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The Use of the Vocational Preference Inventory with a North Dakota Indian Population

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THE USE OF THE VOCATIONAL PREFERENCE INVENTORY WITH A NORTH DAKOTA INDIAN POPULATION

by

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ABSTRACT

Problem

The purpose of this study was to develop normative data on the Vocational Preference Inventory with an Indian population and to determine the relationships between the VPI scales and the Occupational Aspiration Scale, scholastic achievement, intelligence, and selected occupational information. The study also examined the differences between a North Dakota non-Indian high school sample and a North Dakota high school sample on the VPI scales.

Procedure

The research sample for this study consisted of 161 North Dakota Indian high school juniors and seniors enrolled at the Turtle Mountain Community School, Belcourt, North Dakota, and the Standing Rock Community School, Fort Yates, North Dakota, for the 1970-71 academic year.

All students were administered the Vocational Preference Inventory (VPI), the Occupational Information Form (OIF), the Occupational Aspiration Scale (OAS), and the Student Report Form (SRF) in the early fall. Subjects were divided into groups based on sex and the reservation on which they resided. Scholastic achievement and intelligence test scores were obtained from the cumulative records.

The statistical techniques employed were a two-way analysis of variance, Dunn's "c" test and Scheffé's test for mean comparisons, and

Pearson's Product-Moment correlation technique. The .05 level was used as the criterion level for statistical significance.

Results

1. Significant differences were found for the mean score comparisons of three VPI scales. The Turtle Mountain Community School females scored lower on the Artistic scale than did the non-Indian females, while in this school the Indian males scored higher on the Self-Control scale than did the non-Indian males. Both Indian male groups scored higher on the Infrequency scale than did the non-Indian males.

2. A significant negative relationship was found between the Realistic scale and intelligence test scores for the Turtle Mountain Community School males, while a significant positive relationship was found between the Status scale and intelligence test scores for these males.

3. Significant negative relationships were found between the ITED standard composite scores and the Realistic scale for the Turtle Mountain Community School males, the Conventional scale for the Turtle Mountain Community School females, and the Infrequency scale for the Standing Rock Community School females. A significant positive relationship was found between the ITED standard composite scores and the Intellectual scale for the Standing Rock Community School males.

4. Significant differences were found on the six vocational scales of the VPI with the Standing Rock males scoring higher than the Turtle Mountain males on the Artistic scale, while the Standing Rock

females scored higher on the Intellectual scale than did the Turtle Mountain females.

5. No significant relationships were found between the Total Acquiescence scale of the VPI and knowledge of work or location of work in specific occupations for all Indian student groups.

6. A positive relationship was found between the total OAS scores and the VPI Status scale scores for all Indian student groups.

CHAPTER I

INTRODUCTION

Holland (1959) presents a theory of vocational choice which assumes that at the time of vocational choice the person is the product of the interaction of his particular heredity with a variety of cultural and personal forces including peers, parents, and significant adults; his social class; American culture; and the physical environment. Out of this experience the person develops a hierarchy of preferred methods for dealing with environmental tasks. These methods are associated with different kinds of physical and social environments and with differential patterns of abilities. The person making a vocational choice looks for situations which satisfy his hierarchy of adjustive needs.

Holland's theory suggests a classification system which is useful in organizing knowledge about vocational choice. The six major classes of occupational environments are Motoric, Intellectual, Supportive, Conforming, Persuasive, and Esthetic Environments. He has also expanded these occupational environments to include personality types which identify major styles of life or behavioral orientations from which predictions may be made concerning career decisions, both with respect to the specific choices as well as some of the dynamic features that underlie the decision-making process. The personality types which parallel the occupational environments are Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic.

Research using a wide variety of people has been conducted with the Vocational Preference Inventory (VPI), the instrument which Holland designed to measure the different personality types. Samples studied have included National Merit Scholarship Finalists, college students, unemployed persons and employed persons (both college graduates and non-college graduates), as well as psychiatric patients. At the high school level, normative samples have included mostly National Merit Finalists. These high school students are described by Holland (1963-1964, p. 93) as "students of superior scholastic aptitude who come largely from families in which the father's occupation is managerial, semi-professional, or professional." Stockin (1964) used the VPI in testing Holland's theory, but again the sample was above average on intelligence (with a mean IQ score of 109).

This present investigation is primarily concerned with the use of Holland's Vocational Preference Inventory with a sample that is different from the National Merit Finalists. This study will examine the vocational preferences of American Indian high school students in the State of North Dakota and will also assess the occupational level of Indian students as measured by Haller's Occupational Aspiration Scale (OAS).

Statement of the Problem

The primary purpose of this study was to develop normative data on the Vocational Preference Inventory with an Indian population and to determine the relationships between the VPI scales and the Occupational Aspiration Scale, scholastic achievement, intelligence, and selected occupational information. The study also examined the differences

between a North Dakota non-Indian high school sample and a North Dakota high school sample on the VPI scales.

Hypotheses

Specific null hypotheses tested were:

1. There are no significant differences between the mean scores on the eleven scales of the VPI for a North Dakota non-Indian high school sample and the mean scores on the VPI for a North Dakota Indian sample when the groups are separated by sex and reservation.

2. There are no significant relationships between the scores on the eleven scales of the VPI for an Indian sample and intelligence test scores when the groups are separated by sex and reservation.

3. There are no significant relationships between the scores on the eleven scales of the VPI for an Indian sample and scholastic achievement as measured by the standard composite scores of the Iowa Tests of Educational Development when the groups are separated by sex and reservation.

4. There are no significant differences between the mean scores on the six vocational scales of the VPI for the male Indian sample when separated by reservation.

5. There are no significant differences between the mean scores on the six vocational scales of the VPI for the female Indian sample when separated by reservation.

6. There are no significant relationships between the amount of knowledge of the type of work done by persons in selected occupations as measured by question one of the Occupational Information Form and the total Acquiescence scale scores of the VPI when the groups are separated by sex and reservation.

7. There are no significant relationships between the number of correct responses about the location where people in selected occupations would get work as measured by question two of the Occupational Information Form and the total Acquiescence scale scores of the VPI when the groups are separated by sex and reservation.

8. There are no significant relationships between the Occupational Aspiration Scale total scores and the Status scale of the VPI when the groups are separated by sex and reservation.

Delimitations and Limitations

This investigation dealt with those Indian high school students who were enrolled as juniors and seniors in the Fall Semester of 1970 at the Turtle Mountain Community School, Belcourt, North Dakota, and the Standing Rock Community School, Fort Yates, North Dakota, and those non-Indian senior class members at the Bottineau High School, Bottineau, North Dakota, and who were present on at least one of two test days. Bottineau High School, a public school, was selected for the study as it was assumed to be representative of the rural, non-Indian high schools of North Dakota.

Significance of the Study

The lack of information available on the use of the Vocational Preference Inventory for measuring the personality of high school students other than the National Merit Finalists is critical to those engaged in vocational measurement research. In reviewing the literature on the VPI, only one study was found which used the VPI with a high school sample other than the National Merit Finalists. Stockin (1964) reported a validation of Holland's theory of vocational choice

using a sample that was more heterogeneous in regard to socio-economic background, intelligence, and range of choice than the so-often-used college sample.

More research is needed to show that the VPI is a valid instrument for assessing personality measures of high school students. Since the VPI provides a broad range of information about a student in a brief testing and scoring time without the need for special scoring or data processing equipment, it should be highly desirable for use within high school settings.

As a minority group little is known about the vocational aspirations and interests of American Indian students. The present study should contribute to the literature on the educational-vocational decisions of Indian students.

Definition of Terms

Acquiescence Scale. A non-vocational scale of the VPI with a primary value of detecting dissimulation and extreme response biases which often go undetected in forced-choice and true-false formats. High scores are associated with self-confidence and low scores with self-deprecation.

High-point Code. The coding of the highest score of the Realistic, Intellectual, Social, Conventional, Enterprising, or Artistic scales of the VPI profile after an individual's scores have been profiled according to a normative sample.

Levels of Occupational Aspiration. The area (a point or limited range of points) of the occupational prestige hierarchy which an individual views as a goal.

Occupational Prestige Hierarchy. A theoretical hierarchical listing of occupations based on the differential societal evaluation of the prestige of those occupations.

Status Scale. A non-vocational scale of the VPI which indicates the vocational choice with high prestige ranking and represents the need for status or prestige.

Organization of the Study

The remainder of this study is organized in four subsequent chapters. Chapter II contains a review of the related literature. The description of the research population, the instruments used, and the statistical procedures employed are presented in Chapter III. The results are reported in Chapter IV. A summary and discussion of the findings, the conclusions, and the recommendations which emerged from this study are presented in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter includes the review of related literature on the main instruments used in the study and a brief description of the vocational plans of American Indian youth. The areas reviewed are: (1) Holland's Theory of Vocational Choice and the Vocational Preference Inventory, (2) Occupational Aspiration, and (3) The American Indian Graduate.

Holland's Theory of Vocational Choice and the Vocational Preference Inventory

Most attempts to validate Holland's Theory of Vocational Choice through research have been conducted by Holland and his associates using a population of National Merit Scholarship Finalists. A basic feature in the research has been the idea that occupational titles possess a considerable amount of stimulus value to people and that these titles, while stereotyped, are nevertheless congruent with reality. Thus the stimuli created by the occupational titles of the VPI minimize the negative reactions sometimes provoked by more obvious personality inventories, thereby reducing a person's need to "fake," since the VPI is perceived as a vocational inventory.

Holland's theory assumes that:

> . . . at the time of vocational choice the person is the product of the interaction of his particular heredity with

> a variety of cultural and personal forces. Out of this experience the person develops a hierarchy of habitual or preferred methods for dealing with environmental tasks. The person making a vocational choice in a sense searches for situations which satisfy his hierarchy of adjustment orientations (Holland, 1959, p. 35).

The six occupational environments and the type of activity involved in the occupations which Holland developed are: (1) Realistic Environment--physical activity such as that work done by laborers, machine operators, farmers or carpenters; (2) Intellectual Environment--intellectuality as performed by physicists, mathematicians, chemists or biologists; (3) Social Environment--responsibility as demonstrated by the work of social workers, teachers, vocational counselors or therapists; (4) Conventional Environment--conformity as exemplified by the work of bank tellers, secretaries, bookkeepers, or file clerks; (5) Enterprising Environment--verbal activity as used by salesmen, politicians or business executives; and (6) Artistic Environment--emotional activity as characterized by work done by musicians, artists, poets, or writers (Holland, 1962).

The six types of adjustment stemming from the occupational environments represent major life types and patterns of relationships in dealing with daily problems. The Realistic person is characterized by aggressive behavior, concreteness, physical strength, masculinity, and low social skills and sensitivity; whereas the Intellectual person enjoys thinking rather than acting, understanding instead of persuading, and distance in place of close interpersonal contact. The Social person seeks close interpersonal activities that require physical skills, while the Conventional person is concerned with rules and regulations, great self-control, and identification with power and status. The Enterprising

person is verbally skilled and uses these skills in manipulating and dominating people, while the Artistic person dislikes structure, prefers tasks involving physical skills and interpersonal interactions, and expresses himself through artistic skills.

Holland (1959) introduced a concept, self-knowledge, which refers to the amount and accuracy of information an individual has about himself. Self-knowledge, or what one knows about himself, differs from self-evaluation which refers to the worth the individual attributes to himself. Self-evaluation can be defined by such scales as the Occupational Level (OL) of the Strong Vocational Inventory Blank (SVIB). The level of choice, within a given class of occupations, is a function of intelligence and self-evaluation. Holland states a formula for indicating the relationship between the factors of self-evaluation and intelligence: Occupational Level = Intelligence + Self-evaluation.

Since self-evaluation is a function of socio-economic origin, need for status, education, and self-concept, self-evaluation should be similar to Haller's measure of occupational aspiration level. Holland (1959) states that over-evaluation of self leads a person to the selection of environments beyond the person's adaptive skills (unrealistic aspirations), and under-evaluation of self leads to the selection of environments below the person's skills.

Schutz and Blocher (1961) examined the possibility of the Occupational Level of the SVIB as a measure of a level of occupational choice or aspiration and its relationship to a measure presumed to reflect a person's self-concept or self-satisfaction. With a sample of suburban high school seniors, the OL scale of the SVIB correlated positively with the Descriptive Check List (DCL), a measure of self-

satisfaction, thereby lending support to Holland's idea that self-evaluation can best be measured by scales of occupational content such as the OL scale.

Stockin (1964) also investigated one aspect of the level of hierarchy in Holland's theory by studying the correlation between high school seniors' intelligence and self-evaluation and their level of occupational choices. These seniors were not National Merit Finalists but were above average in intelligence with a mean IQ of 109. The intelligence test scores, which were available from the school files, approximated a normal distribution and were assigned to one of four ranks depending upon the quarter into which each score fell. Rank one consisted of the top 25 per cent of the scores and rank four represented the bottom 25 per cent.

From the combination of three scales, the Sims Social Status Scale (Sims SCI), the Attitude Toward Education Scale (ATE) of Heironymus, and the Socio-economic Expectation Scale (SEE), a single self-evaluation score for each individual resulted. The total scores of the three instruments were placed in quarters and given ranks similar to the intelligence score ratings. The predicted occupational choices, assigned to a level based on Roe's Occupational Classification System, were compared to actual preferences. The findings indicated that a systematic relationship existed between the predictions and the actual vocational choices. Further, the incorrect predictions of occupational level displayed a discrepancy of only one level and an increase of 15 per cent greater accuracy was obtained when the self-evaluation scores were added to the intelligence scores. Three

researchers, Stockin (1964) and Schutz and Blocher (1961), established results supporting the level hierarchy of Holland's theory.

Holland (1960b), using high school subjects, correlated the VPI scales with Cattell's Sixteen Personality Factor Questionnaire (16PF). He detected significant correlations of 47 per cent for boys and 28 per cent for girls. The first eight factors of the 16PF (Cyclothymia, Intelligence, Emotional Stability, Dominance, Surgency, Super-ego Strength, Parmia, and Premsia) correlated more frequently and related more often with the VPI scales than did the last eight factors (Paranoid Tendency, Autia, Shrewdness, Guilt Proneness, Radicalism, Self-sufficiency, High Self-sentiment, and Ergic Tension). The results of this study demonstrated a closer relationship of the VPI scales to the comprehensive scales of the 16PF, or the first eight factors. The intercorrelations of the VPI and the 16PF provide evidence for the construct validity of the VPI and its rationale.

The correlational results of another Holland study (Holland, 1963a) appear to support those obtained in a comparison of criterion groups (Holland, 1958). In this study, psychiatric patients, in contrast to matched controls, obtained higher scores on the Infrequency scale and lower scores on the Acquiescence, Physical Activity (Realistic), Verbal Activity (Enterprising), Aggressiveness, and Mf scales.

The study of the matched control and psychiatric samples was expanded to include a sample of tubercular patients and psychopaths. The results indicated that the control group scored significantly lower on the Infrequency scale and significantly higher on the Physical Activity, Responsibility and Masculinity scales than did the tubercular patients, and they scored significantly higher than the psychopaths on

the Infrequency, Physical Activity, Responsibility, Conformity, Masculinity, and Aggressive scales of the VPI.

The four studies by Holland (1963-1964) utilized a sample of National Merit Finalists who were polled by mail just before they entered college. Holland (1963-1964, p. 93) stated that "no case can be made for the sample as representative of any well defined sample," but he described the students as being superior in scholastic aptitude and coming from families in which the father's occupation was classified as managerial, semi-professional, or professional.

In the first of these studies Holland (1963b) categorized 360 male and 278 female National Merit Finalists into one of the six model types according to their vocational choices and their scores on the VPI scales. He then presented a typical occupation from each of the six model types (Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic types) in the form of a questionnaire in which the subjects completed sentence stems relating to the six occupations. The completion answers tended to be single adjectives, and these students of superior scholastic aptitude perceived occupations in stereotyped ways which tended to be consistent with some of the personality variables associated with vocational choices and preferences. The results suggested that student stereotypes of occupations have some validity, with students seeing some of the personal traits and working situations which are in accordance with some of the knowledge about the occupations.

The same sample of National Merit Finalists, under further examination in the second study, were compared on their responses to an adjective checklist with their scores on the six model scales of the VPI.

Holland (1963c) reported that students generally described themselves along the main dimensions outlined in the appropriate theoretical models. The results of the investigation suggested that vocational preference are associated with self-concept in expected ways. For example, boys with Intellectual vocational preferences characterized themselves as being curious, imaginative, intellectual, scholarly, scientific, precise, and inventive by choosing adjectives associated with those describing the outline of the Intellectual model type.

