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The Relationship of Discrepancy between Expressed and Inventoried Interest Scores to Selected Personality Variables: A Study of Adolescents

Sonia Becker
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THE RELATIONSHIP OF DISCREPANCY
BETWEEN EXPRESSED AND INVENTORIED INTEREST
SCORES TO SELECTED PERSONALITY VARIABLES: A
STUDY OF ADOLESCENTS

By

Sonia Becker

A Dissertation Submitted to the Faculty of the Graduate School
of Education of Loyola University in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

January
1973
DEDICATION

This dissertation is dedicated
to my loving parents

Ididia and Hannah Goldberg
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Many people have cooperated in making this study possible, and the writer is highly appreciative of their valuable assistance.

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VITA

Sonia Becker was born January 24, 1942, in Molotov, Russia. In 1946, after the termination of World War II, her family moved to Lodz, Poland, where she attended elementary and high school. In Summer, 1957, one year before matriculation, her family moved to Israel. She graduated from high school in 1960, and was immediately drafted into the army, where she served as a nurse and an instructor. In 1962, with the termination of her military service, she enrolled in the University of Tel-Aviv, where she majored in history, with History of Modern Russia and Ancient History as areas of specialization, and in Classical Subjects. She graduated with distinction in 1968. The same year she left for the United States with her husband, enrolled at the University of Chicago Graduate School of Education, and received the degree of Master of Arts in Education, with specialization in Curriculum and Instruction. During her studies in Israel and in the United States she also taught history and Hebrew. After receiving her M.A., she worked as a research assistant at the Woodlawn Mental Health Center, and later as an editor of the Curriculum Advisory Service, a quarterly dealing with evaluation of instructional programs and materials.

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instructor in Education at Loyola University and the University of Illinois, Chicago Circle.

Mrs. Becker, wife of Mitchell Becker, is the mother of one daughter, Maya.

She plans, upon the completion of all the requirements toward the Ph. D. degree, to return with her family to Israel.
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CHAPTER I

INTRODUCTION

Background of the Problem

Contributions from developmental psychology have frequently been used to interpret man's intrapsychic and intra-personal behavioral, that is, his behavior both in a world of emotions and feelings and in a world of people. But man also lives in a world where work and labor occupy a central position. It is possible, then, to perceive human development and the quest for maturity from the viewpoint of vocational development.

The basic hypothesis of this study is that vocational development is an implementation of an individual's self-concept. In this formulation the global integrative aspects of personality development are stressed. This study focuses on the interactions between several criteria of vocational development and selected personality characteristics and the effect of certain environmental variables upon this interaction.

Forming an identity, an integral part of the development process, comes into focus during the adolescent period; it is at this time that the problem becomes most clearly crystallized as a result of both changes in internal
structure and environmental pressures to make major decisions and to assume responsibility. Erikson describes identity formation as a major step in a long developmental process that begins with the first tentative identifications of early infancy. In adolescence the task is to make an integration of the diversity of previous identifications and role experiences.

One of the most obvious avenues through which identity concerns are expressed is the process of vocational development. Super notes that the process of vocational choice involves checking the compatibility of occupation and self-concept. He has postulated that vocational development is best understood from the point of view of self-concept implementation through occupational roles. Super's position on the vocational development in adolescence has been adopted by this writer as the theoretical basis of this research. As stated in Super's theory, vocational development is a process of evolving and of acting upon a conception of self as it is expressed through vocational behavior. A fundamental construct of this theory is that vocational preferences represent

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a translation of self-concepts into vocational terms. The concepts of identity and self are intuitively satisfying means of attributing motivation for vocational choice to the person choosing, that is, the desire to find expression for self-concepts is considered a motivating force in evaluating the attractiveness of a vocation.

Numerous studies of self-concept, as well as a general clinical experience, provide abundant evidence that an unrealistic self-image has a crippling effect on both personality development and interpersonal relationships. Conversely, any enhancement of an individual's self image with the feeling of personal adequacy that it implies seems to have a positive and healthy impact on his attitudes, decisions and behavior, including his vocational behavior. Thus, Douvan and Adelson\(^1\) find a positive relationship between effective, autonomous ego functioning and upward mobility among adolescent boys.

Shutz and Blocher\(^2\) find similar relationships among college students. These findings were confirmed by Steiner\(^3\)


in an experimental analysis of the goal-setting behavior of a group of undergraduates.

Klett and Tamkin\(^1\) and similarly Caplin,\(^2\) show that greater ego-strength is associated positively with the evaluation of achievement.

On the other hand, there are vast numbers of observations which suggest that the relationship between self-concept and the level of achievement, aspirations, or interests might not be as clear-cut as the above findings seem to indicate. It is possible that inferiority feelings sometimes lead to high aspirations of a compensatory nature. Horney's emphasis on insecurity feelings and the drive for superiority helped to popularize the principle that not only underachievers, but also overachievers could be neurotic. Allport calls this phenomenon "compensation by substitution"\(^3\) and "symbolic status striving."\(^4\) It is very possible that many high aspirations--educational, social, and vocational--do not stem from a


\(^{4}\)Ibid., p. 154.
healthy self-concept but are unrealistic substitutes, the function of which is mainly to compensate for feelings of deficiency or failure.

Mahone\(^1\) finds that significantly more subjects who are fearful of failure and low in need of achievement have an unrealistically high level of occupational aspiration, compared to subjects who are high in need of achievement and have little fear of failure. It was further demonstrated by Moulton\(^2\) that subjects whose motivation to avoid failure exceeds the motivation to succeed are more likely to arbitrarily shift their levels of aspiration on a task. Burstein, who conducted an inquiry along this line of research, describes the "avoidance oriented" subjects as follows:

Theoretically, individuals high in FF (fear of failure) and low in n Ach are as likely to overaspire to an occupation whose probability of attainment is extremely low as they are to underaspire to an occupation they are certain of attaining. Both underaspiring and overaspiring allow the person to avoid a real test of competence. In the former case, success is a relatively sure thing; in the latter, success is not to be expected and failure is neither meaningful nor threatening.\(^3\)

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\(^3\)E. Burstein, "Fear of Failure, Achievement Motivation, and Aspiring to Prestigious Occupations," *Journal of Abnormal and Social Psychology*, LXVII (1963), 189-93.
Other researchers explored the relationship between adjustment and level of aspiration in educational and vocational areas. Gruen and Small observed unrealistic vocational choices among maladjusted adolescents. Additional support for those findings may be derived from clinical experience, as Coleman pointed out:

Well-adjusted people tend to have a reasonably accurate evaluation of themselves in relation to their world and hence a fairly realistic level of aspiration. Maladjusted people, on the other hand, tend to be unrealistic—leading to inevitable failure or to wasted opportunities and, in either case, to unhappiness.

The studies mentioned above suggest that an inadequate self-concept, regardless of the direction of self-image (that is, low self-concept or overly high self-concept) is a relevant and important variable in underestimating or overestimating one's achievements, abilities or vocational choices. It is only logical to assume that this relationship is most probably reciprocal, that is, an inadequate self estimate of one's abilities, achievements or interests, including vocational interests, is a relevant and important indicator of one's inadequate self-concept. The present study purports to explore this possibility.


and to put it to an empirical test.

Super's theoretical proposition states that vocational development is essentially a process of implementing a self-concept. He also specifies that self-concepts begin to form prior to adolescence, become clearer in adolescence, and are translated into vocational terms at about this time.\(^1\) O'Hara and Tiedman\(^2\) show that through grades nine, ten, eleven, and twelve there is a progressive clarification of concepts in areas related to vocational choice. Similar results were obtained by Ginzberg,\(^3\) Tyler,\(^4\) and Crites and Semler.\(^5\)

In accordance with these studies it was determined that this study will consider the chronological age or grade level as an important factor, because stages in vocational interest development are measured along time dimensions and changes in interests are associated with certain developmental periods.

\(^1\)Super, "Vocational Adjustments in Terms of Role Theory," p. 139-41.


Statement of the Problem

This study will investigate a sample of adolescents and will focus on their vocational interests as an expression of their self-concepts. This writer perceives the expressed and inventoried interests as personality variables whose interaction has some effect on adjustment, and therefore significant implication for counseling. If the theoretical hypotheses specified below are valid, counselors would have a special role in working with individuals showing wide discrepancies between expressed and measured interests so that they enhance the development of more realistic self-concepts and more appropriate self-expectations.

Specifically, the following hypotheses will be tested:

Null Hypothesis 1: Adolescents with agreement between inventoried interest scores obtained on the Kuder General Interest Survey and expressed interest scores obtained on the basis of self-rating on the Kuder profile will not show significantly different scores on any or all 18 scales of the California Psychological Inventory than adolescents who have not obtained above agreement.

Null Hypothesis 2: Older adolescents, compared with younger adolescents, will not obtain significantly higher congruency scores, and therefore no stronger relationship between congruency scores and the score on the personality scales named
Null Hypothesis 1: Adolescents, regardless of the level of educational attainment of their fathers, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects adhering to different religions.

Null Hypothesis 2: Adolescents, regardless of their sex, will obtain comparable congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between male and female subjects.

Null Hypothesis 3: Adolescents, regardless of their socioeconomic backgrounds, will obtain comparable congruency coefficients between their expressed and inventoried interests. Consequently, no stronger relationship between the congruency coefficients and scores on the personality scales named in Null Hypothesis 1 will be established with the increasing socioeconomic status of the adolescents.

Null Hypothesis 4: Adolescents, regardless of their sex, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between male and female subjects.

Null Hypothesis 5: Adolescents, regardless of their religious backgrounds, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects adhering to different religions.
similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects whose fathers have different levels of educational attainment.

Null Hypothesis 7: Adolescents, regardless of the level of educational attainment of their mothers, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects whose mothers have different levels of educational attainment.

Null Hypothesis 8: Adolescents, regardless of the number of siblings in their families, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects who have different numbers of siblings.

Null Hypothesis 9: Adolescents, regardless of their birth order (i.e., position in relation to other siblings according to order of birth) will obtain similar congruency coefficients between their expressed and inventoried interests.
Consequently, there will be no difference in the relationship between the congruence coefficients and scores on the personality scales named in Null Hypothesis 1 between subjects who occupy different positions within their families according to birth order.

In addition to the investigation of the factors within the adolescent's environment which influence those aspects of his vocational behavior that were selected for this research, it was decided to examine whether the quality of vocational interests is influenced by future educational and vocational commitments. For the purpose of this study the subject's intention to continue his education into college and the definiteness of his vocational choice were selected for consideration.

Null Hypothesis 10: Adolescents, regardless of their intended commitment to obtain college educations, will obtain similar congruency coefficients between their expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and the scores on the personality scales named in Null Hypothesis 1 between subjects who do or do not intend to go to college.

Null Hypothesis 11: Adolescents, regardless of the degree of definiteness of vocational choice, will obtain similar congruency coefficients between the expressed and inventoried
interests. Consequently, there will be no increased relationship between the congruence coefficients and the scores on the personality scales named in Null Hypothesis 1 with the increasing degree of definiteness of the subject's vocational choice.

All of the hypotheses specified above involve the obtaining of two measures of interest from all subjects: a measure of the expressed interest, and a measure of the inventoried interest. The presence of both measures suggested a problem of a technical nature—does the order obtaining these measures influence the congruence coefficient between them? Accordingly, it was necessary to test the following hypothesis:

**Null Hypothesis 12:** Adolescents, regardless of the order in which they submit the measures of their expressed and inventoried interest (expressed first and inventoried second, or vice versa) will obtain similar congruency coefficients between the expressed and inventoried interests. Consequently, there will be no difference in the relationship between the congruence coefficients and the scores on the personality scale named in Null Hypothesis 1 regardless of the order in which the measures of interest were obtained.

Several of the variables (sex, religion, order of birth, number of children in family, socioeconomic level,
father's education, and mother's education) are basic considerations in viewing any group. The other variables (intention of going to college, definiteness of vocational choice) have been included because, as judged by this writer, they have been neglected in earlier research.

**Terms and Variables**

**Definitions**

The present study concentrates on the expressed and inventoried interests. The definitions of expressed and inventoried interests are adapted from Super and Crites:

a:

"Expressed interest is the verbal profession of interest in an object, activity, task or occupation."¹

b:

Inventoried interest is assessed by means of lists of activities and occupations which bear a superficial resemblance to some questionnaires for the study of expressed interests, for each item in the list is responded to with an expression of preference. The essential and all important difference is that in the case of the inventory each possible response is given an experimentally determined weight, and the weights corresponding to the answers given by the person completing the inventory are added in order to yield a score which represents, not a single subjective estimate as in the case of expressed interests, but a pattern of interests which research has shown to be rather stable.²


²Ibid., p. 379.
In this study the subject self estimates his interest measurement. The distinction between this method and the expressed interest method of measurement is that this one is not an independent method in itself, but must be used in relation to an interest inventory, in this case the KGIS.

**c: Congruency** between the expressed and inventoried interests is the correlation coefficient between both measures of interest. The higher the coefficient of correlation, the greater the congruency between the expressed and inventoried measures of interest.

**Explanation of Variables**

The independent variables used in the hypotheses stated in the previous section are: socioeconomic level, sex, religion, father's education, mother's education, number of children in the family, birth order of the subject, intention of continuing education into college, definiteness of vocational choice, and test order.

Some of these variables warrant further clarification:

The socioeconomic level of each subject was determined by his father's occupation. A scale of occupational level had been worked out by sociologists Warner, Meeker and Eells.\(^1\)

This is a scale based on concepts of social structure and social

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status in a modern, industrialized community. The same source also contains a dictionary of occupations, each occupation being rated on the scale mentioned above.

By applying the information of the father's occupation provided by the subjects to the occupational scale of Warner, et al., the following four occupational categories were established:

a) Professional and Managerial
   (e.g., doctor, lawyer, department store executive)

b) Supervisory, clerical, "white collar," sales
   (e.g., foreman, store owner, bookkeeper)

c) Manual workers and service, "blue collar"
   (e.g., factory worker, waiter)

d) Deceased, retired

Warner's occupational scale provided a special category for the unskilled worker. Since there was not even one case of an unskilled father among all the fathers of the subjects under study, no provisions were made for this category.

