experimental design and specific procedures that were applied in an attempt to test the general hypothesis proposed at the end of the first chapter, are spelled out in detail.

After the sample and the tools involved in the experiment have been described, the particular procedures and methods adopted in this experiment are set forth. Finally, the specific sub-hypotheses subjected to experimental testing of the theory in question are projected, including the statistical operations employed.

1. The Sample of the Experiment.

A number of rather crucial considerations were taken into account in the selection of an appropriate sample which was to serve the demands of the experiment adequately. The male students in their third year of a liberal arts program at York University were chosen, and the main reasons for selecting them are given below.

Firstly, research in the area of human development, be it vocational or otherwise ideally demands a longitudinal approach. As certain appropriate psychological measures had been administered to this sample at the time of their

enrollment as freshmen, a longitudinal study was made possible by a re-administration of these instruments.

Secondly, it was felt that the sample should be homogeneous enough to automatically control such variables as age, sex, level of intelligence and of formal education. Also, ideally, the sample should not be too disparate in their interests and attitudes toward work and life in general.

On the other hand, a modicum of heterogeneity seemed desirable in order to allow for a demonstration of the meta-dimension of clarity, regardless of the specific varying dimensions of vocational interest and goals of the subjects. It was felt that the male liberal arts college student sample met these demands for a balance between homogeneity and heterogeneity quite adequately.

At the middle of the 1965-66 academic year, a letter[1] was mailed to all the male students enrolled in the third year of the liberal arts program of the university, inviting them to participate in this study of vocational development. The total number (N:104) of students still available at the time of the research represented about two-thirds of the total population (N:159) of male students who had enrolled as freshmen in September 1963. Table I shows the classification of the students in terms of the known reasons for the

---

1 See Appendix 2.

Table I.-

General Description of Total Sample of Male Liberal Arts Students Enrolling as Freshmen in September 1963.

Group	N:159		Age Mean	Age S.D.	Age Mode
Non-Continuing Students	55		20.73	2.54	19
1st Year Failures		17			
2nd Year Failures		12			
1st Year Withdrawals		13			
2nd Year Withdrawals		2			
3rd Year Withdrawals		1			
Non-Returning after 2nd Year		10			
Continuing Students in Third Year	104		19.54	2.24	19
Participating Students	74		19.49	2.35	18
4-Yr. Honour Course		42			
3-Yr. Ordinary B.A.		32			
Non-Participating Students	30		19.60	2.04	19
4-Yr. Honour Course		18			
3-Yr. Ordinary B.A.		12			

attrition of the non-continuing students, and the continuing students the numbers in honours and in general courses, are presented.

Of the total potential sample of continuing students (N:104), only seventy-four responded to the invitations by letter and a follow-up by telephone to participate in the research project. However, as will be shown later in the results, there were good reasons to assume that the non-participating students would not have affected the results in either direction to any appreciable extent. Thus, the main sample involved in the longitudinal research of vocational self-concept development were seventy-four male students in the third year of a liberal arts program.

2. The Tools of the Experiment.

Two basic prerequisites governed the selection of the tools to be used in this experiment.

The one requirement was to obtain assessment data of a longitudinal nature, thereby reflecting vocational development. This involved a replication or re-administration of those instruments assessing self-concepts, which had been administered to the sample at the time of their enrollment as freshmen by the university's department of Psychological Services.

The other prerequisite concerning the tools to be employed was to get an adequate and reliable assessment of both higher and lower-level vocationally relevant self-concepts, so that the metadimension of clarity could be evaluated at both of these levels.

a) Higher-Level Self-Concept Tools.- The most direct manner of obtaining indices of higher-level self-concepts is through a personal interview. This is the means adopted by Super[2] and his associates in launching their longitudinal study of the career patterns of boys. Thus, one technique employed in this research was a semi-structured interview for each subject of the sample, in order to elicit indices of higher-level self-concept of a vocational-development nature.

In an earlier research, the author[3] had employed an Index of Vocational Preferences which proved to be a significant tool in differentiating seminarians with varying patterns of interests and values.[4] Since a similar Index of Vocational Preferences was administered to the present sample under study

---

2 Donald E. Super, et al., Vocational Development: A Framework for Research, Monograph One, New York, Bureau of Publications, Columbia University, 1957, p. 102.

3 William W. Dick, Vocational Self-Concept in Terms of the Interests and Values of Seminarians and Ministers, unpublished Master's thesis, School of Psychology and Education, University of Ottawa, 1964, p. 33.

4 Ibid., p. 59-67.

at the time of their enrollment as freshmen, it was decided to re-administer this index in precisely the same form and thereby make it possible to engage in a longitudinal comparison of higher-level vocational self-concepts on the basis of these two indices of vocational preferences. A reproduction of the Index of Vocational Preferences appeared in Section A of the Supplemental Information Sheet[5] to be administered along with the other tests.

In order to make a final evaluation and classification of the subjects in terms of the degree of the clarity of their higher level vocational self-concepts, three judges were to be called in to make ratings on the basis of the interview material and the two administrations of the Index of Vocational Preferences.

b) Lower-Level Self-Concept Tools.- The tools selected to provide measures of lower-level or simple self-concepts may be divided into two types, the one making possible longitudinal analyses of vocational development and the other serving to supplement the longitudinal assessment with relevant cross-sectional comparisons of inferred self-concepts.

1) Longitudinal Assessment Tools.- In keeping with the Starishevsky and Matlin[6] model for the translation of

---

5 See Appendix 3.

6 Reuben Starishevsky and Norman Matlin, "A Model for the Translation of Self-Concepts into Vocational Terms", Chapter 2, Super, et al., Op. Cit., p. 33-41.

self-concepts into vocational terms, appropriate assessment instruments in this area of research should elicit both psychological and occupational statements or terms. The two instruments which appeared to meet these requirements were the 1) Thurstone Interest Schedule,[7] which permits subjects to respond freely to their self-chosen or rejected occupations, and 2) Gough and Heilbrun Adjective Check List[8] which elicits self-descriptions in psychological terms. As both of these instruments had been administered to the sample at the time of their enrollment as freshmen, a re-administration at the time when this research experiment was conducted, made a longitudinal study of self-concept clarity possible.

A detailed description of these tools follows:

1) Thurstone Interest Schedule.-[9] The T I S format consists of a single sheet of paper on which is printed a large rectangle divided into ten rows and columns. In each of the one hundred spaces or boxes, there is printed a pair of occupations and the subject is asked to mark his preference in each box. The subject is encouraged to mark both items

---

7 L.L. Thurstone, Thurstone Interest Schedule Manual, New York, The Psychological Corporation, 1948, p. 1-11.

8 Harrison G. Gough and Alfred B. Heilbrun, The Adjective Check List Manual, Consulting Psychologists Press, Palo Alto, California, 1965, p. 1-32.

9 Hereafter referred to as T I S.

in a pair if he likes both of them. If he dislikes both items he is allowed to cross them out.

The T I S is scored by classifying the responses into ten occupational fields or scales, with each scale ranging from zero to twenty. In answering the T I S the subject is called upon to compare representative occupations in each of the ten occupational fields twice with each of the other fields.

The ten vocational fields making up the T I S profile are: Physical Science, Biological Science, Computational, Business, Executive, Persuasive, Linguistic, Humanitarian, Artistic and Musical. The occupations chosen by the author for each of the above fields appeared to be particularly suited for the college sample of this research, as they all represent occupational categories at the professional level, deliberately excluding the manual and unskilled or semi-skilled types of occupations.

The reliability of the T I S according to the test author's findings have met the highest standards of test construction, and especially as it applies to interest inventories. Thurstone[10] has reported Pearson correlation coefficients ranging from .90 to .96 for the ten occupational scales, computed on the basis of a sample of two hundred by the split-half

---

10 Thurstone, Op. Cit., p. 9.

method. By considering each of the hundred pairs of occupations as a test item, item validities were shown to average between .64 and .85 for the ten scales.

2) Gough and Heilbrun Adjective Check List.-[11] The A C L consists of three hundred adjectives arranged in alphabetical order and used most frequently to elicit self-descriptions. The choice of adjectives have emerged from past studies, empirical testing and intuitive and subjective appraisal. According to the description of the authors,[12] the development of the A C L goes back to 1949 when a first effort was made to assemble the words for the checklist. R.B. Cattell's list of 171 words, based on the factor analysis of the 17,953 trait names enumerated by Allport and Odbert, were canvassed. To this list were added other words thought to be essential in describing personality. After more than twelve years of research the three hundred words of the present version were established. From 1962 - 1965, the authors have subjected the A C L to a thorough-going overall evaluation.

The A C L is scored either manually or by machine, providing a profile in standard scores of twenty-four experimental scales.[13] The first nine scales are indices developed

---

11 Hereafter referred to as the A C L.

12 Gough and Heilbrun, Op. Cit., p. 3.

13 See Appendix 4.

by Gough over the past dozen years. The first scale gives the number of adjectives checked. The tendency to check more or fewer words obviously reflects certain personological dispositions and it also acts as a response set artifact in the scoring of other scales. For this reason it is necessary to control for the total number of adjectives checked in deriving standard scores on the other variables. The authors[14] have adopted the technique whereby each protocol is classified into one of four categories for each sex and then standard scores are calculated for that category only.

The last fifteen of the twenty-four A C L scales are need scales based on Murray's need-press system. The authors[15] refer to three considerations which determined the selection of this particular set of variables: 1) each could be defined in terms of observable behaviour; 2) each seemed relevant to personality functioning within a normal population; 3) there were available, thanks to Edwards,[16] conveniently simplified descriptions of the Murray variables to aid in the selection of items.

---

14 Gough and Heilbrun, Op. Cit., p. 5. See also Appendix 4 for Table of Categories.

15 Ibid., p. 7.

16 A.L. Edwards, Edwards Personal Preference Schedule Manual, New York, The Psychological Corporation, 1954.

All three of these considerations appeared particularly applicable to the sample and theoretical issues underlying the present research project.

The reliability of the A C L scales has been shown to be adequate on most of the scales. The test authors[17] report test-retest correlations for fifty-six college males over a ten-week interval, ranging from .83 to .63 for all scales, except lability and succorance and the correlation coefficient for these was .56 and .54 respectively. Thus the results with the latter scales as well as with those showing a correlation coefficient in the sixties, order (.63), heterosexuality (.66), exhibition (.60), and change (.69) should be interpreted with caution.

Another approach in evaluating the reliability of the A C L was applied in terms of the test-retest reliability of the list of words, checked off as being self-descriptive. The authors[18] have reported such a reliability study with a sample of one hundred men who filled out the checklist twice, approximately six months apart. Test-retest reliability coefficients varied from a low of r.01 to a high of r.66, with a mean of r.54 and a standard deviation of .19.

---

17 Ibid., p. 12.

18 Ibid.

In view of this rather low mean reliability figure the authors go on to raise the question of whether or not the stability vs. instability of the self-image on the A C L may reflect a personological disposition and not just statistical error.

In dividing this sample of men into two groups, they found that the one group with the higher reliability coefficients could be identified as being quick, co-operative, friendly and insightful, whereas the other group of men with the lower reliability coefficients seemed to be at odds with themselves and others.

The validity of the A C L is both complex and difficult to evaluate at this stage of its usage. The complexity arises out of the problem of demonstrating validity on the basis of the results of all twenty-four scales and organizing these into a meaningful, coherent and integrated pattern. The authors[19] have reported a number of validation studies which demonstrate a growing mass of evidence of the validity for several of the scales taken individually. There would seem to be reason to agree with the test authors'[20] contention that a good portion of the validity of such a complex instrument must come from the skill and insight of the test-user, from his sensitivity to patterns and configurations.

---

19 Ibid., p. 14.

20 Ibid.

The use of the A C L in the research project being reported, rested heavily on the possible difference over time in self-concepts that could be inferred from one administration of the A C L to the sample of students to the next administration. Very little has been reported in the research literature about this type of a longitudinal study, using the present A C L scales.