In the third study by Holland (1963d) this National Merit Finalist sample reported their vocational preference as related to a student's report on a questionnaire. The responses to a series of multiple-choice items examining the students' source of frustration, preferred activities, and outstanding competencies correlated significantly with vocational preferences. For example, students perceive engineers (Realistic orientation) as "practical, hard working, useful, etc.," and students with Realistic preferences characterize themselves as "practical, hard-headed, enduring, etc." (Holland, 1963d, p. 24). In general, the students' vocational preferences were associated with self-conceptions and personality as expressed in their coping behavior, preferred activities, and outstanding competencies.

In Holland's (1963-64) fourth study with this National Merit Finalists sample, he tested the hypotheses that boys of the Intellectual and Realistic types have more stable tentative vocational choices than boys resembling the remaining four personality model types; and that girls of the Social types would be more stable in history of vocational choices than the remaining five personality model types. Stability in these hypotheses meant choices falling in the same groups of occupations

assumed to represent each personality type. For boys the results supported the stability of tentative vocational choices of the Realistic and Intellectual types and the Social type for girls. Further analysis of the stability of vocational choices gave strong support that stability of vocational choices is greater when the vocational choice is appropriate to the individual's sex role. Feminine boys and masculine girls were found to make less stable vocational choices.

In another study Holland (1962) compared high-point codes of students who changed college majors (changers) to those high-point codes of students who did not change college majors (non-changers). Students categorized as Social type changed more often than any other type, while students with Intellectual-type majors changed the least; therefore if a student's major was consistent with his personality type, less change could be expected.

Holland and Nichols (1964) predicted that students will remain in a field of study if they resemble the typical student in that field in terms of aptitude, achievement, and personality. Again, they used a sample of National Merit Finalists (332 males and 181 females) and assessed aptitude, achievement, and personality at the end of their senior year in high school and again at the end of their freshman year in college. The students' responses to a questionnaire which asked for information about their choice of major field and vocation, personal history, and an inventory of seventeen personality and originality measures were assigned to one of the six personal orientations and were correlated to changing of majors. Boys who leave Realistic fields appeared to be irresponsible, original, tolerant of ambiguity,

and complex in outlook. Boys who remained in Realistic fields were in direct contrast to those who left the Realistic fields. Boys leaving Intellectual fields were more dominant and less concerned with mastering the environment than boys remaining in the Intellectual fields, while those leaving the Social fields were more dominant than those remaining. Boys leaving the Artistic fields were more inclined to take risk than boys who remained. Girls leaving the Enterprising fields were more independent and less concerned with mastering the environment than those who remained. Girls leaving the Artistic fields were characterized as risk takers and radical in their beliefs. The results lend support to the general hypothesis that students who leave a field of study lack some of the personal attributes associated with the typical student in the field of study of his first choice.

In a one- and two-year longitudinal study Holland (1962) examined National Merit Finalists and parental factors. He found that the student personal orientation types related to some of the attitudes held by their mothers. Students with Conventional orientations had mothers possessing the most authoritarian attitudes, followed in order by those students with Enterprising, Realistic, Artistic, Social and Intellectual types. A comparison of the high-point codes of the student with that of his father's occupation, parent's formal education in years, student's birth order, and the number of children in the family was made in this study. The high-point code of the father and high-point code of his son were significantly related, as well as the high-point code of the father's occupation and the high-point code of the son's choice of a vocational category. Finally, the research indicated that the father's and son's personal orientations were similar.

In comparing high-point code of the students with the category of their first career choice, Holland (1962) disclosed results that were clearly and highly consistent with theoretical expectations. A majority of Realistic, Intellectual, and Social types selected careers in the appropriate fields. Enterprising types indicated as many careers in the Realistic area as in the Enterprising area, and the Realistic and Enterprising areas constituted a majority of the choices for the Enterprising types. Artistic types selected Realistic and Social fields more frequently than Artistic fields and Enterprising occupations as often as Artistic fields. The Artistic types selected Intellectual occupations--followed by Realistic, Enterprising, and Social occupations--before selecting Conventional occupations. Holland also found similar results when he examined the relationship between high-point codes and second and third vocational choices as reported by students in a questionnaire. Most second and third vocational choices were in fields consistent with the major personal orientation of the students.

In a comprehensive test of Holland's theory, Osipow, Ashby, and Wall (1966) predicted that students would choose occupations which fall into categories consistent with the personality types they select as most accurate in describing themselves. The sample of college freshman males and females was divided into three groups based on the student's degree of educational-vocational certainty (Decided, Tentative, or Undecided). The analysis of the relationship between the major personality type and the student's first occupational preference showed a consistency with the theory for the Realistic and Intellectual types. These groups selected vocational choices in appropriate personality categories. The Enterprising types selected a greater number of

choices in the Realistic and Intellectual categories rather than in the Enterprising category which, however, did receive a large number of choices. For the Conventional personality type, most occupational choices fell into the Realistic and Intellectual categories, clearly inconsistent with theoretical considerations. The Artistic and Social types were not analyzed because of the small number of students in these two types. There appeared to be a greater selection of occupations in the Realistic and Intellectual categories for all students regardless of the personality orientations. The Decided group's occupational choice showed significant interaction with the personality ratings of the students, while the Tenative group's personality ratings did not relate to the categories of occupational choice. The Undecided group showed some relationship between occupational choice and personality type ratings, but with the small sample size no meaningful inferences could be made. The results, therefore, support the prediction that students choose occupations consistent with their personality type, though not uniformly so.

With a sample of 186 male college freshmen, Wall, Osipow, and Ashby (1967) examined the relationship between the SVIB group scores and major personality style and occupational choice of an individual. Students in the Realistic category obtained their highest SVIB scores in Group II (Science and Engineering) and Group III (Practical), which was exactly what was expected. Students in the Social category scored highest in Group IV of the SVIB (Social Service), students in the Conventional category scored highest in Group V of the SVIB (Business), and students in the Enterprising category scored highest in Group VI of the SVIB (Sales). All of these relationships showed strong evidence

in support of the construct validity of the VPI. The Intellectual and Artistic categories presented mixed groupings on the SVIB. The results of this study provided considerable evidence of the face and construct validity for Holland's theory, but the Intellectual and Artistic subjects did not appear to have clear SVIB patterns that are consistent with their choices.

Osipow and Ashby (1968) attempted to provide normative data reflecting the frequency of various combinations of the VPI first and second high-point codes. Using a sample of 831 male and 129 female college freshmen, the authors classified students with respect to educational preferences and the frequency of the VPI codes associated with the educational preferences. Results of this study indicate, with one exception, that the first VPI code scores and the educational preferences appeared consistent with the theoretical expectations proposed by Holland. The highest VPI score fell into the personality category which was consistent with the educational preference. The one exception was the Realistic category, which had the second largest frequency falling somewhat lower than the Intellectual scale total. In examining the male and female sample separately, males selected the educational preferences of the Intellectual category first, followed in order by the Realistic, Enterprising, Social, Artistic, and Conventional types. Females, however, selected educational preferences most often in the Social category followed by the Artistic, Intellectual, Enterprising, Realistic, and Conventional types.

Holland and Lutz (1968) explored the predictive validity of a student's choice of vocational preference, and compared the predictive validity of this self-expression with his scores on the VPI. The two college samples studied consisted of freshman students from a number

of colleges in the United States, including students from the University of North Dakota. The time intervals between testing, twelve months and eight months, varied for the samples. Student vocational choices, categorized into the six-category classification of Holland's theory, were correlated with the second or final choices. For both samples, expressed vocational choice demonstrated substantial superiority to the Vocational Preference Inventory in predicting later vocational choices. The authors suggest "that researchers and counselors should make greater use of a person's expressed vocational choice and that interest inventories should be used with more discrimination" (Holland and Lutz, 1968, p. 433).

For the purpose of examining the relationship between the seven scales of the College Student Questionnaire (CSQ) and the college major as represented by one of Holland's six occupational types, Folsom (1969) tested 1003 male and female students at the University of Maine. Approximately 75 per cent of the males selected vocations in the Realistic or Intellectual categories, while over 40 per cent of the females selected vocational choices in the Social category. The results of Folsom's study validated the findings of the study by Osipow and Ashby (1968). Analysis of the data for the combined male-female sample showed that significant differences did exist among the personality types on all but the Family Social Status scale of the CSQ. The Artistic types scored significantly higher than the Realistic and Conventional students on the Motivation for Grades scale of the CSQ. On the CSQ-Family Independence scale, students of the Social type scored significantly lower than the Realistic and Intellectual students, while the Artistic students scored significantly lower than

students identified as Realistic. Students with selected majors categorizing them as Artistic, Intellectual, or Realistic rated significantly higher on the CSQ-Peer Independence scale than did the Social type. Students classified as Realistic ranked significantly lower on the CSQ-Liberalism scale than all other types except the Conventional type. On the Social Conscience scale of the CSQ, the Social and Artistic students scored significantly higher than the students categorized as Intellectual, Realistic, or Conventional; and the Enterprising and Intellectual types placed significantly higher than either the Realistic or the Conventional types did on that same scale. When compared on the Cultural Sophistication scale of the CSQ, the Realistic and Conventional students measured lower than all other types, while the mean scores of the Artistic type exceeded the means for all other types except those students classified as Enterprising. In general, the results of this study indicate that Holland's description of the six personality types are in agreement with the way students within the types describe themselves on the seven scales of the College Student Questionnaire.

In Holland's (1968) publication, a test of his theory in a longitudinal study, a diverse sample of college students was examined for the purpose of determining a student's resemblance to each of the personality types. Students were asked to respond to the VPI, the Preconscious Activity Scale, the Range of Competencies, the Interpersonal Competency Scale, the Dogmatism Scale, the Student Orientation Survey-Form C, and several descriptive questionnaires assessing their educational and economic aspirations, their life goals, and their self-ratings.

Again the results demonstrated that expressed vocational choices were almost twice as efficient as the use of the VPI in predicting a student's final vocational choice, even though both methods have predictive validity. The VPI high-point codes correlated significantly to student characteristics as expressed in the other scales mentioned. The relationship of personality type (high-point VPI code) to the degree of change in vocational choice did not prove to be significant for either males or females.

The results of self-expression of vocational choice and its relationship to the personality types indicated more relevant predictions for males than for females. In the examination of students' satisfaction with the college they attend, several results are indicated: (1) that students are happier when they resemble the majority of students at the college, (2) that students are more satisfied when the college population represents about equal numbers of each of the personality types, (3) that students are more content when they resemble the most popular personality type at their college which has a heterogeneous profile of personality types, and (4) that students are most dissatisfied when they resemble the most unpopular personality type at their college which had a homogeneous distribution of personality types.

Occupational Aspiration

There are a number of early studies on the general concept of level of aspiration, including those of Lurie (1939), Gardner (1940), Irwin (1951), and Deutsch (1954). As presented in these studies, the level of aspiration concept encompassed several elements, including the

most fundamental level, which indicated that one or more persons are oriented toward a goal. The concept "level of occupational aspiration" (LOA), a special instance of the more general concept, differs from the general concept only in that it takes as its object the occupational hierarchy. The continuum of difficulty for LOA exists in the various levels along the hierarchy. Stratification theorists (Kahl, 1957) generally agree that differential societal evaluation of occupations, or occupational prestige, is the most adequate way of placing occupations in a hierarchy.

The National Opinion Research Center (1947) study, by means of a quota-controlled national sample of adults, age fourteen and over, produced the most complete information on the occupational hierarchy. In this study, 2,920 respondents rated each of ninety occupations, representing all levels from day-labor to top business and professional persons, according to a five-point scale of "general standing." The respondents' estimates of an occupation were averaged and placed in rank order. Thus, the National Opinion Research Center scores are the best-known available means for operationalizing the continuum of difficulty of LOA. These scores are the basis for the Occupational Aspiration Scale developed by Haller.

The LOA has been postulated as consisting of two expression levels, realistic and idealistic; and two goal periods, short-range and long-range. The realistic expression level can be defined as the level on the occupational prestige hierarchy one believes he can attain; the idealistic expression level can be defined as the level one wishes he could attain; the short-range goal period level can be defined as the level one believes he can attain immediately; the

long-range goal period level can be defined as the level one believes he can reach within several years. If LOA were to be adequately measured, it would have to be measured at both expression levels and at both goal periods.

The LOA seemed closely tied to the self-concept and to what one knows of occupations.

> LOA is evidently related to concepts of self and role. . . . Probably most people in complex societies actually know very little detail about the role-behaviors associated with most occupations. Nevertheless, they appear to believe they know the styles of life--an important aspect of role behavior--characteristic of each occupational prestige level. Clearly, this means that the person must view some levels as more appropriate for himself than others. . . . Hence LOA may be interpreted in terms of the person's self-concepts and in terms of his conception of certain roles he anticipates playing or desires to play sometime in his future (Haller and Miller, 1963, p. 15).

Haller and Miller (1963) investigated the relationship of the LOA construct. They formulated a series of hypotheses on the basis of considerations from other social psychological knowledge. These hypotheses, encompassing a number of specific predictions, were tested by reviewing the correlation of several measures of LOA with a wide variety of measures of other social-psychological variables. The tests were based on both published and unpublished research, including 184 correlates of LOA from about a dozen different studies. The hypotheses were:

1. A high positive correlation will be found between the person's LOA and subsequent level of occupational achievement.

2. A positive correlation will be found between LOA and any measure of success in school.

3. A positive correlation will be found between the person's LOA and the success orientations of the groups to which he belongs.

4. A positive correlation will be found between LOA and the degree to which the social situation of the person tends to produce success in occupationally related areas of behavior.

5. A positive correlation will be found between LOA and any personal orientation tending to produce the experience of success in occupationally related areas of behavior.

6. A positive correlation will be found between LOA and any personal orientation expressing the willingness to act independently.

7. A positive correlation will be found between LOA and self-conceptions concerning success or achievement-orientation.

8. A correlation approaching zero will be found between LOA and all variables not specified under Hypotheses 1 through 7.

In the first seven hypotheses a total of ninety-six specific tests were available. In seventy-five of these tests the predictions of positive correlations were confirmed, and in the other twenty-one tests the predictions of positive correlations were not confirmed. A total of eighty-eight correlations were available to test Hypothesis 8; sixty-two of these correlations were confirmed and twenty-six correlations were not confirmed. In general, when a positive correlation is hypothesized, there is an accuracy of about 78 per cent; whereas when no correlation is hypothesized, there is an accuracy of about 70 per cent. These results are evidence that LOA is a valid concept in the sense that its behavior is predictable.

Measures of more than fifty variables, including intelligence scores, high school grade point averages, parental socio-economic status, etc., were collected on each of 431 Wisconsin junior and senior boys by Sewell, Haller, and Straus (1957). They compared the effects of social status of families on the educational and occupational aspirations of these boys when the effects of measured

intelligence were controlled, and produced evidence supporting the sociological claim that values specific to different status positions are an important influence on an individual's educational and occupational aspirations. These results do not eliminate the importance of intelligence to these aspirations but suggests that status makes an independent contribution to these aspirations.

Messier (1961), examining the hypothesis that occupational aspirations of students from low socio-economic backgrounds would be influenced in the direction of the middle-class orientation of the high schools attended, determined that no relationship existed. Social interaction patterns, as measured in this study, did not correlate with the occupational aspirations of junior and senior male students of low socio-economic background in thirty-four Michigan high schools. Occupational aspirations of students were significantly higher in high schools with students from higher socio-economic levels where students held college aspirations.

In a study of male seniors in high schools in the State of Washington, Empey (1956) separated the youths into three groups (lower, middle, and upper class) based on their fathers' occupations. The absolute and relative measures of aspirations were examined. The results disclosed that absolute occupational aspirations of middle- and upper-class groups are significantly higher than those held by the lower-class group. Lower-class seniors were significantly more inclined than upper-class seniors to want a job that had a higher social standing and a larger salary than their fathers' job.

In two separate investigations, Ricco (1965) and Stevic and Uhlig (1967) studied migrant student samples from the Appalachian

Regions. Ricco found no significant differences on occupational aspiration scores between students who had migrated from Appalachia and students who were natives of Ohio. Stevic and Uhlig compared the OAS scores of those students who had migrated from Appalachia with the scores of students who had not migrated and demonstrated that the migrant group scored significantly higher on the Occupational Aspiration Scale.

A positive correlation was found between a measure of LOA and parents' wishes for their children. Sons' estimates of parents' levels of occupational aspiration for them and their own LOAs were found to correlate .29. Sons' estimates of parents' level of educational aspiration for them and their own LOAs were found to correlate .44 by Haller and Miller (1963).