On the basis of information provided by the subjects, six distinctive groups were formed, each representing a level of accomplished educational attainment:

a) Elementary

b) Some high school

c) High school

d) Some college
e) College
f) Above college, post graduate training

The same classification was used to describe the level of educational attainment of both the mothers and fathers of the subjects.

The degree of definiteness of subject vocational choice was established according to his indication on a four point scale:

1) Has a definite vocational choice
2) Narrowed down to 2-3 alternatives
3) Has some ideas about vocational plans, but is not sure
4) Has not yet formulated any vocational plans

There were two categories of "order," indicating which method of interest measurement was employed first:

A) Kuder General Interest Survey Form E followed by self-estimate on Kuder profile
B) Self-estimate on Kuder profile followed by Kuder General Interest Survey Form E.

Need and Significance of the Study

Tests for vocational assessment are variously identified as tests of "intelligence," "proficiency," "aptitude," "ability," "manual dexterity," etc. All of these aim to evaluate
whether the person has the ability to do the work or to be trained in a particular kind of a job. These tests were among the first to be developed for vocational assessment.

The second type of test used in vocational assessment measure personal (non-ability) qualifications to work in a particular field. They are variously identified as tests of "values," "traits," (non-intellectual), "needs," "personality," and "interests," e.g. the Vernon-Allport Scale of Values, the Edwards Personal Preference Schedule, the Holland Vocational Preference Inventory, the Strong Vocational Interest Blank, Kuder General Interest Survey, Kuder Preference Record-Ocuppational. Among the tests classified as tests of personal (non-ability) characteristics, those of vocational interests have seemed of particular importance and are the subject of this dissertation.

The complexity and range of vocational choices facing today's adolescent requires the development of additional methods of vocational assessment. This study purports to satisfy this need by creating an assessment method through comparing the individual's expressed and inventoried interests. In a preliminary search of the literature it appeared to the writer that there have only been limited attempts to compare expressed and inventoried interests. The few studies that have been conducted suffer from a major limitation in that they sought merely to define the amount of agreement between the two methods. There
has been little attempt to relate this agreement or disagreement to outside variables. This research is an attempt to contribute to the areas neglected by earlier studies.

In summarizing the report of a discussion of research on the area of client selection, Allen\(^1\) reiterated the need for analyses of client characteristics prior to counseling. Counseling research has tended to center on process and outcome variables, largely neglecting the study of client input variables. The present study is an attempt to fulfill the need for research on the client's input variables by providing valuable information on the interaction between his expressed and inventoried interests.

Personality traits have been used as input variables in numerous studies in the attempt to relate clients personality to general client self-declared problem on an *ex post facto* basis. This study is an attempt to relate clients personality and adjustment to inventoried as well as self-estimated interests. By doing so it differs from other studies. Its significance is in the application of the information about the relationship between the client's inventoried/expressed interest to the identification of potential problem clients. The significance of this study is also in the fact that it provides an

empirical test of the value of the client's interest scores as a client variable.

As the dynamics of the interactions between expressed and inventoried interests which this study purports to explore become better known, the prediction of personality adjustment on the basis of vocational adjustment, and the facilitation of psychological change in persons who are presently vocationally maladjusted will be increasingly possible.

The significance of this study is in its contribution to research on those aspects of the adolescents' vocational behavior that have been previously neglected and the possible use of the information on the expressed/inventoried interests interaction in counseling of maladjusted adolescents.

The Procedure

The method used involved the obtaining of two vectors of interest scores for each subject. First, an administration of the Kuder General Interest Survey, Form E, provided inventoried measures of interest for each subject in ten occupational areas: outdoor, mechanical, computations, scientific, persuasive, artistic, literary, musical, social service, and clerical. Second, self-estimates of interests were obtained by having each subject indicate his level of interest for each of the ten interest areas measured by the Kuder Survey. Definitions of each interest area were based on the description in the
Kuder E Manual\textsuperscript{1} or the Kuder E Profile Leaflet\textsuperscript{2}. These definitions, with the description of possible ratings, were provided for each subject. The self-rating instrument is enclosed in the Appendix C.

A coefficient of correlation between these two measures of interest was computed for each subject. It was determined necessary to investigate whether the order in which the interest measures were obtained from the subjects influenced the relationship between the correlation coefficient of interest measures and personality characteristics. Therefore about one-half of the sample of the subjects in each school was first tested on the KGIS Form E and then submitted self-estimates of interests. For the other half this process was reversed.

Each person was also tested on the California Psychological Inventory which gives 18 scores on different personality characteristics.

A coefficient of correlation (r) between the expressed interest, as measured by the subjects' self-estimates, and the inventoried interests, as measured by the KGIS Form E, was


\textsuperscript{2}G. F. Kuder, Kuder E General Interest Survey Profile Leaflet (Hereinafter referred to as Profile Leaflet; Chicago: Science Research Associates, 1964).
computed for each subject. A regression analysis was performed to test for the relationship between the 18 scores on the California Psychological Inventory and the $r$. This analysis was conducted both for each subject and for each grade level.

A second regression analysis was performed to test for a trend of $r$ with increasing grade level.

Each subject was given a personal questionnaire, on which he had to indicate information about himself. A format of this questionnaire is enclosed in the Appendix.

On the basis of information submitted in this method, the following variables were isolated and treated in univariate analysis of variance: sex, father's occupation, education of father, education of mother, religion, number of children in the family, birth order, definiteness of vocational choice, intention of pursuing a college career and order of testing. In all these analyses of variance (altogether 10) the correlation coefficient $r$ between the expressed and inventoried measures of interest was the dependent variable.

**Limitations of this Study**

It is essential, at this point, to describe the limitations of this study:

1. The sample of this study consists of middle class high school students. Therefore generalizations and conclusions inferred from this data are limited to
students conforming to the category described in the sample.

2. The sample of schools is hardly representative of all schools. However, the lack of cooperation of numerous school officials forced this writer to work with schools available at the time of research.

It should be noted, however, that although the sample of schools and students discussed in this study is hardly representative of all high schools and students, the findings do offer some clues as to the problem of the relationship between the congruency of interests and adjustment in adolescence.

Organization of the Remainder of the Study

The balance of this dissertation is divided into four additional chapters. Titles have been omitted and the content breakdown has been summarized under the respective chapters indicated below:

Chapter II is devoted to the review of related literature. Particular emphasis will be given to studies dealing with the congruency between expressed and inventoried interests. Various aspects of these studies will be carefully reviewed, especially those examining the reliability and validity of expressed interests and the relationship between the expressed/inventoried interests to outside variables.
Chapter III will discuss the design of the study and its methodology. The sample, study instruments and statistical procedures will be examined in detail.

Chapter IV will present an analysis of the results.

Chapter V will summarize the various aspects of the study and discuss its findings. The relevance of the findings and implications for future research will be included.
CHAPTER II

REVIEW OF RELATED LITERATURE

Due to the diversified nature of the studies and research conducted on topics related to this dissertation, the literature dealing with expressed and inventoried interests will be reviewed according to the following headings:

A. Correspondence Between the Expressed and Inventoried Interests
B. Reliability of Expressed and Inventoried Interests
C. Predictive Validity of Expressed Interests
D. Relationship Between Interests and Other Variables

A. Correspondence Between Expressed and Inventoried Interests

Studies on correspondence between expressed and inventoried interests have been, generally speaking, scanty and scarce. The most recent review of such studies was done by Dolliver.¹

Generally, studies comparing inventoried and expressed interests report that the coefficient of correlation between them ranges around .50. Lalegar used the Strong Vocational Interest Blank in order to determine the relationship between the test scores and the stated occupational choices of 703 eleventh grade girls. She failed to obtain a significant relationship between the two measures of interest and commented: "Insofar as stated choice of occupation by groups of individuals may be considered a true criterion of interest, the lack of relationship between the statement of occupational choice and interest scores or letter ratings may be considered evidence of the lack of validity of the interest inventory." 2

It is questionable whether Lalegar's definition of what constitutes a "true criterion" of interest is meaningful. Also, her method of obtaining the measures of expressed interests also suggests that the results of her study which tend to negate the importance of expressed interests have to be treated with caution.

Kopp and Tussing used the Kuder Preference Record and a questionnaire to appraise vocational interests. For

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2Ibid., p. 11.

each student, ranks obtained on the occupational scales of the Kuder Preference Record (KPR) were correlated with the occupations ranked by the students themselves. It is not clear how the correlations were obtained and whether the authors themselves used examples of occupations characteristic for each occupational scale of the KPR to be ranked by the students. They report, however, that for 115 tenth grade boys the correlation coefficient was .59, and for 117 girls it was .50.

Crosby and Windsor\(^1\) administered the Kuder Preference Record to 222 sophomore men and women. The students were also asked to estimate their percentile scores, using the Kuder profile sheets. The correlation coefficients between the two scores (on seven scales only) ranged from .39 to .66, with median r of .54.

Darley\(^2\) analyzed the relationships between SVIB inventoried interests classified into primary, secondary, and tertiary patterns and expressed interests. The correlation coefficients thus obtained ranged from .35 to .57 with median r .43.


\(^2\)J. G. Darley, \textit{Clinical Aspects and Interpretations of the Strong Vocational Interest Blank} (Hereinafter referred to as \textit{Clinical Aspects and Interpretations}; New York: Psychological Corporation, 1941).
Berdie\textsuperscript{1} conducted an investigation to determine the agreement for the same sample between the scores on the SVIB and self-ratings and between scores on the Kuder Preference Record and self-ratings. He used a sample of 500 men, ages 14 - 37, with a median age of 20.6. The largest single group (\(N=165\)) consisted of people who were completing or had just completed their senior year in high school. There were three indices available for each subject: 37 scores on the Strong, 9 scores on the Kuder, and 9 scores on the self-rating form. The median correlation coefficient between the Strong test and self-ratings was .43, and between the Kuder tests and self-ratings, .52. Berdie comments that the difference in these coefficients may be a function not only of the test items, but also of the categories used in the grouping of the scales and in defining the self-ratings.

Rose\textsuperscript{2} used the Kuder Preference Record with a group of 60 veterans. He had them take the test first and ranked their scores, and then had them rank grouped occupations

\footnotesize{\textsuperscript{1}R. F. Berdie, "Scores on the SVIB and the Kuder Preference Record in Relation to Self-Ratings" (Hereinafter referred to as "Scores"), \textit{Journal of Applied Psychology}, XXXIV (1950), 42-9.}

\footnotesize{\textsuperscript{2}W. Rose, "A Comparison of Relative Interest in Occupational Groupings and Activities Interests as Measured by the Kuder Preference Record," \textit{Occupations}, XXVI (1948), 302-7.}
as they appear on Kuder. A comparison between ranks in both instances yielded a coefficient of .61.

Bridenbaugh and Brozovich\(^1\) conducted a study to evaluate the degree of agreement between self-rated and test interest patterns among 76 high school seniors referred for Division of Vocational Rehabilitation services. The instrument used in this study to test inventoried interests was the Kuder Preference Record, Vocational. In addition, each student ranked ten broad occupational areas identical to those identified on the ten occupational scales of the KPR-V. The median correlation reported for the grouped was .65.

Foreman and James\(^2\) note that the relationships of estimated to measured scores have been typically assessed over entire tests or pre-selected test scales without regard to the degree of relevance the scales have for the individual. They conducted a study which investigated the relationships of estimated and measured scores when test scales are categorized by level of vocational relevance. They tested

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\(^1\)B. E. Bridenbaugh and R. W. Brozovich, "Self-Rated and Test Interest Patterns among Students Referred for Vocational Rehabilitation Services" (Hereinafter referred to as "Self-Rated and Test Interest Patterns"), The School Counselor, XVIII (1971), 185-9.

120 male college students on the Edwards Personal Preference Schedule (EPPS), Kuder Preference Record (KPR), and the Strong Vocational Interest Blank (SVIB). The same subjects were instructed to estimate their scores on the EPPS needs scales and Kuder interest areas relative to their peers. On the SVIB the subjects were asked to compare their interests to persons engaged in various occupations. The subjects were also required to indicate their vocational preference, their commitment to this preference, and to specify three EPPS need scales, two Kuder interest scales, and two SVIB occupational families which were most and least important to their vocational development. Scales selected as most important were defined as areas of high vocational relevance, unselected scales as areas of intermediate relevance, and scales specified as least important as areas of low vocational relevance.

The results of this study indicate that the classification of estimated and measured scores by levels of vocational relevance produces greater relationships between these variables than are found over total tests: $r$ of .52 for the Kuder areas of high vocational relevance as compared to .29 for the total test; $r$ of .35 for the Strong areas of high vocational relevance as compared to -.13 for the total SVIB test. Both estimated and measured scores increased linearly with levels of vocational relevance on the Kuder,
with similar but less significant trends on the EPPS and SVIB.

These findings seem to be of importance to counseling and test interpretation, since most clients and counselors focus their attention on those test scales most relevant to the needs of the client, while ignoring less relevant scales. It may be that counseling outcomes are distorted when the total inventory is taken as a post-counseling measure, because increasing accuracy might occur on scales of high relevance, yet remain masked by lack of change on less relevant scales.

On the basis of these studies, one may make the following assumptions regarding the correlation between inventoried and expressed measures of interests:

1. The average correlation between these measures is around .50.

2. The correlation between expressed/inventoried measures of interest is higher for college students and older people in general than for high school students.

3. The Kuder Preference Record has a higher inventoried and expressed interest correspondence than does the Strong Vocational Interest Blank. On this subject Berdie comments: "In estimating Kuder scores, the subject needs to consider only his
similarities to men in the defined groups, but in estimating Strong scores, he needs to consider both how he resembles men in the defined group and also how he differs from men in general.\textsuperscript{1}

4. No studies of correspondence between expressed/inventoried interests for young age groups (below tenth grade high school) have been reported.