The stability vs. instability of self-concepts in test-retest on the A C L as reported above, relative to the reliability of the instrument, appeared to be the line of investigation most directly relevant to the theoretical questions being raised in this research experiment.

ii) Tools for Cross-Sectional Comparisons of Vocational Self-Concepts.-

1) Vocational Version of the Adjective Check List.- This specially-devised technique involved another administration of the A C L at the time of the collection of the research data. After the subjects had checked off the list of adjectives in the usual way in terms of self-description, they were to be asked to go through the A C L again and check those adjectives which they felt best described a "successful person" in their most preferred occupation.[21]

---

21 See Section C of Supplemental Information, Appendix 3.

The closest parallel to a similar use of the A C L is reported by Gough and Heilbrun[22] in a study of bank managers who were asked to fill out the A C L in terms of the ideal banker (not documented).

c) The Strong Vocational Interest Blank.- This instrument, well-known and most widely used in the field of vocational interest measurement for the past forty years, was devised by Strong[24] to differentiate the interest patterns of men in a variety of occupations on a strictly empirical basis. The four hundred interest items of the SVIB are answered in terms of "Like", "Indifferent" or "Dislike". By means of a complex weighting system, scales for fifty-one occupations, as well as five group and four non-occupational scales have been devised.

Both the reliability[25] and the validity[26] of the SVIB have been convincingly established and generally accepted on the basis of a mass of research evidence.

In recent years with the introduction of Super's self-concept theory of vocational development, the SVIB occupational

---

22 Gough and Heilbrun, Op. Cit., p. 17.

23 Hereafter referred to as the SVIB.

24 Edward K. Strong, Jr., SVIB Manual, Palo Alto, Calif., Consulting Psychologists Press, 1959, p. 1-40.

25 Ibid., p. 20.

26 Ibid., p. 21.

and group scales have been used to provide a measure of inferred vocational self-concepts, such as the earlier research of this author.[27] It was along these lines that he proposed to use the SVIB again in the present research.

3. The Procedures Adopted in the Experiment.

The preliminary stage of the gathering of the research data took place in September, 1963, during the routine orientation program of York University. At this time a battery of psychological tests was administered to all the incoming first-year students by the Department of Psychological Services. The students were assured of the confidentiality of the test results and were invited to avail themselves of the individual results of the tests. Among other psychological measures, the Index of Vocational Preferences, the Thurstone Interest Schedule and the Gough Adjective Check List were administered at this time.

The next stage of the research data collection process took place during the first three months of 1966 when the male students of the sample were in their third year of the liberal arts course. The remaining students (N:104) were invited to participate in the research project in two separate sessions. The first session was planned to be a close replica of the initial group testing sessions two and one-half years

---

27 Dick, Op. Cit., p. 26-30.

earlier. The following tests were administered in the order given: the re-administration of the T I S, the first administration of the SVIB, the re-administration of the A C L and the Index of Vocational Preferences and a special administration of the Vocational Version of the A C L in which they were asked to check the adjectives describing a successful person in their preferred vocation.

The second session took the form of an individual semi-structured taped interview with the researcher. Each student being interviewed was asked to review his vocational interests and preferences from as far back as he could remember to the present and then he was asked to comment on his future vocational goals.

The next stage of data collection involved the preparation of a file on each participating student for the evaluation of the three judges. In Super's terminology, each student file contained the available higher-level vocational self-concepts arranged in the given order: 1) 1963 Index of Vocational Preferences; 2) 1966 Index of Vocational Preferences; 3) the transcribed typed version of the taped interview.

Three judges were chosen to make ratings of clarity of vocational self-concept of each student on the basis of the file information described above.[28] The three judges

---

28 See Appendix 3, p. 113.

included a vocational counselling psychologist with over twenty years experience, a placement officer who was an arts graduate with additional training in personnel psychology and involved in counselling and placement of university students, and the researcher himself. A briefing session with all three persons present was held in order to explain the exact procedure of making the evaluations, as well as to familiarize all the judges with the definition of clarity within the framework of Super's theory of the metadimensions of self-concepts.

Thereupon, each rater, working independently, proceeded to register his ratings along the metadimension of clarity on a five-point scale and in five different ways for each subject, on a specially prepared evaluation sheet.[29]

Only after the above procedures had been carried out, in the process of gathering the research data, could the statistical analysis be initiated.

4. The Methods of Analysis Used in the Experiment.

a) Judges' Ratings of Clarity.- The first step in the analysis of the data involved the tabulation of the results of the judges' ratings of the degree of clarity for each subject.

---

29 See Appendix 3, p.113.

This was a crucial step in determining the size and number of the sub-groups of the sample. It was hoped that on the basis of the ratings two almost equally sized groups would emerge, the one being a high "clarity" group and the other a low "clarity" group. The cut-off point between the two groups was to be the mid-point between being judged moderately "clear" and moderately "unclear" on the meta-dimension of clarity.

b) Pre-Experimental Cross-Sectional Analysis of Continuing and Non-Continuing Students.- Having established the high and low clarity groups of those students participating in all stages of the research, the next step in the design called for what might be referred to as a pre-experimental analysis of the data. This involved a comparison of the non-continuing students or drop-outs (N:55) with the high and low clarity groups of the continuing students (N:74), on the basis of the relevant data available in their files from the orientation testing in September, 1963. The T I S and A C L scale scores were used in these comparisons.

The main purpose of this pre-experimental analysis was to ascertain whether or not significantly different patterns of basic self-concepts would be detected between the non-continuing and continuing students of the sample.

Another specific concern at this stage of the analysis was to determine whether or not the non-participating segment

(N:30) of the sample of continuing students showed any initial differences on the relevant variables when compared with the high and low clarity groups comprising the participating group.

c) Longitudinal Analysis of Lower-Level Self-Concept Tools.- The next stage of data analysis centred upon the longitudinal comparisons of T I S and A C L scores of the sample and then to test for differences in longitudinal changes between the high and low clarity groups.

In a logical evaluation of the manner in which the T I S might be used to reflect development of vocational self-concept clarity, the researcher applied two techniques which have found some support in reported research in related areas.

Following the rationale and supported research of Hoyt, et al.,[30] vocational interest profiles of persons should show an increase in scores on the scales in the high interest areas and a corresponding decrease in scores in the low interest areas. When applied to the concept of developing clarity of vocational self-concepts, one might logically expect such a dual process to take place.

Thus applying this Depth Index as referred to by Hoyt, et al.,[31] the individual sets of T I S profiles were

---

30 Donald P. Hoyt, J.L. Smith, jr., Seymour Levy, "A Further Study in the Prediction of Interest Stability", in Journal of Counselling Psychology, Vol. 4, No. 3, 1957, p. 228-233.

31 Ibid., p. 229.

analyzed longitudinally. In the positive direction, four of the high interest areas, chosen to correspond most closely to claimed interests on the Index of Vocational Preferences, administered upon enrollment in college, a significant increase was predicted on these four scales. By contrast, a decline in scores was predicted on the six remaining scales in each case. By combining the resulting scores in both the predicted positive and negative directions, one composite score was obtained for each individual. This procedure appeared to be in keeping with Guilford's[32] suggestion for the use of a single summarizing statistic in handling profile scores.

The other method of T I S longitudinal analysis involved a computation of the total number of occupations circled and crossed out in each T I S answer sheet. It will be noted that only the occupations circled and not the ones crossed out enter into the usual scoring system of the T I S.

The rationale pursued in this method was partially based on the theorizing and tentative findings of Tyler[33] that individual differences in interests appear to develop

---

32 J.P. Guilford, Fundamental Statistics in Psychology and Education, New York, McGraw-Hill Book Co., 1956, p. 431.

33 Leona E. Tyler, "The Development of Vocational Interests", in Journal of Genetic Psychology, Vol. 86, 1955, p. 33-44.

through a gradual ruling out of whose sets of activities that are seen to be inappropriate. She holds that the increasing expression of dislikes represents a process by which a person establishes the limits within which he as an individual will be content to function.

The predicted change over time by this method would be in the direction of expecting fewer occupations to be circled and more occupations to be crossed out in the second administration, as compared with the first, thereby inferring a growing awareness or clarity of vocational self-concept in terms of an elimination or an active ruling out of more and more occupations with the passage of time.

The A C L profiles were first analyzed longitudinally in terms of changes in standard scores on the twenty-four scales. Comparisons were then made between the high and low clarity groups as to the degree and direction of changes on the A C L scales. The Norrell and Grater[34] hypotheses regarding the needs of high and low awareness groups were then applied to the high and low clarity groups of this sample.

d) Cross-Sectional Analysis of Lower-Level Self-Concept Tools.- An item analysis comparison of the Vocational Version of the ACL and the corresponding items on each

---

[34] G. Norrell and H. Grater, "Interest Awareness as an Aspect of Self-Awareness", in Journal of Counselling Psychology, Vol. 7, No. 4, 1960, p. 290-291.

individual's A C L self-description was conducted. It was predicted that the low clarity group would manifest a greater discrepancy between adjectives checked off for the successful person in their respective preferred occupations and those checked off to describe themselves, than the high clarity group.

The final stage in the projected method of analysis involved a comparison of high and low clarity groups on the basis of their SVIB profiles. Using only the positive direction index of Hoyt[35] and his associates, the two groups were compared on the basis of their respective SVIB occupational group scores, selected in each case in terms of being close to the claimed interest area.

5. The Specific Sub-Hypotneses of the Experiment.

In order to test the general hypothesis formulated at the end of the first chapter, five specific sub-hypotheses were proposed. These are now formally spelled out in null form, along with the applied statistical techniques, which seemed appropriate to the respective tools and particular methods adopted in the experiment.

a) Sub-hypothesis 1.- There are no significant differences in age, Grade XIII average and scores on the

---

35 Hoyt, et al., Op. Cit., p. 228.

respective psychological measures, between the non-continuing students and the sub-groups of the continuing students at the time of their entrance to university (in September, 1963).

As already mentioned, this hypothesis was formulated to deal with a pre-experimental analysis of the data. The statistical operations involved the calculation of means and standard deviations of all the variables for all the sub-groups of the sample and then applying Fisher's "t" test for differences in two-tailed tests.

b) Sub-hypothesis 2.- There are no significant differences in interest patterns of the T I S between the scores of individuals, and between the mean scores of the high and low clarity groups first tested at the time of entrance to university and retested again after an interval of two-and-a-half years.

In testing this hypothesis, designed to reflect the development of vocational self-concept clarity, two methods of statistical analysis were used.

Following the Hoyt Depth Index method,[36] a significant rise was predicted on the four respective high interest scales and a significant decline was predicted on the other six low interest scales. The "Z" ratio for the significance between means in correlated data was calculated, using the direct

---

36 Ibid., p. 229.

procedure[37] of obtaining the standard error of a difference in a one-tailed test.

Fisher's "t" test for mean differences in a one-tailed test between the high and low clarity groups were also calculated, with the prediction that the high clarity group would show mean changes that were significantly higher than that of the low clarity group.

The other statistical method involved a comparison of the number of occupations circled and crossed out from one T I S administration to the next. Discrepancy scores for both occupations circled and occupations crossed out were combined to give a composite discrepancy score. The "t" ratio for differences was then applied longitudinally for each group and also a comparison was made between high and low clarity groups using Fisher's "t" test for mean differences.

c) Sub-hypothesis 3.- There are no significant differences in the means of some of the A C L scales, relevant to the theory in question, between the scores of individuals first tested upon entrance to university and retested after a period of two-and-a-half years and between the mean scores of the high and low clarity groups, compared longitudinally.

---

37 Guilford, Op. Cit., p. 190.

The direct procedure[38] of obtaining the standard error of a difference, and the "Z" ratio, identical to that employed in sub-hypothesis 2 was applied to all the scales.

Fisher's "t" ratio for mean differences in one-tailed tests was applied throughout in making the above calculations of mean A C L scores.

d) Sub-hypothesis 4.- There are no significant differences in mean percentages of discrepancy between adjectives checked on the Vocational Version of the ACL and on the A C L self-descriptions, between the high clarity and low clarity groups.

The "t" test for differences of mean percentages in a one-tailed test was applied in this hypothesis, in which a greater degree of discrepancy was predicted for the low clarity group.

e) Sub-hypothesis 5.- There are no significant differences in the respective high interest group SVIB mean scores between the high and low clarity groups of the sample.

Fisher's "t" test for mean differences in uncorrelated data was applied in a one-tailed test, with the higher mean score being predicted for the high clarity group.

6. Summary.

In this chapter, the sample, the tools, the procedures and methods adopted in the gathering and the analysis of the

---

[38] Ibid., p. 190.

research data have been described, in an attempt to give a detailed exposition of the experimental design of the experiment. Finally, five sub-hypotheses, along with the particular statistical techniques to be applied, were formulated in order to test the general hypothesis which was proposed at the end of the first chapter.