A positive correlation has been found between a measure of LOA and social class status level. Prestige level of fathers' occupation and sons' LOA were found to correlate .20 and .29 in two studies by Haller and Miller (1963) and to correlate .14 by Stubbins (1950). Haller and Miller (1963) found that fathers' level of education and sons' LOA correlated .26 and .27. Ezell and Tate (1955) also verified that vocational aspirations were closely related to parental social status and education. Weiner and Murray (1963) established that lower socio-economic parents wanted their children to go to college, but for them it was only a wish, while parents of the middle-class status expected that their children would attend college.

The relationship between vocational aspirations and racial membership has been examined by several writers. Antonovsky (1967) grouped 378 tenth grade males and females according to parents' socio-

economic background and racial membership into six groups, including both lower- and middle-class Whites, Negroes, and Puerto Ricans. The results of examining the students' vocational aspirations indicated that the middle-class whites have higher aspirations and expectations than the other five groups. The lower-class Puerto Ricans tended to have the lowest aspirations as measured by the OAS. Negro lower-class youths had higher aspirations than White lower-class youths.

Henderson's study (1966) of poverty stricken Negro youths revealed that they projected significantly less differences between their ideal and real aspirations. Most of the youths aspired toward professional or managerial occupations. Lott and Lott (1963) observed that Negro students were realistic in their vocational pursuits. Henderson (1967) stated that the lower the parents' occupations in terms of social prestige, the more their children aspired to higher occupations in social status. He concluded that "once lower-class students perceive that they are able to compete favorably with middle-class students, differences in their aspirations will no longer reflect class differences, but ability differences" (Henderson, 1967, p. 54).

A study by Holloway and Berreman (1959) of educational and occupational aspirations of Negro and White male sixth, seventh, and eighth graders in a city in the Pacific Northwest detected that occupational aspiration level varied directly with class status, but educational aspiration level did not; occupational level did not differ significantly by race when class status was held constant; and Negroes, even while faced with the handicaps of race, did not make occupational plans below their aspirations.

Sewell and Haller (1959) related the number of years of education attained and the prestige level of occupation achieved to each of the more than fifty variables previously measured. The best predictor of educational and occupational achievement, a free response LOA instrument, showed correlations of .52 with educational attainment and .46 with occupational achievement. There was some indication, because of its predictive power, that the LOA was quite well formed in eleventh-grade and twelfth-grade males. In the measure of LOA used in the above study, a free-response instrument consisting of four stimulus questions, the researchers asked the respondent to name occupations he had considered, the occupations he planned to follow, his choice of work if he were free to choose any he wished, and the type of work he would like to be doing ten years hence. After the responses were sorted as to realistic, idealistic, short-range and long-range expressions of LOA, they were scored in terms of estimated rankings as compared to an occupational prestige hierarchy.

Deutz (1965), studying the relationship between achievement, motivation, and occupational aspirations and preferences, obtained a significant negative correlation between the level of occupation of the parents and the level of occupational aspiration of junior high school boys. The 137 North Dakota and Minnesota boys were separated into low- and high-level occupational preference groups. The higher occupational preference group tended to associate with higher achievement motivation and higher levels of occupational aspiration as measured by the OAS.

A positive correlation between a measure of LOA and several school measures appeared in two studies by Haller and Miller (1963).

The LOA and grade point average were found to correlate .42 and .53, respectively, while Barnett and others (1952) found correlations between the LOA and grade point average of .42 and .30 in two different school settings. The LOA and the number of high school extra-curricular activities correlated .26 in the study by Barnett and others and .34 in the study by Haller and Miller (1963). The LOA and the amount of college training desired correlated .38 and .67 (Haller and Miller, 1963). Haller and Miller (1963) detected a positive correlation between a measure of LOA and measures of intelligence of .45 and .46 for two LOA instruments. Otis I.Q. scores and LOA were found by Barnett and others (1952) to correlate .42 and .20 in two different schools. Haller and Miller (1963) discovered a positive correlation of .33 between LOA and leadership self-conceptions concerning school activities.

Schutz and Blocher (1961) attempted to relate self-concepts of twelfth graders, as measured by a checklist, to LOA, as measured by the Occupational Level of the Strong Vocational Interest Blank. A relationship was found, and the results were interpreted to mean that a person's level of occupational choice and aspiration reflects his evaluation of himself and his feelings about his personal worth.

Haller (1960), studying the occupational aspirations of a group of Michigan farm-reared youth, noted that the more emotionally stable, resilient, independent, and self-sufficient farm boys with better self-control were more likely to plan for an occupation other than farming. The parents of these individuals held high educational and occupational aspirations for them.

Burchinal (1961), in a study of 103 Iowa farm males, 117 rural non-farm and small town males, and 92 Des Moines, Iowa, males,

demonstrated that farm males had the lowest educational and occupational aspirations, and the city-dwelling males had the highest aspirations.

Slocum and Bowles (1968) reported a study of the occupational aspirations of 2,835 high school juniors and seniors in the State of Washington. The majority of the students in this study indicated that they aspired to enter the prestigious professional occupations, 66.7 per cent for boys and 59 per cent for girls. The authors suggested that these students often express desires for professional positions; they would and often do accept work in lower-status occupations.

Singer and Stefflre (1954) attempted to examine job values and desires of adolescents in relation to level of aspiration as measured by the Level of Interest section of the California Occupational Interest Inventory. The findings indicated that males who demonstrated high level of vocational aspirations are relatively more concerned with job values and desires that involve "self-expression." On the other hand, males who demonstrated low vocational aspirations are relatively more concerned with the job value of "independence."

Haller and Butterworth (1960) found partial support for the hypothesis that interaction with peers influences levels of occupational and educational aspirations of American adolescent boys. Their results, based on tests and questionnaire data from a sample of 442 seventeen-year-old boys, yielded more support for the effects on occupational aspirations than for educational aspirations.

The OAS has been examined in a number of studies at the University of North Dakota. Van Erdewyk (1965) administered the Occupational Aspiration Scale to a sample of seventh- and eighth-grade upper-midwestern boys (N=159) and to a sample of seventh- and eighth-

grade Indian boys (N=103). The urban boys tended to have a significantly higher level of occupational aspiration than did the Indian boys. Boyles (1967) studied the level of occupational aspirations, as measured by the OAS, of high school graduates and dropouts. For both males and females the high school graduates scored significantly higher on the OAS than did the dropouts.

Westbrook's (1966) study verified the work of Haller and Miller with regard to the OAS's validity and reliability; furthermore, his research provided evidence that the OAS can be used with girls. "No significant difference was found in mean OAS total scores between boys and girls for any of the administrations" (Westbrook, 1966, p. 1004). He also presented data supporting the validity of the OAS from the internal structure of the instrument and from the correlation of the OAS total score with other measures. In agreement with Haller and Miller, he found that all eight questions had high loadings on Factor I, as determined by factor analysis. "This finding tends to support the contention that each question of the OAS contributes to the measurement of a general level of aspiration" (p. 1001).

The American Indian Graduate

Selinger (1968) directed the most comprehensive study of American Indian youths' post high school training and employment experiences. The study followed the training and vocational development of about 50 per cent of all American Indian high school graduates of 1962 from a six state area. Graduates from the Turtle Mountain and Standing Rock Community Schools were included in this study.

The interviewed population was dichotomized into "persisters"- high school graduates who continued their formal education or training

whether academic, vocational or technical and "non-persisters"-high school graduates who became unemployed or accepted employment but did not pursue further training or continue formal education. Of the 287 students studied, 70 per cent were persisters contrasted with 30 per cent who were non-persisters after they had been out of high school for six years.

The persisters were employed in professional and managerial occupations more than the non-persisters were. Female persisters were employed in clerical occupations twice as often as were the non-persisters. Among the females, the non-persisters, by a two-to-one ratio, were engaged solely as housewives. The percentage of male persisters who were unemployed was only slightly less than the unemployed non-persisters, although the persisters were employed more days per year.

For those non-persisters who found employment after graduation from high school, 26 per cent of the females were unskilled laborers and 26 per cent were employed in low-level clerical jobs. Of the male non-persisters, 40 per cent were employed as unskilled workers and 33 per cent became farm workers.

The most popular program entered by girls at public technical-vocational schools and at private vocational schools was secretarial; at federal technical-vocational schools it was business education, closely followed by home economics. At the university level Indian girls chose liberal arts followed by education; at junior colleges home economics and secretarial programs rated equal popularity.

The boys first selected mechanics at the public, private, and federal vocational institutions. For males at universities, business

education and education were equal as first choices followed by liberal arts. More students entered liberal arts programs at junior colleges, followed by agriculture and business education.

The selection of programs indicated a leaning toward eventually entering into white collar jobs, but few entered the traditional prestigious professions such as medicine and law.

The initial employment accepted following training did not relate to the training of 37 per cent of the females and 60 per cent of the males. Eighty-eight per cent of the females and 83 per cent of the males who accepted employment unrelated to their training did so because employment related to their training was unavailable in the geographic location where they chose to live. These people chose to live on or near the reservation, valuing their extended family relationships more than the type of employment available.

CHAPTER III

DESIGN OF THE STUDY

Sources of Data

The data used in this study were collected from Indian students enrolled in the junior and senior classes at the Turtle Mountain Community School, Belcourt, North Dakota, and the Standing Rock Community School, Fort Yates, North Dakota, during the first semester of the 1970-71 academic year. The comparative data were collected during the first semester of the 1970-71 academic year from the senior class members of Bottineau High School, Bottineau, North Dakota. The four instruments were administered in late September and early October on two separate test dates to maximize the sample size. The data were gathered with the cooperation of the school administration at the three above mentioned high schools.

General Procedure

All students enrolled for the fall semester at the Turtle Mountain Community School (T.M.C.S.), Belcourt, North Dakota, and the Standing Rock Community School (S.R.C.S.), Fort Yates, North Dakota, were administered the four instruments in the following order: first, the Vocational Preference Inventory (VPI); second, the Occupational Aspiration Scale (OAS); third, the Occupational Information Form (OIF);

and last, the Student Report Form (SRF). Only those students who possessed at least one-eighth Indian ancestry were included in this study.

To maximize the sample size, the administration of the four instruments was conducted on two separate days during the early fall with a lapse of two weeks between. The senior class members at Bottineau High School, Bottineau, North Dakota, completed the VPI in early October. The Indian sample was divided into groups based on sex and the reservation on which they resided. After the collection of the Lorge-Thorndike Test of Intelligence scores and the Iowa Test of Educational Development standard composite scores from the students' cumulative records, a validity check on the SRF information was accomplished by checking each fifth student in the sample listed on an alphabetic list against the information recorded in the cumulative records.

Following the two-way analysis of variance, which was used to test for significant differences on the mean scores of the eleven scales of the VPI between the groups and the normative sample, Dunn's "c" test for mean comparisons was employed for further analysis. The computer program for the computation of the Dunn's "c" values is shown in Appendix A. Scheffé's test for multiple comparisons was utilized to test the differences between the T.M.C.S. males and the S.R.C.S. males and the T.M.C.S. females and the S.R.C.S. females on the six vocational scales of the VPI.

Pearson Product-Moment correlations were computed to test for significant relationships between the scores of the eleven scales of the VPI and intelligence test and achievement test scores; and between the responses of the OIF and total Acquiescence scale scores of the

VPI. In this study, hypotheses testing was conducted at the .05 level of confidence. The computer facilities of the University of North Dakota were utilized in the computations of the statistics.

Instruments

Eighty-four items of the Vocational Preference Inventory, the main instrument examined in this investigation, were used to create the Occupational Information Form, a supplementary instrument explored in this study. The Occupational Aspiration Scale was another supplementary scale used for validation of the Status scale of the VPI. The subjects were also given the Student Report Form (SRF), a questionnaire examining the student's vocational and educational plans and other personal biographical information. A copy of the OIF and the SRF appear in Appendix B of this report.

Vocational Preference Inventory

The Vocational Preference Inventory (VPI), personality inventory composed entirely of occupational titles, lists 160 occupations to which a person indicates that he either likes, dislikes, or has no opinion of that particular occupation. The clusters of personal traits which the inventory assesses yield a broad range of information about the subject's interpersonal relations, interests, values, self-concept, coping behavior, and identifications. The inventory yields scores on eleven scales: Realistic, Intellectual, Social, Conventional, Enterprising, Artistic, Self-Control, Masculinity, Status, Infrequency, and Acquiescence.

Although Holland (1965) stated that the primary purpose of the VPI was to assess personality, he also suggested that it has other purposes. The VPI can be used: (1) as an interest inventory, (2) as an

inventory to assess the personality types in a theory of vocational choice, and (3) as a technique to stimulate occupational exploration among high school and college students.

The rationale in the development of the VPI, as stated by Holland (1965, pp. 2-4) is based upon the following assumptions:

1. The choice of an occupation is an expressive act which reflects the person's motivation, knowledge, personality, and ability.
2. People tend to see occupational titles and occupations in stereotyped ways.
3. The interaction of the person and his environment creates a limited number of favorite methods for dealing with interpersonal and environmental problems.
4. The development of adequate adjustive techniques requires accurate discrimination among potential environments.

4a. The total number of preferred occupations is a function of a number of personality variables.

4b. The inability to make discriminations among occupations is indicative of conflict and disorganized self-understanding.

5. Interest inventories are personality inventories.

The profile an individual receives is determined by the number of responses he makes to the group of occupational titles which comprise each scale. Holland (1965, p. 26) suggested that for interpretation of a person's profile "the scales should be scanned for the three or four highest and lowest scales without regard to elevation. These outstanding high and low scale scores imply a number of possible hypotheses about the subject."

The first six scales of the VPI (Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic) were examined more closely in this present study than the other five scales. The personality types and the vocational preferences of each of these scales, as described by Holland (1963b), and the five non-vocational scales of the VPI, as described by Holland (1965), appear in Appendix C of this report.

In this study the total number of "like" responses to the occupational titles was utilized instead of the usual scoring procedures. Normally, only the first thirty occupational titles are scored for the "like" responses to obtain the acquiescence score. The writer believed it necessary to examine the students' liking for all 160 occupational titles to gain a more valid measure of their expressions of interest in the specific occupational titles which are used in the VPI.

Validity. The VPI has been intercorrelated with a number of personality inventories, e.g. the Sixteen Personality Factor Scales, the Edwards Personal Preference Schedule, the California Personality Inventory, and the Minnesota Multiphasic Personality Inventory. Overall, "the observed relationships lend support to the construct validity and meaning attributed to the VPI scales" (Holland, 1965, p. 12).

In a series of studies of vocational choice the VPI has been found to be predictive of choice of major field and vocations over one- and two-year intervals for students of high aptitude (Holland, 1962). The efficiency of their predictions is only moderate. The predictive validity of the VPI is statistically significant but "inefficient" as reported by Winkelman (1960), Holland (1960a), Holland and Astin (1962), and Nichols and Holland (1963).

Reliability. With the exception of the Infrequency, Masculinity, and Status scales, the internal consistency of the Sixth Revision of the VPI is moderate (.69) to high (.89). "The retest reliability coefficients of the . . . sixth revision for student and adult samples . . . suggests that the VPI has moderate to high reliability. . . . The VPI may be unreliable over long intervals of time" (Holland, 1965, p. 10).

The standard error of measurement for the coefficient over brief time intervals ranges from one to five raw score points. There appears to be a trend for the VPI to be more reliable ($r = .62$ to $r = .98$ for a six-week interval) over shorter intervals than it is over longer intervals ($r = .41$ to $r = .61$ for a four-year interval).

Occupational Aspiration Scale

The Occupational Aspiration Scale (OAS) is an instrument designed to measure the relative level of vocational aspiration. Its author, A. O. Haller, designed the scale in an attempt to measure the same factors measured by a free response LOA instrument which yielded scores shown to have some value in predicting level of occupational and educational attainment, and yet achieve the measurement more accurately and easily.

Haller and Miller (1963) describe the instrument as follows:

> The OAS is an eight-item multiple-choice instrument. It includes items permitting responses at both the realistic and the idealistic expression levels of LOA, each at two goal periods, called career periods in this context, short range (end of schooling) and long range (at age 30). The four possible combinations of these components are each assessed twice, thus giving a total of eight questions. The alternatives for each item consist of ten occupational titles drawn from among the ninety occupations ranked by the NORC study (NORC, 1947) of the prestige of occupations. Each occupation is presented as a possible resource only once on the form. Alternative responses for each item systematically span the entire range of occupational prestige, and are scored from zero to nine. Operationally, an item score of 9 indicates that the respondent has chosen an occupation from among the eight highest ranked prestige occupations on the NORC occupational prestige hierarchy and an item score of 0 indicates that none of the eight lowest prestige occupations has been chosen. Thus the total possible score for all eight items ranges from zero to 72. This total score is used to measure the individual's general LOA. It is designed, not as absolute measure of LOA, but only as a measure of relative LOA. It is

> primarily for use on male high school students. . . . The OAS is a self-descriptive instrument. It is easily administered in a group testing situation, but it may also be administered individually.