5. No studies of correspondence between expressed/inventoried interests using the Kuder General Interest Survey Form E, which is suitable for students grades 6 - 12, have been reported.

6. Although a number of studies have been conducted to find the correspondence between the expressed/inventoried measures of interest, most of them have discussed the merit of one method or the other. However, less consideration has been given to the factors causing the differences in this correspondence. Nor have the studies made clear some of the unique advantages of each method.

\textsuperscript{1}Berdie, "Scores," p. 48.
B. Reliability of Expressed Interests

The reliability of expressed interests has been investigated in only a very few studies. Sisson\(^1\) tested 252 college students, first in their freshman year, and a second time in their senior year. He found that 60% of them maintained their expressed vocational interests. Similarly, Van Dusen\(^2\) found that 56% of 63 college students maintained their interests over a period of three years.

Wightwick\(^3\) conducted a longitudinal study of expressed interests with 115 college women. He concluded that 64% maintained their expressed interests during their freshman to senior years; 62% maintained their interests four years after graduation from college. When this percentage was computed for the same sample but excluded women who married in the meantime, it rose to 73%. The same expressed interests were maintained by 38% of the sample eight years after graduation from college. (This percentage rose to 47% when married women were excluded from data.) Schmidt and

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\(^{1}\)E. D. Sisson, "The Predictive Value of Vocational Choices of College Students" (Hereinafter referred to as "Predictive Value of Choices"), School and Society, XLVII (1938), 646-8.

\(^{2}\)A. C. Van Dusen, "Permanence of Vocational Interest," Journal of Educational Psychology, XXXI (1940), 401-24.

Rothney\(^1\) found that 35% of high school students have the same expressed interests over three years of high school.

Holland,\(^2\) using his occupational groups as a system for expressing interests, measured the consistency of the expressed measure of interests of 263 male and 101 female National Merit Scholarship students. On the whole, male students were more consistent in their expressed interests than were females: over a period of four years (high school senior to college senior year) 50% of the males and 49% of the females had stable expressed interests.

Thus it is possible to conclude that the studies dealing with expressed interests have shown them to be relatively reliable.

C. Predictive Validity of the Expressed Interests

Research about the predictive validity of expressed vocational interests has also been rather scarce. Early investigations summarized by Fryer\(^3\) and later studies

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\(^2\) J. L. Holland, "Explorations of a Theory of Vocational Choice and Achievement: A Four-Year Prediction Study," Psychological Reports, XII (1963), 547-94.

summarized by Whitney\(^1\) indicate that expressed interests were predictive of occupational choices for about 50% of the subjects. Sisson\(^2\) investigated 252 college men and reported that upon graduation 33% followed the choice they expressed at the beginning of their freshman year; 50% followed the choice they expressed during their sophomore year, and an additional 13% followed their senior year expressed choice.

Darley\(^3\) conducted a ten-year follow up study of 101 college students. The data illustrating the predictive validity of expressed interests of these subjects show that 73% were in the occupations they had indicated as their first expressed occupational choice ten years earlier; 11% were in occupations they had expressed as second occupational choice ten years earlier.

The relative predictive validity of inventoried and expressed interest measures has been studied by several investigators. Wightwick\(^4\) compared the predictive validity


\(^2\)Sisson, "Predictive Value of Choices."

\(^3\)Darley, Clinical Aspects and Interpretations.

\(^4\)Wightwick, Vocational Interest Patterns.
of expressed interests with the predictive validity of the Strong Vocational Interest Blank. The Strong inventory, administered during the freshman year, predicted occupation four years after graduation slightly better than did the interests expressed during the freshman year. (Forty-four percent of the subjects were engaged in their expressed-interest occupation of four years earlier, while 58% of the subjects were in the occupations in which they had obtained an A or B+ score on the Strong inventory taken eight years earlier.) These findings may suggest that the inventoried measures of interest have a higher predictive validity than the expressed methods. However, as Wightwick commented, a marked difference existed in using these methods in her study: whereas all of the Strong scores of A and B+ were used as indicators of the inventoried interests, only one occupational choice was used as an indicator of expressed interests. It is therefore possible to argue that had the number of expressed choices approximated the number of SVIB scores, the predictive validity of the expressed interests might have approached the predictive validity of the inventoried interests.

The predictive validity of inventoried and expressed interests were also compared by Strong.¹ Among the subjects

¹E. K. Strong, Vocational Interests 18 Years After College (Minneapolis: University of Minnesota Press, 1955).
of his study, about 50% were employed in an occupation closely related to the choice they had expressed 18 years earlier as freshman students, 30% were employed in somewhat related occupations, and 20% in unrelated occupations. The data on inventoried interests showed that 78% of the subjects who scored an A in an occupation on the SVIB inventory were actually employed in the occupation indicated by the instrument, whereas only 17% of the subjects who scored a C in an occupation were employed in it 18 years later—which leads to the conclusion that the inventoried method of measuring occupational interest is superior to the expressed measures. However, this conclusion is doubtful because Strong's data from comparison are not equally treated for both methods: the data on expressed interests include all subjects, while data on inventoried interests include subjects who scored an A on at least one occupation on the Strong inventory.

Strong also reported that the figures reflecting the predictive validity of both measures are not comparable to one another, as they are based on different computational methods. Therefore this study does not provide clear evidence of the superiority of SVIB inventory to expressed measures of interest with respect to predictive validity.

In a study of 44 high school students over a 15-year period comparing the relative predictive values of
the SVIB vs. expressed interests, Enright and Pinneau\(^1\) found that 36% worked in an occupation in which they had received an A score on the SVIB. At the same time, 66% were engaged in an occupation in which they had expressed an interest 15 years earlier.

McCarthur and Stevens\(^2\) summarized the results they obtained from a study of 60 Harvard graduates over a period of 14 years. They found that for 48% of the subjects both measures were equally predictive; the SVIB gave a more accurate prediction for 22% of the subjects, and the expressed interests were more predictive for 30% of the subjects. As a possible explanation for these differences, the writers suggest that the accuracy of prediction of each method is linked to the social class of the subjects: the Strong inventory apparently is more applicable to persons reared in a middle-class culture, while expressed interests are more accurate predictors for the upper-middle and upper-class groups. Therefore, they suggest that both methods are equally


valid, but they are not interchangeable because of their differential appeal to various groups.

A wealth of data on the vocational choices of high school students was produced by Project TALENT and was summarized by Flanagan and associates\(^1\) and Cooley.\(^2\) The percentage of high school students expressing the same vocational choice for one to four-year follow up was lower for males than for females, and increased steadily with age. Cooley stated that expressed career plans predicted later occupations as well as or better than the interest inventories. In an earlier study\(^3\) he used four interest groups: college-science, college-nonscience, noncollege-technical, noncollege-nontechnical, and compared the self predictions from the eleventh grade boys with group membership in the above interest groups one, two, three, and four years later. These self-predictions were verified in 62%, 57%, 50%, and 48% of the cases in each corresponding year, and they compare as follows with the inventoried measures of interests for the combined time interval: Kuder


Preference Record 50%; SVIB and Allport-Vernon-Lindzey 64%. The best predictor turned out to be the teacher's prediction: 74%. Cooley contends that some influences might have contaminated this indicator, although he does not specify the nature of these influences. The results illustrated above lead him to conclude that "asking an 11 grade boy whether or not he wants to become a scientist is just as indicative of what he will be doing as a college junior with respect to science as is the Kuder scientific scale." 1

These conclusions could be questioned on the ground that the method of soliciting the self-predictions from the subjects of this study is unusually loose: the four interest groups with which each boy had to identify are all extremely broad and inclusive. It is therefore possible to assume that the predictive validity would not have been as high had there been more specific and closely defined interest groups employed in this study, as well as more of them.

Holland and Lutz 2 used a large sample of college students to compare the predictive validity of the student's self-expressed vocational choice with his scores on Holland's

1 Ibid., p. 105.
Vocational Preference Inventory (VPI). Student's vocational choices were categorized according to Holland's classification scheme into Realistic, Intellectual, Social, Conventional, Enterprising and Artistic occupations. Students chose their careers from a coded list of 99 alternatives. The time interval test-retest of the two measures was on the average 10 months. The relationships between initial and final vocational choices, over this period of time revealed that the predictive value of a student's expressed choice is about twice that of the Vocational Preference Inventory: the percentage of correct predictions of a student's final vocational choice from his first vocational choice 10 months earlier varied from 63.2% to 71.2%, while the percentage of correct predictions of a student's final vocational choice from his highest score among six VPI scores ranged only from 21.5% to 51.4%.

It is possible that the predictive value of the expressed choice is due to the classification system used in this study. This classification calls the attention of the subject to occupational areas rather than specific occupations. Therefore the chances for the student's expressed choice to correspond with his inventoried estimate are far greater than had the predictive value of expressed choice been evaluated in terms of identical vocational choices.
It is the opinion of this writer that Holland did not really test the predictive validity of the students' expressed vocational choices. What is missing in this study is the essential factor of any validity study, and that is the validity criterion. What Holland did in effect was to test the reliability of the student's expressed choice within a 10 month interval. He has shown that the expressed choices are more stable among students than are the interest inventories.

Rose and Elton\(^1\) repeated Holland's study with some modifications. They categorized according to Holland's classification the vocational choices of 163 male students expressed on the Students Profile Section of the American College Test (ACT) when they were high school seniors. The same students were administered the SVIB, and their scores were transformed into scores on each of Holland's categories. The actual membership to any of Holland's occupational groups as a college student was used as a validity criterion. The findings indicate that "in most areas of expressed choice the scores obtained on the SVIB corroborated the choice declared by the student during his senior year in high school, when those choices and the SVIB scores are organized according to the Holland system."\(^2\)


\(^2\)Ibid., p. 31.
A four-year follow up study of 3821 freshmen was conducted by Astin and Panos.¹ In order to demonstrate the stability of expressed career choices as freshmen, they used groupings of careers as a criterion in their multiple regression study. They found that the coefficient for predicting final career choice from freshman expression choice ranged from .20 to .53 for 12 career categories.

The studies cited above point to the following conclusions:

1. The evidence on the predictive validity of expressed vocational interests is scarce and inconclusive. No studies clearly pinpoint the variables that were useful for predicting final occupational choice.

2. Most studies have concentrated on a small number of variables and have estimated coefficients by examining the criterion of later employment. This criterion is a rather arbitrary point if one considers occupational career to be an integral part of a person's development, and a product of numerous influences and interactions. The results of these studies indicate that it would be bene-

ficial to compare expressed choice and other variables. This dissertation seeks to answer this need by examining the correspondence between the expressed and inventoried interests, on the one hand, and a variety of personality variables on the other.

3. The predictive validity of expressed interests is at least as great or greater than the predictive validity of the inventoried interests. This conclusion is true for all studies in which direct comparisons were made between these two types of interests.

4. It is very difficult to interpret and generalize the results of these studies because the authors use different methods to elicit expressed interests, and the method used obviously influences the indication of expressed interests. For example, some studies use a direct questioning method. Lehman and Witty¹ asked the students (a) three occupations they would most like to follow, and (b) one occupation most likely to be followed. Trow² asked


his subjects to name occupations which they valued as probability, possibility, and fantasy.

Evidently, subjects have indicated their expressed interests differently, depending on the way a question was presented to them. In addition, many of the studies reviewed do not indicate the method by which expressed interests were elicited. Holland summarizes this problem by saying: "most predictive studies are primarily concerned with establishing the validity of an inventory, thus the predictive validity of expressed choice, if studied at all, receives only a cursory treatment."¹

5. The studies reviewed generally considered the predictive outcome of an expressed interest as a dichotomous yes or no. It seems imperative to employ a different type of a classification device, one that would demonstrate the usefulness of the expressed interests. Expressed interests are not a single dimension of a person's interests, but a product of complex interactions over a period of time. This author therefore employs a method of interaction between the expressed and the

inventoried interests as a more valuable criterion for prediction than the expressed interests alone.

D. Relationships Between Interests and Other Variables

Several studies have investigated the relationship of occupational preferences to measured personality traits. Patterson\(^1\) reviewed a number of studies in this area which generally, though not uniformly, pointed out that scientific interests are somewhat related to a lesser concern with people, social activities, and a lesser degree of maturity; business contact and verbal-linguistic interest patterns tend to be related to greater social interest, social adjustment, and greater maturity; aesthetic types of interests tend to be related to personality maladjustment.

Dunnette and Kirchner\(^2\) conducted a similar investigation examining the relations among the scores on the Edwards Personal Preference Schedule, California Personality


Inventory, and Strong Vocational Interest Blank for an industrial sample. They concluded that occupational interests directed toward sales, verbal, and personal-contact activities show positive correlation with scales measuring social orientation. On the other hand, scientific interests and skilled trades interests tends to correlate negatively with the above and positively with measures suggestive of individual effort.

The same line of investigation was followed by Springob\(^1\) in his study of 226 senior high school boys, in which he sought correlations between the Kuder Preference Record-Vocational and the California Psychological Inventory scales. Some of the results tend to support those reported by Patterson:\(^2\) scientific-mechanic interests tend to correspond to the "masculine" personality and are characterized by tendencies to intellectual efficiency; artistic and musical interests revealed a few significant correlations with feminine traits. Other findings are in clear disagreement with those of Patterson: Springob's subjects negate the suggestion that interest in working

\(^1\)H. Springob, "Relationship of Interest as Measured by the Kuder Preference Record to Personality as Measured by the California Psychological Inventory Scales," *Personnel and Guidance Journal*, XLI (1963), 624-8.

\(^2\)Patterson, "Interest Tests and the Emotionally Disturbed Client."
with figures and numbers is associated with emotional control, greater acceptance of social norms, greater rigidity, introspectiveness, and lack of social poise. Similarly, past suggestions that interests in "welfare" types of activities tend to be associated with maturity, social aggressiveness, and femininity were disproved.