Thus, the necessary background has been set up for the presentation and discussion of the experimental results which are contained in the next two chapters.

CHAPTER III

PRESENTATION OF RESULTS

In this chapter, a detailed report of the experimental results, illustrated by a number of statistical tables, is presented in accordance with the methods proposed to test the five sub-hypotheses as elaborated in the last chapter.

1. Results of the Judges' Ratings.

Table II shows the frequencies of ratings of the judges along with the respective percentages in each of the four categories of the metadimension of higher level vocational self-concept clarity.

Table III shows the percentages of agreement among the judges as well as the percentage of common agreement. Using the mid-point between moderately clear and moderately unclear as the dividing line, the high and low clarity groups were formed. On the basis of either total agreement by all three or two out of three of the judges' ratings, two almost equal groups emerged with thirty-six persons in the high clarity and thirty-eight in the low clarity group in each. One subject was dropped from the sample due to age, as he was fifty-five years old. Three other protocols were found to be incomplete and so they could not be included in the major part of the analysis.

Table II.-

Judges' Ratings of the Metadimension of Clarity of the Sample According to Frequencies in the Four Categories With Percentages Given in Parentheses.

Categories of Clarity	Ratings of Judges			
	A	B	C	Total
Very clear	3(4.05)	9(12.16)	10(13.51)	22(9.91)
Moderately clear	31(41.9)	33(44.59)	33(44.59)	96(43.24)
Moderately unclear	37(50.0)	24(32.44)	25(33.79)	87(39.19)
Very unclear	3(4.05)	8(10.81)	6(8.11)	17(7.66)
Total	74(100.0)	74(100.0)	74(100.0)	222(100.0)

Table III.-

Analysis of Judges' Ratings of the Metadimension of Clarity of the Sample According to the Percentages of Inter-Judge Agreement.

Comparison of Judges	Percentage of Agreement
A & B	87.5
A & C	77.3
B & C	75.8
A & B & C	70.3

Additional information regarding the academic results and standing of the persons in these two groups became available at the end of their third year in university and is shown in Table IV.

2. Results of the Pre-Experimental Analysis.

Having established the high and low clarity groups of the participating sample on the basis of the judges' ratings, these groups were now compared on a number of relevant variables with the non-continuing students and the non-participating students of the sample.

The differences in age for these sub-groups have already been reported in Table I. While the mode age for all the groups is virtually the same, the mean age for the non-continuing students was slightly higher (20.73), the other being 19.54. This can be accounted for by the fact that in this group (N:55) nine or sixteen per cent were mature students (over twenty-three years old) as compared with five mature students or five per cent among the continuing students group (N:104).

Table V shows the grade thirteen averages in means and standard deviations. No significant differences were found between the means of the non-continuing and non-participating sub-groups of the sample when compared with the high and low clarity groups (see Table VI).

Table IV.-

Academic Results of the Continuing Students of the Sample at the End of Three Complete School Years Since Their Initial Enrollment in September, 1963.

Group	N	3-Year B.A. Graduates	4-Year Honours Students	Failures	With-drawals
High clarity	36	16(44%)	17(47%)	3	0
Low clarity	38	10(26%)	25(65%)	2	1
Non-participating[a]	30	9(30%)	13(43%)	4	1

a Three students in this group switched to science courses.

Table V.-

Means and Standard Deviations of Grade Thirteen Average Grades of the Sub-Groups of the Sample.

Group	N	Mean	S.D.
Non-continuing students	46	67.02	5.16
Continuing Students:			
Non-participating students	26	68.36	6.44
High clarity group	33	68.09	6.89
Low clarity group	34	67.62	5.70

Table VI.-

Mean Differences Among the Sub-Groups of the Sample in Grade XIII Averages.

Comparison of Groups	Mean Diff.	"t" ratio
Non-continuing vs. high clarity	1.07	.63
Non-continuing vs. low clarity	.50	.32
Non-participating vs. high clarity	.27	.17
Non-participating vs. low clarity	.74	.48
High clarity vs. low clarity	.47	.30

The next stage of the pre-experimental analysis involved a cross-sectional comparison of the sub-groups on the scales of the T I S and A C L at the time of the initial enrollment in college.

Table VII shows the mean differences on the ten T I S scales between the high and low clarity groups. The only two scales which approach statistical significance in differentiating the groups are the Physical Science scale and the Business scale. In the case of the former, the low clarity group had relatively very low mean (PS = 4.86) and in the case of the latter, the high clarity group had a very low mean (B = 4.17). In comparing the high and low clarity groups with both the non-continuing and non-participating groups, the same pattern persists throughout, as shown on Tables VIII and IX. No significant differences were found on the other eight T I S scales.

In a pre-experimental analysis of the A C L, Tables X and XI show a comparison between the high and low clarity groups on the nine indices and the fifteen need scales respectively.

Table X shows that at the time when the persons in these two groups entered college, the high clarity group had a statistically significant higher score on the lability index, while the low clarity group scored significantly higher on the counselling readiness scale. In addition to

Table VII.-

Mean Differences on the Ten TIS Scales Between the High Clarity (N:35) and Low Clarity (N:37) Groups of the Sample at the Time of Initial Enrollment in College.

TIS Scales	Mean of High Clarity Group	Mean of Low Clarity Group	Mean Diff.	S.D. M	"t" Ratio
Physical science	6.64	4.86	1.78	1.04	1.71[a]
Biological science	6.50	5.68	.82	1.14	.72
Computational	4.20	4.19	.01	1.28	.008
Business	4.17	6.11	1.94	.97	2.00[a]
Executive	9.24	8.68	.56	1.06	.53
Persuasive	9.56	8.06	1.50	1.12	1.34
Linguistic	12.91	13.22	.31	1.41	.22
Humanitarian	6.40	5.92	.48	1.15	.42
Artistic	6.68	5.19	1.49	1.33	1.12
Musical	6.77	6.97	.20	1.59	1.26

a Approaching significance at the .05 level.

Table VIII.-

Mean Differences on the Ten TIS Scales Between the Non-Continuing Students (N:53) and Both the High Clarity (N:35) and Low Clarity (N:37) Groups of the Sample at the Time of Initial Enrollment in College.

TIS Scales	Comparison of Non-Continuing Students and High Clarity Gp.			Comparison of Non-Continuing Students and Low Clarity Gp.		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
PS	1.12	1.15	.97	2.90	1.19	2.44[a]
BS	.46	1.20	.38	1.28	1.18	1.08
C	.68	.97	.70	.69	.88	.78
B	1.92	.86	2.23[a]	.02	.97	.02
E	.12	.97	.12	.68	.97	.69
P	.48	1.0	.48	1.0	.99	1.01
L	1.06	1.29	.82	1.37	1.28	1.07
H	1.10	1.12	1.05	1.66	1.10	1.51
A	1.57	1.15	1.36	.80	1.09	.73
M	.49	1.39	.35	.69	1.47	.47

a P = .05, non-continuing students higher.

Table IX.-

Mean Differences on the Ten TIS Scales Between the Non-Participating Students (N:30) and Both the High Clarity (N:35) and Low Clarity (N:37) Groups of the Sample at the Time of Initial Enrollment in College.

TIS Scales	Comparison of Non-Participating Students and High Clarity Gp.			Comparison of Non-Participating Students and Low Clarity Gp.		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
PS	.52	1.20	.43	2.30	1.31	1.76[a]
BS	.05	1.17	.04	.88	1.22	.72
C	.13	1.17	.11	.14	1.11	.13
B	1.73	.89	1.94[a]	.21	1.14	.18
E	.35	1.10	.32	.21	1.16	.17
P	1.84	1.12	1.64	.34	1.17	.29
L	.12	1.79	.07	.19	1.88	.10
H	.60	1.15	.52	1.03	1.22	.88
A	1.58	1.32	1.20	.09	1.32	.07
M	1.77	1.47	1.21	1.97	1.70	1.16

a Approaching significance at the .05 level.

Table 4.-

Mean Differences in Standard Scores on the Nine ACL Indices Between the High Clarity (N:39) and the Low Clarity (N:37) Groups at the Time of Initial Enrollment in College.

ACL Indices	Mean of High Clarity Group	Mean of Low Clarity Group	Mean Diff.	S.D. N	"t" Ratio
Number checked	45.88	46.89	1.01	1.88	.54
Defensiveness	45.91	45.86	.05	2.24	.02
Favourable	43.35	40.72	3.63	2.44	1.49[c]
Unfavourable	56.47	56.89	.42	2.77	.15
Self confidence	47.56	43.69	3.87	2.16	1.78
Self control	41.56	44.36	3.07	2.81	1.09
Lability	55.76	50.40	5.36	2.48	2.16[b]
Personal adjustment	42.44	41.42	1.02	2.53	.40
Counselling readiness	49.53	56.38	6.85	2.51	2.73[a]

a P = .02.
b P = .05.
c Approaching significance at the .05 level.

Table XI.-

Mean Differences in Standard Scores on the Fifteen ACL Need Scales Between the High Clarity (N:34) and the Low Clarity (N:36) Groups at the Time of Initial Enrollment in College.

ACL Need Scales	Mean of High Clarity Group	Mean of Low Clarity Group	Mean Diff.	S.D. M	"t" Ratio
Achievement	46.32	43.94	2.38	2.22	1.07
Dominance	47.82	43.19	4.63	2.25	2.06[a]
Endurance	44.44	45.08	.64	2.84	.21
Order	44.53	45.22	.66	2.56	.22
Intraception	47.53	45.47	2.06	2.88	.73
Nurturance	47.60	45.86	1.74	2.57	.69
Affiliation	46.44	43.55	2.89	2.13	1.36[b]
Heterosexuality	50.26	46.17	4.09	2.44	1.68[b]
Exhibition	52.09	49.11	2.98	2.89	1.03
Autonomy	51.73	48.97	3.76	2.68	1.40[b]
Aggression	53.38	52.22	1.16	2.40	.48
Change	52.15	48.89	3.26	2.51	1.30[b]
Succorance	51.76	56.97	5.21	2.35	2.22[a]
Abasement	50.06	55.28	5.22	2.29	2.28[a]
Deference	47.18	50.72	3.54	2.51	1.41[b]

a P = .025.

b Tendency toward significance.

this it may be noted that the high clarity group scored considerably higher than the low clarity group on the Favourable and Self-confidence indices.

Table XI indicates that the high and low clarity groups manifested differing patterns on a few of the A C L need scales. The high clarity group scored significantly higher on the dominance scale and a higher tendency on the heterosexuality scale. On the other hand, the low clarity group had significantly higher scores on the need for succorance and abasement scales.

Subsequently these two experimental groups were compared to the non-continuing and non-participating student samples on the A C L scales as shown in Tables XII to XV. On the nine A C L indices (see Table XI) only the Counselling Readiness index discriminated significantly between the non-continuing and both the high and low clarity groups. In this case the low clarity group again scored higher than the non-continuing group. The high clarity group showed a higher tendency on the lability index.

With reference to the A C L need scales, Table XIII indicates a number of significant differences between the non-continuing student pre-experimental sample and the experimental groups.

The non-continuing students upon entering college saw themselves to be significantly higher on the need scales for

Table XII.-

Mean Differences in Standard Scores on the Nine ACL Indices Between the Non-Continuing Student Sample (N:55) and Both the High (N:34) and Low (N:36) Clarity Groups of the Sample at the Time of Initial Enrollment in College.

ACL Indices	Group Comparisons between Non-Continuing and High Clarity			Non-Continuing and Low Clarity		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
Number checked	.41	1.52	.27	.60	1.46	.41
Defensiveness	1.04	1.69	.61	.99	1.43	.69
Favourable	.15	1.87	.08	2.48	1.83	1.36
Unfavourable	1.46	2.23	.65	1.04	2.20	.47
Self confidence	1.0	1.82	.55	2.87	1.80	1.59
Self control	.85	1.95	.44	2.27	2.12	1.07
Lability	3.81	2.01	1.90[b]	1.45	1.76	.82
Personal adjustment	.06	2.08	.03	.96	1.97	.49
Counselling readiness	2.83	2.04	1.39	4.20	1.75	2.40[a]

a P = .05, low clarity group higher.

b Approaching significance at the .05 level, high clarity group higher.

