



A comparative analysis of the performance of Indian and white children from North Central Montana on the Wechsler intelligence scale for children
by Raymond Lester Peck

A thesis submitted to the Graduate Faculty in partial fulfillment of the requirements for the degree of
DOCTOR OF EDUCATION
Montana State University
© Copyright by Raymond Lester Peck (1972)

Abstract:

The purpose of this study was to determine whether the scores of Indian children from North Central Montana were significantly different from scores of white children from the same area of Montana on the Wechsler Intelligence Scale for children. The Information, Comprehension, Arithmetic, Similarities, Vocabulary, Picture Completion, Picture Arrangement, Block Design, Object Assembly, and Coding subtests, and the Verbal I.Q., Performance I.Q., and Full Scale I.Q. means of the Indian sample and the white sample were tested by t-tests at the .01 level of confidence to determine if there was a significant difference in performance. The study was based on 105 Indian subjects and 105 white subjects attending the same schools in North Central Montana. The results were also examined to determine if the sex of the examiner had any significant difference on the results, and the results were also examined to determine on the basis of sex of the subjects, i.e., male performance versus female performance.

The total white sample (male and female) scored significantly higher than the total Indian sample beyond the .01 level of confidence on all five subtests and the Verbal I.Q. on the Verbal Section of the test. The mean scaled score was 6.562 on the Information subtest, 6.371 on the Comprehension subtest, 6.010 on the Arithmetic subtest, 7.629 on the Similarities subtest, and 6.962 on the Vocabulary subtest for the Indian sample.

The total white group was also higher on all subtests, except the Block Design and Object Assembly, on the Performance Section beyond the .01 level of confidence. The mean scaled score was 8.686 on the Picture Completion subtest, 7.819 on the Picture Arrangement subtest, 8.143 on the Block Design subtest, 8.771 on the Object Assembly subtest, and 7.667 on the Coding subtest. The Performance I.Q. was also higher for the white sample than the Indian sample beyond the .01 level of confidence.

The difference between the results obtained by male and female examiners testing Indian children failed to reach the .01 level of confidence on any of the thirteen variables tested, although the female examiners secured somewhat higher results on eight of the ten subtests, the Verbal I.Q., the Performance I.Q., and the Full-Scale I.Q. The Indian males were significantly higher than the Indian females at the .01 level of confidence on the Picture Completion and Picture Arrangement subtests. The Indian males were also higher than the Indian females on the Information, Comprehension, Arithmetic, Vocabulary, Block Design and Object Assembly subtests, but the differences were not significant at the .01 level of confidence. The white males exceeded the white females at the .01 level of confidence on only the Block Design subtest; however, they exceeded the females at a level below the .01 level of confidence on all of the other nine subtests except Coding.

A COMPARATIVE ANALYSIS OF THE PERFORMANCE OF INDIAN AND
WHITE CHILDREN FROM NORTH CENTRAL MONTANA ON THE
WECHSLER INTELLIGENCE SCALE FOR CHILDREN

by

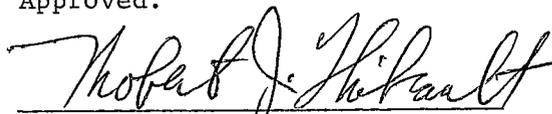
RAYMOND LESTER PECK

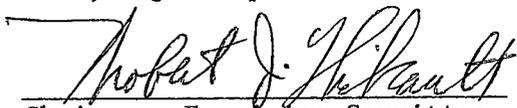
A thesis submitted to the Graduate Faculty in partial
fulfillment of the requirements for the degree

of

DOCTOR OF EDUCATION

Approved:


Head, Major Department


Chairman, Examining Committee


Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

August, 1972

ACKNOWLEDGEMENT

The writer expresses gratitude to all who gave him assistance during the progress of this dissertation. Special thanks is given to Dr. Robert J. Thibeault and all members of the committee for their support, assistance and guidance; their patience and encouragement kept this effort alive many times.

Finally, the writer dedicates this endeavor to his family in recognition of their support and understanding during the three long years that they must have wondered if it was all really worth it. Certainly this graduate study would not have been possible without their encouragement when this writer seriously questioned the advisability of continuing the effort.

R.L.P.

TABLE OF CONTENTS

	Page
LIST OF TABLES	vi
ABSTRACT	viii
 Chapter	
I. INTRODUCTION	1
Statement of the Problem	2
Need of the Study	4
General Questions to be Answered	10
General Procedures	13
Limitations of the Study	15
Definition of Terms	19
II. REVIEW OF RELATED RESEARCH	21
Intelligence Testing and Race	22
Psychological Considerations	34
Academic Achievement	46
The Wechsler Intelligence Scale for Children	51
Summary	57
III. DESIGN OF THE STUDY	61
Population Description	61
Sampling Procedure	66
Methods of Collecting and Organizing Data	70
Analysis of Data	73
Summary	76
IV. RESULTS	77
Age	77
Verbal Subtests	78
Summary and Discussion of Verbal Section	92
Reformance	94
Summary and Discussion of Performance Section	106
Male and Female Examiners	108
Sex of Subjects	111

Chapter	Page
Scatter of Subtests	127
Summary	129
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	132
The Problem and Procedures.	133
Population and Group Selection.	135
Collecting the Data	135
Testing the Hypotheses	136
Summary of Findings	136
Conclusions	150
Recommendations	154
APPENDIX	157
LITERATURE CONSULTED	167

LIST OF TABLES

Table	Page
I. Percent of 12th Grade Pupils Having Certain Attitudes. . .	37
II. Mean Scaled Scores of Indian and White Subjects on the Verbal Section of the WISC.	78
III. Mean Scaled Scores of Indian and White Subjects on the Performance Section of the WISC	95
IV. Mean Scaled Scores of Indian Subjects on the Verbal Section Tested by Male and Female Examiners	109
V. Mean Scaled Scores of Indian Subjects on the Performance Section Tested by Male and Female Examiners	110
VI. Mean Scaled Scores on the Information Subtest by Sex Groups.	112
VII. Mean Scaled Scores on the Comprehension Subtest by Sex Groups	113
VIII. Mean Scaled Scores on the Arithmetic Subtest by Sex Groups	115
IX. Mean Scaled Scores on the Similarities Subtest by Sex Groups	116
X. Mean Scaled Scores on the Vocabulary Subtest by Sex Groups	117
XI. Mean Scaled Scores on the Picture Completion Subtest by Sex Groups	118
XII. Mean Scaled Scores on the Picture Arrangement Subtest by Sex Groups	120
XIII. Mean Scaled Scores on the Block Design Subtest by Sex Groups	121
XIV. Mean Scaled Scores on the Object Assembly Subtest by Sex Groups	122
XV. Mean Scaled Scores on the Coding Subtest by Sex Groups. .	123