Kunce and Callis\(^1\) proceeded to investigate in the same direction and in their study examined the practicality of using an interest test as an indicator of personality functioning. They analyzed the scores of a sampled population on both an interest inventory (SVIB) and a personality test (MMPI), and found that certain interest scores and personality profiles tend to cluster together. Their findings permit though, at best, tentative inferences about personality characteristics from vocational interest scores, such as: an artist could be described as having aesthetic interests, somewhat obsessive-compulsive, worrying, over-critical of self, and tends to deny difficulties; or: the psychologist could be described as tolerant, emphasizes aesthetic interests, somewhat eccentric, somewhat non-conforming. However, it is impossible, on the basis of this study to infer occupational choice from personality,

since individuals with grossly similar personality structures can have different vocational interests.

Similarly, Apostal and Harper\(^1\) investigated the relationship between interests and personality. They used the Basic Interest Scales developed by Campbell.\(^2\) These attempt to identify clusters of interests which may be used to generalize beyond a single occupation and to measure the intensity of interests. The study sought to investigate whether the Basic Interest Scales differentiated among the personality types as classified by Holland:\(^3\) Realistic, Intellectual, Artistic, Social, Enterprising, and Conventional. The authors claim that students classified into different personality types generally had different interests, and thus a relationship between interest and personality has been established.

An attempt to study a number of variables related to the amount of agreement in inventoried and expressed


vocational interests is represented by Dolliver.\(^1\) As the expressed interest method, Dolliver used the Tyler Vocational Card Sort (TVCS), and as an indicator of inventoried interests he used the Strong Vocational Interest Blank (SVIB). He identified a group of "consonant subjects"—i.e., subjects for whom the outcome of the two interest measures agreed for a large number of occupations—and contrasted it with a group of "discrepant subjects" for whom the outcomes on the two measures were congruent for a small number of occupations. The following variables were tested for these groups: a) socioeconomic background, b) sex, c) intelligence, d) subject's orientation to occupational status, e) personality integration as measured by SVIB M-F score, f) degree of interest similarity as indicated by SVIB "peakedness." Dolliver also hypothesized that the discrepant subjects would be less clear, or less integrated, in their perception of themselves and of occupations than the consonant subjects. None of these relationships was shown to be statistically significant; neither the hypothesis with regard to the subject's "consonance" nor the clarity of his self-perception has been confirmed.

Some of the methods employed in the Dolliver study are questionable: for instance, the use of SVIB M-F scale to indicate personal integration. It seems rather dubious to use only one measurement in order to illustrate a complex range of characteristics that form "personality integration." In addition, the author states: "Congruence, the main effect of this study, may relate either to a) clarity, b) simplicity, or c) homogeneity of subject's thinking. It would be expected that the subject who has an M-F score in an inappropriate direction for his sex would not as easily be able to achieve this clarity, simplicity, or homogeneity in his thinking about himself and about occupations." The results of this study show that the discrepant subjects have "liked" more SVIB and TVCS items and "disliked" fewer SVIB and TVCS items than have the consonant subjects. This, in Dolliver's opinion, reflects on the clarity and simplicity of thinking of the consonant subjects, ergo their congruency, as opposed to the unclarity and the complexity of thinking of the discrepant subjects, ergo their incongruency. Dolliver bases his reasoning about the relationship between self-concept and the expressed/inventoried interests congruence on the idea that "selecting few items and rejecting many items in these interest tests represents the holding of a more definite and clear conception of oneself. . . . Therefore the
consonant subject has, in this sense, a clearer conception of himself (i.e., tends to reflect more) than does the discrepant subject.\(^1\) Such analysis seems to lack a firm basis in the self-concept theory and its relationship to occupational interests.

The inconsistency and inconclusiveness of these investigations seem to stem from the fact that they have tended to overlook the global and integrative aspects of personality development. The introduction of the self-concept idea into the theoretical formulations of vocational interest emphasizes the importance of personality characteristics. Carter notes that the degree of interest and aptitude interaction would be reflected in the adjustment process of the individual:

The individual derives satisfaction from the identification of himself with some respected group. . . . This identification leads to an interest in restricted activities and experiences. . . . As long as no great discrepancies are felt between ability and the requirements of the vocation, the individual persists with the identification. . . . when insurmountable obstacles are encountered the whole process of identification and the whole pattern of adjustment are likely to be disrupted.\(^2\)

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\(^1\)Ibid., p. 919.

Super also indicates the importance of the interaction of aptitudes and interests and the integration of personality variables:

The satisfaction which is derived from the rewarded use of abilities, the approved meeting of needs, the accepted manifestation of internal and social realization of values channeled through personal resources . . . The result is then an integrated person . . . incompatible needs or values may be rewarded, and aptitudes may be developed which may be exercised with approval in some contexts but not in others. The result is a poorly integrated person. 

A study by Bare\(^2\) is an attempt to investigate the role which the self concept plays in the setting and achieving of occupational goals. Specifically, it focused on the relationship of the following variables in a junior college student sample: the accuracy of self-awareness, the discrepancy between preferences for certain occupations, and the corresponding estimates of success in the preferred occupations, and eight personality factors.

Forty one junior college students were administered two personality tests, the Gordon Personality Profile and the Gordon Personality Inventory. Afterwards they were


asked to estimate their percentile scores on each of the personality factors these tests purport to measure. Their estimates were compared to their actual scores, and judged "over-" or "under-estimates" accordingly. In addition, each student rated on a 4-point scale the extent to which he liked to work in each of fourteen occupational areas, and also estimated his ability to succeed in each area. A discrepancy score between the ranked preference for an occupational area and the estimated success in the same field was computed for each subject. Finally, the personality scores, the subject's overestimates and underestimates of his personality scales, the occupational preferences, the self-estimates of capability in each profession, and the discrepancy variable were intercorrelated.

The following findings are reported: students who under or overestimated their actual personality scores tended to rate their preferences for occupational areas higher than their estimates of success in these areas; i.e. they were doubtful as to the realism of their occupational goal settings. The study also demonstrated an inaccurately perceived self-concept is related to inadequate occupational goal settings.

The study was conducted with a very small sample, using male subjects only and not representative of the broad population. Some of the study methods are questionable:
the personality tests have dubious criteria of validity and reliability, the choice of fourteen occupational areas seems arbitrary and void of a clear rationale. Thus some of the occupational areas are descriptions of specific occupations (accounting, business management) while others are broad, unspecified vocational areas (outdoor occupations). It is therefore conceivable that such a system creates some difficulties for a person who is asked to rate his preference for an occupation, which could be expressed as interest in a broad area, and then is asked to estimate his success in the same area. Obviously, when a person considers such a question, he has a specific occupation in mind. In spite of these shortcomings, this study offers some avenues for further exploration. Its findings indicate that inaccurate self-concepts seem to be related to occupational goal setting. By stating a preference for an occupation and expressing doubts about succeeding in it, subjects indirectly may be expressing that their choice was unrealistic. These results are in line with similar implications of Super's theory relating self-concept to vocational goal setting.

Similar conclusions were obtained by Oppenheimer,¹

who studied the relationship among self-concepts, occupational concepts and occupational preferences for 81 male college students. He used a list of fifty occupations derived from SVIB, at least one occupation representing each of Roe's field and level categories was included. The subjects were asked to rank each occupation on a scale of 1-7. Then they chose one occupation to represent each of the seven ranks. The seven occupations designated were considered to express the subject's occupational preference hierarchy. The students also used the dimensions elicited on the Kelly Role Construct Repertory Test to rate self and occupational titles on a modifiable semantic differential. For each subject a correlation coefficient was computed between an occupational preference hierarchy predicted from the agreement between self and occupational ratings and a subject's expressed preference hierarchy.

The results of this study indicate that the median correlation coefficient between occupational concepts and occupational preferences was .52, which approximates the results of the studies on expressed and inventoried interests discussed above. In addition, the study has shown that agreement between actual and ideal self ratings is positively related to the relationship between occupational preference hierarchy and expressed preference hierarchy, thus confirming Super's self-concept theory of vocational development.
The studies presented in this chapter dealt with the interaction between interests and a variety of personality variables.

As noted, studies on the congruency between the expressed and inventoried interests have been scarce. They attest to the fact that the amount of agreement between the expressed and inventoried interests varies among individuals, but very few attempted to identify and investigate the factors responsible for the differences in the amount of congruence between expressed and inventoried interests, and their results have frequently been inconsistent.
CHAPTER III

METHODOLOGY OF THE STUDY

The Sample

The total number of subjects included in this study is 327 high school students, selected at random from two schools.

It should be noted that selecting schools for the purpose of this study was not an easy task. This author spent a considerable amount of time trying to get permission to perform the study from the school boards. Months were spent in negotiations with several principals, School Board members, counselors, and directors of counseling services. Some officials suspected that the study would allow the author to "intrude" into the school, and therefore refused permission. Others justified their refusals of cooperation with difficulties in timing or other obligations. Thus, in spite of the author's desire to use a sample that would be a true representation of the high school population, the sample was limited to 327 students selected at random from two schools.

School A is a public, comprehensive, four year secondary school with an enrollment of approximately 2700. It is located in a middle-income northern Chicago
suburb with a population of about 160,000. The district formed by School A and the other two schools in the area ranks among the highest in assessed property valuation among Illinois school districts and has approximately $90,000 in taxable wealth to support each student.

School A emphasizes the importance of academic subjects in its curriculum. Eighty percent of the students are college bound, and college preparatory subjects are strongly emphasized. College level instruction and CEEB Advanced Placement Program courses are offered by various departments.

The school is relatively new (it opened in the fall of 1964) and was specifically designed under the "school within the school" concept. Consequently, the entire institution is divided into four Halls, containing students from all four grade levels. The students and staff are assigned to one Hall, and except for special courses, attend classes in their respective areas. Each Hall has its own administrator, counselors, and clerical staff. Each grade level in each Hall comprises one homeroom, which remains intact all four years. Thus, the student finds himself as a part of several social groups: his school, his Hall, and his grade level.
The school offers a variety of modern facilities: an audio-visual complex, a reading laboratory, an auditorium which seats 850 persons, an Industrial Arts Department with the most modern facilities available, a Resource Center, and others. In addition, the school offers a variety of extracurricular activities for student interest and involvement. There are approximately 50 clubs and activities in athletics, drama, public speaking, dance, and publications.

School A is also known for its progressive educational philosophy—a number of studies and experiments have been performed there by staffs of several Schools of Education in the Chicago area. This school was the first in the district to introduce modular scheduling. Instead of the traditional division of the school day into fixed periods, the curriculum consists of modules, the number of which varies from class to class and from day to day depending upon the objective, content, and teaching methods of each course. This method allows for greater availability of the teachers to each student, as well as more attention to the student's needs, interests, and the rate of his individual achievement.

In summary, School A is a modern, large, comprehensive four year high school drawing its students from a middle income, racially and economically stable suburb.
of Chicago. Most of the student population is college bound. Because of its broad tax base, this school can afford to provide its students with the most modern facilities, equipment, and methods.

School B is a private religious school, grades 7 to 12, combining an intensive Hebraic religious program with a college preparatory program. The school consists of three divisions: a coeducational division, a boy's division, and a girls' division, with a total enrollment of close to 500 students. Each division conducts its classes at a separate location in the greater Chicago area, but all divisions are located in middle income, racially and economically stable neighborhoods. The school also draws students from well-to-do Chicago suburbs.

Because of the double program the school day begins at 8:00 A.M. and extends to 6:30 P.M. An honors program which is more extensive than the regular course of study can be elected by college-bound students. However, no additional credits are awarded for participation in the honors program. It is evident that this school's heavily-loaded program could be attractive only to highly motivated students. The school has the highest percentage of Illinois State Scholarship winners, and about one-third of each year's graduates receive scholarships.
and awards. Approximately 85 percent of the student population is college bound.

School B is a private school whose operation depends almost entirely on private contributions and tuition fees. Its financial resources are limited. The school struggles to provide the students with whatever is necessary; however, it cannot afford the luxury of elaborate furnishings, special services, or modern facilities for research and experimentation.

In conclusion, School B is a small, private religious institution serving only Jewish students. It is located in the northern part of Chicago in a middle-income neighborhood which is economically and racially stable. It has a rigorous academic program in addition to religious studies, which requires considerably more time and effort than does any similar public secondary school. The school enjoys a very high academic rating among high schools in Illinois. Understandably, students attending this school are highly motivated, with a vast majority of them later graduating from college.

The data presented in the table below reflect some of the subjects' characteristics.
### TABLE I
THE DISTRIBUTION OF SUBJECTS BY SEX

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th></th>
<th>School B</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>44.0</td>
<td>67.0</td>
<td>111</td>
<td>94.0</td>
<td>122.0</td>
<td>216</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>39.6</td>
<td>60.4</td>
<td>100</td>
<td>43.5</td>
<td>56.5</td>
<td>100</td>
</tr>
</tbody>
</table>

### TABLE II
THE DISTRIBUTION OF SUBJECTS BY GRADES

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th></th>
<th>School B</th>
<th></th>
<th>Total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
<td>M</td>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>Grade</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>55</td>
<td>20</td>
<td>23</td>
<td>13</td>
<td>64</td>
<td>47</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>49.5</td>
<td>18.0</td>
<td>20.7</td>
<td>11.7</td>
<td>29.6</td>
<td>21.8</td>
</tr>
</tbody>
</table>
## TABLE III
THE DISTRIBUTION OF SUBJECTS BY RELIGION

<table>
<thead>
<tr>
<th>Religion</th>
<th>School A</th>
<th></th>
<th>School B</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jewish</td>
<td>Catholic</td>
<td>Protestant</td>
<td>Other</td>
<td>Jewish</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>66.0</td>
<td>19.0</td>
<td>19.0</td>
<td>7.0</td>
<td>216.0</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>59.5</td>
<td>17.1</td>
<td>17.1</td>
<td>6.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>
As the following Tables IV, V and VI indicate, the subjects of both schools are quite comparable in the cultural level of their homes as determined by the occupational level of their fathers and the educational level of both parents. The students sampled from School B, which is a private, parochial institution, come from homes where the fathers belong to a higher occupational category than in School A, as reflected by the distribution of occupational levels in Table IV. In School A, 29.2% belong to the professional and managerial level as opposed to 17.1%; 14.8% belong to the "blue collar" category, as opposed to 26.1%.