Table XIII.-

Mean Differences in Standard Scores on the Fifteen ACL Need Scales Between the Non-Continuing Student Sample (N:55) and the High (N:34) and Low (N:36) Clarity Groups.

ACL Need Scales	Group Comparisons between Non-Continuing and High Clarity			Non-Continuing and Low Clarity		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
Achievement	1.24	1.82	.68	3.62	1.75	2.07[d]
Dominance	.51	2.05	.25	4.12	1.98	2.08
Endurance	1.36	2.29	.59	.72	2.06	.35
Order	.71	2.01	.35	.02	2.0	.01
Intraception	.37	1.79	.21	1.69	2.15	.79
Nurturance	1.89	1.86	1.02	.15	2.02	.07
Affiliation	.91	2.0	.45	1.98	1.66	1.19
Heterosexuality	4.32	1.86	2.3[e]	.23	1.75	.13
Exhibition	.47	2.08	.23	2.51	2.01	1.25
Autonomy	4.00	2.03	1.97[f]	6.76	2.28	2.96[c]
Aggression	.64	1.90	.34	1.60	2.09	.66
Change	3.19	1.84	1.73	.07	1.85	.04
Succorance	2.62	1.71	1.53	7.83	1.55	5.05[a]
Abasement	1.95	1.99	.99	7.17	1.72	4.17[a]
Deference	3.27	2.03	1.61	6.81	2.16	3.15[b]

a P = .001, low clarity group higher.
b P = .01, low clarity group higher.
c P = .01, non-continuing group higher.
d P = .05, non-continuing group higher.
e P = .05, high clarity group higher.
f Approaching significance at .05 level, non-continuing group higher.

Table XIV.-

Mean Differences in Standard Scores on the Nine ACL Indices Between the Non-Participating Students(N:30) and the High (N:34) and Low (N:36) Clarity Groups of the Continuing Students in the Sample (N:104).

ACL Indices	Group Comparisons between Non-Participating and High Clarity			Non-Participating and Low Clarity		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
Number checked	1.58	1.90	.83	2.59	1.89	1.37
Defensiveness	.26	2.39	.11	.31	2.05	.15
Favourable	.18	2.28	.08	2.45	2.45	1.0
Unfavourable	1.67	2.71	.39	1.49	2.79	.53
Self confidence	.63	2.28	.28	3.24	2.35	1.38
Self control	3.93	2.45	1.60	.81	2.79	.29
Lability	5.09	2.50	2.04[a]	.17	2.24	.08
Personal adjustment	1.86	2.65	.70	2.88	2.59	1.11
Counselling readiness	3.80	2.74	1.39	3.25	2.42	1.34

a P = .05, high clarity group higher.

Table XV.-

Mean Differences in Standard Scores on the ACL Need Scales Between the Non-Participating Students (N:30) and the High (N:34) and Low (N:36) Clarity Groups of the Continuing Students in the Sample (N:104).

ACL Need Scales	Group Comparisons between Non-Participating and High Clarity			Non-Participating and Low Clarity		
	Mean Diff.	S.D. M	"t" Ratio	Mean Diff.	S.D. M	"t" Ratio
Achievement	2.05	2.33	.88	4.43	2.30	1.93[c]
Dominance	1.61	2.42	.67	6.24	2.41	2.59[b]
Endurance	3.09	2.56	1.21	2.45	2.33	1.05
Order	2.87	2.48	1.16	2.18	2.54	.86
Intraception	1.27	2.52	.50	3.33	3.03	1.10
Nurturance	2.52	2.53	1.0	.06	2.81	.02
Affiliation	.31	2.58	.12	2.58	2.19	1.18
Heterosexuality	2.99	2.55	1.17	1.1	2.44	.41
Exhibition	2.72	2.72	1.0	.26	2.74	.09
Autonomy	.23	2.48	.09	2.53	2.92	.97
Aggression	.12	2.44	.05	1.28	2.52	.51
Change	2.28	2.47	.92	.98	2.58	.38
Succorance	2.69	2.67	1.01	7.90	2.52	3.13[a]
Abasement	2.36	2.56	.92	7.58	2.28	3.32[a]
Deference	.09	2.63	.03	3.45	2.89	1.19

a P = .01, low clarity group higher.
b P = .02, non-participating group higher.
c Approaching significance at the .05 level, non-participating group higher.

achievement, dominance and autonomy as compared with the low clarity student group. They tended to be higher than the high clarity group on the autonomy scale as well.

The high clarity group scored significantly higher on the heterosexuality scale, while the low clarity group scored very significantly higher on the scales expressing needs for succorance, abasement and deference.

In comparing the experimental groups with the continuing but non-participating students, Table XIV shows that only the lability index discriminated significantly between these groups, with the high clarity group scoring higher than the non-participating group. As to the corresponding comparisons on the need scales, Table XV shows that the low clarity group scored significantly higher than the non-participating group on the needs for succorance and abasement, while the non-participating group scored significantly higher on the dominance scale with a tendency to score higher on the achievement need scale. On the whole relatively few significant differences among the sub-groups were found in the course of this pre-experimental analysis of the data.

3. Results of the Longitudinal Analysis of the T I S and A C L.

Table XVI shows the mean changes in T I S scale scores for both the high clarity and low clarity groups, during the two-and-one-half year interval from their initial enrollment in college to the second administration of the T I S during their third year in the liberal arts course. Significant decreases over time were found on the Physical Science scale for the high clarity group and on the Biological scale for the low clarity group. Decreasing tendencies for the high clarity group were noted on the Biological Science and Artistic scales, while an increasing tendency for the low clarity group was observed on the Artistic scale.

Table XVII shows the mean differences in T I S scale changes over time between the high and low clarity groups. The groups changed in significantly different ways on the Artistic scale, with the high clarity group manifesting a decrease and the low clarity group an increase on this scale over the two-and-one-half year period. On the Physical Science scale both groups dropped over time, but with a more decisive decline on the part of the high clarity group. On the Computational scale, the high clarity group tended to decrease, while the low clarity group showed a slight tendency to increase.

Table XVI.-

Mean Changes in Test-Retest Scores over a 2½ Year Period on the TIS Scales for the High Clarity (N:34) and Low Clarity (N:36) Groups of the Sample.

TIS Scales	High Clarity Group			Low Clarity Group		
	Mean Diff.	S.D. M	C.R.	Mean Diff.	S.D. M	C.R.
PS	-2.35	.54	4.35[a]	- .94	.70	1.34[c]
BS	-1.21	.64	1.89[c]	-1.5	.54	2.78[b]
C	- .94	.73	1.29	+ .58	.54	1.07
B	+ .66	.71	.96	+ .06	.82	.07
E	+ .06	.75	.08	- .42	.66	.64
P	+ .15	.97	.15	+ .25	.51	.49
L	+ .0	.88	0	+ .33	.65	.51
H	+ .0	.65	0	+ .44	.54	.81
A	-1.47	.78	1.88[c]	+1.33	.80	1.66[c]
M	- .32	.50	.64	- .06	.67	.08

a P = .001.
b P = .01.
c Tendency toward significance.

Table XVII.-

Mean Differences in Change of TIS Scale Scores over a 2½ Year Period Between the High Clarity (N:34) and Low Clarity (N:36) Groups of the Sample.

TIS Scales	Mean Change of High Clarity Group	Mean Change of Low Clarity Group	Mean Diff.	S.D. M	"t" Ratio
PS	-2.35	- .94	1.41	.87	1.62[b]
BS	-1.21	-1.50	.29	.83	.35
C	- .94	+ .58	1.52	.90	1.69[b]
B	+ .68	+ .06	.62	1.09	.57
E	+ .06	- .42	.48	.99	.48
P	+ .15	+ .25	.10	3.42	.03
L	0	+ .33	.33	1.08	.31
H	0	- .44	.44	.84	.52
A	-1.47	+1.33	2.8	1.12	2.50[a]
M	- .32	- .05	.27	.84	.32

a P = .02, low clarity group higher.

b Approaching significance at .05 level, low clarity group higher.

Further longitudinal analysis of the TIS was conducted by two methods, specially devised to reflect development of vocational self-concept clarity. Table XVIII shows the results obtained by longitudinal comparison between both high and low clarity groups on the two T I S administrations, as well as a comparison between the groups as to the combined differences in total number of occupations circled and the total number of occupations crossed out. No statistically significant differences were found, largely due to a high degree of variability among the individuals. However, the trends of change were consistently in the expected direction, with the high clarity group approaching statistical significance.

The results of the other method of testing development of vocational clarity by the adaptation of Hoyt's Depth Index, are shown on Table XIX. The high clarity group showed a decisive increase in clarity over time, approaching statistical significance, whereas the reverse process, as predicted for the low clarity group appeared to be in operation for this latter group. In comparing the differences in mean changes between the groups, significant results were obtained.

The results of the longitudinal analysis of the A C L conducted to demonstrate changes on the twenty-four scales over the two-and-one-half year interval, are recorded on Tables XX to XXV.

Table XVIII.-

Differences in Test-Retest TIS Profiles over a 2½ Year Period Computed on the Basis of a Composite Discrepancy Score of Total Number of Occupations Circled and Occupations Crossed Out for the High and Low Clarity Groups of the Sample.

Group	N	Mean Diff.	S.D. M	"t" Ratio
High clarity	34	19.50	10.93	1.78
Low clarity	36	6.92	8.25	.84
High clarity vs. low clarity		12.58	13.34	.94

a Approaching significance at .025 level, in a one-tailed test.

Table XIX.-

Mean Changes in Test-Retest TIS Profiles over a 2½ Year Period Computed on the Basis of the Hoyt Depth Index Method Using the First Administration of the Index of Vocational Preferences for the High and Low Clarity Groups of the Sample.

Group	N	Mean Diff.	S.D. M	C.R.
High clarity	35	+4.0	2.07	1.93[b]
Low clarity	36	-3.92	1.96	2.0[b]
High clarity vs. low clarity		7.92	2.85	2.78[a]

a P = .005 in a one-tailed test.

b Approaching significance at .025 level, in a one-tailed test.

Table XX.-

Mean Changes of Standard Scores over a 2½ Year Period on Nine ACL Indices for the High Clarity Group(N:34) of the Sample.

ACL Indices	Mean Change	S.D. M	C.R.
Number checked	+6.09	1.43	4.26
Defensiveness	+2.71	1.60	1.68
Favourable	+2.44	1.59	1.53
Unfavourable	-4.50	1.91	2.36[b]
Self confidence	+1.6	1.57	1.02
Self control	+6.[illegible]	1.54	3.90[a]
Lability	- .80	1.56	1.57
Personal adjustment	+2.35	1.50	1.57
Counselling readiness	+ .71	1.43	.50

a P = .001.

b P = .05.

Table XXI.-

Mean Changes of Standard Scores over a 2½ Year Period on Nine ACL Indices for the Low Clarity Group (N:36) of the Sample.

ACL Indices	Mean Change	S.D. M	C.R.
Number checked	+2.28	1.18	1.93[c]
Defensiveness	-1.44	1.81	.80
Favourable	+2.17	2.44	.89
Unfavourable	-6.03	2.26	2.67[a]
Self confidence	- .31	1.68	.18
Self control	+ .13	1.94	.07
Lability	+4.42	1.93	2.29[b]
Personal adjustment	+ .61	2.04	.30
Counselling readiness	-3.06	2.14	1.43

a P = .02.
b P = .05.
c Approaching significance at .05 level.

Table XIII.-

Differences in Mean Standard Score Changes over a 2½ Year Period on the Nine ACL Indices between the High Clarity (N:34) and Low Clarity (N:36) Groups of the Sample.

ACL Indices	Mean Change of High Clarity Group	Mean Change of Low Clarity Group	Diff. of Mean Change	S.D. M	"t" Ratio
Number checked	+6.09	+2.28	3.81	1.84	2.07[a]
Defensiveness	+2.71	-1.44	4.15	2.43	1.71[b]
Favourable	+2.44	+2.17	.27	2.94	.09
Unfavourable	-4.50	-6.03	1.53	2.97	.51
Self confidence	+1.60	- .31	1.91	2.30	.83
Self control	+6.0	+ .13	5.87	2.49	2.36[a]
Lability	- .80	+4.42	5.22	2.49	2.13[a]
Personal adjustment	+2.35	+ .61	1.74	2.55	.68
Counselling readiness	+ .71	-3.06	3.77	2.60	1.45

a P = .05.

b Approaching significance at .05 level.