Miller and Haller (1964), reporting on three samples of high school boys in Michigan, stated they obtained means of 36.2, 37.2 and 37.6 on the OAS. Ricco (1965), in a study comparing high school boys who were sons of migrants to Columbus, Ohio, from the Appalachian South with sons of native residents of Columbus, reported means on the OAS of 41.9 for the migrant group and 43.3 for the native group. Ricco also cited two unpublished master's theses in which means of 38.4 and 41.8 were obtained on samples of high school boys. Van Erdewyk (1965) found Indian junior high school boys to have mean scores of 36.2 as compared to mean scores of 43.7 for non-Indian boys. Stevic and Uhlig (1967) examined high schools boys in Kentucky and found them to have a mean of 35.5. The total possible score range is from zero to seventy-two.

Validity. Haller and Miller (1963) and Miller and Haller (1964) assess the concurrent validity and the construct validity of the OAS with the statement that the best possible criterion of the validity of any test, predictive validity, is not as yet available because of the recency of the test's development.

Several comparisons of the OAS with its parent free-response instrument have been made. Factor analysis of the OAS and the free-response instrument, for instance, have shown that both instruments were heavily loaded with the same factor, presumably LOA since it was the factor which both instruments were attempting to measure. There were also specific factors which differentiated the two instruments, although these had smaller loadings.

Both the free-response technique and the OAS have been correlated with many variables previously shown to be related to LOA, and both instruments yielded remarkably similar correlations. Construct validity was determined on two bases. First, the pattern of scores was deduced according to level of aspiration theory, and actual scoring patterns were found to agree adequately with this hypothetical pattern. Second, the test was factor analyzed, and although three factors appeared to be operating, one of these factors accounted for the major portion of the variance, with the other two factors contributing negligibly. Therefore, the authors conclude that one factor, which they view as high versus low level of aspiration, is the major factor operating in the test. The concurrent validity coefficient of .62 indicated that the OAS was related to the free-response measure of LOA.

Reliability. Haller and Miller (1963) obtained coefficients of internal consistency using parallel halves corrected for attenuation with the Spearman-Brown Prophecy Formula of .75, .82, and .84, in three separate studies using a sample of eleventh-grade and twelfth-grade males. The coefficient of stability, calculated with equivalent forms over an interval of ten weeks, was found to be .77. The calculated standard error of measurement (approximately 5.3) indicated that the most realistic usage of test scores can be made by grouping individuals into high, medium, and low categories. At present the test does not allow for finer precision. In addition, the shape of the OAS's distribution of scores was approximately normal for eleventh-grade males and its non-response or non-usable rate was less than 1 per cent.

The Student Report Form

The Student Report Form (SRF) is a questionnaire designed for this study to assess the student's educational and vocational plans as well as other biographical information. The main purpose of the instrument was to describe the sample of Indian students which was studied in this investigation.

The Occupational Information Form

The Occupational Information Form (OIF) is a questionnaire designed for the present study to assess the student's understanding of some of the occupational titles which appear in the VPI. Since the first six scales of the VPI (Realistic, Intellectual, Social, Conventional, Enterprising, and Artistic Scales) were the main scales examined in this study, the investigator believed it was necessary to examine the student's understanding of the occupational titles which comprise these six scales.

In each of the first six scales of the VPI, the responses given to fourteen occupational titles feed into the score the individual receives on each scale. With the fourteen titles for each of the six scales separated out, the students were asked to respond to two questions about each of the occupational titles. The two questions and the response that the student could make are described.

Question One.

"Do you know the type of work done by people working in this occupation?"

Responses

"Yes or could make a good guess" or "No."

The total number of "yes" responses of the OIF were examined in a comparison to the total acquiescence score of the VPI.

Question Two.

"Do you know where people working in this occupation would get work?"

Responses

(A) In a city over 10,000 population, (B) In a city under 10,000 population, or (C) On a reservation.

The total number of "correct" responses to question two were examined in a comparison to the total number of possible correct responses. A panel of judges, graduate students and faculty members in the Counseling and Guidance Department at the University of North Dakota, evaluated the question of where work could be found for each occupation. The correct responses to question two are found in Appendix D of this report.

Research Population

The research population consisted of the total group of 161 junior and senior class Indian students. Specifically, the research sample was comprised of the following: thirty-eight male students and twenty-three female students enrolled at the Standing Rock Community School, Fort Yates, North Dakota, and fifty-six male students and fifty female students enrolled at the Turtle Mountain Community School, Belcourt, North Dakota, for the 1970-71 academic year. Complete data for all

students were available. Biographical information taken from the SRF is presented for the two groups in Appendix E of this report.

The two reservations are described to acquaint the reader with the location of, and some general information about, the reservations.

Turtle Mountain Indian Reservation

The Turtle Mountain Community School, a Bureau of Indian Affairs public school, is located in Belcourt, North Dakota. With a size of approximately 82,000 acres, the Turtle Mountain Indian Reservation, the home of the Turtle Mountain Chippewa Indian Tribe, lies entirely within Rolette County about ten miles east of the International Peace Garden in the central part of the State and ten miles south of the Canadian border. The topography of the reservation consists mainly of low, rolling hills covered with small trees and brush and interspersed with many lakes of varying sizes. The glacial-deposited soil containing sand, gravel and rocks and the rolling hills of the area do not provide good conditions for farming, although the rainfall is adequate for farming.

The predominately Catholic Indians residing on the Turtle Mountain Reservation are mixed bloods. Their ancestry can be traced to the early French fur traders of Canada or to the English, Scotch and Irish, as well as to the Chippewa Tribe, a leading branch of the Algonquin family which earlier had settled into the present Dakotas and Montana. The presence of one Lutheran church and four Roman Catholic churches on the reservation shows the influence of the early Catholic missionaries.

Belcourt, the only community on the Turtle Mountain Reservation, has a population of approximately 1,200 Indians. The Belcourt business establishments, for the most part, are owned and operated by Indians, and consist of a new United States Post Office building, a laundromat, two service-gas stations, a drive-in cafe, a grocery store, a tavern, a barber shop, a funeral home, two auto body shops, and two electrical contractors. Many residents of the reservation conduct their shopping business in Rolla, North Dakota, the county seat of Rolette County which is located seven miles east of Belcourt. For major purchases, shoppers drive to Minot, Rugby or Devils Lake, North Dakota, to take advantage of discount stores or annual clearance sales of larger department stores. Several service clubs, such as the American Legion, the Jaycees, and the Knights of Columbus, function in Belcourt sponsoring dances, card parties and bingo games for the entertainment of the community residents.

Functioning from a new hospital, the United States Public Health Service offers complete medical services including medical, dental and laboratory facilities. The Associates for Progress have established an alcoholic treatment center as well as a community development service for the reservation. The Center, staffed with professional counseling services, provides a much needed facility to the community. The excessive drinking on the reservation could have a possible link with the lack of employment available to the residents. A North Dakota Indian, for example, who desires to live on the reservation must face the fact that 50 to 90 per cent of the Indians residing there are unemployed (Wilson, 1965).

The North Dakota Indian Affairs Commission (1968) reports that of the 2,182 employable persons, sixteen years or older, some 1,171

persons are unemployed on the Turtle Mountain Reservation. The main sources of employment are seasonal construction, the William Langer Jewel Bearing Plant at Rolla, North Dakota, the United States government, the North Dakota Tuberculosis Sanitarium, San Haven, North Dakota, the Community Action Program, Belcourt, North Dakota, the Community Hospital at Rolla, North Dakota, and farming.

Welfare payments and surplus commodities supplement many incomes or provide the only source of income for many families residing on the reservation. The unemployment and under-employment of Indians have resulted in an average income for reservation dwellers which is one-third to one-fourth the national average, with about 500,000 Indians earning below $1,000 (U.S. Census, 1960). Annual income figures for February, 1968 (North Dakota Indian Affairs Commission, 1968) for families on the Turtle Mountain Indian Reservation are:

Under $1000	0 families
$1000 to $1999	277 families
$2000 to $2999	390 families
$3000 to $4999	520 families
$5000 to $9999	240 families
Over $10,000	25 families

Through the Office of Economic Opportunity programs which are being implemented on the Turtle Mountain Reservation and adjacent areas to upgrade education, employment training, business opportunities, and other areas of economics development include the following:

1. Title I-B- Neighborhood Youth Corps is providing part-time employment and work experience for needy students.
2. Title II-A- Community Actions Program consists of the services in administration, remedial education, study hall and library facilities, community organization,

school age education, guidance and counseling, adult education, head-start, and health improvements.

3. Title III - Special Program to Combat Rural Poverty administered by Farmers Home Administration provides grant loans for home improvements, purchase of farm equipment or livestock, and assists in the establishment of small businesses.
4. Tribal Work Experience Program engages in the development of employment and training opportunities with organizations engaged in service to the Indians and the public.
5. Operation Mainstream is a program to provide "on-the-job" training for persons who are twenty-two years of age and older who have not been previously trained and who are eligible according to the Poverty Index which has been established by the Office of Economic Opportunity.

Sub-standard housing conditions are being partially alleviated by the implementation of Public Low-Rent Housing Programs by the Turtle Mountain Housing Authority with the assistance of the Department of Housing and Urban Development. Living and working conditions on the reservation are far from ideal but projects are operating to help in the improvement of such conditions.

Standing Rock Indian Reservation

The Standing Rock Community School, a Bureau of Indian Affairs public boarding school, is located in Fort Yates, North Dakota, on the Standing Rock Indian Reservation, the home of the Standing Rock Sioux Indian Tribe. The reservation, consisting of approximately 2.3 million acres, is bounded on the east by the Missouri River in both North and

South Dakota. In North Dakota the reservation includes all of Sioux County and part of Adams County, while in South Dakota it includes all of Corson County and parts of Dewey and Zieback Counties. The North Dakota portion of the reservation, situated about thirty-five miles south of Bismarck, North Dakota, has a topography of rolling hills and buttes and is utilized more for livestock grazing and ranching than for grain farming.

Fort Yates, the center of activities for the North Dakota portion of the reservation, is also the county seat of Sioux County. The Sioux County offices as well as the Bureau of Indian Affairs offices located in Fort Yates attract business transactions into the city. Business establishments in Fort Yates are a Post Office, two service stations, two taverns, a night club, a grocery store, a general merchandise store, a cafe, a recreation center for youth, a marina and boat supply shop, an arts and crafts shop for the sale of local Indian handcrafts, a motel, a barber shop, a beauty shop, a laundromat, a clothing store, and a tribal-owned cheese factory. Major purchases are made in Mobridge, South Dakota, or Bismarck-Mandan in North Dakota.

The American Legion and the Jaycees are the service clubs operating in Fort Yates. The Roman Catholic church and three protestant churches provide for the religious needs of the residents of the community. Standing Rock and Turtle Mountain Indian Reservations have similar Bureau of Indian Affairs operations existing at the two locations, e.g. educational programs and Public Health Services, as well as similar Office of Economic Opportunity programs, e.g. Neighborhood Youth Corps, Community Action Programs, Operation Mainstream, etc.

The North Dakota Indian Affairs Commission (1967) reported that of the 1450 employable persons, sixteen years and older, some 818 persons are unemployed. Many families are engaged in ranching, while others work for the Bureau of Indian Affairs, the county offices, the Tribe, the Public Health Service, and at seasonal labor, such as construction and farm work.

Annual income figures for September, 1965 (North Dakota Indian Affairs Commission, 1967) for families on the Standing Rock Indian Reservation are:

Under $1000	265 families
$1000 to $1999	350 families
$2000 to $2999	75 families
$3000 to $4999	65 families
$5000 to $9999	55 families
Over $10,000	22 families
Unknown	48 families

Statistical Procedures

The statistical techniques employed in this investigation consisted of a two-way analysis of variance, Scheffe's test for multiple comparisons, Dunn's "c" test for differences between means, and Pearson Product-Moment Correlations. Because the cell frequencies were disproportionate, the two-way analysis of variance was accomplished by the unadjusted main effects method, which is identical, in terms of a solution, to the method described by Jennings (1967). The .05 level of significance was employed in evaluating the null hypotheses.

The remainder of this study is organized in the following manner: Chapter IV presents the analysis of the data and the results; the summary, discussions, conclusions, and recommendations are presented in Chapter V.

CHAPTER IV

RESULTS

The analysis and results of this study are presented according to the testable hypotheses stated in the null form. Tables summarizing the data concerning the specific hypotheses are included in the discussion.

The primary purpose of this study was to develop normative data on the Vocational Preference Inventory with an Indian population and to determine the relationships between the VPI scales and the Occupational Aspiration Scale, scholastic achievement, intelligence, and selected occupational information. The study also examined the differences between a North Dakota non-Indian high school sample and a North Dakota high school sample on the VPI scales.

Hypothesis 1

There are no significant differences between the mean scores on the eleven scales of the VPI for a North Dakota non-Indian high school sample and the mean scores on the VPI for a North Dakota Indian high school sample when the groups are separated by sex and reservation.

The means and standard deviations of the VPI scores for the North Dakota non-Indian high school seniors appear in Table 1.

TABLE 1

MEANS AND STANDARD DEVIATIONS OF THE VPI SCORES FOR THE NORTH DAKOTA NON-INDIAN HIGH SCHOOL SENIORS

Scale	Males (N=39) Mean	S.D.	Females (N=42) Mean	S.D.
Realistic	3.39	2.71	0.64	1.08
Intellectual	2.10	2.59	1.64	3.13
Social	1.80	1.87	5.24	3.41
Conventional	1.95	3.16	1.41	1.94
Enterprising	2.72	2.84	2.00	2.19
Artistic	1.82	2.41	4.41	4.17
Self-Control	7.26	3.45	11.19	2.55
Masculinity	9.54	2.13	4.43	1.90
Status	6.46	2.92	8.21	1.69
Infrequency	5.72	2.59	7.50	2.50
Total Acquiescence[a]	35.31	18.08	30.71	20.51

[a]In this table and hereafter, the term, total acquiescence, is used to indicate the "yes" responses to the 160 occupational titles of the VPI.

The means and standard deviations of the VPI scores for the Turtle Mountain Community School students are shown in Table 2.

The means and standard deviations of the VPI scores for the Standing Rock Community School students are presented in Table 3.

The results of the analysis performed on the scores obtained on each of the eleven scales of the VPI will be presented separately.

TABLE 2

MEANS AND STANDARD DEVIATIONS OF THE VPI SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS

Scale	Males (N=56) Means	S.D.	Females (N=50) Means	S.D.
Realistic	4.05	3.19	0.98	2.01
Intellectual	2.02	2.85	1.00	2.11
Social	1.61	1.95	4.50	3.71
Conventional	1.79	2.21	1.96	2.37
Enterprising	1.82	1.92	2.26	2.55
Artistic	1.39	2.38	2.48	2.88
Self-Control	9.04	3.88	11.28	2.67
Masculinity	9.16	1.59	4.94	2.01
Status	5.70	2.25	7.80	2.03
Infrequency	7.25	2.17	8.72	2.26
Total Acquiescence	29.34	20.57	26.20	21.07

TABLE 3

MEANS AND STANDARD DEVIATIONS OF THE VPI SCORES FOR THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Scale	Males (N=38) Means	S.D.	Females (N=23) Means	S.D.
Realistic	4.21	2.44	1.61	2.46
Intellectual	2.21	3.24	3.00	3.98
Social	2.05	2.32	5.70	3.59
Conventional	1.68	2.20	2.74	2.93
Enterprising	2.05	2.14	2.65	2.50
Artistic	2.84	2.96	2.70	3.46
Self-Control	8.68	3.55	10.22	3.15
Masculinity	8.71	1.69	5.39	1.78
Status	5.42	2.16	8.09	2.07
Infrequency	7.21	2.79	7.65	3.33
Total Acquiescence	33.90	17.91	37.57	25.13

Realistic Scale

The results of the two-way analysis of variance for the Realistic Scale scores of the VPI appear in Table 4.