The fathers of School B subjects have, on the whole, a higher level of educational attainment, as reflected by the distribution of the levels of educational attainment in Table V: 29.6% of the fathers of the School B subjects have above 16 years of education as compared to 20.7% of the fathers of School A subjects, but only 3.2% have elementary education as compared to 6.3% of the fathers of the School B students.

The picture is not as clear when the mothers' education is evaluated: 6.9% of the mothers of School B pupils have over 16 years of education, which is less than the 9.0% of the School A mothers; 5.6% of the mothers of the School B pupils completed elementary education, but
<table>
<thead>
<tr>
<th>Occ. level*</th>
<th>School A</th>
<th>School B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Frequency</td>
<td>A 19.0  B 59.0  C 29.0  D 4.0</td>
<td>A 63.0  B 109.0  C 32.0  D 12.0</td>
<td>A 82.0  B 168.0  C 61.0  D 16.0</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>A 17.1  B 53.2  C 26.1  D 3.6</td>
<td>A 29.2  B 50.5  C 14.8  D 5.6</td>
<td>A 25.1  B 51.4  C 18.7  D 4.9</td>
</tr>
</tbody>
</table>

*A: Professional and managerial
B: Supervisory, clerical, "white collar," and sales
C: Manual workers and service, "blue collar"
D: Deceased, retired
### TABLE V

THE EDUCATIONAL ATTAINMENT OF THE SUBJECTS' FATHERS

<table>
<thead>
<tr>
<th>Level of educational attainment*</th>
<th>School A</th>
<th>School B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>7.0 7.0 33.0 17.0 24.0 23.0</td>
<td>7.0 12.0 52.0 29.0 52.0 64.0</td>
<td>14.0 19.0 85.0 46.0 76.0 87.0</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>6.3 6.3 29.7 15.3 21.6 20.7</td>
<td>3.2 5.6 24.1 13.4 24.1 29.6</td>
<td>4.3 5.8 26.0 14.1 23.2 26.6</td>
</tr>
</tbody>
</table>

*1: Elementary  
2: Some high school  
3: High school  
4: Some college  
5: College  
6: Above college, post graduate training
### TABLE VI

**THE EDUCATIONAL ATTAINMENT OF THE SUBJECTS' MOTHERS**

<table>
<thead>
<tr>
<th>Level of educational attainment*</th>
<th>School A</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>School B</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Elementary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: Some high school</td>
<td>3.0</td>
<td>8.0</td>
<td>43.0</td>
<td>33.0</td>
<td>14.0</td>
<td>10.0</td>
<td>12.0</td>
<td>16.0</td>
<td>83.0</td>
<td>50.0</td>
<td>40.0</td>
<td>15.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: High school</td>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.7</td>
<td>7.2</td>
<td>38.7</td>
<td>29.4</td>
<td>12.6</td>
<td>9.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: Some college</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.6</td>
<td>7.4</td>
<td>38.4</td>
<td>23.1</td>
<td>18.5</td>
<td>6.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: College</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.6</td>
<td>7.3</td>
<td>38.5</td>
<td>25.4</td>
<td>16.5</td>
<td>7.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6: Above college, post graduate training</td>
<td>14.0</td>
<td>10.0</td>
<td>12.0</td>
<td>16.0</td>
<td>83.0</td>
<td>50.0</td>
<td>15.0</td>
<td>24.0</td>
<td>126.0</td>
<td>83.0</td>
<td>54.0</td>
<td>25.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1: Elementary  
2: Some high school  
3: High school  
4: Some college  
5: College  
6: Above college, post graduate training
only 2.7% of the School A mothers accomplished the same. In all other levels the distribution is similar.

To conclude, the subjects of School A and School B are distributed between the upper-middle, middle-middle, and lower-middle socioeconomic classes. However, as reflected in Tables IV and V, School B has a higher frequency of upper-middle, and a lower frequency of lower-middle subjects. The data in Table VI (The Educational Attainment of the Subjects' Mothers) cannot be regarded as an indicator of the socioeconomic and cultural level of the subjects, as can the data in Tables IV and V, probably because in a society dominated by men, the educational level of the fathers contributes more to the socioeconomic level of the family than does the educational level of the mother. This situation is amplified by the fact that the students of School B, which is a religious institution, come from families where the mother performs the traditional role of a housekeeper regardless of her educational attainment.

School A and School B students are quite comparable with regard to the definiteness of their vocational choice as exhibited by Table VII. But, as evidenced by Table VIII, a greater percentage of School B students plan to continue their education into college.

The difference between the schools in the percentage of students seeking college education can probably be explained
<table>
<thead>
<tr>
<th>Degree of Vocational Choice*</th>
<th>School A</th>
<th></th>
<th>School B</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>27.0</td>
<td>29.0</td>
<td>42.0</td>
<td>13.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>24.3</td>
<td>26.1</td>
<td>37.8</td>
<td>11.7</td>
<td>21.3</td>
</tr>
</tbody>
</table>

*1: Has a definite vocational choice  
2: Narrowed down to 2-3 alternatives  
3: Has some ideas about vocational plans, but is not sure  
4: Has not formulated any vocational plans
by the fact that School B, by means of its extensive academic program and very high scholastic standards, is geared to students who are highly motivated to learn and achieve academically, and who therefore consider college training as a logical continuation of their high school education.

TABLE VIII

DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR INTENTION TO PURSUE COLLEGE EDUCATION

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Absolute Frequency</td>
<td>95.0</td>
<td>16.0</td>
<td>211.0</td>
</tr>
<tr>
<td>Relative Frequency (%)</td>
<td>85.6</td>
<td>14.4</td>
<td>97.7</td>
</tr>
</tbody>
</table>
Nature of the Instruments Used

Kuder General Interest Survey Form E

The Kuder General Interest Survey (KGIS) Form E was chosen for this study because it is the only one among tests of vocational interests that is applicable to adolescents from 6th grades upward, and because it is directed toward youth that are not necessarily academically oriented. Its reading difficulty and vocabulary has been kept to the 6th grade level. Recently the instrument has been revised, and the number of items contributing to some of the scales has been increased to increase the reliability of the scales for the lower age level without changing the total number of items in the inventory, since any item may contribute to more than one scale. A study by Tillinghast, Shapiro, and Carrett\(^1\) has demonstrated that KGIS Form E can be successfully used with 6th graders of average and above average ability. This instrument reports scores in ten interest areas, which are used in other Kuder tests: Outdoor, Mechanical, Computational, Scientific, Persuasive, Artistic, Literary, Musical, Social Service, and Clerical. It also has the Verification

scale, which purports to detect carelessness, lack of understanding, or faking on the part of the testee. The inventory consists of 168 forced-choice triads, similar to other Kuder inventories. The test is untimed, takes approximately 45-60 minutes to complete, and does not require sophisticated or trained personnel for its administration. The final scores for each individual are entered on a profile sheet. The individual's position of the percentile scale in each area reflects his relative preference strength with respect to the norm group in a specific interest area.

The KGIS is available in reusable booklets and can be machine scored. It is very convenient for the counselors, since administration, scoring and interpretation are relatively easy and quick.

Reliabilities for the test are based upon test-retest and split-half procedures. The test manual\(^1\) reports .69 - .87 correlations for girls (median .77) and .75 - .85 correlations for boys (median .81), on a basis of test-retest given for 287 boys and 433 girls in grades 6-8 and 471 boys and 691 girls in grades 9-12. The test interval was six weeks. The split half reliabilities ranged from .72 to .90 in the 6-8 grade groups, with a median of .80 for boys and .83 for girls. The same reliabilities

\(^1\)Kuder, Manual.
for the 9-12 grade group ranged from .80 to .92 with a median .87 for boys and .86 for girls.

The only validity data of this inventory reflect its relatedness to a similar Kuder instrument--KGIS Form C. The results of a validity study reported in the test manual compared Form E to Form C for 81 boys and 92 girls in the tenth grade and show concurrent validity ranging from .69 to .82 with a median of .76 for the boys and from .65 to .86 with a median .79 for girls.

The test manual does not report long-range validity studies for the KGIS Form E. However, a number of studies using Forms B and C of the Kuder Preference Record, which are used as a basis for the present Kuder General Interest Survey, demonstrate a significant positive relationship between measured interests and job satisfaction. The most comprehensive study was conducted by McRae,¹ who studied responses pertaining to job satisfaction of 1164 people, all of whom had taken the Preference Record in high school seven to ten years earlier. He found that a significantly higher proportion of persons who followed their interests as measured when they were in high school were satisfied with their work than persons who followed interests

other than those measured in high school. He also found that the proportion of dissatisfied workers in the group that followed interests other than those measured in adolescence was three times higher than in the group that followed the same interests inventoried in adolescence. Similar results were reported by Lipsett and Wilson, Brayfield, Di Michael and Dabelstein, and Jacobs and Traxler.

Madaus and O'Hara and Mooney demonstrated that the interest dimension, as measured by the Kuder General Interest Survey, Form E, was the most useful predictor of career choice of college preparatory students. Shann, using

1L. Lipsett and J. W. Wilson, "Do Suitable Interests and Mental Ability Lead to Job Satisfaction?" Educational and Psychological Measurement, XIV (1954), 373-80.


the same instrument with male vocational high school students, obtained statistically significant differences in interest patterns among trade groups.

In conclusion, Kuder General Interest Survey Form E compares satisfactorily with similar vocational interest inventories in terms of reliability. The apparent lack in validity studies is due to the fact that the KGIS Form E is relatively recent. However, in this case the results of validity studies of other Kuder interest inventories, similar in terms of content and purpose to the KGIS Form E, may be applied. The instrument's main appeal is its wide applicability—it can be used with sophisticated high school adolescents as well as younger, junior high school adolescents who are less sophisticated and not academically oriented.

California Psychological Inventory

The California Psychological Inventory (CPI) is used for a comprehensive, multidimensional assessment of normal persons. Based upon the Minnesota Multiphasic Personality Inventory, 18 scales are provided measuring socially desirable behavioral tendencies rather than pathological tendencies. Thus it is mostly applicable for general use in schools, colleges, and other agencies dealing with socially functioning individuals.

The inventory is applicable to individuals ages 12 and over. It is self administered, and no special
conditions are required. Testing time is estimated between 45 and 60 minutes. The inventory is composed of 480 statements to which a subject responds "True" or "False" on a separate answer sheet. Altogether there are 18 raw scores, easily transferable to a profile form for a graphic conversion to standard scores with mean 50 and SD 10. The norms for male subjects are based on more than 6000 cases, while female norms include more than 7000 cases. As stated in the manual, the norms include a wide range of ages, socioeconomic groups and geographic areas, but they do not represent a true random sample of the population.

In addition to separate norms for males and females, the manual\(^1\) presents separate mean profiles for college and high school subjects of each sex. Separate profiles of 30 special groups (19 males and 11 female) for each of the 18 scales are also included. These profiles may be helpful references to counselors working with these groups and provide a more meaningful test interpretation.

The California Psychological Inventory purports to assess 18 different psychological variables. Among the 18 scales, 11 are based on empirically derived scoring weights assigned according to responses found to differentiate defined

criterion groups. Do, Cs, Sy, Re, So, To, As, Ai, Ie, Py, and Fe were developed in this fashion. Four additional scales—Sp, Sa, Sc, and Fx—were created by the technique of internal consistency analysis. It is similar to the method described above, only in this case each item is judged by the author as indicating the presence of a designated variable.

The remaining three scales—Wb, Gi, and Cm—were also derived by empirical procedures mentioned earlier, the difference between them and all the other scales being that the basis for the empirical analysis for the three scales was to detect tendencies of subjects to fake and to assess response bias. On these three scales, scores outside the limits which were established empirically indicate some sort of invalidity in the test record.

Among the reliability studies mentioned in the test manual, a study of 200 male prisoners yielded correlation coefficients ranging from .49 to .87 with a median of .80 and a test interval ranging from one to three weeks. For high school students tested after one year, the median test-retest correlation is .65 for males and .68 for females. Although no reliability estimates based on a single administration are reported, it is safe to assume that they would be higher than the test-retest correlation coefficients quoted
above, and hence sufficient for use both for groups and individuals.

The manual provides numerous examples illustrating the validity of each scale. Thirty studies are listed as evidence of the validity of the 11 scales based on empirically derived weights of contrasting groups. On the basis of these studies it is possible to assume that each of the scales has some validity when judged against life performance criteria. This validity does not fall below the validity coefficients of other well known personality tests. This is also true for scales developed on the basis of a priori weights and corrected through item analysis.

The many validity studies of the CPI present considerable data bearing on the validity of the instrument. Criteria used have included rating by peers, superiors, teachers, principals, professional psychologists, scores on other tests, and objective behavioral data. Separate CPI scales were correlated with different scales of other personality tests: Strong Vocational Interest Blank, Coop General Culture Test, Guilford Creativity Battery, Terman Concept Mastery Test, Wessman Personnel Classification Test, Chapin Social Insight Test, Minnesota Multiphasic Personality Inventory, Guilford-Zimmerman Temperament Survey, Cattell 16 PF Test, Edwards Personal Preference Schedule, and others.
However, the CPI cannot claim to yield as unique information as the CPI scales would imply, because some of them are intercorrelated. Wb and Ac scales are reported by the author himself to intercorrelate to the extent of .58 for men and .66 for women. Despite this apparent deficiency of the instrument, E. Lowell Kelly, reviewing in the Sixth Mental Measurement Yearbook, says that

all in all, . . . the CPI . . . is one of the best, if not the best, available instrument of this kind. It was developed on the basis of a series of empirical studies and the evidence for the validity of its several scales is extensive. The manual is one of the most complete of any available, and . . . reports intercorrelations of CPI scores with those of several other widely used tests of personality.\footnote{\textit{O. K. Buros, ed., The Sixth Mental Measurement Yearbook} (Highland Park, N.J.: Gryphon Press, 1965).}

In conclusion, this author's decision to use the CPI in her study was based on the following assets of the inventory: its relative simplicity of administration, scoring, and interpretation; its wide applicability to population ages 12-70 in all geographical and economical settings; its emphasis on the positive aspects of personality

\footnote{\textit{Ibid.}, p. 731.}
as opposed to the pathological; its ability to measure practical and meaningful outcomes of behavior rather than to measure abstract traits; its high professional standards as demonstrated by 155 reliability and validity studies listed in the manual; and the degree of professional acceptance as reflected in the large number of references since its publication.