Table XXIII.-

Mean Changes of Standard Scores over a 2½ Year Period on Fifteen ACL Need Scales for the High Clarity (N=34) Group of the Sample.

ACL Need Scales	Mean Change	S.D. M	C.R.
Achievement	+2.64	1.49	1.77[b]
Dominance	- .03	1.99	.01
Endurance	+4.15	1.60	2.59[a]
Order	+1.91	1.52	1.26
Intraception	+3.35	1.67	2.01[b]
Nurturance	+3.0	2.07	1.45
Affiliation	+ .97	1.91	.51
Heterosexuality	-1.21	1.88	.64
Exhibition	+ .44	1.29	.34
Autonomy	+ .76	1.54	.49
Aggression	+ .44	1.29	.34
Change	-1.18	1.61	.73
Succorance	-1.18	1.81	.65
Abasement	- .62	1.75	.35
Deference	+ .30	1.53	.20

a P = .02.

b Approaching significance at the .05 level.

Table XXIV.-

Mean Changes of Standard Scores over a 2½ Year Period on Fifteen ACL Need Scales for the Low Clarity (N:36) Group of the Sample.

ACL Need Scales	Mean Change	S.D. M	C.R.
Achievement	+1.33	2.19	.61
Dominance	+2.55	1.98	1.29
Endurance	+ .39	2.21	.18
Order	+1.42	2.40	.59
Intraception	+3.25	2.73	1.19
Nurturance	+ .92	2.07	.44
Affiliation	+ .44	1.87	.23
Heterosexuality	+1.03	2.14	.48
Exhibition	+1.11	1.60	.69
Autonomy	+3.75	1.61	2.33[a]
Aggression	+ .25	1.52	.16
Change	+1.08	2.15	.50
Succorance	-2.19	2.15	1.02
Abasement	-3.03	2.15	2.01[b]
Deference	-3.0	1.75	1.71[b]

a P = .05.

b Approaching significance at the .05 level.

Table XXV.-

Differences in Mean Standard Score Changes over a 2½ Year Period on the Fifteen ACL Need Scales between the High Clarity (N:34) and Low Clarity (N:36) Groups of the Sample.

ACL Need Scales	Mean Change of High Clarity Group	Mean Change of Low Clarity Group	Diff. of Mean Change	S.D. M	"t" Ratio
Achievement	+2.64	+1.33	1.31	2.67	.49
Dominance	- .03	+2.55	2.58	2.45	1.05
Endurance	+4.15	+ .39	3.76	2.75	1.37
Order	+1.91	+1.42	.49	2.67	.17
Intraception	+3.35	+3.25	.10	3.24	.03
Nurturance	+3.0	+ .92	2.08	2.93	.71
Affiliation	+ .97	+ .44	.53	2.66	.20
Heterosexuality	-1.21	+1.03	2.24	2.85	.79
Exhibition	+ .44	+1.11	.67	2.07	.32
Autonomy	+ .76	+3.75	2.99	2.22	1.35
Aggression	+ .44	+ .25	.19	2.04	.09
Change	-1.18	+1.08	2.26	2.71	.83
Succorance	-1.18	-2.19	1.01	2.82	.36
Abasement	- .62	-3.03	2.41	2.26	1.07
Deference	+ .30	-3.0	3.30	2.33	1.42

Tables XX and XXI show the respective mean changes on the nine A C L indices for both the high clarity and low clarity groups. The high clarity group manifested very significant increases in mean standard scores on the number of adjectives checked and on the self-confidence index. A distinct decrease in number of unfavourable adjectives checked was also found.

The low clarity group manifested a rise on the lability index and a significant drop in the number of unfavourable adjectives checked, similar to the high clarity group. The low group also showed a tendency to check more adjectives on the second A C L administration.

Table XXII shows the differences in mean changes on the nine A C L indices between the high and low clarity groups. The high clarity group showed a significantly higher number of adjectives checked than the low clarity group, as well as a greater increase on the self-confidence scale. The mean change on the lability index discriminated between the groups with the high clarity showing a slight drop on this scale and the low clarity a definite rise. On the defensiveness index the high clarity group tended to increase over time while the low clarity group showed a slight decline.

Tables XXIII and XXIV show the mean changes in standard scores on the fifteen A C L need scales for both the high and low clarity groups.

The high clarity group showed a significant increase on the need for endurance scale, with increasing tendencies on the achievement and intraception scales.

The low clarity group manifested changes on a few other need scales. A definite increase on the need for autonomy scale was observed with decreasing tendencies on the abasement and deference need scales.

Table XXV shows the differences in mean changes over time on the fifteen A C L need scales between the high and low clarity groups. No statistically significant differences were found on any one of these need scales in this comparison.

4. Results of the Specially Designed Cross-Sectional Analysis of the A C L and SVIB.

The Vocational Version of the ACL of each individual in the participating sample was analyzed by computing the ratio or percentage of disagreement between the specific adjectives checked for the successful person in one's preferred occupation and the adjectives checked on the usual A C L administration for himself. Table XXVI shows that mean percentages of discrepancy between the high and low clarity groups were statistically significant at the .025 level in a one-tailed "t" test for mean differences.

Table XXVII shows essentially the same results, however, with the differences computed on the basis of uncorrelated proportions. When presented in this fashion

Table XXVI.-

Mean Difference in Percentages of Discrepancy of Adjectives Checked on Usual ACL Administration and the Vocational Version of the ACL between the High Clarity and Low Clarity Groups.

Comparison of Groups	N	% of Discrepancy Mean	S.D.	Mean Diff.	"t" Ratio
High clarity group	34	33.76	15.45		
				8.71	2.13[a]
Low clarity group	36	42.47	18.22		

a P = .025, in a one-tailed test.

Table XXVII.-

Difference in Percentages of Discrepancy of Adjectives Checked on Usual ACL Administration and the Vocational Version of the ACL between the High Clarity and Low Clarity Groups.

Comparison of Groups	N	% of Discrepancy Proportion	Diff.	S.D. M_{diff}	C.R.
High clarity	34	.34			
vs.			.09	.114	.78
Low clarity	36	.43			

the differences in proportion of discrepancy are not significant statistically, but are in the expected direction, with the low clarity group manifesting a greater proportion of discrepancy between self and successful vocational person than the high clarity group.

The high and low clarity groups were compared on the basis of their respective standard scores on the SVIB group scales, most relevant to their claimed vocational interests. Table XXVIII demonstrates that the resulting mean difference between these two groups was statistically significant at the .01 level of confidence in a one-tailed test, with the high clarity group having the higher mean score as predicted.

5. Summary.

This concludes the presentation of the results of the research experiment which was designed to investigate the metadimension of self-concept clarity in vocational development. Thus the stage has been set for an evaluation and interpretation of the results in the light of the five proposed sub-hypotheses. This will follow in the next and final chapter along with a general discussion of the meaning and significance of the presented results.

Table XVIII.-

Mean Difference of Respective SVIB Occupational Group Standard Scores between the High Clarity and Low Clarity Groups of the Sample.

Comparison of Groups	N	SVIB Group Scales Mean	S.D.	Mean Diff.	"t" Ratio
High clarity	34	49.24	7.36		
				4.60	2.47[a]
Low clarity	32	44.64	8.34		

a P = .01, in a one-tailed test.

CHAPTER IV

DISCUSSION OF RESULTS

In this chapter a discussion of the meaning and significance of the results presented in the last chapter has been attempted. First of all, a critical evaluation of the methods used and results obtained in the process of establishing the high clarity and low clarity experimental groups has been undertaken. Thereupon a discussion of the significance of the results in relation to the experimental testing of the five proposed sub-hypotheses ensues. Finally, an overall evaluation of the results in the light of the general hypothesis and basic theory in question leads into the summary and conclusions.

1. Critical Evaluation of the Results of the Judges' Ratings in Establishing the High and Low Clarity Groups.

In analyzing the resulting pattern of the distribution of the judges' ratings as shown on Table II, page 43, it appears that in each case the pattern generally approximated a normal distribution curve, with a bunching together of individuals in both the mid-categories of moderately clear and moderately unclear.

In contrast to this phenomenon, one might have ideally anticipated a bi-modal distribution to emerge, thus giving evidence of two clearly distinct experimental groups existing

along a bi-polar dimension of vocational self-concept clarity.

With the resulting uni-modal or approximately "normal" distribution, it would have been ideal to form the high and low clarity groups by taking only the persons judged for clarity in the extreme and opposite categories of very clear and very unclear. However, in view of the fact that relatively few persons were judged to fall in these extreme categories, coupled with the fact that to begin with, the total experimental sample was relatively small, the researcher decided to include all the persons in the sample, by arbitrarily making the dividing line at the mid-point between moderately clear and moderately unclear. By including all these subjects judged to be somewhere in the middle region along the meta-dimension of vocational self-concept clarity, one can assume some overlapping or close similarity to exist between some persons in the high and low clarity groups.

In addition to this, some contamination may have occurred in the judgments made on thirty per cent of the sample for whom only two out of three judges' ratings was the criterion for their placement in either the high or the low clarity groups.

To these factors must be added the initial assumption that the total sample was a fairly homogeneous one.

On the basis of the above assumptions, one might well expect that in comparing these groups on the various measures, the resulting differences would be few and minimal, often not reaching the level of statistical significance.

On the other hand, one might argue, that should significant differences emerge between these apparently not too dissimilar groups, then these results could be held with a greater degree of certainty than would otherwise be the case. Again, in the event that resulting differences should consistently be found to point in the expected or predicted directions, one might argue that these may well reflect real differences, even though they have not reached the level of statistical significance in every instance.

In the light of these critical observations regarding the formation of the experimental groups, the results of the experiment will now be discussed in relation to the testable sub-hypotheses.

2. Discussion of the Results with Reference to the Specific Sub-Hypotheses.

The first sub-hypothesis involving a pre-experimental analysis of data, gathered when the persons in the sample initially enrolled in university studies, was formulated in order to test whether or not differing patterns of self-concepts, vocational or otherwise, as well as of age and grade thirteen average could be detected among the sub-groups

of the total potential sample, at that juncture of their vocational development.

No discernible differences as to age were found among the sub-groups as shown on Table I, page 18. The slightly higher mean age of the non-continuing students can be explained by the fact that this group was comprised of a higher percentage of older mature students. The modal age for the experimental sample which included the combined high and low clarity groups was eighteen as compared with nineteen for the non-continuing and non-participating sub-groups of the sample. No inference would seem justified from this slight difference.

With regard to the comparative grade thirteen averages the mean differences (see Tables V and VI, pages 47 and 48 respectively) and standard deviations are so slight as to preclude any latent tendencies toward dissimilarity among the sub-groups.

The observed mean differences among the sub-groups on the scales of the T I S and A C L, whether they be statistically significant or in the expected directions require some comment and interpretation. On the T I S scales, the high clarity group distinguished itself from the other sub-groups by a relatively low mean score in the business interest area. In looking over the particular professions that the T I S test author has included in the business scale, such as retail and wholesale merchant, insurance broker, automobile

dealer, it would appear that these have traditionally been the occupations that least required a formal university education. Hence, one could tentatively conclude that the high clarity group manifested more realism and basic clarity in eliminating these occupations as potential preferences, as compared with the other sub-groups of the sample.

The low clarity group registered a significantly lower mean score on the T I S physical science scale as compared with the non-continuing group and consistently lower tendencies as compared with both the high clarity and non-participating groups. The low clarity group also had a relatively lower mean score on the T I S biological science scale. Professions related to or emerging from the science courses are generally more clearly defined and demand earlier specialized training than those related to the liberal arts fields. Hence, the inference could cautiously be made that the low clarity group, by virtue of less clearly defined or formulated vocational self-concepts, tended to shy away from registering preferences for occupations which imply or demand a more clearly defined goal.

The relatively higher mean scores on the two T I S science scales on the part of the non-continuing and non-participating groups could also indicate a lack of clarity of their vocational self-concepts which resulted in their initial enrollment in a liberal arts program, instead of in a science

or other type of course. This contention is supported by the fact that three persons in the non-participating sample were later known to have switched to the university's science courses. (See Tables VII, VIII and IX, pages 50-52.)