TABLE 4

TWO-WAY ANALYSIS OF VARIANCE FOR THE REALISTIC SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	56.38	28.19	4.750**
Levels (Sex)	1	525.72	525.72	88.567**
Interaction	2	3.02	1.51	.254
Within	242	1436.49	5.94	

*Significant at the .05 level
**Significant at the .01 level

The results of the statistical test shown in Table 4 yielded significant F-ratios for treatments (schools) and levels (sex). The males in all groups scored higher on the Realistic scale of the VPI than did the females. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Realistic scale of the VPI was employed. The results of the comparison of the mean scores, when the groups were separated by sex and reservation, are shown in Table 5.

The results of the Dunn's "c" test for the differences between the mean scores of the non-Indian samples on the Realistic scale of the VPI yielded non-significant ratios. Thus, no differences exist between

the non-Indian sample and the Indian samples, when separated by sex and reservation, on the Realistic scale of the VPI. Therefore, this portion of the null hypothesis was retained.

TABLE 5

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE REALISTIC SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	-1.298 (N=56)	-1.476 (N=38)
Females	-0.667 (N=50)	-1.534 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

Intellectual Scale

The results of the two-way analysis of variance for the Intellectual Scale scores of the VPI are indicated in Table 6.

TABLE 6

TWO-WAY ANALYSIS OF VARIANCE FOR THE INTELLECTUAL SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	36.51	18.25	2.146
Levels (Sex)	1	13.22	13.22	1.554
Interaction	2	30.35	15.18	1.784
Within	242	2058.53	8.51	

The results of the two-way analysis of variance for the Intellectual scale scores yielded non-significant F-ratios. Further comparisons of the difference between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Intellectual scale of the VPI are shown in Table 7.

TABLE 7

DUNN'S "C" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE INTELLECTUAL SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	0.131 (N=56)	-0.165 (N=38)
Females	1.048 (N=50)	-1.797 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

The results of the Dunn's "c" test yielded non-significant ratios for the differences between the mean scores on the Intellectual scale of the VPI for the two Indian samples when compared to the non-Indian sample. The Indian students, when separated by sex and reservation, did not differ significantly from the non-Indian students on the mean scores of the Intellectual scale of the VPI. Therefore, this portion of the null hypothesis was retained.

Social Scale

The results of the two-way analysis of variance for the Social Scale scores of the VPI are presented in Table 8.

TABLE 8

TWO-WAY ANALYSIS OF VARIANCE FOR THE SOCIAL SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	18.68	9.34	1.144
Levels (Sex)	1	639.15	639.15	78.252**
Interaction	2	6.68	3.34	.409
Within	242	1976.60	8.17	

*Significant at the .05 level
**Significant at the .01 level

The results of the two-way analysis of variance for the Social scale scores yielded a significant F-ratio for levels (sex). The females in all groups scored higher on the mean scores of the Social scale of the VPI than did the males. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Social scale of the VPI was employed. The results of the comparisons of the mean scores on the Social scale are shown in Table 9.

The results of the Dunn's "c" test for the differences between mean scores of the non-Indian sample and the two Indian samples on the Social scale of the VPI yielded non-significant ratios. The Indian students, when separated by sex and reservation, did not differ significantly from the non-Indian students on the mean scores of the Social scale of the VPI. Therefore, this portion of the null hypothesis was retained.

TABLE 9

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE SOCIAL SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	0.302 (N=56)	-0.399 (N=38)
Females	1.237 (N=50)	-0.620 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

Conventional Scale

The results of the two-way analysis of variance for the Conventional Scale scores of the VPI are given in Table 10.

TABLE 10

TWO-WAY ANALYSIS OF VARIANCE FOR THE CONVENTIONAL SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	6.03	3.02	0.506
Levels (Sex)	1	0.73	0.73	0.122
Interaction	2	15.79	7.90	1.323
Within	242	1444.01	5.97	

The results of the statistical test shown in Table 10 yielded non-significant F-ratios. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the

T.M.C.S. students and the S.R.C.S. students on the Conventional scale of the VPI was conducted. The results of the comparisons of the mean scores on the Conventional scale are presented in Table 11.

TABLE 11

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE CONVENTIONAL SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	0.314 (N=56)	0.485 (N=38)
Females	-1.095 (N=50)	-2.114 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

The results of the Dunn's "c" test yielded non-significant ratios for the differences between the mean scores on the Conventional scale of the VPI for the two Indian samples when compared to the non-Indian sample. The Indian students, when separated by sex and reservation, did not differ significantly from the non-Indian students on the Conventional scale of the VPI. Therefore, this portion of the null hypothesis was retained.

Enterprising Scale

The results of the two-way analysis of variance for the Enterprising Scale scores of the VPI are indicated in Table 12.

TABLE 12

TWO-WAY ANALYSIS OF VARIANCE FOR THE ENTERPRISING SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	5.21	2.61	0.475
Levels (Sex)	1	0.53	0.53	0.097
Interaction	2	21.85	10.93	1.991
Within	242	1328.84	5.49	

The two-way analysis of variance for the Enterprising scale scores produced non-significant F-ratios. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Enterprising scale of the VPI was employed. The results of the comparisons of the mean scores on the Enterprising scale are cited in Table 13.

TABLE 13

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE ENTERPRISING SCALE OF THE VPI

Variables	T.M.C.S.	S.R.C.S.
Males	1.842 (N=56)	1.254 (N=38)
Females	-0.530 (N=50)	-1.069 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

Artistic Scale

The results of the two-way analysis of variance for the Artistic Scale scores for the VPI appear in Table 14.

TABLE 14

TWO-WAY ANALYSIS OF VARIANCE FOR THE ARTISTIC SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	77.54	38.77	4.197*
Levels (Sex)	1	103.23	103.23	11.174**
Interaction	2	58.05	29.03	3.142*
Within	242	2235.62	9.24	

*Significant at the .05 level
**Significant at the .01 level

The results of the statistical test shown in Table 14 yielded significant F-ratios for treatments (schools), levels (sex), and interaction. The non-Indian females and the T.M.C.S. females scored lower than the males of these schools on the Artistic scale of the VPI, while the S.R.C.S. males scored higher than the S.R.C.S. females on the Artistic scale. Dunn's "c" test for comparing differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Artistic scale of the VPI was conducted. The results of the comparison of the mean scores, when the groups were separated by sex and reservation, are presented in Table 15.

TABLE 15

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE ARTISTIC SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	0.678 (N=56)	-1.472 (N=38)
Females	3.018** (N=50)	2.156 (N=23)

*Significant at the .05 level
**Significant at the .01 level

The results of the Dunn's "c" test for the differences between mean scores of the non-Indian sample and the two Indian samples on the Artistic scale of the VPI yielded one significant difference. The T.M.C.S. females scored significantly lower on the Artistic scale of the VPI than did the non-Indian females. Therefore, this portion of the null hypothesis was rejected.

Self-Control Scale

The results of the two-way analysis of variance for the Self-Control Scale scores of the VPI are given in Table 16.

The results of the statistical test shown in Table 16 yielded a significant F-ratio for levels (sex). The females of all groups scored higher on the Self-Control scale of the VPI than did the males of the groups. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Self-Control scale of the VPI was

employed. The results of the comparisons of the mean scores, when the groups were separated by sex and reservation, are shown in Table 17.

TABLE 16

TWO-WAY ANALYSIS OF VARIANCE FOR THE SELF-CONTROL SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	40.12	20.06	1.884
Levels (Sex)	1	423.75	423.75	39.808**
Interaction	2	51.60	25.80	2.425
Within	242	2576.05	10.64	

*Significant at the .05 level
**Significant at the .01 level

TABLE 17

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE SELF-CONTROL SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	-2.616* (N=56)	-1.910 (N=38)
Females	-0.132 (N=50)	1.146 (N=23)

*Significant at the .05 level

The results of the Dunn's "c" test for the differences between mean scores for the non-Indian sample and the two Indian samples on the Self-Control scale of the VPI yielded one significant ratio. The

T.M.C.S. males scored significantly higher on this scale than did the non-Indian males. Therefore, this portion of the null hypothesis was rejected.

Masculinity Scale

The results of the two-way analysis of variance for the Masculinity Scale scores of the VPI are indicated in Table 18.

TABLE 18

TWO-WAY ANALYSIS OF VARIANCE FOR THE MASCULINITY SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	11.39	5.69	1.653
Levels (Sex)	1	1140.01	1140.01	330.930**
Interaction	2	21.07	10.54	3.064*
Within	242	833.66	3.44	

*Significant at the .05 level
**Significant at the .01 level

The results of the statistical test shown in Table 18 yielded a significant F-ratio for levels (sex) and interaction. The males of all groups scored significantly higher on the Masculinity scale of the VPI than did the females. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Masculinity scale of the VPI was employed. The results of the comparisons of the mean scores, when the groups were separated by sex and reservation, are shown in Table 19.

TABLE 19

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE MASCULINITY SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	0.982 (N=56)	1.963 (N=38)
Females	-1.314 (N=50)	-1.995 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

The results of the Dunn's "c" test for the differences between mean scores of the non-Indian sample and the two Indian samples on the Masculinity scale of the VPI yielded no significant ratios. Therefore, the T.M.C.S. students and the S.R.C.S. students did not differ significantly from the non-Indian students on the Masculinity scale and this portion of the null hypothesis was retained.

Status Scale

The results of the two-way analysis of variance for the Status Scale scores of the VPI are presented in Table 20.

The results of the statistical test shown in Table 20 yielded significant F-ratios for treatments (schools) and levels (sex). The females in all groups were higher on the Status scale of the VPI than were the males. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Status scale of the VPI was employed.

The results of the comparison of mean scores, when the groups were separated by sex and reservation, are shown in Table 21.

TABLE 20

TWO-WAY ANALYSIS OF VARIANCE FOR THE STATUS SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	35.64	17.82	3.631*
Levels (Sex)	1	289.50	289.50	58.987**
Interaction	2	8.22	4.11	.837
Within	242	1187.70	4.91	

*Significant at the .05 level
**Significant at the .01 level

TABLE 21

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE STATUS SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	1.645 (N=56)	2.059 (N=38)
Females	0.884 (N=50)	0.209 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

The results of the Dunn's "c" test for the differences between mean scores for the non-Indian sample and the two Indian samples on the Status scale of the VPI yielded non-significant ratios. The T.M.C.S.

students and the S.R.C.S. students did not differ significantly from the non-Indian students on the Status scale of the VPI. Therefore, this portion of the null hypothesis was retained.

Infrequency Scale

The results of the two-way analysis of variance for the Infrequency Scale scores of the VPI are indicated in Table 22.

TABLE 22

TWO-WAY ANALYSIS OF VARIANCE FOR THE INFREQUENCY SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	77.76	38.88	6.068**
Levels (Sex)	1	99.69	99.69	15.560**
Interaction	2	16.43	8.22	1.282
Within	242	1550.52	6.41	

*Significant at the .05 level
**Significant at the .01 level

The results of the statistical test shown in Table 22 yielded significant F-ratios for treatments (schools) and levels (sex). The females in all groups scored higher on the Infrequency scale of the VPI than did the males. The T.M.C.S. males and the S.R.C.S. males scored higher than did the non-Indian males on this scale. Dunn's "c" test for comparing the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Infrequency scale of the VPI was employed. The results of the

comparisons of the mean scores, when the groups were separated by sex and reservation, are shown in Table 23.

TABLE 23

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE INFREQUENCY SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	-2.898* (N=56)	-2.582* (N=38)
Females	-2.302 (N=50)	-0.228 (N=23)

*Significant at the .05 level

The results of the Dunn's "c" test for the differences between mean scores of the non-Indian sample and the two Indian samples on the Infrequency scale of the VPI yielded two significant ratios. The T.M.C.S. males and the S.R.C.S. males scored significantly higher on the mean scores of the Infrequency scale than did the non-Indian males. Therefore, this portion of the null hypothesis was rejected.

Total Acquiescence Scale

The results of the two-way analysis of variance for the Total Acquiescence Scale scores of the VPI are given in Table 24.

The results of the statistical test shown in Table 24 yielded non-significant F-ratios. Further comparisons of the differences between the mean scores of the non-Indian students and the T.M.C.S. students and the S.R.C.S. students on the Total Acquiescence scale of the VPI are indicated in Table 25.

TABLE 24

TWO-WAY ANALYSIS OF VARIANCE FOR THE TOTAL ACQUIESCENCE SCALE SCORES OF THE VPI

Source of Variation	df	ss	ms	F
Treatments (Schools)	2	2434.75	1217.38	2.933
Levels (Sex)	1	317.56	317.56	0.765
Interaction	2	561.22	280.61	
Within	242	100448.81	415.08	

TABLE 25

DUNN'S "c" VALUES FOR THE DIFFERENCES BETWEEN THE MEAN SCORES OF THE NORTH DAKOTA NON-INDIAN STUDENTS AND THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS ON THE TOTAL ACQUIESCENCE SCALE OF THE VPI

Variable	T.M.C.S.	S.R.C.S.
Males	1.405 (N=56)	0.306 (N=38)
Females	1.058 (N=50)	-1.298 (N=23)

$p = .05$, $c = 2.43$, $df_w = 163$

The results of the Dunn's "c" test yielded non-significant ratios for the differences between mean scores on the Total Acquiescence scale of the VPI for the two Indian samples when compared to the non-Indian sample. The Indian students, when separated by sex and reservation, did not differ significantly from the non-Indian students on the

mean scores of the Total Acquiescence scale of the VPI. Therefore, this portion of the null hypothesis was retained.

Summary of Hypothesis 1

No significant differences existed for the comparisons of the mean scores on the eleven scales of the VPI between the non-Indian students and the T.M.C.S. students and the S.R.C.S. students except for three scales; the Artistic scale, the Self-Control scale, and the Infrequency scale. On the Artistic scale, the T.M.C.S. females scored significantly lower than did the non-Indian females. On the Self-Control scale, the T.M.C.S. males scored significantly higher than did the non-Indian males. The T.M.C.S. males and the S.R.C.S. males scored significantly higher on the mean scores of the Infrequency scale than did the non-Indian males. The null hypothesis was partially rejected.

Hypothesis 2

There are no significant relationships between the scores of the eleven scales of the VPI for an Indian sample and intelligence test scores when the groups are separated by sex and reservation.

The means, standard deviations, and t-ratios for intelligence test scores for the four groups appear in Table 26.

The means of the intelligence test scores did not differ significantly between the Turtle Mountain Community School and the Standing Rock Community School males or the T.M.C.S. and S.R.C.S. females. Therefore, the Indian sample, when separated by sex, did not differ significantly on intelligence test scores.

TABLE 26

MEANS, STANDARD DEVIATIONS, AND t-RATIOS OF THE INTELLIGENCE TEST SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Variable	T.M.C.S. Mean	T.M.C.S. S.D.	S.R.C.S. Mean	S.R.C.S. S.D.	t-ratios
Males	100.95 (N=56)	11.04	97.11 (N=38)	10.32	1.699
Females	99.06 (N=50)	17.62	100.96 (N=23)	8.92	-0.487

The Pearson Product-Moment Correlations between the VPI scales and intelligence test scores for the four student groups are given in Tables 27, 28, 29, and 30.

TABLE 27

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND INTELLIGENCE TEST SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL MALES (N=56)

Scale	r
Realistic	-.430**
Intellectual	.040
Social	.040
Conventional	-.022
Enterprising	-.112
Artistic	-.133
Self-Control	.222
Masculinity	-.045
Status	.361**
Infrequency	-.049
Total Acquiescence	-.197

*Significant at the .05 level
**Significant at the .01 level

The results of the Pearson Product-Moment Correlations shown in Table 27 indicate that only two correlations between the VPI scale scores and the intelligence test scores for the Turtle Mountain Community School males were significant; these were the Realistic and Status scales. The correlations for these scales were significant at the .01 level of significance. Therefore, this portion of the null hypothesis was rejected.

TABLE 28

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND INTELLIGENCE TEST SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL FEMALES (N=50)

Scale	r
Realistic	-.013
Intellectual	-.113
Social	.124
Conventional	-.067
Enterprising	.015
Artistic	.086
Self-Control	.143
Masculinity	-.052
Status	.173
Infrequency	.053
Total Acquiescence	.018

$p = .05$, $r = .288$, $df = 48$

The results of the Pearson Product-Moment correlations indicated in Table 28 yielded non-significant correlations between the VPI scale scores and the intelligence test scores for the Turtle Mountain Community School females. Therefore, this portion of the null hypothesis was retained.

TABLE 29

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND INTELLIGENCE TEST SCORES FOR THE STANDING ROCK COMMUNITY SCHOOL MALES (N=38)

Scale	r
Realistic	-.045
Intellectual	.269
Social	-.088
Conventional	-.136
Enterprising	-.047
Artistic	-.209
Self-Control	.084
Masculinity	.164
Status	.171
Infrequency	-.114
Total Acquiescence	-.093

$p = .05$, $r = .325$, $df = 36$

The results of the Pearson Product-Moment correlations cited in Table 29 yielded non-significant correlations between the VPI scale scores and the intelligence test scores for the Standing Rock Community School males. Therefore, this portion of the null hypothesis was retained.