Table	Page
XVI. Mean Scaled Scores on the Verbal I.Q. by Sex Groups. . . .	124
XVII. Mean Scaled Scores on the Performance I.Q. by Sex Groups .	126
XVIII. Mean Scaled Scores on the Full Scale I.Q. by Sex Groups .	127
XIX. Full Scale I.Q. Frequency Distribution of White and Indian Subjects According to Wechsler's Intelligence Classification.	137
XX. Scores Achieved by Total White and Total Indian Groups on the WISC.	147
XXI. Scores Achieved by Indian Male and Female Subjects on the WISC	148
XXII. Scores Achieved by White Males and Female Subjects on the WISC	149

ABSTRACT

The purpose of this study was to determine whether the scores of Indian children from North Central Montana were significantly different from scores of white children from the same area of Montana on the Wechsler Intelligence Scale for children. The Information, Comprehension, Arithmetic, Similarities, Vocabulary, Picture Completion, Picture Arrangement, Block Design, Object Assembly, and Coding subtests, and the Verbal I.Q., Performance I.Q., and Full Scale I.Q. means of the Indian sample and the white sample were tested by t-tests at the .01 level of confidence to determine if there was a significant difference in performance. The study was based on 105 Indian subjects and 105 white subjects attending the same schools in North Central Montana. The results were also examined to determine if the sex of the examiner had any significant difference on the results, and the results were also examined to determine on the basis of sex of the subjects, i.e., male performance versus female performance.

The total white sample (male and female) scored significantly higher than the total Indian sample beyond the .01 level of confidence on all five subtests and the Verbal I.Q. on the Verbal Section of the test. The mean scaled score was 6.562 on the Information subtest, 6.371 on the Comprehension subtest, 6.010 on the Arithmetic subtest, 7.629 on the Similarities subtest, and 6.962 on the Vocabulary subtest for the Indian sample.

The total white group was also higher on all subtests, except the Block Design and Object Assembly, on the Performance Section beyond the .01 level of confidence. The mean scaled score was 8.686 on the Picture Completion subtest, 7.819 on the Picture Arrangement subtest, 8.143 on the Block Design subtest, 8.771 on the Object Assembly subtest, and 7.667 on the Coding subtest. The Performance I.Q. was also higher for the white sample than the Indian sample beyond the .01 level of confidence.

The difference between the results obtained by male and female examiners testing Indian children failed to reach the .01 level of confidence on any of the thirteen variables tested, although the female examiners secured somewhat higher results on eight of the ten subtests, the Verbal I.Q., the Performance I.Q., and the Full Scale I.Q. The Indian males were significantly higher than the Indian females at the .01 level of confidence on the Picture Completion and Picture Arrangement subtests. The Indian males were also higher than the Indian females on the Information, Comprehension, Arithmetic, Vocabulary, Block Design and Object Assembly subtests, but the differences were not significant at the .01 level of confidence. The white males exceeded the white females at the .01 level of confidence on only the Block Design subtest; however, they exceeded the females at a level below the .01 level of confidence on all of the other nine subtests except Coding.

CHAPTER I

INTRODUCTION

As noted by Beatty (1953), Indian children have been some of the favorite subjects for those who develop and administer tests, and intelligence tests seem to be among the favorite kinds of tests that these people like to use. However, Coombs (1958) argues that physical location of Indians and cultural factors makes the application of most intelligence tests to Indian children highly questionable.

One of the better known and most highly developed individual intelligence tests is the Wechsler Intelligence Scale for Children (Cronbach, 1969). Burstein (1965) indicates that durability alone is adequate reason for considering the Wechsler Intelligence Scale for Children (WISC) among the better intelligence tests. He notes that "the WISC may have not displaced the older Stanford Binet, but it has certainly come to rival its predecessor as an intelligence test" (p. 843). However, the WISC was standardized on a totally white population (Wechsler, 1949), although it has been translated into a number of foreign languages. There seems little doubt that the WISC has been applied to nonwhite subjects in this country since it was published in 1949, although only one small study dealing with its application to Indian children could be found in the literature. A number of studies were found dealing with its application to Negro children.

During the period from 1967 to 1969 this writer was associated

with an ESEA Title III Project in ten counties in North Central Montana where numerous Indian children from three reservations were referred for psychological/educational evaluation. The appropriateness of the WISC as an individual intelligence test when evaluating these children was soon questioned by the examiners working in this project. The testing of Indian children from this area with the WISC was very likely the first time a large number of Indian children in that area had been tested by an individual intelligence test.

All examiners administering the WISC had been certified by the Montana State Department of Public Instruction under the certification standards in force at that time. Each examiner had received specific training and supervision in the administration of the WISC.

The concern expressed by the examiners employed in the project seemed to stem primarily from the fact that placement in special education classes was often determined by test scores secured on the WISC. White children from the same area of Montana were also being tested by these same examiners. An effort to find literature on the application of the WISC to Indian children proved to be fruitless.

STATEMENT OF THE PROBLEM

The purpose of this study was to compare in a statistical manner the performance on the Wechsler Intelligence Scale for Children the Indian and white children from a ten county area in North Central

Montana. The comparison was made on the ten subtests, the Verbal I.Q., the Performance I.Q., and the Full Scale I.Q. to determine if there was a significant difference at $\alpha = .01$ between Indian and white children tested. Piaget (1969) stated:

The interaction with this social environment in which the individual indulges varies widely according to his level of development, and consequently in its turn it modifies the individual's structure in an equally varied manner (p.47).

If the interaction with social environment is as important as Piaget indicated, a difference in subtest scores seems very likely. By analyzing the subtest scores of the Indian and white children tested, a profile of their intelligence can be determined, and the question of whether or not the patterning of subtest scores is different can be answered. The results were also examined in a non-statistical manner against Wechsler's mean of 10 scaled score points on each subtest to determine how much above or below the mean both the Indian and white samples were. A deviation of more than three scaled score points from the mean of 10 is considered significant on all subtest scores (Wechsler, 1949).

The question of whether or not female examiners might secure different results than male examiners was also tested by a t-test to see if a significant difference at $\alpha = .01$ existed. The total sample (Indian and white) was examined by the same method to determine if there were significant differences based on sex, i.e., Indian males, Indian females, white males and white females.