With reference to the nine A C I indices the low clarity group, upon initial enrollment in college, scored significantly lower on the lability and higher on the counselling readiness scales, with a tendency to score lower on the number of favourable adjectives checked and the self-confidence index, as compared with the high clarity group (see Table X, page 53).

These findings appear to be logically in keeping with the theory in question and are further supported by previous research as reported by the A C L test authors.[1]

The low scorer on the number of favourable adjectives checked index is reported to experience anxiety, self-doubts and perplexities while the low scorer on the self-confidence index tends to prefer inaction and contemplation.[2] Both of these described tendencies would appear to be applicable to the low clarity group of this experimental sample in contrast to the high clarity group, who could be expected to manifest more self-confidence and less self-doubting.

---

1 Harrison B. Gough and Alfred B. Heilbrun, The Adjective Check List Manual, Palo Alto, Calif., Consulting Psychologists Press, 1965, p. 5-7.

2 Ibid., p. 6.

This interpretation would appear to be in line with the demonstrated significant differences between the high and low clarity groups on the lability and counselling readiness indices. The higher mean score of the high clarity group on the lability index could be interpreted as an indication of higher ego strength and more spontaneity than the low clarity group. The higher scorer on the counselling readiness index is described as being predominantly worried about himself, ambiguous about his status, preoccupied with his problems and pessimistic about his ability to resolve them constructively.[3] The relatively high score of the low clarity group on this A C L index would confirm such logically expected characteristics of this group as compared with the high clarity group.

In comparing both the high and low clarity groups with the non-continuing students on these nine A C L indices (see Table XII, page 56), the only significant difference was found to be a higher mean score of the low clarity group on the counselling readiness index. This could be interpreted along lines similar to the distinction made above between the low clarity and high clarity groups.

As to the non-participating group of the continuing student sample, only one significant difference was found in comparison with the two experimental groups on the nine A C L

---

3 Ibid., p. 9.

indices (see Table XIV, page 58). This could be interpreted to be one indication that the members of the non-participating group would have been equally distributed on the high-low clarity dimension, had they participated in the experiment.

The one notable difference was that the high clarity group had a significantly higher mean score on the lability index than the non-participating group. Similar to the comparison with the low clarity group, this could mean that the high clarity group also exceeded the non-participating sample in ego strength and spontaneity.

Turning next to a discussion of the comparisons of the sub-groups on the fifteen A C L need scales as reported on Tables XI, XIII and XV, pages 54, 57 and 59 respectively), a number of significant differences and apparently noteworthy tendencies were found.

Compared with the low clarity group of the sample, the high clarity group manifested a significantly higher mean score on the need scale for dominance, with higher tendencies on the needs for heterosexuality, autonomy and change (see Table XI, page 54). Slightly higher trends for the high clarity group were also found on the need scales for achievement, intraception, nurturance, affiliation and exhibition.

On the other hand, the low clarity group scored significantly lower on the needs for succorance and abasement, with a lower tendency on the deference need.

Each one of these noted differences or trends between the nigh and low clarity groups were in the expected directions, when applying the hypotheses of Norrell and Grater[4] for their corresponding high and low interest awareness groups. Hence, on the basis of these findings there is considerable evidence to confirm the general hypothesis of Norrell and Grater, that the low clarity group of this sample was more restricted or limited by the above-mentioned needs in vocational self-concept awareness, than the high clarity group.

The descriptions of high and low scorers on the particular A C L need scales based on past research reports provided by the test authors,[5] also appear to be applicable to the high and low clarity groups.

The higher need for dominance of the high clarity group may reflect more forthrightness of behaviour and confidence of their own independent ability in contrast to the lower need for dominance on the part of the low clarity group, who may be described as being unsure of themselves and tending to avoid situations calling for choice and decision-making.[6]

---

4 G. Norrell and H. Grater, "Interest Awareness as an Aspect of Self-Awareness", in Journal of Counseling Psychology, Vol. 7, No. 4, 1960, p. 290. (See Appendix 6).

5 Gough and Heilbrun, Op. Cit., p. 7-9.

6 Ibid., p. 7.

The tendencies of the high clarity group to score higher on the other expected need scales give further support to the above differentiating characteristics of the two groups.

Conversely, the lower mean scores of the high clarity group on the succorance, abasement and deference need scales, complement the inferences made in the above paragraph. The self-concepts of the high clarity group could thus be described as less self-pitying, less self-critical and less self-effacing and more self-confident as compared to the self-concepts of the low clarity group.

The findings in comparing the experimental groups with the non-continuing and non-participating groups on the A C L need scales (see Tables XIII and XV, pages 57 and 59 respectively) are more difficult and more tenuous to interpret.

Similar and even more pronounced patterns for the low clarity group to score significantly lower than the non-continuing group on the A C L need scales for achievement, dominance and autonomy, and very significantly higher on the need scales for succorance, abasement and deference, could be seen as additional supporting evidence of a distinctive need pattern existing for the low clarity group.

The observation that the non-continuing student sample had a mean score on the autonomy need scale that was significantly higher than both the high and low clarity group, might be indicative of a generally more radical non-conformist and

independent attitude which could militate against success and perseverance in meeting the strictures and demands of formal education.

The significantly lower mean score on the heterosexuality need scale of the non-continuing group when compared with the higher clarity group, could imply that the former could be expected to encounter more difficulty in adjusting to a co-educational liberal arts setting and hence this could be seen as one possible factor contributing to their non-continuance in college.

The differences on the A C L need scales between the non-participating group and the two experimental groups were relatively few, similar to the intergroup comparisons on the nine ACL indices. No differences in mean scores, not even any approaching significance, were found between the non-participating and the high clarity groups (see Table XIV, page 58).

However, the relatively higher needs for dominance and achievement, and significantly lower needs for succorance and abasement of the non-participating group when compared with the low clarity group, could be indicative of psychological factors contributing to their non-participation in the research experiment, or a corresponding failure to be aware of the need to explore their own vocational goals. (See Table XV, page 59.)

Thus the first sub-hypothesis of no differences among the sub-groups of the total potential sample at the time of initial enrollment in university, was accepted with respect to mean age and grade thirteen average. However, it was rejected in part with respect to certain scales of the T I S and the A C L. The significant differences and tendencies in the expected directions on these measures were shown to reflect the possibility of actual and potential indications of variations of self-concepts among the sub-groups, that could be meaningful and valid in predicting the future course of their vocational development.

In applying the results of the longitudinal findings on the T I S and A C L to the testing of the second and third sub-hypotheses, the operational definition relating to test-retest data was accepted, namely, that a test-retest interval of over a period of a year, reflects reliable changes in the subjects and less the reliability of the tests.[7]

The second sub-hypothesis of no differences in T I S test-retest scores over a two-and-one-half year interval was rejected in part for both the high and low clarity groups on the basis of the changes on individual T I S scales. Table XVI, page 62, shows a highly significant drop on the physical

---

7 R. Starishevsky and N. Matlin, 'A Model for the Translation of Self Concepts into Vocational Terms", in D. Super, et al., Career Development: Self Concept Theory, Princeton, N.J., College Examination Board, 1963, p. 40.

science scale and a tendency to decrease over time on the biological and artistic scales for the high clarity group. This could reflect a growing clarity of vocational self-concepts in terms of a gradual moving away from irrelevant vocational pursuits.

The low clarity group showed a significant decrease on the biological science scale with a similar tendency on the physical science scale. This gradual turning away from science-oriented occupations could reflect a growing realism or clarity of vocational development as well. However, a tendency to increase on the artistic scale could indicate a trend contradictory to growing clarity.

In comparing the mean changes of scores on the T I S scales between the high and low clarity groups, as shown on Table XVI, page 62, a significant difference was found on the artistic scale, with tendencies on the physical science and computational scales. This could be cited as evidence of additional variance of vocational development between the high and low clarity groups. However, in view of the fact that only a few T I S scales show significant changes, the findings to reject the second hypothesis on the basis of individual T I S scales remain tentative and partial.

The results of the second method used to test the second sub-hypothesis were somewhat more decisive. As Table XVIII, page 65, shows, the composite score of total number of

occupations circled and total number crossed out, resulted in a mean rise of 19.5 for the high clarity group. However, because of the excessive variability, the mean change over time did not quite reach statistical significance. But the results are in the expected direction. The low clarity group also showed a slight increase over time.

Hence both high and low clarity groups manifest a development of vocational self-concept clarity in terms of fewer occupations circled and more occupations crossed out over a two-and-one-half year interval. The high clarity group showed a more clear-cut vocational self-concept development, but not statistically greater than the low clarity group.

The third method of testing the second sub-hypothesis, involving an adaptation of Hoyt's Depth Index, resulted in a significant divergence between the high and low clarity groups as shown on Table XIX on page 66. From these findings one might infer a gradual development of vocational self-concept clarity in terms of a consolidation or integration of the high interest areas relevant to the respective preferred occupations and a contrasting elimination or rejection of low interest areas. This was born out positively in the case of the high clarity group and negatively in the case of the low interest groups.

The main limitation of this method as a predictive device appears to rest in the fact that no allowance is made

for possible changes or slight adjustments in vocational self-concepts with the passage of time. This phenomenon was noticed by the researcher during the course of the personal interviews with the subjects of the sample. Hence a further analysis of the T I S was conducted, whereby the four positive direction scales were decided upon, on the basis of the second administration of the Index of Vocational Preferences. The results, as reported on Table XIX, page 94, indicate that highly significant mean changes occurred over time on T I S scales using this method. Difference in changes between high and low clarity groups approached significance at the .05 level of confidence. This method takes into account the changes in the direction of vocational interests of the subjects in the sample during their two-and-one-half year college experience.

These findings, while tinged with a postdictive rather than predictive flavour, appeared to be important in this research, in terms of reflecting the expected congruence between higher level and lower level self concepts of the experimental sample.

Thus the results of the three reported methods used in rejecting the second sub-hypothesis all showed positive indications of the expected development of vocational self-concept clarity.

The testing of the third sub-hypothesis involved a longitudinal analysis of the A C L indices and scales as shown on Tables XX to XXV, pages 67 to 72 inclusive.

Table XXIX.-

Mean Changes in Test-Retest TIS Profiles over a 2½ Year Period Computed on the Basis of the Hoyt Depth Index Method Using the Second Administration of the Index of Vocational Preferences for Both the High and Low Clarity Groups of the Sample.

Group	N	Mean Diff.	S.D. M	C.R.
High clarity	35	+12.65	1.75	7.23[a]
Low clarity	36	+ 7.67	1.95	3.71[a]
High clarity vs. low clarity		4.98	2.58	1.93[b]

a P = .001.

b Approaching significance at .05 level of confidence.

While both the high and low clarity groups checked more adjectives during the second A C L administration as compared with the first, the mean increase of the high clarity group was significantly greater than that of the low clarity group. As suggested by the test authors,[8] this difference could reflect a more tentative and cautious approach to problems and less effectiveness in getting things done on the part of the low clarity group. In contrast to this, the high clarity group could be inferred to be more active and adventurous in confronting life experiences, including vocational decision-making.

Both the high and low clarity groups checked significantly fewer unfavourable adjectives at the time of this research experiment as compared with the initial A C L administration. The low clarity group registered a greater mean decrease on this index, but not significantly lower than the high clarity group. This finding may be related to the rise on the defensiveness index for the high clarity group and contrasting decline for the low clarity group, with the difference in change over time approaching statistical significance. This could imply a growing degree of clarity of self-concepts on the part of the high clarity group.

---

8 Gough and Heilbrun, Op. Cit., p. 5.

The high clarity group also manifested an expected significant increase on the self-confidence index while the low clarity group showed no increase. This finding is in keeping with the initial higher self-confidence index for the high clarity group.

The low clarity group manifested a significant rise on the lability index in contrast to a slight drop by the high clarity group. This could be indicative of a growing inner restlessness and tension on the part of the low clarity group, as supported by previous research.[9]

A number of significant changes and tendencies for change on the fifteen A C L need scales were observed in a longitudinal study of the individuals in both the high and low clarity groups as shown on Tables XXIII and XXIV, pages 70 and 71 respectively.

The high clarity group manifested a statistically significant increase on the need scale for endurance. In the context of self-concept theory, this could represent a developing persistence in the vocational tasks or goals undertaken at the time of entrance to university. Tendencies for change in the positive direction were found on the achievement, intraception and nurturance need scales. These trends could give further support to the above inference regarding a growing

---

9 Ibid., p. 9.

persistence in already formulated vocational goals, in terms of a gradual consolidation and intellectual integration and acceptance of their vocational self-concepts.