The results of the Pearson Product-Moment correlations shown in Table 30 yielded non-significant correlations between the VPI scale scores and the intelligence test scores for the Standing Rock Community School females. Therefore, this portion of the null hypothesis was retained.

Summary for Hypothesis 2

The results of the Pearson Product-Moment correlations, shown in Tables 27, 28, 29, and 30, indicated that no significant

TABLE 30

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND INTELLIGENCE TEST SCORES FOR THE STANDING ROCK COMMUNITY SCHOOL FEMALES (N=23)

Scale	r
Realistic	-.276
Intellectual	.056
Social	-.344
Conventional	-.377
Enterprising	-.327
Artistic	.238
Self-Control	-.115
Masculinity	-.010
Status	.143
Infrequency	-.399
Total Acquiescence	-.124

$p = .05$, $r = .413$, $df = 21$

relationships existed between the scores of the eleven scales of the VPI and intelligence test scores except for the Realistic and Status scales for Turtle Mountain Community School males. The correlations for the Turtle Mountain Community School males on the scores of the Realistic and the Status scales were significant at the .01 level of significance. The null hypothesis was partially rejected.

Hypothesis 3

There are no significant relationships between the scores of the eleven scales of the VPI for an Indian sample and scholastic achievement as measured by the standard composite scores of the Iowa Tests of Educational Development when the groups are separated by sex and reservation.

The means, standard deviations, and t-ratios for the ITED scores for the four groups are presented in Table 31.

TABLE 31

MEANS, STANDARD DEVIATIONS, AND t-RATIOS OF THE IOWA TESTS OF EDUCATIONAL DEVELOPMENT STANDARD COMPOSITE SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL STUDENTS AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Variable	T.M.C.S. Mean	T.M.C.S. S.D.	S.R.C.S. Mean	S.R.C.S. S.D.	t-ratios
Males	9.50 (N=56)	4.12	9.21 (N=38)	3.63	.351
Females	9.50 (N=50)	4.26	9.96 (N=23)	4.23	-.426

The means of the Iowa Tests of Educational Development standard composite scores did not differ significantly between the Turtle Mountain Community School and the Standing Rock Community School males or the Turtle Mountain Community School and the Standing Rock Community School females. Therefore, the Indian sample, when separated by sex, did not differ significantly on scholastic achievement.

The Pearson Product-Moment Correlations between the VPI scale scores and the Iowa Tests of Educational Development standard composite scores for the four student groups are given in Tables 32, 33, 34, and 35.

The results of the Pearson Product-Moment correlations shown in Table 32 indicated that only one correlation between the VPI scale scores and the Iowa Tests of Educational Development standard composite scores for the Turtle Mountain Community School males was significant;

this was the Realistic scale. The correlation for this scale was significant at the .05 level of significance. Therefore, this portion of the null hypothesis was rejected.

TABLE 32

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND IOWA TESTS OF EDUCATIONAL DEVELOPMENT STANDARD COMPOSITE SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL MALES (N=56)

Scale	r
Realistic	-.333*
Intellectual	.146
Social	.041
Conventional	-.180
Enterprising	-.156
Artistic	-.076
Self-Control	.125
Masculinity	.096
Status	.229
Infrequency	-.108
Total Acquiescence	-.146

*Significant at the .05 level.

The results of the Pearson Product-Moment correlations shown in Table 33 indicate that only one correlation between the VPI scale scores and the Iowa Tests of Educational Development standard composite scores for the Turtle Mountain Community School females was significant; this was the Conventional scale. The correlation for this scale was significant at the .05 level of significance. Therefore, this portion of the null hypothesis was rejected.

TABLE 33

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND IOWA TESTS OF EDUCATIONAL DEVELOPMENT STANDARD COMPOSITE SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL FEMALES (N=50)

Scale	r
Realistic	-.161
Intellectual	-.247
Social	-.103
Conventional	-.335*
Enterprising	-.235
Artistic	-.151
Self-Control	.189
Masculinity	.130
Status	.002
Infrequency	-.074
Total Acquiescence	-.239

*Significant at the .05 level

TABLE 34

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND IOWA TESTS OF EDUCATIONAL DEVELOPMENT STANDARD COMPOSITE SCORES FOR THE STANDING ROCK COMMUNITY SCHOOL MALES (N=38)

Scale	r
Realistic	-.042
Intellectual	.367*
Social	.021
Conventional	.077
Enterprising	.186
Artistic	-.184
Self-Control	-.085
Masculinity	.235
Status	.209
Infrequency	-.170
Total Acquiescence	.120

*Significant at the .05 level

The results of the Pearson Product-Moment correlations presented in Table 34 indicate that only one correlation between the VPI scale scores and the Iowa Tests of Educational Development standard composite scores for the Standing Rock Community School males was significant; this was the Intellectual scale. The correlation for this scale was significant at the .05 level of significance. Therefore, this portion of the null hypothesis was rejected.

TABLE 35

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI SCALE SCORES AND IOWA TESTS OF EDUCATIONAL DEVELOPMENT STANDARD COMPOSITE SCORES FOR THE STANDING ROCK COMMUNITY SCHOOL FEMALES (N=23)

Scale	r
Realistic	-.268
Intellectual	-.027
Social	-.394
Conventional	-.394
Enterprising	-.281
Artistic	.214
Self-Control	-.211
Masculinity	.057
Status	.141
Infrequency	-.460*
Total Acquiescence	-.132

*Significant at the .05 level

The results of the Pearson Product-Moment correlations given in Table 35 indicate that only one correlation between the VPI scale scores and the Iowa Tests of Educational Development standard composite scores for the Standing Rock Community School females was significant; this was the Infrequency scale. The correlation for this scale was significant

at the .05 level of significance. Therefore, this portion of the null hypothesis was rejected.

Summary of Hypothesis 3

The results of the Pearson Product-Moment correlations, shown in Tables 32, 33, 34, and 35, indicated that no significant relationships existed between the scores of the eleven scales of the VPI and the ITED standard composite scores except for the Realistic scale for the Turtle Mountain Community School males, the Conventional scale for the Turtle Mountain Community School females, the Intellectual scale for the Standing Rock Community School males, and the Infrequency scale for the Standing Rock Community school females. These four correlations were significant at the .05 level of significance. The null hypothesis, therefore, was partially rejected.

Hypothesis 4

There are no significant differences between the mean scores on the six vocational scales of the VPI for the male Indian sample when separated by reservation.

The mean scores and the critical ratios for the comparisons of the six vocational scales of the VPI between the T.M.C.S. males and the S.R.C.S. males are presented in Table 36.

The results of the Scheffé test for the comparisons of the mean scores on the six vocational scales of the VPI shown in Table 36 yielded significant differences between the mean scores for the T.M.C.S. males and the S.R.C.S. males on one scale, the Artistic scale. The mean scores of the S.R.C.S. males were significantly greater than the

mean scores of the T.M.C.S. males on the Artistic scale. Therefore, the null hypothesis was rejected.

TABLE 36

MEAN SCORE COMPARISONS OF THE SIX VOCATIONAL SCALES OF THE VPI BETWEEN THE TURTLE MOUNTAIN COMMUNITY SCHOOL MALES AND THE STANDING ROCK COMMUNITY SCHOOL MALES

Scale	T.M.C.S. Means Males (N=56)	S.R.C.S. Means Males (N=38)	Scheffé's critical ratios
Realistic	4.05	4.21	0.066
Intellectual	2.02	2.21	0.093
Social	1.61	2.05	1.012
Conventional	1.79	1.68	0.049
Enterprising	1.82	2.05	0.301
Artistic	1.39	2.84	6.893**

*Significant at the .05 level
**Significant at the .01 level

Hypothesis 5

There are no significant differences between the mean scores on the six vocational scales of the VPI for the female Indian sample when separated by reservation.

The mean scores and the critical ratios for the comparisons of the six vocational scales of the VPI between the T.M.C.S. females and the S.R.C.S. females are presented in Table 37.

The results of the Scheffé test for the comparisons of the mean scores on the six vocational scales of the VPI shown in Table 37 yielded significant differences between the mean scores for the T.M.C.S. females

and the S.R.C.S. females on one scale, the Intellectual scale. The mean scores of the S.R.C.S. females were significantly greater than the mean scores of the T.M.C.S. females on the Intellectual scale. Therefore, the null hypothesis was rejected.

TABLE 37

MEAN SCORE COMPARISONS OF THE SIX VOCATIONAL SCALES OF THE VPI BETWEEN THE TURTLE MOUNTAIN COMMUNITY SCHOOL FEMALES AND THE STANDING ROCK COMMUNITY SCHOOL FEMALES

Scale	T.M.C.S. Means Females (N=50)	S.R.C.S. Means Females (N=23)	Scheffé's critical ratios
Realistic	0.98	1.61	1.339
Intellectual	1.00	3.00	7.904**
Social	4.50	5.70	1.671
Conventional	1.96	2.74	1.466
Enterprising	2.26	2.65	0.378
Artistic	2.48	2.70	0.078

*Significant at the .05 level
**Significant at the .01 level

Hypothesis 6

There are no significant relationships between the amount of knowledge of the type of work done by persons in selected occupations as measured by question one of the Occupational Information Form and the total Acquiescence scale scores of the VPI when the groups are separated by sex and reservation.

The means, standard deviations, and t-ratios for the number of "yes" responses for question one of the OIF for the group groups are given in Table 38.

TABLE 38

MEANS, STANDARD DEVIATIONS, AND t-RATIOS OF THE NUMBER OF "YES" RESPONSES ON QUESTION ONE OF THE OCCUPATIONAL INFORMATION FORM FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Variable	T.M.C.S. Mean	T.M.C.S. S.D.	S.R.C.S. Mean	S.R.C.S. S.D.	t-ratios
Males	55.82 (N=56)	20.07	47.87 (N=38)	28.11	1.601
Females	63.50 (N=50)	15.36	56.91 (N=23)	22.67	1.457

The means of the number of "yes" responses on question one of the Occupational Information Form did not differ significantly between the Turtle Mountain Community School and the Standing Rock Community School males or the Turtle Mountain Community School and the Standing Rock Community School females. Therefore, the Indian sample, when separated by sex, did not differ significantly on "yes" responses of the Occupational Information Form.

The Pearson Product-Moment correlation between the VPI Total Acquiescence scale scores and the total "yes" responses for question one of the Occupational Information Form for Turtle Mountain Community School and Standing Rock Community School students are shown in Table 39.

TABLE 39

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI TOTAL ACQUIESCENCE SCALE SCORES AND THE TOTAL "YES" RESPONSES FOR QUESTION ONE OF THE OCCUPATIONAL INFORMATION FORM FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL MALES AND FEMALES AND THE STANDING ROCK COMMUNITY SCHOOL MALES AND FEMALES

Classification	N	r
T.M.C.S. Males	56	-.032
T.M.C.S. Females	50	-.008
S.R.C.S. Males	38	.207
S.R.C.S. Females	23	.238

The results of the Pearson Product-Moment correlation presented in Table 39 yielded non-significant relationships between the VPI Total Acquiescence scale scores and the total "yes" responses of the OIF question one. Therefore, the null hypothesis was retained.

Hypothesis 7

There are no significant relationships between the number of correct responses about the location where people in selected occupations would get work as measured by question two of the Occupational Information Form and the Total Acquiescence scale scores of the VPI when the groups are separated by sex and reservation.

The means, standard deviations, and t-ratios for the number of correct responses for question two of the OIF for the four groups appear in Table 40.

TABLE 40

MEANS, STANDARD DEVIATIONS, AND t-RATIOS OF THE NUMBER OF CORRECT RESPONSES FOR QUESTION TWO OF THE OCCUPATIONAL INFORMATION FORM FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Variable	T.M.C.S. Mean	S.D.	S.R.C.S. Mean	S.D.	t-ratios
Males	134.34 (N=56)	43.51	149.21 (N=38)	61.34	-1.376
Females	147.72 (N=50)	38.11	165.61 (N=23)	26.17	-2.037*

*Significant at the .05 level

The means of the total number of correct responses for question two of the OIF did not differ significantly between the Turtle Mountain Community School and the Standing Rock Community School males. The mean scores of the Turtle Mountain Community School and the Standing Rock Community School females did differ significantly on question two of the Occupational Information Form. Therefore, the Standing Rock Community School females appeared to have more knowledge of the eighty-four occupations listed in the Occupational Information Form than did the Turtle Mountain Community School females.

The Pearson Product-Moment correlations between the VPI Total Acquiescence scale scores and the number of correct responses of question two of the Occupational Information Form for the Turtle Mountain Community School and Standing Rock Community School students are presented in Table 41.

TABLE 41

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI TOTAL ACQUIESCENCE SCALE SCORES AND THE NUMBER OF CORRECT RESPONSES FOR QUESTION TWO OF THE OCCUPATIONAL INFORMATION FORM FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Classification	N	r
T.M.C.S. Males	56	-.236
T.M.C.S. Females	50	-.051
S.R.C.S. Males	38	.147
S.R.C.S. Females	23	-.095

The results of the Pearson Product-Moment correlations presented in Table 41 yielded non-significant relationships between the VPI Total Acquiescence scale scores and the total number of correct responses of the Occupational Information Form question two. Therefore, the null hypothesis was retained.

Hypothesis 8

There are no significant relationships between the Occupational Aspiration Scale total scores and the Status scale scores of the VPI when the groups are separated by sex and reservation.

The means, standard deviations, and t-ratios for the Occupational Aspiration Scale total score for the four groups are indicated in Table 42.

The means of the total Occupational Aspiration Scale scores for the Turtle Mountain Community School and the Standing Rock Community School males did not differ significantly. The mean scores for the Turtle Mountain Community School and the Standing Rock Community School

females did differ significantly at the .05 level of significance. Therefore, it appeared that the Standing Rock Community School females scored significantly higher on the Occupational Aspiration Scale than did the Turtle Mountain Community School females.

TABLE 42

MEANS, STANDARD DEVIATIONS, AND t-RATIOS OF THE TOTAL OCCUPATIONAL ASPIRATION SCALE SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Variable	T.M.C.S. Mean	T.M.C.S. S.D.	S.R.C.S. Mean	S.R.C.S. S.D.	t-ratios
Males	38.34 (N=56)	11.75	38.18 (N=38)	11.39	0.064
Females	38.82 (N=50)	9.22	44.00 (N=23)	9.21	-2.232*

*Significant at the .05 level

The Pearson Product-Moment correlations between the VPI Status scale scores and the total Occupational Aspiration Scale scores for the Turtle Mountain Community School and the Standing Rock Community School students are presented in Table 43.

The Pearson Product-Moment correlations shown in Table 43 yielded all positive significant correlations between the VPI Status scale scores and the total Occupational Aspiration Scale scores. The correlations were significant at the .01 level of significance. Therefore, the null hypothesis was rejected.

TABLE 43

PEARSON PRODUCT-MOMENT CORRELATIONS BETWEEN THE VPI STATUS SCALE SCORES AND THE TOTAL OCCUPATIONAL ASPIRATION SCALE SCORES FOR THE TURTLE MOUNTAIN COMMUNITY SCHOOL AND THE STANDING ROCK COMMUNITY SCHOOL STUDENTS

Classification	N	r
T.M.C.S. Males	56	.374**
T.M.C.S. Females	50	.421**
S.R.C.S. Males	38	.464**
S.R.C.S. Females	23	.538**

*Significant at the .05 level
**Significant at the .01 level

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The primary purpose of this study was to develop normative data on the Vocational Preference Inventory with an Indian population and to determine the relationships between the VPI scales and the Occupational Aspiration Scale, scholastic achievement, intelligence, and selected occupational information. The study also examined the differences between a North Dakota non-Indian high school sample and a North Dakota high school sample on the VPI scales.

The specific hypotheses tested were as follows:

1. There are no significant differences between the mean scores on the eleven scales of the VPI for a North Dakota non-Indian high school sample and the mean scores on the VPI for a North Dakota Indian sample when the groups are separated by sex and reservation.

2. There are no significant relationships between the scores on the eleven scales of the VPI for an Indian sample and intelligence test scores when the groups are separated by sex and reservation.

3. There are no significant relationships between the scores on the eleven scales of the VPI for an Indian sample and scholastic achievement as measured by the standard composite scores of the Iowa Tests of Educational Development when the groups are separated by sex and reservation.