NEED OF THE STUDY

If the Indian child is to be placed in special education classes and remedial programs on the basis of the WISC test, examiners should be aware of any special considerations in the use of this test that may apply to Indian children. As stated earlier, only white children were used in the standardization of the WISC, and it seems quite apparent that culture, socioeconomic status and other factors may make the Indian child quite different in terms of cognitive development from the white child. McNickle (1962) stated that certain common psychological factors among Indians have been identified that make them different from the white race.

Glasser and Zimmerman (1968) claimed that the white children used to standardize the WISC were mainly from the middle-class in America. Kennedy (1971) concluded that Indians are more sober, more apprehensive, more humble, more suspicious, and more affected by their feelings than whites. Arthur (1941) found that testing Chippewa children with tests that have been standardized on white children was of little value when predicting performance or behavior. Some authorities (Bryde, 1966; Sommars, 1969; Greenberg and Greenberg, 1964) believe that Indians have emotional disorders which affect their behavior, their school adjustment, school productivity, and reactions to their environments. Greenberg and Greenberg pointed out that an Indian will remain silent and inactive

until he understands the situation, while the non-Indian child will become active and talk under the same circumstances. The point is made by Merrill (1947) that the Indian may develop a "turning in" and become shy and uncommunicative due to his cultural influence.

Barnette (1968) concluded that there are some significant value differences between Montana Indian children and Montana white children. Erickson (1963) and Bryde (1966) examined the value system of Sioux Indian children and concluded much the same as Barnett. Herrington and Douglas (1961) and Visscher (1970) also reported differences in the value system of Montana Indian children and their white counterparts. These authorities seem to be in agreement that bravery, individual freedom, generosity and sharing, and adjustment to nature are more common to the Montana Indian child than the Montana white child. Although most of these characteristics might be considered to be more in the affective domain than the cognitive domain, there is ample authority to indicate that the affective domain is so closely related to the cognitive domain that it is impossible to separate them.

Barnett (1968) concluded that wherever Indian reservations were found, there were common characteristics that tended to be mostly negative; he noted extensive poverty, poor housing, illness of all types, severe unemployment, isolation, and poor school attendance among the more common negative characteristics found on reservations. Coombs, Kron, Collister, and Anderson (1958) argued that physical location of the

Indians influence results of intelligence tests, and they point out that city or town-dwelling Indians tend to be mixed-bloods and most of the reservation Indians tend to be full-bloods.

Although population statistics are open to question due to the confused and changing definition of who is an Indian, it is believed that the total number of Indians in the United States is now well over 570,000 (Greenberg and Greenberg, 1964; Fey and D'Arch, 1959). There are over 130,000 Indian children of school age; about 40 per cent of this number are found in the states of Arizona and New Mexico. Fey and D'Arch (1959, p. 19) classify over 80 per cent of the Indians in this country as "societal", and define this term as "Indians who associate primarily with other Indians in tribal communities or reservations". Many people in Montana who work with Indians seem to agree that at least 90 per cent of the Indian population in Montana would be considered "societal" in terms of this definition by Fey and D'Arch. If Indians are increasing in numbers within our society and such a large percentage are "societal", it seems necessary that we recognize this group in a realistic manner. Piaget (1969, p. 46) pointed out the significance of environment as follows:

The human being is immersed right from birth in a social environment which affects him just as much as his physical environment. Society, even more, in a sense, than the physical environment, changes the very structure of the individual, because it compels him to recognize facts, but also provides him with a ready-made system of signs, which modify his thoughts; it presents him with new values and it imposes on him an infinite

series of obligations. It is therefore quite evident that social life affects intelligence through the three media of language (signs), the content of interaction (intellectual values), and rules imposed on thought (collective or per-logical norms).

If we can identify the differences common to the Indian child due to his social environment, which Piaget indicates are so important, we may be able to devise more effective instructional methods for the Indian child. As a result of test results reported in this study, schools may find curriculum changes that will make learning more efficient for Indian pupils.

After reviewing the changes in objectives and methods found in the history of Indian education in the United States, Trang (1969) concluded that inconsistency and confusion were its chief characteristics. Beatty (1953, p. 83) pointed out in his review of Indian education that the Indian had been excluded from white schools because they were considered to be "dirty, diseased and unfit". He also made the point that Indian education will remain as a problem because "statistics show that persons of large percentage Indian blood are marrying toward the full-blood group". One might expect that recent efforts to improve education of the Indians would be based on as much objective data as possible, but there is very little indication in the literature that efforts to develop a proper testing program for Indians has been among the many efforts directed toward improved Indian education. Certainly the importance of testing in the educational process can not be denied.

Hall (1968) examined the problems of Navajo Indian children at some length and concluded that language is a major problem for most Indian children when they enter school, yet tests written only in English and standardized on totally white populations are commonly applied to them. Greenberg and Greenberg (1964) stressed the point that Indian children are special students who require special treatment and skills through every grade. Indian children have difficulty in comprehending tenses since time does not represent the same thing to them as it does to the non-Indian. This fact alone may account for some of their difficulty in achieving average scores on various tests that are timed (Passoe, Goldberg, and Tannenbaum; 1967; Coldarci, 1960; Goodenough, 1926; Garth, 1929). These authors note that the Indian lives in the present and the past, and future simple does not have a great deal of significance for him. Keach, Fulton, and Gardner (1967) concluded that the Indian has a tendency to be in harmony with nature, while the white child is more interested in conquering nature; the Indian child is likely to be limited to an awareness of the present, but the white child is more likely to be concerned about the future; the Indian was reared in a culture that stresses respect for the aged, but white society has an emphasis on youth; the Indian child is taught cooperation and maintenance of the status quo; but the white child has been raised in an atmosphere of competition and scaling the ladder of success; the Indian child does not seek recognition and is taught submissiveness, while the

white culture tends to stress individuality and aggressiveness.

Obviously, personality traits will influence behavior in a testing situation. Kennedy (1971) concluded that there were some personality differences between Indians and whites when he applied the Sixteen Personality Factor Questionnaire to the two groups. Bryde (1966, p. 129) used the Minnesota Multiphasic Personality Inventory (MMPI) to test Indian children and concluded "the total Indian group revealed greater personality disruption and poorer adjustment". Leon (1960, p. 15) studied emotional problems of Indian students in federal boarding schools and related public schools and concluded that "learning difficulties may also be symptoms of emotional maladjustment".

The environment of the Indian child is also extremely significant in terms of the quality of responses that an examiner may expect to receive from the child in a testing situation. Many tests are based on the assumption of equal opportunity to experience things in the white, middle-class, modern world, and isolated life on the reservation often does not provide such experiences. Without these experiences the child does not have the background to provide an acceptable response.