The remainder of the need scales were marked by considerable degree of stability over the time interval on the basis of compared mean scores of the high clarity group. This generalization also applied to the majority of the need scales in case of the mean scores of the low clarity group.

A significant mean increase on the autonomy need scale for the low clarity group was found. This trend could represent a growing desire to become independent of the social values and expectations of others. This inference is supported by decreasing tendencies approaching statistical significance on the needs for abasement and deference, as well as a declining tendency on the counselling readiness scale.

No significant differences nor even discernible tendencies in changes over time were found in comparing the mean scores on the fifteen A C L need scales between the high and low clarity groups (see Table XXV, page 72). This could mean that the interpretative comments made under the first sub-hypothesis regarding the differences found between high and low clarity at the time of entrance to university, could still hold two-and-one-half years later.

Thus the third sub-hypothesis in null form was rejected, but only in part, however, with apparent relevance

to the theory of self-concept clarity in vocational development.

The testing of the fourth and fifth sub-hypotheses involved a cross-sectional analysis of the experimental sample with specially devised uses of the A C L and SVIB.

The fourth sub-hypothesis of no differences between the high and low clarity groups was rejected on the basis of differences of mean percentages of discrepancy between the adjectives checked on the Vocational Version of the ACL and the usual A C L administration as shown on Table XXVI, page 75. From this finding it could be inferred that the high clarity group demonstrated a greater degree of self-identification with the successful person in one's respective preferred occupation than the low clarity group.

The fifth sub-hypothesis of no differences between the high and low clarity groups was also rejected as shown on Table XXVIII, page 78. The test of this hypothesis was made on the basis of the respective SVIB occupational group scores. The importance of this finding, while statistically significant is minimized by the fact that the mean score of the low clarity group is still within the accepted primary interest pattern on the SVIB. However, the results do indicate a greater degree of identification with the occupational group nearest to one's claimed interest area on the part of the high clarity group as compared to the low clarity group.

Stated in other words, the high clarity group manifested an expected or predicted degree of inferred vocational self-concept clarity which was significantly greater than that of the low clarity group.

3. Evaluation of the Results in the Light of the General Hypothesis.

Having related the results of this experiment to the five specific testable sub-hypotheses, and having discussed the possible significance of these specific findings, a final evaluation of the results with reference to the general hypothesis as formulated at the end of the first chapter now ensues.

In a critical evaluation of the results which give tentative or partial support to the various sub-hypotheses, a few general observations appear to be in order.

The first and most striking observation may be directed at the overall consistency of the results in differentiating between the high and low clarity groups. While some of the mean differences reached the level of statistical significance and others revealed marked tendencies toward significance, it appeared to be of importance that in each case the findings were in keeping with or in the expected directions toward both previously reported research and logical inferences or implications, made directly from the data analysis.

A second observation revolves around the predictive relevance and applicability of the results of the so-called pre-experimental analysis. As indicated in the discussion of the results of the first sub-hypothesis, a number of significant differences or trends were found on the T I S and A C L, reflecting varying patterns of vocational and other personality-oriented types of self-concepts between the high and low clarity groups and between these experimental groups and the non- or pre-experimental groups of the sample. Hence, there appears to be considerable evidence of varying patterns of vocational self-concepts that could already be detected at the time when the subjects entered university.

The subsequent longitudinal and cross-sectional experimental data support the persistence of differences along these dimensions, related to the clarity of self-concepts in vocational development.

A third observation has to do with the admittedly low level of confidence of many of the comparative results between the high and low clarity groups. In view of the methods used in establishing or forming these groups, these results were in accordance with the expectations expressed in this regard at the beginning of this chapter. In spite of this it must be noted that in every instance the results appeared to fall in the predicted directions. Nevertheless, the tentative and

probabilistic nature of the experimental results must be acknowledged and emphasized.

Therefore, in the light of positive results which tend to support each of the five sub-hypotheses in part, it may be concluded that the general hypothesis received considerable confirmation with varying degrees of certainty in each case. Thus the metadimension of the clarity of vocational self-concepts may be accepted, at least in part, to be an index of significantly varying patterns of vocational development among a sample of male liberal arts students.

SUMMARY AND CONCLUSIONS

In subjecting the general hypothesis to the experimental test of demonstrating that the metadimension of vocational self-concept clarity is an index of varying patterns of vocational development, the experimental sample comprised of seventy-four male liberal arts students was divided into high and low clarity groups on the basis of the ratings of three judges. Ratings of high to low clarity on a five-point scale were made in evaluating the higher level vocational self-concepts or consciously claimed vocational preferences elicited by two responses to an Index of Vocational Preferences administered first at the time of initial enrollment in university and again during the students' third year in a liberal arts program. Another criterion for the evaluation of clarity was the content of semi-structured taped interviews calling for each student's verbal resume of his past, present and future observations about his vocational interests and aspirations.

Having established the high and low clarity experimental groups, five sub-hypotheses were applied in comparing these groups with each other, both cross-sectionally and longitudinally, and also with the non-continuing or drop-out students and with a group of continuing but non-participating students.

In a pre-experimental analysis of data which had been gathered at the time of the total potential sample's initial enrollment in college, the first sub-hypothesis of no differences among the sub-groups was upheld with reference to mean age and grade thirteen average. However, it was partly rejected on the scales of the Thurstone Interest Schedule, with the high clarity group scoring significantly lower on the business scale and the low clarity group scoring lower on the physical science scale than the other groups.

On the Adjective Check List several of the indices and need scales differentiated the sub-groups either by reaching statistical significance or by manifesting tendencies toward significance on the basis of mean standard scores, thus indicating varying patterns of self-concepts for both the high and low clarity groups.

In testing the second sub-hypothesis of no differences between the high and low clarity groups along the metadimension of developing clarity of vocational self-concepts, three methods were used in the longitudinal analysis.

On the basis of differences in mean test-retest scores of the ten individual T I S scales over a two-and-one-half year time interval, significantly declining interest changes or tendencies toward decreasing interest for both groups were found on the physical and biological science scales.

A second method yielding a composite score of a predicted decrease of total occupations circled combined with a predicted increase of occupations crossed out, showed consistent tendencies in the expected directions.

A third method predicting a rise on four high interest areas and a decline on the remaining six revealed marked tendencies in the expected directions as well. Thus the null hypothesis was rejected in part, indicating a gradually developing clarity of the vocational self-concepts of the sub-groups.

The third sub-hypothesis in null form called for a demonstration of differences over time on the relevant indices and needs scales of the A C L. Some statistically significant differences and a number of marked tendencies in the expected directions provided tentative evidence of various personological self-concept differences existing between the high and low clarity groups, according to logically expected trends.

To test the fourth sub-hypothesis percentages of discrepancy between those adjectives checked on the Vocational Version of the ACL for the successful person in one's preferred occupational field and those adjectives checked on the usual A C L administration, describing one's self, were calculated for each individual. The low clarity group manifested a predicted higher mean percentage of discrepancy than the

high clarity group, implying less clarity of vocational development. Thus the fourth sub-hypothesis was rejected.

The fifth sub-hypothesis of no differences between mean respective group standard scores on the SVIB was also rejected, with the high clarity group scoring significantly higher than the low clarity group.

Thus considerable evidence, some with a high degree of probability and other with less certainty but all in the expected directions, emerged from the results of the experiment, indicating varying patterns of vocational development among the sub-groups of the sample on the operationally defined metadimension of self-concept clarity.

Two recommendations for further research are now projected.

The first recommendation could be directed to the formation of the high and low clarity groups. Using a larger sample of liberal arts or other students it would be ideal to compare adequately-sized groups falling at extreme and opposite categories of the dimension or metadimension of vocational self-concept clarity on these and other appropriate psychological measures, with hopes of finding more definite disparity between these groups.

A second recommendation would centre on a factor analytic study of the operationally-defined metadimension of vocational self-concept clarity. Both the direct as well as

the tangential implications of the results of this experiment seem to indicate that the metadimension of clarity overlaps considerably with other related metadimensions such as certainty, definiteness and stability, as well as with some dimensions of the self-concept, such as self-confidence or risk-taking behaviour and various self-concept needs as achievement, dominance, and abasement for example. A thoroughgoing factor analysis of this apparently vague and broad metadimension of clarity of self-concepts could contribute to further scientific research in the whole field of self-concept theory in vocational development.

Herewith this investigation of the clarity of self-concepts in the vocational development of male liberal arts students reaches its formal conclusion.

BIBLIOGRAPHY

Ashby, Jefferson D., Harvey W. Wall, and Samuel H. Osipow, "Vocational Certainty and Indecision in College Freshmen," in The Personnel and Guidance Journal, Vol. 44, No. 10, June 1966, p. 1037-1041.

This research report served as one example of ongoing investigations of vocational decision-making among college students which appeared to be directly related to the present study, although couched in a different conceptual framework.

Dick, William W., Vocational Self-Concept in Terms of the Vocational Interests and Values of Seminarians and Ministers, unpublished Master's thesis presented to the School of Psychology and Education, University of Ottawa, May 1964, ix-121 p.

This thesis based on the author's earlier research in the field of Super's self-concept theory, provided the stimulus for a further investigation of clarity of vocational self-concept, as manifested in varying interest patterns among a sample of seminarians.

Gough, Harrison G. and Alfred B. Heilbrun, The Adjective Check List Manual, Palo Alto, Calif., Consulting Psychologists Press, 1965, p. 1-32.

This test manual, containing descriptions of the nine indices and fifteen need scales of the A C L, based upon previous research, made possible a wealth of inferences regarding the differing aspects of self-concepts among the sub-groups of the sample.

Hoyt, Donald P., J.L. Smith, Jr., and Seymour Levy, "A Further Study in the Prediction of Interest Stability," in Journal of Counseling Psychology, Vol. 4, No. 3, 1957, p. 228-233.

The Hoyt Depth Index, involving the prediction of vocational interest in both positive and negative directions, and as described by Hoyt and his associates in this report, was adapted in the present study to serve as one method of inferring development of the clarity of vocational self-concepts.

Norrell, G. and H. Grater, "Interest Awareness as an Aspect of Self-Awareness," in Journal of Counseling Psychology, Vol. 7, No. 4, 1960, p. 289-292.

A research report in which high and low interest awareness groups formed by self-predictions on the SVIB occupational scales were shown to have differing need tendencies as measured by Edwards Personal Preference Schedule. The high and low clarity groups of the present study were compared on the same needs measured by the A C L.

O'Hara, R.P. and D.V. Tiedeman, "Vocational Self-Concept in Adolescence," in Journal of Counseling Psychology, Vol. 6, No. 4, 1959, p. 292-301.

A cross-sectional study of self-concept development among a sample of high school boys, in which Super's theory of growing self-insight and gradual translation of self-concept into occupational terms during this period of adolescence was tested, but with limited and generally non-conclusive results. The present research was closely related to this one, but differed by investigating the clarity of self-concepts in vocational development using the longitudinal method and with a sample of male students at the college age level.

Roe, Anne and Marvin Siegelman, The Origin of Interests, Washington, D.C., American Personnel and Guidance Association, 1964, p. 1-98.

In this monograph which is the first in a series of APGA Inquiry Studies, the authors propose that interests develop and become differentiated along a continuum of person versus non-person orientations and report a research study which lends some support to their thesis. The personality difference found among the sub-groups in the present study bear some general resemblances to the findings of these authors.

Strong, Edward K., Jr., Manual of the Strong Vocational Interest Blank, Palo Alto, California, Consulting Psychologists Press, 1959, p. 1-40.

This manual provided the background information regarding occupational research conducted with the SVIB, essential for its inclusion with a specific technique in the present research study.

Super, Donald E., The Psychology of Careers, New York, Harper and Brothers, 1957, x-362 p.

In a comprehensive integration of his research and theory of vocational development, the author draws on Charlotte Buhler's earlier theory of life states. Tracing occupational life from adolescence to retirement, he depicts it as a continual process of implementing and of revising the self-concept.

--------, et al., Vocational Development: A Framework for Research, Monograph One, New York, Bureau of Publications, Columbia University, 1957, xii-142 p.

Super and his associates elaborate upon their research model of vocational development, basic to their large-scale and long-term Career Pattern Study of ninth-grade boys.