Data Collection

One hundred eleven students in School A were randomly selected from a population of about 2700, and 216 from School B from a population of about 500. It is evident from this data that there is a great difference in the proportion of students representing each school in the sample. This phenomenon is due to the fact that sampling was obtained by a rather unusual procedure. As soon as permission to perform the study was obtained, the author proceeded to secure the cooperation of the teachers in each school. Since neither test required specially-trained personnel or special equipment, and since the estimated time for the administration of each test fitted the normal school schedule, it was determined that teachers could administer both tests to their classes. In School A, the school administration decided that only one out of four Halls would provide subjects for the study. Consequently, the number of teachers involved in the process of instruction for administering the test was
greatly reduced. Among 12 teachers who initially expressed their willingness to participate in the study, 6 were randomly selected. They became test administrators, and their students, study subjects. However, the initial sampling of teachers revealed that 4 were teachers of basic required courses, which would in turn cause a disproportionate representation of freshmen in the sample. It was therefore decided to eliminate through a random draw 2 of the 4 from the pool of teachers and replace them with 2 new names drawn randomly from the remaining 6 teachers. Finally, a new pool of six teachers was created, who among themselves had 111 from all grades.

In School B the entire school population was offered for testing, and as a result the process of sampling was easier. The entire teaching staff was used as a pool from which half of the teachers were randomly selected to administer the tests. Those selected were given instruction in test administration. All in all, 216 students in School B were tested for this study.

As recalled, the specific procedures dealing with the test administration, determination of congruency between the inventoried and expressed interests for each subject, and the statistical analyses to be performed to test the hypotheses of this study have been discussed in the "Procedures" section in the first chapter.
CHAPTER IV

RESULTS AND DISCUSSION

This chapter presents the results of the study following the order of presentation of the hypotheses in Chapter I. The two major sections deal with the personality characteristics of the subjects and the grade-level groups respectively, in relation to the main effect, which is the congruence or incongruence between the outcomes of an expressed and an inventoried vocational interest measure. Following will be reports on the results of tests of significance between the main effects and various outside characteristics.

Before beginning to report the results of this study, a review of the terminology will be made to promote clarity for the reader. Several abbreviations are used throughout: "KGIS" for Kuder General Interest Survey, and "CPI" for California Psychological Inventory. The comparison of the former with a self-estimate of vocational interest is carried out through the investigation of the degree of relationship between the outcomes for the two methods. The general term for this phenomenon is "congruence." The coefficient of correlation between the expressed and inventoried interests will be referred to as "measure of
congruence" and will be symbolized by $r$. The reader is advised to distinguish between $r$, which is the coefficient of correlation between expressed and inventoried interests, or "measure of congruence" and $R$, which is the correlation coefficient between $r$ and individual scales of the CPI.

The grand totals for the outcomes of the two vocational interest measures for 327 subjects are given in Tables IX and X.

With a sample of 327 case, correlations ranged from -.60 to .99. The median correlation was .60 for the total sample, .60 for School A and .62 for School B, with 63 percent of all the subjects obtaining correlations greater than .60.

The data depicted in Tables IX and X show that there is a substantial degree of agreement between expressed and inventoried interests. The results presented here are somewhat higher than the results obtained by other investigators (Kopp and Tussing, Crosby and Windsor, Darley, and Berdie) where the correlation coefficient between

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1Kopp and Tussing, "The Vocational Choices of High School Students as Related to Scores on Vocational Interest Inventories."

2Crosby and Windsor, "The Validity of Student Estimates of Their Interest."

3Darley, Clinical Aspects and Interpretations.

4Berdie, "Scores."
### TABLE IX

THE DISTRIBUTION OF THE CORRELATION COEFFICIENT \( r \) BETWEEN THE EXPRESSED AND THE INVENTORIED MEASURES OF INTEREST (ABSOLUTE FREQUENCY)

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<th>School B</th>
<th>BOTH SCHOOLS</th>
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<td>9 10 11 12 T</td>
<td>9 10 11 12 T</td>
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<td>1</td>
<td>1 1</td>
</tr>
<tr>
<td>((- .59) - (- .50))</td>
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<td>2 1 1 2</td>
<td>3 1 4</td>
</tr>
<tr>
<td>((- .49) - (- .40))</td>
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<td>1 1 2</td>
<td>2 2 4</td>
</tr>
<tr>
<td>((- .39) - (- .30))</td>
<td>2 2</td>
<td>2 2 1</td>
<td>4 1 5</td>
</tr>
<tr>
<td>((- .29) - (- .20))</td>
<td>1 1 2</td>
<td>1 1 2</td>
<td>2 2 4</td>
</tr>
<tr>
<td>((- .19) - (- .10))</td>
<td>2 2</td>
<td>2 1 3</td>
<td>4 1 5</td>
</tr>
<tr>
<td>((- .09) - (- .00))</td>
<td>1 1</td>
<td>2 3 3 6</td>
<td>4 1 3 8</td>
</tr>
<tr>
<td>( .00 - .09)</td>
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<td>2 1</td>
<td>2 1 3</td>
</tr>
<tr>
<td>( .10 - .19)</td>
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<td>6 2 1 9</td>
<td>8 3 1 1 13</td>
</tr>
<tr>
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<tr>
<td>( .40 - .49)</td>
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<tr>
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<td>7 6 8 6 27</td>
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<tr>
<td>( .60 - .69)</td>
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<td>14 9 9 9 41</td>
<td>26 11 13 11 61</td>
</tr>
<tr>
<td>( .70 - .79)</td>
<td>6 8 1 1 16</td>
<td>8 8 9 9 34</td>
<td>14 16 10 10 50</td>
</tr>
<tr>
<td>( .80 - .89)</td>
<td>5 1 5 2 13</td>
<td>7 7 7 8 29</td>
<td>12 8 12 10 42</td>
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<tr>
<td>( .90 - .99)</td>
<td>3 1 2 6</td>
<td>2 4 3 5 14</td>
<td>5 4 4 7 20</td>
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</table>

\( \text{Mdn. } = .60 \) \hspace{1cm} \( \text{Mdn. } = .62 \) \hspace{1cm} \( \text{Mdn. } = .60 \)
TABLE X
THE DISTRIBUTION OF THE CORRELATION COEFFICIENT $r$
BETWEEN THE EXPRESSED AND THE INVENTORIED
MEASURES OF INTEREST (RELATIVE FREQUENCY -\%)

<table>
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<th>Both Schools</th>
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<tr>
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<td>(-.59) - (-.50)</td>
<td>2 0</td>
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</tr>
<tr>
<td>(-.49) - (-.40)</td>
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</tr>
<tr>
<td>(-.39) - (-.30)</td>
<td>2 2 1</td>
<td>1 1 1</td>
<td></td>
</tr>
<tr>
<td>(-.29) - (-.20)</td>
<td>4 8 2 2 2 1</td>
<td>3 3 1</td>
<td></td>
</tr>
<tr>
<td>(-.19) - (-.10)</td>
<td>4 2 3 2 1 3</td>
<td>1 2</td>
<td></td>
</tr>
<tr>
<td>(-.09) - (-.00)</td>
<td>2 5 2 6 3</td>
<td>3 1 4 2</td>
<td></td>
</tr>
<tr>
<td>.00 - .09</td>
<td>4 2 5 2 0</td>
<td>2 1 1</td>
<td></td>
</tr>
<tr>
<td>.10 - .19</td>
<td>4 5 4 4 6 4 2 4</td>
<td>7 4 1 1 4</td>
<td></td>
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<tr>
<td>.20 - .29</td>
<td>5 8 4 9 2 7 4 6</td>
<td>1 7 4</td>
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<tr>
<td>.30 - .39</td>
<td>5 5 17 7 6 6 8 9 8</td>
<td>8 6 11 7 8</td>
<td></td>
</tr>
<tr>
<td>.40 - .49</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>.50 - .59</td>
<td>20 5 17 15 16 11 13 16 11 13 15 10 16 12 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.60 - .69</td>
<td>22 10 17 15 18 22 19 18 16 19 22 16 18 16 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.70 - .79</td>
<td>11 40 4 8 14 13 17 18 16 16 12 24 14 15 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.80 - .89</td>
<td>9 5 22 15 12 11 15 14 15 13 10 12 16 15 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.90 - .99</td>
<td>5 4 15 5 3 9 6 9 6 4 6 5 10 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
measured and self-estimated interests obtained approximates .50, and are in general agreement with the results of studies conducted by Rose\textsuperscript{1} and Bridenbaugh and Brozovich\textsuperscript{2} whose median ranges between .61 to .65.

The correlation coefficients for the subjects under study range from -.60 to .99. This wide range in correlations among students could be a result of several factors: a) Some students have poor awareness of their interests and are unable to rate themselves realistically; and b) "Inventoried" and "expressed" interests do not agree because "inventoried" ranks reflect positions relative to group norms whereas "expressed" ranks are relative to personal norms. This author tried to minimize the effect of this factor by instructing the student to indicate the level of his interest by means of a percentage score in each vocational area \textit{in comparison to his peers}, thus preserving the group norms in the expressed interest measure. However, it is possible that some students rated their interests in each area relative to their personal norms in spite of the specific instructions.

\textsuperscript{1}Rose, "A Comparison of Relative Interest in Occupational Groupings and Activity Interests as Measured by the Kuder Preference Record."

\textsuperscript{2}Bridenbaugh and Brozovich, "Self-Rated and Test Interest Patterns."
TABLE XI
SAMPLE CORRELATION MATRIX REGRESSION ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>GRADE</th>
<th>DOMINANCE</th>
<th>CAPACITY FOR STATUS</th>
<th>SOCIABILITY</th>
<th>SOCIAL PRESENCE</th>
<th>SELF ACCEPTANCE</th>
<th>SENSE OF WELL BEING</th>
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<td>0.382519</td>
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<td>0.095531</td>
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<td>0.497475</td>
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<td>0.206791</td>
<td>0.289154</td>
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<td>SOCIALIZATION</td>
<td>SELF CONTROL</td>
<td>TOLERANCE</td>
<td>GOOD IMPRESSION</td>
<td>COMMONALITY</td>
<td>ACHIEVEMENT VIA CONFORMITY</td>
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<td>0.405667</td>
<td>0.033920</td>
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<td>0.333382</td>
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<tr>
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<td>0.159197</td>
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TABLE XI - Continued

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<th>INT. EFFICIENCY</th>
<th>PSYCH. MINDEDNESS</th>
<th>FLEXIBILITY</th>
<th>FEMININITY</th>
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<tr>
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<td>0.045618</td>
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The researcher performed a regression analysis where the congruency measure \( r \) was used as the dependent variable. The purpose of this analysis was to investigate the relationship between the congruency measure \( r \) between the expressed and inventoried interests and the scores on the 18 scales of the CPI.

Table XI presents the results of the regression analysis, and Table XII summarizes the results of the analysis.

Table XII depicts the findings concerning the difference between the mean scores on the CPI scales for all the subjects. Sixteen out of the 18 differences between means were in the hypothesized direction. The differences in mean scores on the Self-Control scale was significant at the .05 level; the difference between means on Dominance, Capacity for Status, Sociability, Social Presence, Self-Acceptance, Well-Being, Responsibility, Socialization, Tolerance, Communality, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological Mindedness, and Flexibility scales were significant at the .01 level. Two of the differences--on the Good Impression scale and the Femininity scale--were not significant. A separate analysis was conducted to find out whether male subjects having higher congruency measures between the inventoried and expressed
TABLE XII
THE CORRELATION COEFFICIENT R BETWEEN THE CONGRUENCY MEASURE OF EXPRESSED AND INVENTORIED INTERESTS r AND THE CPI SCALES, AND ITS DEGREES OF SIGNIFICANCE

<table>
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<th>CPI SCALE</th>
<th>R</th>
<th>.01 DEGREE OF SIGNIFICANCE</th>
<th>.05 DEGREE OF SIGNIFICANCE</th>
</tr>
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<tr>
<td>Capacity for Status</td>
<td>.270195</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Sociability</td>
<td>.156508</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Social Presence</td>
<td>.163386</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Self-Acceptance</td>
<td>.206791</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Well-Being</td>
<td>.289154</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Responsibility</td>
<td>.276247</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Socialization</td>
<td>.217419</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Self-Control</td>
<td>.135688</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Tolerance</td>
<td>.266592</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Good Impression</td>
<td>.083230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communality</td>
<td>.302214</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Achievement via Conformance</td>
<td>.211660</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Achievement via Independence</td>
<td>.289930</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Intellectual Efficiency</td>
<td>.326077</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Psychological Mindedness</td>
<td>.202761</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
<td>.222645</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Femininity</td>
<td>.045618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Males</td>
<td>.075400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for Females</td>
<td>.000900</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* A one-tailed test was used since prediction was directional.
interests would obtain lower scores on the Femininity scale of the CPI, and female subjects having higher congruency measures would score higher on the same scale. The analysis showed that the correlation coefficient between the congruence measure r and the scores on the Femininity scale of the CPI is .0754 for males and .001 for females. It was therefore impossible to reject this part of Null Hypothesis 1.

To summarize the findings of this analysis: Null Hypothesis 1 was rejected for 16 out of 18 CPI scales. The two scales for which there was no significant difference in mean scores between individuals of high and low congruency measures are the Good Impression and the Femininity scales.