Approximately three-fourths of the Indian population in the United States lives in rural areas, and there are very few reservation Indians who would be considered to be middle-class (Johnson, 1970). He pointed out that the amount of government welfare, educational level, average life span, and rate of tuberculosis are all indexes of the

deprivation of the American Indian. Based on these points, Johnson claims that the Indians are the least prepared to participate in American society, and the two enduring cultures - white and Indian - make assimilation into the dominant culture extremely difficult. Ryker, Rogers, and Beaujard (1971) concluded much the same as Johnson on this point. Friesen and Moseson (1971) made much the same observations and concluded that change is unlikely to come from within the Indian social structure due to the importance of the elders in the Indian community.

GENERAL QUESTIONS TO BE ANSWERED

This study attempted to answer the question whether or not there are significant differences between the subtest scores of Indian children and the scores of white children from the same area of North Central Montana on the Wechsler Intelligence Scale for Children (WISC). On those subtests where Indian children achieved significantly lower scores than those of the white children, possible contributing factors are presented based on information provided by Glasser and Zimmerman (1967), Lutey (1971), Wechsler (1949; 1958), Rapport, Gill and Schafer (1968), and Schafer (1948). This study was not concerned with isolating factors that may have depressed subtest scores other than suggesting possible causes presented by experts mentioned above. The identification of subtests on which the Indian children scored significantly lower than white children can be used by examiners of Indian children in the future

in the interpretation of WISC scores.

Wechsler' (1949) stated that less than five subtests on each of the two sections of the WISC (Verbal and Performance) can be used to determine the I.Q.; he suggests a minimum of four subtests be used on each of the two sections, but stated that three subtests might be used. The usual reason for using less than five tests would be that the examiner considers one of the subtests to be invalid for some reason, but time considerations might preclude administering all of the ten subtests. Since prorating is an acceptable procedure, it is possible, as a result of this study, to suggest a combination of subtest scores that are more satisfactory when testing an Indian child.

This study also examined the question of whether or not there is a significant difference between the results secured by a female examiner administering the WISC to Indian children as compared to male examiners using this test. McGuigan (1963) pointed out that, although we recognize that the characteristics of an examiner may influence behavior, there have been very few attempts to study the examiner as an independent variable. However, Binder, McConnell, and Sjöholm (1957) found that a female examiner secured higher test results than a male examiner, and they reasoned that the higher results by the female examiner were due to the fact that the female provided a less threatening environment for the subjects, which resulted in the subjects being less inhibited. Kennedy and Vega (1971) studied the question of how Negro students' test

scores would be influenced by the race (color) of the examiner, and they found that Negro students reacted in the same manner as white students when they were tested in a critical manner by a white examiner. Both Negro and white students suffered a decrement in performance when the examiner exhibited a critical manner; however, Negro students performed at a higher level when treated in a critical manner by a Negro examiner. Bryde (1965) expressed the opinion that an examiner who knew little or nothing about the Indian personality may influence the results of any individually administered test.

Monke (1971), commenting on the "principle of reciprocal effect", stated that in any interpersonal situation, the effect elicited in one person is in kind and proportion to the effect being transmitted by the other. Galfo (1971, p. 4) examined the question of whether or not culturally disadvantaged mothers manifest differences in their perception of male and female children, and concluded that they "perceive their boys and girls differently in a number of important ways"; girls were seen as either more valued or having better qualities than boys. Watson (1966) reviewed a large amount of research on the significance of the mother-child relationship and concluded that the mother is the principle agent of socialization and is the most important person of all those around the child. Driver (1961, p. 477) stated that "praise and ridicule are most commonly used means of discipline for Indian children".

If Driver is correct, an examiner who gives praise to a subject may secure higher scores than one who does not when working with Indian children.

Egeland (1967) examined the question of examiner anxiety on performance on the WISC. He determined anxiety level of the examiner by using the Taylor Manifest Anxiety Scale, and the anxiety level of the subjects was determined by the Children's Manifest Anxiety Scale; he concluded that the high-anxious examiners obtained higher mean scores than did the low-anxious examiners. High-anxious subjects performed equally well on the Verbal Scale when tested by either type of examiner, but the low-anxious subjects were superior to other groups when tested by high-anxious examiners. Egeland found no effect on the Performance Scale with any combination of examiners and subjects based on anxiety levels.

The norms on the WISC provided by Wechsler apply to both male and female subjects. This study provides data on the performance of both male and female subjects to determine if the WISC norms might be different for the two sexes.

GENERAL PROCEDURES

The test results of both white and Indian children were taken from the WISC record form used by the examiner at the time the subjects were tested. These record forms were carefully checked for scoring

errors for each of the 210 subjects included in this study, and only those results were used where the examiner indicated that the test was considered to be valid. Judgment of the individual examiners as to point value of answers was accepted, and corrections were made only where there were errors due to point values for time or mistakes in computation or reading of tables of scaled scores. This check of WISC Record Forms was limited to the five subtests on the two sections of the test that were used in this study. Neither the Digit Span nor the Mazes subtest was used in this study due to the fact that neither of them were commonly administered; they are normally used as alternates when other subtests are considered to be invalid. In the seventeen cases where the alternate tests had been administered to Indian subjects, the test results were not used because the subtests included in this study were not all considered to be valid by the examiners administering them. The same standards were used in selecting the white subjects for inclusion in the study.

Wechsler (1949) and Massey (1965) have both provided scoring criteria for the WISC and both were used by examiners in the scoring of the test results. Although some judgment is exercised by the examiner, guidelines for scoring the WISC are quite specific.

These test results were available to the writer as a result of his previous association with the Northern Montana ESEA Pupil Personnel Services Project as project director. The test results of all Indian children from the Blackfeet, Rocky Boy, and Fort Belknap Indian reservations tested by PPSP staff members were included in this study if they satisfied the above mentioned criteria; an equal number of white

subjects were selected on a random basis from students attending the same schools as the Indian subjects.

LIMITATIONS OF THE STUDY

This study was confined to those Indian children who were tested by qualified project staff examiners of the Pupil Personnel Services Project during the period from July 1, 1967 to July 1, 1970; the same time element and other criteria applied to Indian subjects were also applied to white subjects involved in this study. Only the test results on the WISC were used in this study, and Indian children from only the Blackfeet Reservation, the Fort Belknap Reservation, and the Rocky Boy Reservation are included in the Indian group.