Super, Donald E., Phoebe L. Overstreet, et al., The Vocational Maturity of Ninth-Grade Boys, Monograph Two, New York, Bureau of Publications, Columbia University, 1960, xii-212 p.

In this monograph the results of the first year of research of the longitudinal Career Pattern Study, based primarily on data from a group of 105 boys are reported. The concept of vocational maturity suggested some correlates with the concept of developing clarity of vocational self-concepts as used in the present study.

--------, et al., Career Development: Self Concept Theory, Princeton, N.J., College Examination Board, 1963.

This monograph provided the general theoretical model and specific operational definitions basic to the design of the present research experiment.

Thurstone, L.L., Manual of the Thurstone Interest Schedule, New York, The Psychological Corporation, 1948, p. 1-11.

This manual served to provide the necessary information regarding the standardization and research uses of one of the main measuring instruments used in the present research.

Tiedeman, D.V. and R.P. O'Hara, Career Development: Choice and Adjustment, Princeton, N.J., College Examination Board, 1963, vii-108 p.

These authors present an alternate approach to Super's theory of vocational development. By applying Erikson's developmental structure of psychosocial crises to vocational psychology, they portray career development as the fashioning of a vocational identity. Their concepts of personality differentiation and integration in confronting the problems of work appear to bear some resemblance to the concepts of increasing clarity of vocational self-concepts as referred to in this research study.

APPENDIX 1

SUPER'S TABLES OF DEFINITION OF SELF TERMS AND OF METADIMENSIONS OF SELF-CONCEPTS AND SELF-CONCEPT SYSTEMS

APPENDIX 1

Table 1. Definitions of self terms[1]

Self percept
Primary self percept: unmodified or raw impression of an aspect of the self. Secondary self percept: simple self concept which has come to function as a percept.

Self concept
Simple self concept: organized, related percepts with accrued meaning. Complex self concept: abstraction from and generalization of simple self concepts, generally organized in a role framework.

Self-concept system
The constellation, more or less well organized, of all the self concepts.

Vocational self concept
The constellation of self attributes considered by the individual to be vocationally relevant, whether or not they have been translated into a vocational preference.

Table 2. Metadimensions of self concepts and self-concept systems[2]

Self concepts	Self-concept systems
1. Self esteem	1. Structure
2. Clarity	2. Scope
3. Abstraction	3. Harmony
4. Refinement	4. Flexibility
5. Certainty	5. Idiosyncrasy
6. Stability	6. Regnancy
7. Realism	

---

1 Donald E. Super, "Toward Making Self-Concept Theory Operational," in D.E. Super, et al., Career Development: Self-Concept Theory, 1963, College Examination Board, New York, p. 19, 20.

2 Ibid., p. 24.

APPENDIX 2

LETTER TO ALL THIRD YEAR MALE LIBERAL ARTS STUDENTS INVITING THEIR PARTICIPATION IN THE RESEARCH EXPERIMENT

APPENDIX 2

YORK UNIVERSITY

Psychological Services Department

January 12, 1966.

TO ALL MALE STUDENTS IN THE THIRD YEAR AT YORK U.

Dear Mr.

With the ushering in of another New Year, you will no doubt have been reminded of the fact that 'one of these years' your university days will be over and you will be finding your place in the world of work.

In our day of highly diversified specialization, the matter of career planning has become a rather difficult and complicated assignment for most people. Correspondingly, vocational counsellors are finding their tasks more difficult and challenging, to say the least.

Within the next few months, I would like to engage in a special study of career choice and development and hereby invite you to join me in this venture by volunteering your participation. The results of this study are to serve a two-fold purpose:

1. To shed light upon the nature of the career planning and decision making of university students in general.

2. To assist <u>you</u> personally in planning and deciding upon your own career.

Your participation in this study will consist of your devoting approximately two hours of your time in two separate sessions. The first session will take place in groups before the end of January. You will be asked to respond (with pencil and paper) to a few specially designed vocational interest tests.

The second session some time later in February or March will take on the nature of a personal interview, during the latter half of which I shall be prepared to share and discuss with you the results of the vocational interest tests and their possible meaning for you in your own career planning.

In order to make the study complete, the involvement of all third year male students is necessary. Those of you who are already quite definite about your career plans are asked to participate regardless of this fact. It will certainly do you no harm and it could help to assure you more firmly in your vocational decisions.

The group sessions will take place at the following times and places:

1.	Room 129 (lecture hall)	Wednesday, Jan. 26th - 7:00 p.m.
2.	349	Thursday, Jan. 27th - 2:15 p.m.
3.	129	Friday, Jan. 28th - 3.15 p.m.

Please mark one of these times on your schedule and I shall look forward to seeing you at that time. If none of these times is suitable to you, please stop by the Department office and arrange for another time with the Secretary, Mrs. Thirkettle, Room 125, or with me (Room 166).

Yours sincerely,

Bill Dick, Counsellor.

APPENDIX 3

EVALUATION SHEET FOR THE JUDGES' RATING OF THE METADIMENSION OF SELF-CONCEPT CLARITY

APPENDIX 3

EVALUATION SHEET

File No._____

1. Clarity of Vocational Preferences: September 1963.

very unclear	moderately unclear	moderately clear	very clear

2. Clarity of Vocational Preferences: February 1966.

very unclear	moderately unclear	moderately clear	very clear

3. Consistency between Sets of Vocational Preferences: September 1963 vs. February 1966.

very unclear	moderately unclear	moderately clear	very clear

4. Clarity (and Consistency) of Vocational Preferences according to interview on Development of Vocational Interests.

very unclear	moderately unclear	moderately clear	very clear

5. <u>Overall</u> Clarity (and Consistency) of Vocational Preferences.

very unclear	moderately unclear	moderately clear	very clear

Initials of Rater:_____

APPENDIX 4

SUPPLEMENTAL INFORMATION SHEET ADMINISTERED TO THE EXPERIMENTAL SAMPLE ALONG WITH THE OTHER PSYCHOLOGICAL TESTS

APPENDIX 4

SUPPLEMENTAL INFORMATION

A. Your Vocational Preferences:

1. List (in order of preference) three occupation in which you are interested or which you have considered. Also, state how definite your interest is: very, quite, slightly.

		Occupation	Reason for Interest	How Definite
(1st Pref.)	a.	_____	_____	_____
(2nd Pref.)	b.	_____	_____	_____
(3rd Pref.)	c.	_____	_____	_____

2. I have no occupational choice at present _____.

3. I have already decided which occupation I will enter after graduation _____ yes _____ no

If yes, please state which one _____ occupation

B. Introducing Stage II of this Study:

As a second integral part of this study, you will be asked to express and elaborate upon your own career planning in a personal interview of 10-15 minutes duration. In connection with this, I shall also be pleased to share and discuss with you the possible meaning of the vocational interest test results for you. The total interview will take between thirty to forty-five minutes of your time.

Please check two or three of the following times which would be most suitable for you and I shall arrange for an interview with you some time in February or March:

Mornings:	Afternoons:	Evenings:
Thurs. 9:00____	Wed. 1:15_____	Wed. 7:00___8:00____9:00___
Fri. 9:00____	Fri. 1:15_____	Thurs.7:00___5:00____9:00___

Other time:

_____ _____ _____ _____ _____

C. Special Instructions for Second Administration of Adjective Check List:

This time as you go through the list of adjectives, check those which you feel best describe a "successful" person in your most preferred occupation. In other words, the adjectives that you will now check describe your conception of a successful

_____
(Write in the name of your preferred occupation)

(If you have no preferred occupation, check those adjectives which you feel would be needed for "success" in your occupational future.)

APPENDIX 5

TABLES OF THE SCALES OF THE ADJECTIVE CHECK LIST AND OF THE CATEGORIES OF THE NO. CHECKED SCALE

APPENDIX 5

A. Table of Scales of Adjective Check List[1]

Designation on profile sheet	Name
1. No. Ckd	Total number of adjectives checked
2. Df	Defensiveness
3. Fav	Number of favourable adjectives checked
4. Unfav	Number of unfavourable adjectives checked
5. S-Cfd	Self-confidence
6. S-Cn	Self-control
7. Lab	Lability
8. Per Adj	Personal adjustment
9. Ach	Achievement
10. Dom	Dominance
11. End	Endurance
12. Ord	Order
13. Int	Intraception
14. Nur	Nurturance
15. Aff	Affiliation
16. Het	Heterosexuality
17. Exh	Exhibition
18. Aut	Autonomy
19. Agg	Aggression
20. Cha	Change
21. Suc	Succorance
22. Aba	Abasement
23. Def	Deference
24. Crs	Counselling readiness

B. Table of Categories for Adjective Check List Scale:[2]
No. Checked

Category	Number of Adjectives Checked	
	Males	Females
A	1 - 75	1 - 78
B	76 - 95	79 - 98
C	96 - 121	99 - 119
D	122 - 300	120 - 300

---

1 H.G. Gough and A.B. Heilbrun, The Adjective Check List Manual, Palo Alto, Calif., Consulting Psychologists Press, 1965, p. 4.

2 Ibid., p. 5.

APPENDIX 6

TABLE SHOWING THE NEEDS SELECTED BY THE JUDGES AS DIFFERENTIATING HIGH-AWARENESS AND LOW-AWARENESS GROUPS IN THE RESEARCH OF NORRELL AND GRATER

APPENDIX 6

The Needs Selected by the Judges as Differentiating the High-Awareness and Low-Awareness Groups, and the Predicted Direction of These Needs for the High-Awareness Group[a]

Need	Direction
Achievement	High
Deference	Low
Order	Low
Autonomy	High
Affiliation	High
Intraception	High
Succorance	Low
Dominance	High
Abasement	Low
Nurturance	High
Change	High
Heterosexuality	High

a G. Norrell and H. Grater, "Interest Awareness as an Aspect of Self-Awareness", in Journal of Counseling Psychology, Vol. 7, No. 4, 1960, p. 290.

APPENDIX 7

ABSTRACT OF

Clarity of Self-Concepts in the Vocational Development of Male Liberal Arts Students

APPENDIX 7

ABSTRACT OF

Clarity of Self-Concepts in the Vocational Development of Male Liberal Arts Students[1]

Within the framework of Donald E. Super's self-concept theory of vocational development, this research project investigated the clarity of the vocational self-concepts of a sample of male liberal arts students.

Two experimental groups of continuing students designated as high and low clarity sub-samples were formed on the basis of three judges' ratings of the students' directly expressed vocational self-concepts. The latter were available in written form in the nature of vocational preferences elicited on two occasions, first at the time of the student's initial enrollment in college and again two-and-one-half years later. Taped interviews on which the students described their vocational development formed an additional basis for the ratings of clarity. Longitudinal comparisons between the high and low clarity groups as well as cross-sectional comparisons between these groups and the group of non-continuing students and also the non-participating continuing students were made on variables reflecting vocational self-concept clarity as

---

1 William W. Dick, doctoral thesis presented to the Faculty of Psychology and Education of the University of Ottawa, Ontario, December 1966, xi-120 p.

measured by the Thurstone Interest Schedule, The Gough-Heilbrun Adjective Check List and the Strong Vocational Interest Blank.

The testing of five sub-hypotheses resulted in providing tentative confirmation of the general hypothesis, that the clarity of vocational self-concepts as operationally defined, is an index of significantly varying patterns of vocational development among a sample of male liberal arts students.

Results of major significance relative to mean differences between the high and low clarity groups of students were found by using specially devised techniques on the three measuring instruments. A longitudinal test-retest analysis of the Thurstone Interest Schedule showed that the high clarity group had eliminated more occupational preferences over the two-and-one-half year interval than the low clarity group. The former group also manifested an increasing focus on the major interest areas than the latter.

On two distinctly different administrations of the Adjective Check List, the low clarity group manifested a higher degree of discrepancy between self-descriptions and descriptions of the "successful" person in one's preferred occupation than the high clarity group.

Comparisons on the Strong Vocational Interest Blank showed that the high clarity group tended to identify more with

the criterion occupational sample most closely related to each person's highest occupational preferences, than was the case for the low clarity group.

Two recommendations for further research were made. The first would be to involve a larger sample of liberal arts or other students and then compare two contrasting groups comprised only of students judged to be in the extreme and opposite categories of vocational self-concept clarity. The second recommendation would be directed to a factor analytic study of the apparently broad and vaguely comprehensive phenomenon of vocational self-concept clarity.