In this study, regardless of grade level, individuals with marked high congruency between inventoried and expressed interests could be described as more confident, more outgoing, having more initiative, more resourceful, more enterprising, more ingenious, more enthusiastic, more intelligent, more imaginative, tending to be more realistic with indications of good judgment, having a better sense of well-being and self-understanding than those individuals with a low congruency between inventoried and expressed interests.

The highest correlation coefficients R were obtained for scales Intellectual Efficiency, Communality, Achievement via Independence, Well-Being, and Responsibility, which measure respectively the extent of personal efficiency, the extent of internal conflicts, the extent of autonomy, the
extent of self-doubt, and the extent of dependability. Since congruence of interest patterns coincided with favorable scores on most of the CPI scale, and especially on scales measuring characteristics listed above, it can be conjectured that the relationship between the individual's estimated and inventoried interests is a reflection of his self-concept and adjustment.¹

The grand means of congruency measure (r) for respective grade levels are as follows:

<table>
<thead>
<tr>
<th>GRADE</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>r</td>
<td>.500</td>
<td>.547</td>
<td>.570</td>
<td>.583</td>
</tr>
</tbody>
</table>

¹Descriptive words used in this paragraph are based upon descriptions used in the CPI manual as representative of characteristics measured by each scale.
Results are summarized by grade since grade was the sampling unit for this investigation. Strictly speaking, development should be expressed as a function of age. However, age was not the sampling unit, because the necessary administrative arrangements would be extremely complicated, and therefore unwarranted.

The increasing congruence of expressed estimates with test estimates of vocational interests with increasing grade level is apparent from a glance at Table XIII. A regression analysis for the significance of the difference in means rendered $r$ of .108. This figure manifests the upward tendency of increased interest congruence with increasing grade level; however, it fails to render the difference significant by a fraction.

Figure 1 indicates possible nonlinearity in the progress of clarification of interests. Setting consideration of sampling variability aside momentarily, the relationship of self-estimate to test scores in vocational interest areas is best represented as a parabolic, not linear, function of grade: the parabola best fits the data for interest. It curves markedly in the range from Grade 9 to Grade 10 and then starts to become asymptotic to the grade axis. This suggests some form of discreteness in the differentiation of interest, with an interest stage that seems to terminate by Grade 10. The data presented does
Figure 1

RELATIONSHIP BETWEEN EXPRESSED-INVENTORIED INTEREST CONGRUENCE AND GRADE LEVEL
not permit inference of the grade at which this possible stage originates.

These findings are in agreement with the results of a study conducted by O'Hara and Tiedman \(^1\) among 1021 boys attending a private Catholic school in Boston. Their interest data follows a parabolic function of age, indicating an interest stage seemingly terminated by Grade 10.

Bloom \(^2\) discussed a number of longitudinal studies of interests to examine the stability of interests over periods of time. He selected the mechanical and artistic areas of the Kuder Preference Record because of their high reliabilities, because they were likely to show some differences between sexes, and because the activities which they represent were likely to be engaged in by individuals from adolescence on.

Bloom concluded that before age 17 there appears to be rapid development and change in interests, while after this age the interests appear to stabilize.

The findings of this study, although falling short of required levels for statistical significance, do indicate a marked trend for an increasing congruence between expressed

\(^1\) O'Hara and Tiedman, "Vocational Self-Concept in Adolescents."

and inventoried interests with an increasing grade level. Thus the contention that the interaction between expressed and inventoried interests shows some relationship to developmental processes is supported and is in accord with vocational theories of Ginzberg, Carter, Super and Tyler, in which occupational choice is considered a developmental process rather than a specific event in an individual's life.

Table XIV summarizes the results of ten analyses of variance involving ten variables.

Of the "environmental" variables only the socio-economic level of the family as indicated by father's occupation is significantly related to the congruency between expressed and inventoried interests. The hypothesis is regarded as supported by these findings. Null Hypothesis 3, predicting no difference in measure of interest congruency between subjects of different socioeconomic levels, is rejected at the .01 level of confidence.

---

3 Super, "Vocational Adjustments in Terms of Role Theory."
TABLE XIV

RESULTS OF TESTS OF SIGNIFICANCE OF HYPOTHESES CONCERNING TEN VARIABLES AND THE CONGRUENCY MEASURE OF EXPRESSED AND INVENTORIED INTERESTS \( r \)

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>HYPOTHESIS MEAN SQUARE</th>
<th>F</th>
<th>( f )</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socioeconomic Status</td>
<td>.3218</td>
<td>3.4800</td>
<td>323</td>
<td>&lt;.0163**</td>
</tr>
<tr>
<td>Sex</td>
<td>.0329</td>
<td>.3472</td>
<td>325</td>
<td>&lt;.5562</td>
</tr>
<tr>
<td>Religion</td>
<td>.0760</td>
<td>.8019</td>
<td>323</td>
<td>&lt;.4936</td>
</tr>
<tr>
<td>Father's education</td>
<td>.1561</td>
<td>1.6676</td>
<td>321</td>
<td>&lt;.1420</td>
</tr>
<tr>
<td>Mother's education</td>
<td>.1256</td>
<td>1.3348</td>
<td>321</td>
<td>&lt;.2491</td>
</tr>
<tr>
<td>Number of children</td>
<td>.0317</td>
<td>.3297</td>
<td>318</td>
<td>&lt;.9543</td>
</tr>
<tr>
<td>Birth order</td>
<td>.0341</td>
<td>.3579</td>
<td>322</td>
<td>&lt;.8385</td>
</tr>
<tr>
<td>Intention of going to college</td>
<td>.4386</td>
<td>4.6895</td>
<td>325</td>
<td>&lt;.0311*</td>
</tr>
<tr>
<td>Definiteness of vocational choice</td>
<td>.3445</td>
<td>3.7343</td>
<td>323</td>
<td>&lt;.0116**</td>
</tr>
<tr>
<td>Order</td>
<td>.0062</td>
<td>.0650</td>
<td>325</td>
<td>&lt;.7990</td>
</tr>
</tbody>
</table>

A one-tailed test was used in all analyses since prediction was directional.

*.05 level of significance
**.01 level of significance
Since the subjects are mostly from a middle-class background, the range of the fathers' occupations is relatively narrow. Nevertheless, the implications of this study are that the socioeconomic status of the family is an important factor which influences the adolescent's vocational interest. A possible interpretation to this phenomenon is that the cultural level of the home is determined by its socioeconomic status, which in fact is related to the father's occupation. Family expectations are often determined by the level of the father's occupation, and the prestige and attraction that various vocational areas have for adolescents vary with the type of home from which they come.

It is also possible that the vocational aspirations expressed by the adolescents at home might be reinforced by parental interest and approval if the home maintains a high cultural level. However, adolescents from homes of a lower cultural level might encounter apathy or outright hostility if their vocational aspirations are not to the liking of their parents. The possible outcome of such different parental attitudes to the vocational interests of adolescents might be that adolescents coming from homes of a higher socioeconomic status are not reluctant to express high vocational aspirations, if in fact they nourish them, while adolescents of lower socioeconomic status, while having high aspirations in certain vocational areas, are reluctant to express their aspirations.
It is evident from the data that the interests expressed by the subjects and interests measured by KGIS may reflect socioeconomic differences. Another possible reason for this phenomenon may be the amount and credibility of the occupational information available to the subject which is, to a certain degree, dependent on the subject's socioeconomic background. Several investigators (Bordin, Wallace, and Sinnet) have suggested a causal link between the amount of information the subject has about an occupation and the correspondence that he will attain between inventoried and expressed interests. It is hypothesized that lower class subjects would have less opportunity to gain occupational information, which in turn would affect the outcome of their measured and expressed interests.

Tyler perceives an interest pattern as standing for a role that a person has accepted. Awareness of a role


4Tyler, "The Development of Interest."
enables the individual to ignore or rule out activities, goals and experiences not in keeping with it. It is possible that the experiences, values and attitudes which are functions of the socioeconomic status of the family have an influence on the role-awareness of the individual, and therefore, to a certain degree, determine his interest patterns.

The results of this study differ from those obtained by Dolliver, who compared low SES with high SES subjects on the interest congruency index. He obtained no statistically significant relationship between a subject's socioeconomic background and the congruency measure between his expressed and inventoried interests. Dolliver investigated college students. The interpretation of data with regard to socioeconomic level and congruence or discrepancy in interests is that those subjects of lower socioeconomic background who are interested in attending college have many middle-class characteristics, although their family income may be low.

On the basis of Dolliver's study it is possible to conclude that the socioeconomic level of the subjects is a more operational factor in the determination of his vocational

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1Dolliver, "An Adaptation of the Tyler Vocational Card Sort."
interests and the congruency between his expressed and inventoried interest when the subject is a high school student than when he is a college student. It is possible that when the student leaves his family and moves into the college campus, the influence of his familial background on several attributes, including his vocational interests, diminishes considerably. Otherwise, it is very hard to equate the results of Dolliver's study and those of this investigator.

Dolliver studied subjects of a variety of socio-economic backgrounds and found no significant differences in their inventoried-expressed interests congruence. In spite of the limitation of this study, which operated within the middle class only, significant differences were found in the inventoried-expressed interests congruence between members of the upper-middle, middle-middle, and lower-middle classes.

The results of the analyses testing the relationship between the sex of the subjects and the amount of inventoried-expressed interest congruency are summarized in Table XV. Since $p < .556$, Null Hypothesis 4 is therefore not rejected, and the conclusion is that a subject's sex and his being congruent or discrepant on the inventoried/expressed interest measures is not a statistically significant relationship. It is encouraging that the degree of congruence between inventoried and expressed interests is independent of the subject's
sex, as there is no reason that the two should be related. Similar considerations lead to the acceptance of Null Hypotheses 5, 6, 7, 8, and 9. Since $p$ for all the tests concerning the above listed hypotheses is below the significance level, it is concluded that a subject's religion, the educational level of both his parents, the number of children in his family, and his birth order, and his being congruent or discrepant on the expressed/inventoried interest measures are not statistically significant relationships.

It should be noted, however, that the education of the father and degree of congruence between interest measures form an important relationship, although it fails to obtain the level of statistical significance as indicated by $p < .142$. Since the father's education is related to his occupation, and thus to the socioeconomic level of the family, the conclusion of the findings describing the influence of the socioeconomic level of the family to the degree of interest congruence is thereby supported.

The results of the significance tests summarized in Table XIV reveal that $p < .031$ was obtained for the test of hypothesis concerning the relationship between the subject's intention of going to college and his interest congruency, and $p < .012$ for the test of the hypothesis concerning the relationship between the subject's definiteness of vocational
choice and his interest congruence. It is imperative, therefore, to reject Null Hypotheses 10 and 11 and conclude that: a) the subject's intention of continuing his education in college and his being congruent or discrepant on the inventoried/expressed measures of interest is a statistically significant relationship, and b) the degree of his commitment to a future vocational choice and his being congruent or discrepant on the inventoried/expressed interest measures is a statistically significant relationship.

These two variables, subject's intention to continue his education and the definiteness of his vocational choice, are different from the variables described in the preceding pages, in that the former are demographic characteristics, pertaining to the subject's milieu, while these are, in a sense, characteristics descriptive of his vocational behavior. This author knows of no studies investigating the relationship between these characteristics and the congruence between expressed and inventoried interests. The findings of this study indicate that adolescents whose congruence of interests is substantial differ significantly from those who are discrepant in their expressed and inventoried interests, in that their vocational plans are more crystallized and they are more cognizant about their vocational future. Thus, this study, by supplying additional information about vocationally relevant attributes, contributes to a further understanding of vocational behavior in adolescence, and
has far-reaching implications for vocational counseling, especially of students who are not college-oriented.

The test of significance of the relationship between the order in which the subjects' interest measures (expressed and inventoried) were obtained and their interest congruency rendered $p < .799$. It must therefore be concluded that Null Hypothesis 12 is accepted and that the order in which the subject submitted his expressed and inventoried interest measures and the subject's being either congruent or discrepant in these interests is not a statistically significant relationship.

The significance of this finding is in that it documents that the technical aspects of administering the interest measures are not important. Both methods of obtaining the interest, by testing and by self-estimate, are not timed, and do not require either special personnel or special equipment. Thus the results obtained in this study facilitate the administration of the tests by leaving the decision of test order to the discretion of the counselor.

In the statistical analysis of interactions between the demographic variables and the congruency measure of expressed and inventoried interests $r$ (summarized in Table XIV), a test of interaction among the ten independent variables was not conducted. The reason for this decision was the fact, that there was a great number of possible
interactions among them. Specifically, there are 1024 possible interactions among these variables.
CHAPTER V

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This dissertation was designed to study the relationship of certain variables to congruency or discrepancy between expressed and inventoried interests.

The sample consisted of 327 high school students selected at random from two high schools—one a public school located in an affluent suburb, another a parochial school located in the city.

The instruments used in this study were: Kuder General Interest Survey Form E to obtain the inventoried measures of interest; Kuder General Interest Survey Profile through which the self-estimated measures of interest were obtained; the Personal Questionnaire which provided personal information on the subjects; and the California Psychological Inventory which served as an adjustment measure.

It was hypothesized that the congruency/discrepancy between the interest measures would relate to positive/negative scoring on the 18 scales of the CPI. This was confirmed for 15 scales at .01 level of confidence, for one scale at .05 level of confidence, and it was rejected for two scales.
It was further hypothesized that the degree of congruence between expressed and inventoried interests is a function of grade level. This was not confirmed statistically; however, noticeable trends of this relationship were documented.

Regarding congruence/discrepancy of subjects, it was found that of the demographic characteristics (socioeconomic status, sex, religion, father's education, mother's education, number of children in the family, and birth order) only socioeconomic status was found to relate at a significant level. Father's education did not relate significantly to the main effect, but a noticeable tendency was documented.

It was also shown that the subject's positive intention of going to college and the high degree of definiteness of his vocational choice is significantly more characteristic of subjects congruent in their expressed/inventoried interests than subjects discrepant in the same interests.

It was further documented that the order in which interest measures are submitted has no bearing on the outcome of interest congruency.