As these tests were administered under an assurance of confidentiality, none of the subjects are identified in this thesis. Although comparisons might be of interest and value if they were based on reservation origin and school attended; no such comparisons have been made in this study. As noted elsewhere in this thesis, the culture of plains Indian tribes is considered to be very similar, so the assumption has been made that there would not be any significant differences among the Indian subjects from the three reservations involved. To publish results of this study based on the school attended by the subjects could be damaging in a number of different ways. As pointed out by Honigman (1961, p. 123), "a number of reports . . . suggest quite convincingly

that a high degree of psychological homogeneity characterizes the American Indian"; he also noted that there is still basically an Indian system of social structure and culture in spite of the pressure from the dominant culture. Lesser (1961, p. 3) supports Honigman as follows:

Studies among the Cherokees of North Carolina....and among the Navajos of the Southwest reveal the same inner Indian feelings about the world and man's place in nature, the same non-competitive attitudes, the same disinterest in the American drive for progress and change.

Lesser pointed out further that the completely acculturated Indians are probably not represented in reservation communities because they leave the reservation and are assimilated; he also stated that there are some "clearly discernable constellations of personality characteristics that identify the aboriginal culture" (p. 3). McNickle (1962) stated that Indian characteristics exist and remain after centuries of Indian white association.

Both the Indian and white subjects were attending schools similar in size at the time they were tested; however, previous educational experience was not taken into account. The Indian child who might have attended a Federal boarding school was not identified, however, all subjects were attending Montana public schools of similar size, organization and structure at the time they were referred to the Pupil Personnel Services Project. Schools involved including Browning, Havre, Rocky Boy, Box Elder, Harlem, Hays, Lodge Pole, Chinook, Cut Bank, Valier, Babb, East Glacier, and Dodson.

No attempt was made to equate or adjust results of this study on the basis of socioeconomic circumstances of the subjects involved. Jensen (1969, p. 75) stated that "half of all correlations between socioeconomic status (SES) and children's I.Q.'s reported in the literature fall between .25 and .50, with most falling in the region of .35 to .40". Obviously, the other half of the studies examined by Jensen fall above or below these limits, and a .35 is not considered to be a high correlation. Jensen, who stressed heredity over environment, admitted that the positive correlation between socioeconomic status and I.Q. is one of the least disputed facts in psychology and education. However, intelligence has been correlated with other factors such as occupational status of the father. Jensen discounts environmental factors somewhat by pointing out that Indians are lower than Negroes on nearly all of the environmental indexes, but they average one-half of a standard deviation above Negroes on both ability and achievement tests.

Stanley (1956, p. 265) raised the issue of socioeconomic status in relation to intelligence tests and claimed that the present tests "measure the cultural and economic opportunities which the child or adult has had". Kirkland (1971) claimed that anxious persons and those with a great need to avoid failure set either extremely high or extremely low levels of aspiration; she indicated that this fact may account for the sometimes absent and sometimes exaggerated achievement motives of the disadvantaged. A study by Cropley (1964) dealing specifically with the

WISC and socioeconomic status found a correlation on all tests on the Verbal Scale except the Comprehension subtest. On the Performance Scale a correlation between low scores and socioeconomic status was found only on the Object Assembly subtest for subjects who were 10 years old. Even lower scores were reported for children from low socioeconomic backgrounds at 12 years of age on the Verbal Scale, but there were no differences for this age group on the Performance Scale. Cropley concluded that verbal reasoning skills become increasingly specific with maturation.

Kushlick (1966) reported that severely subnormal children are evenly distributed among all social strata of industrial societies, while these mildly subnormal come predominantly from the lower socioeconomic class. Adams (1969) supported the statement that middle-class pupils consistently test higher on I.Q. tests than lower-class subjects; however, he reports distinctive profiles for four ethnic groups (Jewish, Chinese, Negro and Puerto Rican) that held for both middle-class and lower-class children. Jewish children were relatively high in verbal skills and relatively low in spatial perception, while Chinese children showed a reverse relationship on these two skills. Negroes and Puerto Ricans were relatively lower on both verbal and performance skills.

Hilgard (1962) reported that the American Indians have sometimes shown up as equal to the performance of whites on performance type intelligence tests. He indicated that in most studies the rank order of intelligence tests has been: White (Caucasian), Oriental (Mongoloid),

Negro (African), and American Indian; however, Jensen (1969) indicated that the Negro is commonly below the American Indian. Hilgard pointed out that these differences are significantly less in rural areas, which he credits to decreased socioeconomic differences. Kaestle and Montgomery (1969) indicated some support for Jensen's position that the most important environmental factors affecting intelligence occur prenatally and in the first year of life, and are associated mainly with the nourishment of the mother and the child.

Due to the total number of subjects involved and due to the difficulty of securing accurate information on the socioeconomic status of each subject, it was deemed impossible to consider socioeconomic status in detail in this study. However, it should be noted that all the schools where subjects for this study were in attendance are integrated schools; some schools had over ninety per cent Indian enrollments, and some had over ninety per cent white enrollments. All of the schools were accredited by the State of Montana, and there were no apparent major differences in facilities, funding, or staffing.

DEFINITION OF TERMS

Although most of the terms are defined within the body of this paper, the following terms are defined here for special emphasis:

1. Indian: any person enrolled on the official roll of an Indian reservation.

2. Blackfeet: any person enrolled on the Blackfeet Indian Reservation official roll.
3. Rocky Boy Indian: any person enrolled on the Rocky Boy Indian Reservation official roll.
4. Fort Belknap Indian: any person enrolled on the Fort Belknap Reservation roll.
5. WISC: the Wechsler Intelligence Scale for Children.
6. PPSP: The Pupil Personnel Services Project.
7. BIA: Bureau of Indian Affairs.
8. SDPI: State Department of Public Instruction.
9. Psychograph: a graphic representation of the subtest and I.Q. scores achieved on the WISC.

CHAPTER II

REVIEW OF RELATED RESEARCH

INTRODUCTION

David Wechsler appears to be one of the more prolific writers on the subject of intelligence; this fact and the fact that he was the author of the Wechsler Intelligence Scale for Children dictated that he would be one of the chief sources of information for this study. Wechsler's writings date back to 1926, and approximately twenty different publications by him were examined by this writer; the following three publications were found to be most helpful while doing this study:

Manual: Wechsler Intelligence Scale for Children (1949), The Measurement and Appraisal of Adult Intelligence (1958), and Range of Human Capacities (1952).

Although the primary source of material was the Montana State University Library, a number of other sources were used. After reading some of the work of L. Madison Coombs of the Bureau of Indian Affairs Research and Evaluation Office, this writer wrote to him requesting his comments on this study. Although Mr. Coombs had retired, he graciously wrote a three page reply that proved very helpful to this writer.

Senator Mike Mansfield secured a number of publications from various federal agencies, which were used by this writer. Personnel in the area office of the Bureau of Indian Affairs in Billings and the State

Department of Public Instruction in Helena also provided a good deal of assistance in this study. An outline of the proposed study was also submitted to The Psychological Corporation, publishers of the WISC, and Dr. Alan S. Kaufman, Senior Research Associate responded with some specific suggestions relative to the study. This correspondence may be found in Appendix A, page 157.