4. There are no significant differences between the mean scores on the six vocational scales of the VPI for the male Indian sample when separated by reservation.

5. There are no significant differences between the mean scores on the six vocational scales of the VPI for the female Indian sample when separated by reservation.

6. There are no significant relationships between the amount of knowledge of the work done by persons in selected occupations as measured by question one of the Occupational Information Form and the total Acquiescence scale of the VPI when the groups are separated by sex and reservation.

7. There are no significant relationships between the number of correct responses about the location where people in selected occupations would get work as measured by question two of the Occupational Information Form and the total Acquiescence scale of the VPI when the groups are separated by sex and reservation.

8. There are no significant relationships between the Occupational Aspiration Scale total scores and the Status scale scores of the VPI when the groups are separated by sex and reservation.

The research population consisted of the total group of 161 North Dakota Indian high school students, specifically, fifty-six males and fifty females enrolled at the Turtle Mountain Community School, Belcourt, North Dakota, and thirty-eight males and twenty-three females enrolled at the Standing Rock Community School, Fort Yates, North Dakota, for the 1970-71 academic year. The students were administered the Vocational Preference Inventory (VPI), the Occupational Information Form (OIF), the Occupational Aspiration

Scale (OAS), and the Student Report Form (SRF). The instruments were administered to the students in the early fall on one of two separate test days. The VPI was administered to the senior class students at Bottineau High School, Bottineau, North Dakota, in early October and their VPI scores were used as a norming group for comparing the Indian students' VPI scores. The subjects were divided into groups based on sex and the reservation on which they resided.

Lorge-Thorndike Test of Intelligence scores and Iowa Test of Educational Development scores were collected from the students' cumulative records. A validity check on the information reported on the SRF was administered by checking each fifth student listed on an alphabetic list of students included in the sample against the information reported in the cumulative records.

The eight null hypotheses were tested. Hypotheses testing was conducted at the .05 level of significance. The results of the hypotheses testing are as follows:

1. Significant differences were found for the comparisons of the mean scores of the scales of the VPI between the non-Indian students and the T.M.C.S. and the S.R.C.S. students on three scales; the Artistic scale, the Self-Control scale, and the Infrequency scale. The T.M.C.S. females scored significantly lower on the Artistic scale than did the non-Indian females. The T.M.C.S. males scored significantly higher on the Self-Control scale than did the non-Indian males. The T.M.C.S. males and the S.R.C.S. males scored significantly higher on the Infrequency scale than did the non-Indian males.

2. Significant relationships were found between the intelligence test scores and the mean scores of the VPI. A significant negative

relationship was found between intelligence test scores and the Realistic scale of the VPI for the T.M.C.S. males, while a significant positive relationship was found between intelligence test scores and the Status scale of the VPI for the T.M.C.S. males.

3. Significant relationships were found between the ITED standard composite scores and the mean scores of the VPI. Significant negative relationships were found between the ITED standard composite scores and the Realistic scale of the VPI for the T.M.C.S. males and the Conventional scale of the VPI for the T.M.C.S. females. A significant positive relationship was found between the ITED standard composite scores and the Intellectual scale of the VPI for the S.R.C.S. males, while a significant negative relationship was found between the ITED standard composite scores and the Infrequency scale of the VPI for the S.R.C.S. males.

4. A significant difference on the mean scores of the six vocational scales of the VPI between the T.M.C.S. and the S.R.C.S. males was found on the Artistic scale. The mean scores of the S.R.C.S. males were significantly greater than the mean scores of the T.M.C.S. males on the Artistic scale of the VPI.

5. A significant difference on the mean scores of the six vocational scales of the VPI between the T.M.C.S. and the S.R.C.S. females was found on the Intellectual scale. The mean scores of the S.R.C.S. females were significantly greater than the mean scores of the T.M.C.S. females on the Intellectual scale of the VPI.

6. No significant relationship was found between the VPI total Acquiescence scale scores and the amount of knowledge of the work done

by persons in selected occupations for question one of the OIF for the four groups.

7. No significant relationship was found between the VPI Total Acquiescence scale scores and the number of correct responses about the location where people in selected occupations would get work for question two of the OIF for the four groups.

8. Significant positive relationships were found between the VPI Status scale scores and the total OAS scores for all four groups.

Discussion and Conclusions

This study has examined whether there are significant differences between a North Dakota non-Indian high school sample and a North Dakota Indian high school sample on the mean scores of the VPI. It was found that the T.M.C.S. females scored significantly lower on the Artistic scale than did the non-Indian females and the T.M.C.S. males scored significantly higher on the Self-Control scale than did the non-Indian males. Also, it was found that both the T.M.C.S. males and the S.R.C.S. males scored significantly higher on the Infrequency scale than did the non-Indian males.

With the Indian students divided into four groups based on sex and reservation, forty-four possible relationships were examined. Out of the forty-four possible differences, only four significant differences were found between the non-Indian students and the Indian students. These findings should indicate the usefulness of the VPI with Indian students as well as for non-Indian students.

With the Indian high school sample, only two significant relationships existed between the intelligence test scores and the mean

scores of the VPI scales. A significant negative relationship existed between intelligence test scores and the Realistic scale for the T.M.C.S. males and a significant positive relationship existed between intelligence test scores and the Status scale of the VPI for the T.M.C.S. males. No significant relationships were found between intelligence test scores and the VPI scales for the T.M.C.S. females, the S.R.C.S. males or the S.R.C.S. females.

These results seem contrary to the theory on which the VPI was designed. It would have seemed logical that a significant relationship should exist between the VPI Intellectual scale and the intelligence test scores. The students scoring highest on the Intellectual scale are usually characterized by adjectives like: "scientifically inclined; high scientific, research, and math ability; achieving and curious" (Holland, 1965, p. 18).

Significant relationships between scholastic achievement, ITED standard composite scores and the VPI scales were found for the four Indian groups. Significant negative relationships existed between ITED standard composite scores and the Realistic scale for the T.M.C.S. males and the Conventional scale for the T.M.C.S. females. A significant positive relationship existed between the ITED standard composite scores and the Intellectual scale for the S.R.C.S. males and a significant negative relationship for the S.R.C.S. females on the Infrequency scale. The positive relationship between scholastic achievement, ITED standard composite scores, and the Intellectual scale seems to match the descriptive adjectives of those who score high on the Intellectual scale as was mentioned above. The negative relationship between scholastic achievement, ITED standard composite scores, and the Infrequency

scale support Holland's description of those females scoring high on the Infrequency scale. Holland (1965, p. 25) states that items included in the Infrequency scale show "rejection . . . of intellectual talent."

The significant difference on the mean scores for the Artistic scale of the VPI between the T.M.C.S. males and the S.R.C.S. males is supported by their choices of their most-liked and least-liked occupational choices. The S.R.C.S. males scored significantly higher on the Artistic scale than did the T.M.C.S. males, with 5.26 per cent of the S.R.C.S. males citing their most-liked occupation in an occupation that was categorized in the Artistic area, while none of the T.M.C.S. males cited a most-liked occupation which was categorized in the Artistic area. For 3.51 per cent of the T.M.C.S. males, their least-liked occupation fell in an occupation that was categorized in the Artistic area, while none of the S.R.C.S. males cited their least-liked occupation in the Artistic area.

The significant difference on the mean scores for the Intellectual scale of the VPI between the T.M.C.S. females and the S.R.C.S. females is supported by their choices of their most-liked and least-liked occupational choices. The S.R.C.S. females scored significantly higher on the Intellectual scale than did the T.M.C.S. females, 30.43 per cent of the S.R.C.S. females cited their most-liked occupation in an occupation that was categorized in the Intellectual area, while only 2 per cent of the T.M.C.S. females did. For 10 per cent of the T.M.C.S. females, their least-liked occupation was categorized in the Intellectual area, while none of the S.R.C.S. females cited their least-liked occupation in the Intellectual area.

These results indicated that the expressed vocational interests and the measured interests of the males show differences on the Artistic scale of the VPI and of the females on the Intellectual scale of the VPI.

The Total Acquiescence scale scores of the VPI are associated with a "wide range of interests" in occupations (Holland, 1965, p. 26). The Total Acquiescence scale scores did not relate significantly to either of the questions of the OIF. No significant relationships were found for the student's knowledge of the type of work done by people in a specific occupation or where people working in specific occupations could find work and the Total Acquiescence scores. The occupations listed in the OIF were the same occupations which were used in the six vocational scales of the VPI. These results indicate no relationship existed between knowledge of occupations and the interests shown in more occupations for this Indian sample.

The significant positive relationships between the VPI Status scale scores and the total OAS scores in all four groups of Indian students support Holland's theory of vocational choice. Holland (1965, p. 24) states that the Status scale scores "represent a measure of the subject's expectation of and need for status or prestige." Haller and Miller (1963) found a positive correlation between occupational aspiration and self-conceptions concerning success or achievement-orientation. The results indicate that the OAS and the VPI Status scale are related in some measure of a need for status or a need for more prestige occupations for this sample of Indian students.

In summary, the following major conclusions emerge from this study:

1. With only four out of the forty-four possible relationships yielding significant differences between non-Indian students and Indian students on the VPI scales, the VPI should be useful in measuring vocational interests of Indian youth as well as non-Indian youth.

2. The VPI scales are not related to Intelligence test scores for the Indian sample examined in this study except for the Realistic and Status scale scores for the T.M.C.S. males.

3. The VPI scales are not related to scholastic achievement as measured by the ITED standard composite scores for the Indian sample examined in this study except for the Realistic scale for the T.M.C.S. males, the Conventional scale for the T.M.C.S. females, the Intellectual scale for the S.R.C.S. males and the Infrequency scale for the S.R.C.S. females.

4. The T.M.C.S. males and the S.R.C.S. males scored significantly different on the Artistic scale of the VPI, while the T.M.C.S. females and the S.R.C.S. females scored significantly different on the Intellectual scale of the VPI.

5. The Total Acquiescence scale scores of the VPI were not significantly related to knowledge of occupations as measured by the OIF for the Indian sample examined in this study.

6. The VPI Status scale scores indicated a positive relationship to the total OAS scores for the Indian sample examined in this study.

Recommendations

Several recommendations are offered for further research on the use of the VPI with other samples of high school students.

1. It is recommended that a similar study be undertaken utilizing a larger and more diverse research population, including Indian students from several different reservations.

2. It is recommended that an extension of the present study be carried out utilizing information from the Student Report Form.

3. It is recommended that the scores of the VPI scales of an Indian sample be studied and compared with the scores of the VPI scales of a non-Indian sample within the same community.

4. It is recommended that a follow-up study be made of the present research population to ascertain what changes may have occurred in the scores of the VPI scales. This study could be useful in a longitudinal validation study of the VPI.

APPENDIX A

Fortran IV Program for Computing Dunn's "c" Values

```
 1      DIMENSION LABEL (10)
 2   20 READ (1,10,END=90) XI,XY,FMSW,FNI,FNY,LABEL
 3   10 FORMAT (F5.2,5X,F5.2,5X,F6.2,4X,F3.0,2X,F3.0,2X,10A4)
 4      F1= FMSW * (1.0 / FNI + 1.0/FNY)
 5      C = (XI - XY) / SQRT (F1)
 6      WRITE (3,30) C,LABEL
 7   30 FORMAT (5X,F7.3, 5X, 10A4)
 8      GO TO 20
 9   99 STOP
10      END
```

APPENDIX B

STUDENT REPORT FORM

These questions will give me some information about you which will help me in understanding your vocational plans. Please fill in the blanks behind the statements or place an (X) in those questions with parentheses before them.

1. Name:_____

2. High School:_____

3. Age (to nearest birthday):_____years Date of Birth:___/___/____
Mo. Day Year

4. On the basis of your Indian ancestry, would you consider yourself:
( ) Full Indian ( ) 3/4 Indian ( ) 1/2 Indian ( ) 1/4 Indian
( ) Some Indian, but less than 1/4 Indian ( ) Non-Indian

5. Where do you make your home:
( ) my own parents
( ) a parent and a step-parent
( ) one parent only
( ) my grandparents
( ) my aunt or uncle
( ) other (specify)_____

6. Father's occupation:_____

7. Mother's occupation:_____

8. My father's education consisted of:

( ) less than 8 grades
( ) 8 grades
( ) 9-11 grades
( ) 12 grades
( ) some college or trade school
( ) college degree

9. My mother's education consisted of:
( ) less than 8 grades
( ) 8 grades
( ) 9-11 grades
( ) 12 grades
( ) some college or trade school
( ) college degree

10. List the three (3) occupations in which you would <u>most</u> like to work:
First choice_____
Second choice_____
Third choice_____

11. List the type of job you expect to be working at when you finish your training:

_____

12. What is the most education you plan to get:
( ) high school diploma
( ) vocational or technical degree
( ) junior college degree
( ) college degree
( ) graduate college degree

13. Do you feel that your Indian background will--
( ) help
( ) hinder
( ) neither help nor hinder
your getting the type of job you would like.

14. List the three (3) occupations in which you would least like to work:
First choice_____
Second choice_____
Third choice_____

15. The person or persons with whom you have discussed your educational and vocational plans with the most is/are:
( ) parents ( ) teacher ( ) school counselor ( ) friend
( ) other (specify) _____

16. Where would you like to live and work when you have completed your education and training:
( ) in a city over 10,000 population
( ) in a city under 10,000 population
( ) on a farm
( ) on a reservation

OCCUPATIONAL INFORMATION FORM

NAME _____

SCHOOL _____

Directions: Below you will find the names of 84 jobs or occupations. Some of the jobs will be familiar to you; some you will know enough about to have a good idea of what the job would be like, and some you may have no information about.

For each job name please answer two questions by checking the appropriate place with an (X) as is shown in the sample job name. Do not leave any questions blank.

JOB NAME	QUESTION ONE: Do you know the type of work done by people working in this occupation?		QUESTION TWO: Do you know where people working in this occupation would get work?					
	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
Sample question S. Farmer	X			X	X		X	
1. Airplane mechanic								
2. Fish and wildlife specialist								
3. Power station operator								
4. Master plumber								
5. Power shovel operator								
6. Surveyor								
7. Construction inspector								
8. Radio operator								
9. Filling station attendant								
10. Tree surgeon								

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
11. Tool designer								
12. Locomotive engineer								
13. Photoengraver								
14. Electrician								
15. Meteorologist								
16. Biologist								
17. Astronomer								
18. Aeronautical design engineer								
19. Anthropologist								
20. Zoologist								
21. Chemist								
22. Independent research scientist								
23. Writer of scientific or technical articles								
24. Editor of a scientific journal								
25. Geologist								
26. Botanist								
27. Scientific research worker								
28. Physicist								

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
29. Foreign missionary								
30. High school teacher								
31. Juvenile delinquency expert								
32. Speech therapist								
33. Marriage counselor								
34. Physical education teacher								
35. Playground director								
36. Clinical Psychologist								
37. Social Science teacher								
38. Director of welfare agency								
39. Asst. city school superintendent								
40. Personal counselor								
41. Psychiatric case worker								
42. Vocational counselor								
43. Bookkeeper								
44. Quality control expert								
45. Budget reviewer								
46. Traffic manager								
47. Statistician								
48. Court stenographer								
49. Bank teller								
50. Tax expert								

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
51. Inventory controller								
52. IBM equipment operator								
53. Financial analyst								
54. Cost estimator								
55. Pay roll clerk								
56. Bank examiner								
57. Speculator								
53. Buyer								
59. Stock & Bond salesman								
60. Manufacturer's representative								
61. Television producer								
62. Hotel manager								
63. Business executive								
64. Restaurant worker								
65. Master of ceremonies								
66. Traveling salesman								
67. Real estate salesman								
68. Industrial relations consultant								
69. Sports promotor								
70. Political campaign manager								

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
71. Poet								
72. Symphony conductor								
73. Musician								
74. Author								
75. Commercial artist								
76. Free lance writer								
77. Musical arranger								
78. Art dealer								
79. Dramatic coach								
80. Concert singer								
81. Composer								
82. Stage director								
83. Playwright								
84. Cartoonist								

APPENDIX C

A Description of the Six Vocational Scales of the VPI by Holland (1963b) follows:

1. REALISTIC: The model type is masculine, physically strong, unsociable, aggressive, has good motor coordination and skill; lacks verbal and interpersonal skills; prefers concrete to abstract problems; conceives of himself as being aggressive and masculine and as having conventional political and economic values. Persons who chose or prefer the following occupations resemble this type: Airplane Mechanic, Construction Inspector, Electrician, Filling Station Attendant, Fish and Wildlife Specialist, Locomotive Engineer, Master Plumber, Photoengraver, Power Shovel Operator, Power Station Operator, Radio Operator, Surveyor, Tree Surgeon, Tool Designer.