**Implications for Counseling**

The findings of this study establish a significant relationship between the subject's congruence in the area
of expressed and inventoried interests and his personality adjustment. They suggest that the interaction of an individual's expressed and inventoried interests is an index of his adjustment.

The data presented in this study argue for a new use of interest inventories. There is a substantial body of evidence in this research to indicate that an unrealistic self-concept is reflected in unrealistic estimates of one's interests. The corollary of this research is that a method which employs the use of a vocational inventory and a self-rating profile, which are neutral, non-threatening instruments, is able to present results indicating the individual's adjustment and thus screen individuals who are in need of counseling.

The merits of this method are evident: it is relatively simple, since it involves a widely-employed interest inventory, proved to be appropriate for young, unsophisticated students, and a self-estimate profile equipped with easy-to-follow instructions; it is inexpensive, since the Kuder booklets are reusable and the self-rating profiles can be duplicated; it is not time-consuming—it takes 45-60 minutes to finish the Kuder General Interest Survey and 5-10 minutes for the self-rating profile; it is administratively unencumbered, since it requires neither specially-trained personnel nor
special testing conditions, and it is untimed—it could be taken by the student in his free time.

This method is widely applicable. It can be used with students of both sexes and a variety of backgrounds. The suggested use is for students of high school age. Further research is needed to find out whether it is equally useful with younger and older students.

The suggestion of this author is that administration of an interest test (KGIS) be accompanied by a self-estimate profile. When a client exhibits a discrepancy between his inventoried interests and his self-estimates of interests, the counselor will be alerted to the necessity for further exploration to discover the sources of this discrepancy. The findings suggest that perhaps the best strategy is to precede vocational guidance with personal counseling. If adjustment and self-concept are related to interest congruence, as the data indicate, then improved adjustment and self-concept should result in a more realistic and congruent interest differentiation and a better basis for vocational decision making.

Small observed: "Vocational counseling, emphasizing as it does realistic factors, is best able to benefit the realistically oriented individual." The purpose of counseling,
then, is to facilitate the client's extinction of defenses, the verbalization of anxieties, and the development of realistic thinking, foresightedness and self-control. With a more adequate self-concept and freed from anxiety, the client is better equipped for problem-solving during the latter stages of counseling.

It would seem that the results of this study emphasize the importance of the counselor's discussing all interest scores with their counselees. Much research is needed to determine the dynamics of self-concept to interest and to achievement, but there are indications that the concept a person has of his self influences his achievement to a significant degree. If this is so, then a student who scored high on one of the interest scales must know that he scored high. It is the function of the counselor to communicate this knowledge in such a way that it becomes a dynamic force in one's achievement and vocational decision-making.

Findings of this study pertaining to the differences between college and non-college oriented adolescents imply that different criteria of counseling should be applied to the student who has no academic aspirations. Extensive

\[\text{Caplin, "The Relationship Between Self-Concept and Academic Achievement."}\]
research has answered many questions regarding the kinds of abilities, interests, values, and home backgrounds characteristic of students pursuing academically oriented areas. However, similar information about non-academically oriented students is lacking. Results of this study suggest that counselors assisting students in making vocational decisions cannot employ the same criteria to assist students who do not desire academic education that have been effective for use with college preparatory students.

The results of this study indicating the relationship between age level and degree of interest congruency indicate that counselors should start working early with adolescents showing wide discrepancies in their interest scores. This study shows that the greatest change in the degree of interest congruency occurs up to the 10th grade. No attempt was made to investigate the changes in interest congruency prior to grade 9, but it seems logical to assume that these changes do occur, and therefore early counseling would be beneficial.

If the extent of congruence seems to be influenced by social variables, and the indications of the study are that it is influenced by the socioeconomic level of the family and partially by the father's education, then guidance in the upper grades of the elementary school would seem essential.
The data seems to indicate, too, that parents could be given opportunities to gain insights and attitudes which would make influences upon the vocational behavior of their children more constructive.

The study findings also imply that early developmental data, collected in adolescence may provide significant information about adult career choice. Fretz concluded that adjustment was the most efficient criterion to predict career preference in adulthood. Also Bloom stressed the importance of preadolescent developmental phenomena in predicting and understanding adult behavior. The advantage of the findings of this study would be earlier availability of preadolescent and adolescent developmental data and the potential counseling advantages that derive from having data at an early age.

In view of the study findings, it seems that this early counseling, if needed, could enhance the possibility of individuals acquiring more realistic self-concepts and more appropriate self expectations. This, in turn, could conceivably lead to individuals who are able to make


2 Bloom, Stability and Change in Human Characteristics.
appropriate decisions, vocational and otherwise.

Suggestions for Further Research

This investigation was essentially exploratory. The following comments are made on the basis of this dissertation:

1. With the exception of the CPI scales, comprehensive strategies were not identified for further study of subjects with congruent or incongruent interests. Descriptive data have been presented in this dissertation that may help other investigators interested in this topic. It is probable that identification of more refined hypotheses will be achieved through the combined use of expressed and inventoried interest measures.

2. The results seem to warrant conducting a larger, more comprehensive study using larger n's and including a correlation between discrepancy scores and adjustment scores for the total sample. Subjects should be truly representative of all adolescents. Similar studies should be conducted in different geographic, racial, and socioeconomic environments and in other cultures as well.
3. With regard to the development of interest, the findings suggest that similar studies be conducted among younger adolescents as well as among college students to understand more fully those aspects of interest development that are a function of age, as well as to test the applicability of the method of screening candidates on the basis of interest congruence in age groups other than high school level.

4. Since the results of the exploratory study are confirmed, factors which may affect the extent of the expressed-inventoried interest congruence, such as identification process, familial variables, and the like, should be studied next. One hypothesis is that the nature of interpersonal relationships in the family is associated with self-concept, and consequently, with interest congruency. Identification with accepting parents, for example, is essential for the development of inhibitory and planning capacities (Lair, Singer), as it is for the

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formation of unambiguous interest patterns (Carter\textsuperscript{3}). If parents are over-protective and overdemanding toward the child, or if they neglect or reject him, the process of identification, and hence healthy self-concept development and interest patterns are adversely affected (Roe\textsuperscript{4}). It seems that the above discussed relationship between parental acceptance/avoidance to interest congruence leads to a warranted study.

5. There is an impressive amount of data on differential rates and patterns of development in adolescence. The intercorrelation patterns of adjustment, educational achievement and vocational development suggest that a wide range of individual differences exists in the manner in which adolescents deal with the tasks society imposes upon them. Their various modes of adjustment, both successful and unsuccessful, need to be investigated.

\textsuperscript{1}Carter, "The Development of Vocational Attitudes."

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THE CPI SCALES

Class I - Measures of Poise, Ascendence, Self-Assurance and Interpersonal Adequacy

1. **DO - DOMINANCE** - To assess factors of leadership ability, dominance, persistance, and social initiative.

2. **CS - CAPACITY FOR STATUS** - The scale attempts to measure the personal qualities and attributes which underlie and lead to status.

3. **SY - SOCIABILITY** - To identify persons of outgoing, sociable, participative temperament.

4. **Sp - SOCIAL PRESENCE** - To assess factors such as poise, spontaneity, and self confidence in personal and social interaction.

5. **SA - SELF ACCEPTANCE** - To assess factors such as sense of personal worth, self acceptance, and capacity for independent thinking and action.

6. **WB - SENSE OF WELL BEING** - To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.
Class II - Measures of Socialization, Maturity, Responsibility, and Intrapersonal Structuring of Values

7. RE - RESPONSIBILITY - To identify persons of conscientious, responsible, and dependable disposition and temperament.

8. SO - SOCIALIZATION - To indicate the degree of social maturity, integrity, and rectitude which the individual has attained.

9. SC - SELF CONTROL - To assess the degree and adequacy of self-regulation and self-control.

10. TO - TOLERANCE - To identify persons with permissive, accepting, and non-judgmental social beliefs and attitudes.

11. GI - GOOD IMPRESSION - To identify persons capable of creating a favorable impression, and who are concerned about how others react to them.

12. CM - COMMONALITY - To indicate the degree to which an individual's reactions and responses correspond to the modal ("common") pattern established for the inventory.
Class III - Measures of Achievement Potential and Intellectual Efficiency

13. AC - ACHIEVEMENT VIA CONFORMITY - To identify those factors of interest and motivation which facilitate achievement in any setting where conformance is a positive behavior.

14. AI - ACHIEVEMENT VIA INDEPENDENCE - To identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.

15. IE - INTELLECTUAL EFFICIENCY - To identify the degree of personal and intellectual efficiency which the individual has attained.

Class IV - Measures of Intellectual and Interest Modes

16. PY - PSYCHOLOGICAL MINDEDNESS - To measure the degree to which the individual is interested in, and responsive to, the inner needs, motives, and experiences of others.

17. FX - FLEXIBILITY - To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.
18. **FE - FEMININITY** - To assess the masculinity or femininity of interests. (High scores indicate more feminine interests; low scores indicate more masculine interests.)
APPENDIX B

PERSONAL QUESTIONNAIRE
# PERSONAL QUESTIONNAIRE

1. Last name __________________________ 2. First name __________________________ 3. Middle name

7. Town __________________________ 8. Grade level __________________________

9. Type of school (mark one)
   a. Academic
   b. Vocational
   c. Agricultural
   d. Military
   e. Other (specify) __________________________

10. Born (country) __________________________

11. Years in this country __________________________

12. Citizenship __________________________

13. Religion __________________________

14. Father's occupation __________________________

15. Mother's occupation __________________________

16. Father's employer __________________________

17. Mother's employer __________________________

18. Father's years of education __________________________

19. Mother's years of education __________________________

20. Number of children in the family __________________________

21. Brothers (names) __________________________
   (ages) __________________________

22. Sisters (names) __________________________
   (ages) __________________________

23. Do you intend to go to college? __________________________

24. Of the following mark one:
   a. You have a definite vocational choice __________________________
   b. You narrowed down your choices to 2-3 alternatives __________________________
   c. You have some ideas about vocational plans, but you are not sure __________________________
   d. You have not yet vocational plans at all __________________________

25. If you answered (a), what is your vocational choice? __________________________

---

**DO NOT WRITE BELOW THIS LINE**

CPI __________________________

KGIS(1) __________________________

KGIS (2) __________________________

IL __________________________
You are interested in something if you enjoy doing it. Your interest profile indicates whether your interests in the ten areas measured are high, average, or low compared with those of other boys or girls at your grade level across the nation.

Like most people, you probably have scores that are high in some areas, low in some, and average in others. High interests are not better than low interests; nor is one interest better or worse than another. What counts is knowing what your interests are and considering them whenever you have an important educational or vocational decision to make.

Here is what the ten interest areas measured by the Kuder General Interest Survey mean.

OUTDOOR interest means preference for work or activity that keeps you outside most of the time—usually work dealing with plants and other growing things, animals, fish, and birds. Foresters, naturalists, fishermen, telephone linemen, and farmers are among those high in outdoor interest.

MECHANICAL interest means preference for working with machines and tools. Aviator, toolmaker, machinist, plumber, automobile repairman, and engineer are among the many jobs involving high mechanical interest.

COMPUTATIONAL interest indicates a preference for working with numbers and an interest in math courses in school. Bookkeepers, accountants, bank tellers, engineers and many kinds of scientists are usually high in computational interest.

SCIENTIFIC interest is an interest in the discovery or understanding of nature and the solution of problems, particularly with regard to the physical world. If you have a high score in this area, you probably enjoy working in the science lab, reading science articles, or doing science experiments as a hobby. Physician, chemist, engineer, laboratory technician, meteorologist are among the occupations involving high scientific interest.

PERSUASIVE interest is an interest in meeting and dealing with people, in convincing others of the justice of a cause or a point of view, or in promoting projects or things to sell. Most salesmen, personnel managers, and buyers have high persuasive interest.

ARTISTIC interest indicates a preference for doing creative work with the hands—usually work involving design, color, and materials. If you like to paint, draw, sculpture, decorate a room, design clothes, you are probably high in this interest. So are artists, sculptors, dress designers, architects and interior decorators.
MUSICAL interest is usually demonstrated by persons who enjoy going to concerts, playing an instrument, singing or reading about music.

SOCIAL SERVICE interest indicates a preference for activities that involve helping people. Nurses, counselors, tutors, hospital attendants, clergymen are among those high in this interest area.

CLERICAL interest means a preference for work that is clearly defined for you—work that involves specific tasks requiring precision and accuracy. Jobs such as bookkeeper, accountant, file clerk, salesclerk, statistician and traffic manager fall in this area.

If you estimate your interest in a given area at the 0-20 point level it means that you see yourself as a person who has no interest, or very little interest in that area, in comparison to your peers.

If you indicate your interest on the 20-40 point level in an area, you estimate your interest to be below average in this area in comparison to your peers.

If you choose the 40-60 level, you indicate that your interest in this area is average in comparison to your peers.

If you assign between 60-80 points to indicate the level of your interest you estimate it as above average.

If you judge your interest in an area to be on the 80-100 level, it means that you are very much interested in this area, and that your interests in this area far exceed those of your peers.

Of course, your interest scores in each area might be different. You also might find out that you share equal interests in several areas.

EXAMPLE: This is an interest profile of a person with scores:
15 in Outdoor; 75 in Mechanical; 60 in Clerical; etc.

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<th>COMPUTATIONAL</th>
<th>SCIENTIFIC</th>
<th>PERSUASIVE</th>
<th>ARTISTIC</th>
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HOW TRY TO ESTIMATE THE LEVEL OF YOUR INTEREST IN EACH AREA AND INDICATE IT IN THE TABLE BELOW.

INDICATE THE LEVEL OF INTEREST IN EACH AREA BY DRAWING A LINE ACROSS ITS COLUMN CORRESPONDING TO THE SCORE YOU HAVE CHosen.

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0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100
APPROVAL SHEET

The dissertation submitted by Sonia Becker has been read and approved by members of the Department of Education.

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date

Signature of Advisor