INTELLIGENCE TESTING AND RACE

Berry (1968, p. 44) pointed out that "the most fundamental question of all had to do with his (the Indian pupil) inherent capacity to acquire knowledge made available to him"; based on the number of studies that have been done on this basic question, it appeared that the question has been a favorite topic down through the years. According to Berry (1968), the development of Alfred Binet's intelligence scales caused scholars to feel that an instrument had finally been devised which would enable them to objectively study the relative ability of various races. Berry credits E. C. Rowe with being the first to apply the Binet-Simon Test to Indian and white children; this first testing of the two races took place in 1918, according to Berry.

The interest in administering intelligence tests to Indian children in the early years of the 20th Century may have stemmed from white attitudes toward Indians at that time. Beatty (1953) indicated that Indians were excluded from public schools during this period and

were generally considered to be unfit to associate with white children. Underhill (1953) expressed the opinion that there has always been those who doubted that the Indian had the necessary intelligence to profit from formal education; she also claimed that it appeared that many researchers set out to prove this point by administering tests to Indian students on a mass basis. She stated that "there is no such thing as inferiority of a whole people" (p. 92), and pointed out that inborn capacities are only potentials that will become actual under favorable conditions. Underhill charged that many educators came to question the ability of Indians on the basis of this testing. Hebb (1966, p. 198) supported many of Underhill's statements and claimed "that no valid comparison of native ability can be based on a comparison of IQ's obtained by persons brought up in different cultures".

Goodenough (1926) and Garth (1928) were two of the leaders among this early group who were interested in determining the intelligence of Indians. Goodenough, using her Draw-A-Man Test on Negroes and Indians in the South, arrived at a mean I.Q. of 78.7 for the Negroes and 85.6 for the Indians. However, Havighurst and Newgarten (1955) used the Draw-A-Man Test on Indian children in the Southwest and found that these children achieved somewhat higher scores than white children; two possible explanations were offered for the differences in these two studies: (1) Goodenough's results were influenced by the "mind set" of the earlier period, or (2) Indians of the Southwest had a

culture that emphasized art at an early age.

Garth (1928) used tests that had been standardized on white children to study the intelligence of Indian children and found consistently lower mean I.Q.'s for the Indians. He went so far as to show a positive correlation between the degree of white blood and I.Q. scores. Underhill (1953) agreed that Garth's figures were correct but claimed the difference was due to culture and not Indian blood. Brigham (1923) concluded that Nordic groups had an intelligence superior to the Alpine and Mediterranean groups at about the same time that Garth published his study; this conclusion was arrived at as a result of intelligence testing of immigrants to this country. Although this point has no direct, particular significance to this study of Indian children in Northern Montana, it indicates that there must have been quite an interest during this period in intelligence testing of various groups in society.

Klineberg (1928) appears to have been one of the first to challenge the conclusion of this early period that was prone to conclude that the Indian was inferior in native ability or intelligence. He raised the question of cultural factors on test scores of white and Indian children when intelligence was being measured. Garth (1931) published a summary of the research dealing with racial differences and concluded that I.Q. testing up to that time showed the Indian to be intellectually inferior to the white. He also dealt with the question of the relative intelligence of mixed-bloods and full-bloods, and

concluded that there was a positive correlation between the degree of white blood and test scores. Berry (1968) cites the Jonasson study of 1937, that was conducted at the Whapeton Boarding School in North Dakota, as one of the first that refuted the theory of the inferiority of the full-blooded Indians.

A trend developed during the late 1930's where investigators not only claimed the intelligence of Indians as equal to that of whites, but some claimed superiority in certain kinds of intelligence (Berry, 1968; Beatty, 1953; Underhill, 1953). Havighurst and Newgarten (1955) presented a comprehensive review of the literature dealing with this question in their study of the Navajo, Hopi, Papago, Sioux, Zia and Sumi tribes; their study considered emotional, intellectual and moral development of the Indian children in these six tribes. They concluded that there were many differences in terms of values and personality development but no real difference in native ability when proper or appropriate tests were used.

More recent research has dealt with the question of whether or not there is any real difference between the native ability of the Indian and the native ability of the white. Peters (1963) administered four different intelligence tests to Hopi Indian children and concluded that "apparent capacity" reaches peak performance at about ten or eleven years of age and suffers gradual decline from that point on. Hebb (1966) stated that intelligence of whites does not peak until fifteen years of

age and is relatively constant until twenty-five or thirty. Bryde (1965) supported Peter's conclusions and indicated it is due to personality factors of Indians.

Rohrer (1942) hypothesized that Indian children who were equal to whites in cultural opportunities, socioeconomic level, and comparable schooling would have I.Q. scores equal to those of white children. He used 235 Osage Indian children who met his qualifications, paired them with whites, and found no significant differences as a whole or within degrees of Indian blood. Coombs (1958) argued that physical location of Indians influenced the results on intelligence tests and showed a relationship between degree of Indian blood and location. The city or town-dwelling Indians tended to be mixed-bloods and those on the reservation full-bloods. Shuey (1958) presented this same point in favor of Negro children by pointing out that degree of Negro blood was correlated with residence in many of the studies that had been done, particularly in the earlier years of the studies of Negro intelligence in the South. Bryde (1965) also concluded that there were no significant differences among blood groups that could not be explained by physical location and cultural factors.

Munn (1965, p. 409) pointed out that speech "adds immeasurably to intelligence in human beings as compared with other organisms" and individual differences in human intelligence are most evident through oral and written expression (linguistic activities). He discussed the

many definitions of intelligence and indicates that some of these definitions stress capacity, such as the capacity to carry on abstract thinking, while some definitions simply define intelligence as what intelligence tests measure. Munn's basic point is that intelligence measured at an early age has questionable value because such tests are predominantly measures of symbolic (language) processes. Hess and Shipman (1965, p. 871) supported this contention by pointing out that language development among children from deprived backgrounds is relatively poor and "auditory and visual discrimination skills are not well developed". Wertheimer, Bjorkman, Lundberg and Magnusson (1968) reported a study of riverboat children in England and claimed that there is a continuous deterioration of I.Q.'s as compared to children raised in more adequate cultural environments. "Studies of blacks who moved to more stimulating environments had precisely the expected results; that is, their intellectual level rose" (Wertheimer, Bjorkman, Lundberg, and Magnusson, 1968, p. 194). Tuddenham (1948) claimed that there is some evidence of an increase in intelligence test performance in the general population between the two World Wars; he cited improved education, nutrition, health care and the standard of living as reasons for this improved performance.