2. INTELLECTUAL: The model type is task oriented, intraceptive, asocial; prefers to think through rather than act out problems; needs to understand; enjoys ambiguous work tasks; has unconventional values and attitudes; is anal as opposed to oral. Vocational preferences include: Aeronautical Design Engineer, Anthropologist, Astronomer, Biologist, Botanist, Chemist, Editor of a Scientific Journal, Geologist, Independent Research Scientist, Meteorologist, Physicist, Scientific Research Worker, Writer of Scientific and Technical Articles, Zoologist.

3. SOCIAL: The model type is sociable, responsible, feminine, humanistic, religious; needs attention; has verbal and interpersonal skills; avoids intellectual problem solving, physical activity, and highly ordered activities; prefers to solve problems through feelings and interpersonal manipulations of others; is orally dependent. Vocational preferences include: Assistant City School Superintendent, Clinical Psychologist, Director of Welfare Agency, Foreign Missionary, High School Teacher, Juvenile Delinquency Expert, Marriage Counselor, Personal Counselor, Physical Education Teacher, Playground Director, Psychiatric Case Worker, Social Science Teacher, Speech Therapist, Vocational Counselor.

4. CONVENTIONAL: The model type prefers structured verbal and numerical activities and subordinate roles; is conforming (extraceptive); avoids ambiguous situations and problems involving interpersonal relationships and physical skills; is effective at well-structured tasks; identifies with power; values material possessions and status. Vocational preferences include: Bank Examiner, Bank Teller, Bookkeeper, Budget Reviewer, Cost Estimator, Court Stenographer, Financial Analyst, IBM Equipment Operator, Inventory Controller, Pay Roll Clerk, Quality Control Expert, Statistician, Tax Expert, Traffic Manager.

5. ENTERPRISING: The model type has verbal skills for selling, dominating, leading; conceives of himself as a strong, masculine leader; avoids well-defined language or work situations requiring long periods of intellectual effort; is extraceptive; differs from the Conventional type in that he prefers ambiguous social tasks and has

a greater concern with power status, and leadership; is orally aggressive. Vocational preferences include: Business Executive, Buyer, Hotel Manager, Industrial Relations Consultant, Manufacturer's Representative, Master of Ceremonies, Political Campaign Manager, Real Estate Salesman, Restaurant Worker, Speculator, Sports Promotor, Stock and Bond Salesman, Television Producer, Traveling Salesman.

6. ARTISTIC: The model type is asocial; avoids problems which are highly structured or require gross physical skills; resembles the Intellectual type in being intraceptive and asocial; but differs from that type in that he has a need for individualistic expression, has less ego strength, is more feminine, and suffers more frequently from emotional disturbances; prefers dealing with environmental problems through self-expression in artistic media. Vocational preferences include: Art Dealer, Author, Cartoonist, Commercial Artist, Composer, Concert Singer, Dramatic Coach, Free Lance Writer, Musical Arranger, Musician, Playwright, Poet, Stage Director, Symphony Conductor.

A Brief Description of the Five Non-Vocational Scales of the VPI are Presented as They are Described by Holland (1965)

7. SELF-CONTROL. Adjectives applying to high scorers are responsible, feminine, self-controlled, cautious, persistent, and serious. Self-control is defined as the habitual inhibition of impulses to act out motivation, thinking, or phantasy. High scores indicate over-control. High scorers are often described as inhibited, constricted, passive, and responsible. High scores indicate concern with physical injury, illness, preoccupation with physical and medical problems. Low scores indicate impulsiveness and a tendency to "act out" which is suggestive of a kind of asocial psychopathy, average scores are associated with a healthy spontaneity in living and originality when associated with other positive signs.

8. MASCULINITY. Adjectives applying to high scores are confident, masculine, shrewd, unsociable, and competitive. High scores indicate frequent choice of masculine occupational roles, while low scores indicate feminine choices.

9. STATUS. Adjectives applying to high scorers are sociable, responsible, dependent, feminine, enthusiastic, adventurous, expressive, and competitive. High scores are indicative of vocational choices with high prestige ranking. Scores appear to represent a measure of the subjects' expectation of, and need for status or prestige. They may also represent a crude measure of the need for upward movement in the status hierarchy. The status scale provides an estimate of the subjects' self-confidence as associated with high scores, self-deprecation with low scores.

10. INFREQUENCY. Adjectives applying to high scores are feminine, not mechanical, few claimed competencies, not social, low aspiration level, not friendly, and lacking sense of humor. The scale includes preferences for unpopular, feminine, low status occupations and the rejection of masculine, high status, popular occupations requiring various kinds of interpersonal artistic, and intellectual talent. High scorers have atypical vocational preferences and have self-deprecating attitudes about themselves. In contrast, low scores see the occupational world in the popular way, having positive evaluations of their abilities and personality, and have high aspirations.

11. ACQUIESCENCE. Adjectives applying to high scorers are sociable, enthusiastic, cheerful, pleasure seeking, many interests, and observing. Subjects who prefer many occupations are expressing a sociable, cheerful, active, frank, and conventional outlook about the vocational world, whereas subjects who like only a few occupations are expressing an unsociable, depressive, passive, defensive, and unconventional outlook. Many preferences are also associated with self-confidence; few preferences are associated with self-deprecation. Extremely high scores are associated with poor judgment and lack of personal integration.

APPENDIX D

OCCUPATIONAL INFORMATION FORM

NAME _____

SCHOOL _____

Directions: Below you will find the names of 84 jobs or occupations. Some of the jobs will be familiar to you; some you will know enough about to have a good idea of what the job would be like, and some you may have no information about.

For each job name please answer two questions by checking the appropriate place with an (X) as is shown in the sample job name. Do not leave any questions blank.

JOB NAME	QUESTION ONE: Do you know the type of work done by people working in this occupation?		QUESTION TWO: Do you know where people working in this occupation would get work?					
	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
Sample question S. Farmer	X			X	X		X	
1. Airplane Mechanic			X			X		X
2. Fish and wildlife specialist			X		X		X	
3. Power station operator			X		X			X
4. Master plumber			X		X			X
5. Power shovel operator			X		X			X
6. Surveyor			X		X		X	
7. Construction inspector			X		X			X
8. Radio operator			X		X			X
9. Filling station attendant			X		X		X	
10. Tree surgeon			X			X		X

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
11. Tool designer			X			X		X
12. Locomotive engineer			X			X		X
13. Photoengraver			X			X		X
14. Electrician			X		X		X	
15. Meteorologist			X			X		X
16. Biologist			X			X		X
17. Astronomer			X			X		X
18. Aeronautical design engineer			X			X		X
19. Anthropologist			X			X	X	
20. Zoologist			X			X		X
21. Chemist			X			X		X
22. Independent research scientist			X			X		X
23. Writer of scientific or technical articles			X			X		X
24. Editor of a scientific journal			X			X		X
25. Geologist			X			X		X
26. Botanist			X			X		X
27. Scientific research worker			X			X		X
28. Physicist			X			X		X
29. Foreign missionary			X			X		X

	JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
				YES	NO	YES	NO	YES	NO
30.	High school teacher			X		X		X	
31.	Juvenile delinquency expert			X		X		X	
32.	Speech therapist			X		X		X	
33.	Marriage counselor			X		X		X	
34.	Physical education teacher			X		X		X	
35.	Playground director			X		X		X	
36.	Clinical Psychologist			X			X		X
37.	Social Science teacher			X		X		X	
38.	Director of welfare agency			X		X		X	
39.	Asst. city school superintendent			X		X			X
40.	Personal counselor			X		X		X	
41.	Psychiatric case worker			X			X	X	
42.	Vocational counselor			X		X		X	
43.	Bookkeeper			X		X		X	
44.	Quality control expert			X			X		X
45.	Budget reviewer			X			X		X
46.	Traffic manager			X			X		X
47.	Statistician			X			X		X
48.	Court stenographer			X		X			X
49.	Bank teller			X		X			X

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
50. Tax expert			X		X			X
51. Inventory controller			X			X		X
52. IBM equipment operator			X			X		X
53. Financial analyst			X			X		X
54. Cost estimator			X			X		X
55. Pay roll clerk			X		X		X	
56. Bank examiner			X			X		X
57. Speculator			X			X		X
58. Buyer			X		X			X
59. Stock & Bond salesman			X		X			X
60. Manufacturer's representative			X			X		X
61. Television producer			X			X.		X
62. Hotel manager			X		X			X
63. Business executive			X		X			X
64. Restaurant worker			X		X		X	
65. Master of ceremonies			X			X		X
66. Traveling salesman			X		X			X
67. Real estate salesman			X		X			X
68. Industrial relations consultant			X			X		X
69. Sports promotor			X			X		X
70. Political campaign manager			X			X		X

JOB NAME	Yes or could make a good guess	No	In a city over 10,000 population		In a city under 10,000 population		On a Reservation	
			YES	NO	YES	NO	YES	NO
71. Poet			X			X		X
72. Symphony conductor			X			X		X
73. Musician			X		X			X
74. Author			X			X		X
75. Commercial artist			X			X		X
76. Free lance writer			X			X		X
77. Musical arranger			X			X		X
78. Art dealer			X			X		X
79. Dramatic coach			X			X		X
80. Concert singer			X			X		X
81. Composer			X			X		X
82. Stage director			X			X		X
83. Playwright			X			X		X
84. Cartoonist			X			X		X

APPENDIX E

TABLE 44

MEANS AND STANDARD DEVIATIONS OF AGE FOR THE THREE GROUPS

School	Males Means	Males S.D.	Females Means	Females S.D.
Bottineau	17.00	0.69 (N=39)	16.79	0.52 (N=42)
T.M.C.S.	17.29	0.91 (N=56)	17.00	0.70 (N=50)
S.R.C.S.	17.00	0.77 (N=38)	17.17	0.98 (N=23)

TABLE 45

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 4, "ON THE BASIS OF YOUR INDIAN ANCESTRY, WOULD YOU CONSIDER YOURSELF:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Full Indian	0.00	16.00	36.84	34.78
3/4 Indian	0.00	0.00	28.95	13.04
1/2 Indian	53.57	44.00	21.05	21.74
1/4 Indian	44.64	36.00	7.89	21.74
Some Indian, but less than 1/4 Indian	1.79	4.00	5.26	8.70

TABLE 46

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 5, "WHERE DO YOU MAKE YOUR HOME:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
My own parents	83.93	82.00	55.26	52.17
A parent and a step-parent	5.36	6.00	5.26	4.35
One parent only	8.93	10.00	15.79	21.74
My grandparents	1.79	0.00	10.53	0.00
My aunt or uncle	0.00	0.00	10.53	13.04
Other	0.00	2.00	2.63	8.70

TABLE 47

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 6, "FATHER'S OCCUPATION:"[a]

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Realistic	57.14	60.00	42.11	47.83
Intellectual	0.00	0.00	0.00	0.00
Social	1.79	2.00	7.89	0.00
Conventional	5.36	4.00	2.63	0.00
Enterprising	3.57	0.00	0.00	4.35
Artistic	0.00	0.00	0.00	0.00
Unemployed	25.00	20.00	23.68	8.70
No Response	3.57	6.00	13.16	8.70
Miscellaneous (dead, disabled)	3.57	8.00	10.53	30.43

[a]Father's occupation classified according to one of Holland's six vocational scales

TABLE 48

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 7, "MOTHER'S OCCUPATION:"[a]

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Realistic	19.64	24.00	5.26	0.00
Intellectual	0.00	0.00	0.00	0.00
Social	23.21	14.00	21.05	17.39
Conventional	3.57	12.00	5.26	8.70
Enterprising	5.36	0.00	2.63	0.00
Artistic	0.00	0.00	0.00	0.00
Unemployed-- Housewife	48.21	48.00	57.89	65.22
No response	0.00	2.00	5.26	0.00
Miscellaneous (Deceased)	0.00	0.00	2.63	8.70

[a]Mother's occupation classified according to one of Holland's six vocational scales

TABLE 49

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 8, "MY FATHER'S EDUCATION CONSISTED OF:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Less than 8 grades	42.86	44.00	15.79	13.04
8 grades	14.29	8.00	28.95	30.43
9-11 grades	25.00	18.00	7.89	34.78
12 grades	12.50	20.00	23.68	8.70
Some college or trade school	5.36	4.00	10.53	4.35
College degree	0.00	0.00	7.89	4.35
No response	0.00	6.00	5.26	4.35

TABLE 50

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 9, "MY MOTHER'S EDUCATION CONSISTED OF:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Less than 8 grades	10.71	20.00	10.53	4.35
8 grades	26.79	28.00	21.05	34.78
9-11 grades	32.14	28.00	26.32	34.78
12 grades	19.64	16.00	28.95	8.70
Some college or trade school	7.14	8.00	10.53	13.04
College degree	3.57	0.00	0.00	4.35
No response	0.00	0.00	2.63	0.00

TABLE 51

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 10, "LIST THE THREE OCCUPATIONS IN WHICH YOU WOULD MOST LIKE TO WORK:"[a]

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Realistic	46.43	2.00	55.26	4.35
Intellectual	19.64	2.00	7.89	30.43
Social	5.36	30.00	7.89	39.13
Conventional	17.86	34.00	10.53	17.39
Enterprising	10.71	16.00	7.89	8.70
Artistic	0.00	14.00	5.26	0.00
No response	0.00	2.00	5.26	0.00

[a]Only first choice included; occupations classified according to one of Holland's six vocational scales

TABLE 52

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 11, "LIST THE TYPE OF JOB YOU EXPECT TO BE WORKING AT WHEN YOU FINISH YOUR TRAINING:"[a]

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Realistic	44.64	0.00	50.00	0.00
Intellectual	17.86	0.00	7.89	34.78
Social	5.36	26.00	7.89	43.48
Conventional	14.29	30.00	13.16	17.39
Enterprising	5.36	24.00	5.26	4.35
Artistic	0.00	8.00	2.63	0.00
No response	12.50	12.00	13.16	0.00

[a]Jobs classified according to one of Holland's six vocational scales

TABLE 53

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 12, "WHAT IS THE MOST EDUCATION YOU PLAN TO GET:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
High School diploma	10.71	14.00	23.68	13.04
Vocational or technical degree	21.43	14.00	18.42	17.39
Junior college degree	10.71	22.00	21.05	17.39
College degree	26.79	26.00	21.05	26.09
Graduate college degree	30.36	24.00	15.79	26.09

TABLE 54

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 13, "DO YOU FEEL THAT YOUR INDIAN BACKGROUND WILL HELP, HINDER, OR NEITHER HELP NOR HINDER YOUR GETTING THE TYPE OF JOB YOU WOULD LIKE:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Help	16.07	38.00	36.84	26.09
Hinder	10.71	6.00	10.53	8.70
Neither help nor hinder	73.21	56.00	52.63	65.22

TABLE 55

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 14, "LIST THE THREE OCCUPATIONS IN WHICH YOU WOULD LEAST LIKE TO WORK:"[a]

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Realistic	58.93	10.00	50.00	17.39
Intellectual	1.79	10.00	2.63	0.00
Social	23.21	42.00	23.68	47.83
Conventional	5.36	24.00	7.89	26.09
Enterprising	3.57	14.00	5.26	0.00
Artistic	3.57	0.00	0.00	4.35
No response	3.57	0.00	10.53	4.35

[a]Only first choice included; occupations classified according to one of Holland's six vocational scales

TABLE 56

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 15, "THE PERSON OR PERSONS WITH WHOM YOU HAVE DISCUSSED YOUR EDUCATIONAL AND VOCATIONAL PLANS WITH THE MOST IS/ARE:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
Parents	53.57	56.00	65.79	65.22
Teachers	3.57	6.00	5.26	0.00
School Counselor	1.79	0.00	5.26	0.00
Friend	28.57	36.00	15.79	21.74
Other	3.57	2.00	5.26	13.04
No one	8.93	0.00	2.63	0.00

TABLE 57

PERCENTAGES OF STUDENT RESPONSES TO SRF QUESTION 16, "WHERE WOULD YOU LIKE TO LIVE AND WORK WHEN YOU HAVE COMPLETED YOUR EDUCATION AND TRAINING:"

Responses	T.M.C.S. Males (N=56)	T.M.C.S. Females (N=50)	S.R.C.S. Males (N=38)	S.R.C.S. Females (N=23)
In a city over 10,000 population	50.00	44.00	23.68	34.78
In a city under 10,000 population	41.07	38.00	44.74	52.17
On a farm	3.57	0.00	5.26	0.00
On a reservation	5.36	18.00	26.32	13.04

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