Constancy of the I.Q. of the individual is also of major concern of those persons concerned with psychology and the educational process. As noted earlier, Peters (1963) claimed that peak performance of Hopi

Indian children on intelligence tests is apparently reached by age ten or eleven; Hebb (1966) stated that peak performance of white children is not reached until age fifteen, but Bloom (1964) stated that the relative standing of white children is highly consistent after eight years of age. However, Becker, Engleman and Thomas (1971, p. 439) reported that "Engleman raised the I.Q. of twelve disadvantaged children an average of 24 points with two years of instruction in reading, arithmetic, and language". This increase was measured by the Stanford-Binet Test, and this point seems to have been accepted by those who support early compensatory education programs.

One cannot examine recent writings in the area of intelligence and ignore the writings of Arthur R. Jensen. In the winter issue of 1969 the Harvard Educational Review published the Jensen article that created a major storm of subsequent articles and letters in many publications. Jensen argued that compensatory education had failed to produce a lasting effect on childrens' I.Q.'s and/or achievement; he suggested that the premise on which compensatory education was based is false, i.e., I.Q. differences are not due to environmental differences and cultural bias of I.Q. tests. He claimed that the premise is incorrect because intelligence is determined more by heredity than environment; he is of the belief that prenatal influences may well contribute the largest environmental influences on intelligence. He has contended that extreme environmental deprivation can keep a child from performing

up to his genetic potential, but an enriched educational program cannot push the child above his genetic potential.

Pointing to large compensatory education programs in St. Louis, New York, Syracuse, Seattle, Philadelphia and Berkley, that were developed to narrow the gap between minority and majority pupils, Jensen claimed that the chief goal has been utterly unrealized in any of the large compensatory education programs that have been evaluated so far. He has also claimed that culture free or culture fair I.Q. tests administered to Negroes actually showed slightly lower scores, on the average, than more conventional I.Q. tests. In answer to the frequent claim that language is the basis for a great deal of the apparent difference between I.Q.'s of blacks and whites, Jensen stated that the majority of studies show that Negroes perform relatively better on verbal than on nonverbal intelligence tests. He also claimed that the American Indian is below the American Negro on every environmental index, yet the Indian scores on ability and achievement average about a half a standard deviation higher than the scores of Negroes.

In a follow-up article in the summer issue of the same publication in 1969, Jensen stated that he simply proposed that the hypothesis of genetic racial differences in mental abilities is a reasonable one deserving of further scientific investigation. He also made the interesting observation that improved environment did not decrease

the difference among individuals but it may increase the differences. It is apparently his contention that environmental differences account for only about 20 per cent of the differences in intelligence among individuals.

Jensen has not had to stand alone in the position that he has taken. Cronbach (1969), Elkind (1969), Crow (1969), and Herrnstein (1971), who are recognized authorities in the field of intelligence testing, have supported a number of the statements made by Jensen. Herrnstein's position is that the United States already has a high I.Q. ruling class and a lower-class with I.Q.'s that are below average; he argues that good education will merely sharpen the existing differences. His point was that the more uniform the environment, the more important heredity will become. Among earlier writers who favored the importance of heredity over environment as determinants of I.Q. were Jones (1954) and Anderson (1949).

Jensen's conclusions have been challenged from many sources and positions. Light and Smith (1969) challenged nearly all points presented by Jensen; Stinchcombe (1969) claimed that Jensen had ignored the cumulative effect of poor environment; Deutsch (1969) challenged the quality of Jensen's writing and the statistics used; Fehr (1969) suggested different methods of calculating the effects of environment and heredity and arrived at different conclusions. Kagan (1969) charged Jensen with (1) inappropriate generalizations, (2) glossing over

environmental influences on tested I.Q., (3) cited new studies that indicated part of the perceived intellectual inadequacy of lower-class children may derive from a style of mother-child interaction that gives the lower-class child less intense exposure to maternal intervention, which influences performance on I.Q. tests, and (4) argued that compensatory education programs have not been adequately developed nor properly evaluated to date. Hunt (1969) stated that Jensen does not have satisfactory evidence to make his assertions about genetic differences and the basic question of high heridability of intelligence. Hunt has been credited with being one of the leaders in overturning the concept of "fixed intelligence".

In all of this discussion it is important that some of the basic assumptions associated with both intelligence and achievement testing not be forgotten. Commenting on intelligence testing in general, and the Stanford-Binet intelligence test specifically, Munn (1965, p. 414) has pointed out that the theory is that "if the child of a given age has average ability, he will have acquired the symbolic behavior possessed by average children of that age". He has stated very clearly that this theory presupposes that the child being tested has neither below average nor above average educational opportunity. Munn noted that intelligence tests emphasize flexibility in symbolic processes, like memory, concept formation and reasoning. He moves to a somewhat middle ground when he stated "it is environment which actualizes the hereditary potential"

(p. 435). However, his comments raised the issue of importance of personality types in the testing situation, and whether certain personality types are more common in certain ethnic and socioeconomic groups.

Cattell (1963, p. 5) has broken the definition of intelligence into what he terms "fluid" and "crystallized" intelligence. "Fluid" intelligence is defined as a "capacity for new conceptual learning and problem solving, a general brightness and adaptability, relatively independent of education and experience". "Crystallized" intelligence was defined as "precipitated out of experience, consisting of acquired knowledge and developed intellectual skills". Cattell's definition seems to be the most appropriate one for this study in that the WISC measures intelligence in a manner appropriate to this framework.

The question of values also becomes significant in relation to test performance. Cameron and Storm (1965), Risley (1965) and Cradler and Goodwin (1971) all concluded that lower-class children tend to prefer material reinforcement over social and/or symbolic reinforcement when compared to middle-class children. Coleman (1962) and Fitzgerald and Ausubel (1963) take the position that what is recalled tends to be shaped by previous language habits, misconceptions and attitudes. Osborn (1970) reports that approximately 55 per cent of the Indian children in the United States speak their native language at home, which he interprets as a six-year language deficiency when they enter English speaking schools.

The influence and/or importance that language may have when testing Indian children has been one of the more obvious criticisms made by some testing authorities. Greenberg and Greenberg (1964) discuss the significance of language in relation to educational problems of the American Indian child, and they point out that this problem calls for special treatment and special skills at every grade level. Bryde (1968) also raised the question of how much language ability might influence test results and noted that the examiner must be constantly aware of the fact that an examiner can influence test results in a number of different ways. In Bryde's case, he was concerned about the administration of the Minnesota Multiphasic Personality Inventory (MMPI) to Indian children who were aware that he was a Catholic priest, i.e, he was concerned that his position as a clergyman might influence some of the responses of the subjects. He also noted that an examiner who knows nothing about the Indian personality may influence the results of an individually administered test in other ways. Hall (1968, p. 28) has stated that the Navajo language is "so different from English that it forces the speaker into two different images of reality". Passoe, Goldberg and Tannenbaum (1967, p. 142) commented as follows:

The Indian has difficulty in comprehending the tenses since time does not represent the same meaning to him as it does to a non-Indian. The past, present, and future are problems he has not encountered previously.

PSYCHOLOGICAL CONSIDERATIONS

Although the more recent research seems to be in agreement that there is no real difference in native ability of the Indian and white children, some authorities in the field seem to believe that many white people with whom Indian children come in contact, including teachers, are not aware of what social scientists have concluded regarding the intelligence of racial groups. Underhill (1953) is quite strong on this point and takes the position that a great portion of the poor achievement of Indian children is due to the fact that the white group does not really give them a chance to achieve. She makes the point that there have been many cases where whites have been absorbed into Indian tribes so completely that they are not distinguishable from the Indians by the time they reach maturity; her point seems to be that such whites would have distinguished themselves from the Indians had they been of superior intelligence and sees this point as proof that the Indians can just as easily be absorbed into white society.

The criticism leveled by Underhill and others is based on the theory that if teachers and other members of the white dominant group see the Indian as innately inferior and incapable of learning, such attitudes or feelings will be conveyed to the Indian children, even though they may be very subtle and unintended. As Hodgkinson (1967) has pointed out, a child will come to think of himself in a negative

manner and set lower standards of effort, achievement, and ambition for himself under these conditions. Expectations of teachers that Indian pupils will do poorly in school thus become a major factor in guaranteeing the accuracy of the prediction or prophecy. Although the quality of the research has been questioned, Rosenthal and Jacobson (1968) conducted an experiment to test this theory in San Francisco schools and concluded that children from whom teachers expected greater intellectual gains actually showed greater gains. Kirkland (1971, p. 307) stated emphatically that "how a person thinks of himself influences his test behavior"; if he believes achievement to be important he will work longer, harder and with greater speed than if he does not believe achievement to be important. She has stated that "test performance may be affected by an individual's biases toward certain sets of responses" (p. 319), and the bold personality type will guess more frequently than those low in self-esteem. Adams (1969), discussing personality development of the adolescent, has stated that there is a correlation between pubescence self-esteem, and "coping ability" of the adult personality, i.e., early maturing adolescents are more apt to be high in self-esteem.

The question of different attitudes and values and the self-concept differences between the white/dominant group and minority groups has received a great deal of attention in recent literature. Brookover, Shailer and Peterson report a correlation of .51 between academic performance and self-concept, and claim that general self-concept is

related to the individual's perception of the opinions that significant others have of him, Brim, Glass, Neulinger, and Firestone (1969) found that many more Negroes than whites viewed intelligence tests as "very accurate", and they also pointed out that individuals may view and use test information much differently, depending on how they perceive the test. One who views a test as "very accurate" has to deal with the results in a different manner than one who does not feel the test is very accurate.

Adams (1969) noted that anxiety has been associated with low self-esteem, and anxiety causes one to become more concerned with one's self, which sets up a vicious circle in terms of personality development in the adolescent. Coleman (1966) found that those people who were high in self-esteem tended to believe they had control of their environment and achieved more in school. He examined the question of attitudes and values as they relate to self-concept differences between white and Indian children; the results are illustrated quite clearly in the following table.

TABLE I

PERCENT OF 12th GRADE PUPILS HAVING CERTAIN ATTITUDES

	<u>Indian</u>	<u>Negro</u>	<u>White</u>
<u>Sense of control of environment:</u>			
Luck more important than work	11%	11%	4%
When I try, something stops me	27%	22%	14%
People like me don't have much of a chance	14%	12%	6%
<u>Self-concept:</u>			
Believes self to be brighter than average	31%	40%	49%
I just can't learn	44%	27%	39%
I would do better if teacher didn't go so fast	26%	21%	24%

(Coleman, 1966, p. 24)

Throughout the literature on Indian children we find observations that their style of learning is more visual than verbal, i.e., more learning by looking than through language activities. Spelling is considered to be at least partly a matter of visual discrimination. Coleman (1966) has stated that Indians surpass whites in visual discrimination skills; Coombs, Kron, Collister and Anderson (1958) found that Indian children achieve lowest on reading vocabulary tests and best in spelling, and they concluded that these results reflect their higher ability in visual imagery and form perception. Havighurst and Newgarten (1946), using the Draw-A-Man test on a widely distributed Indian sample, concluded:

The children of Indian tribes which have kept close touch with the world of nature and with their indigenous cultures are especially stimulated to observe accurately, to organize their observations and express them aesthetically, and thus may be expected to do well on the DAM test. White children, and urban white children especially, may have much less chance to form concepts from firsthand observations, but must rely more upon books and words. p. 61

The Draw-A-Man test has been one of the favorite testing instruments applied to Indian children since its development in 1926; its favored position as a test for Indian children apparently stemmed from the claim that it is a culture fair test. However, Goodenough (1946, p. 399) concluded after her test had been in use nearly twenty years that "it is clear that cultural differences do appear to a greater or less extent in the drawings of children". She also stated that the search for a culture free test is illusory and the main assumption that mere freedom from verbal requirements renders a test equally suitable for all groups is no longer tenable. This conclusion apparently stemmed from the fact that the Draw-A-Man test had been consistently returning higher I.Q. scores on Indian children from tribes where art is highly important in their culture.

Pettit (1946) has claimed that education in the home of the Indian child is much more apt to be an imitation type than a verbal type, which is apparently a statement that would likely be accepted by most of those who have knowledge about Indian home life. Pettit has also stated that a greater share of the culture of more primitive

societies, i.e., the child can learn a greater percentage of the desired knowledge by observing and listening in the less complex societies. Adult activities are less understandable by observation alone in the complex society.

The question of the problem created for the Indian child by having to function in a two-language world has been mentioned in relation to testing in the preceding section of this chapter, but only those who have lived in an environment where a different or second language is used can fully appreciate the frustration that the Indian child must often face in this situation. If Hall (1968) is correct when he claims that the Indian child is forced into two different images of reality when he uses two different languages, it seems apparent that the world may well become a very confusing place for the Indian child. In applying the Minnesota Multiphasic Personality Inventory to Sioux Indian children, Bryde (1965, p. 129) stated:

....twenty-six significant differences out of a total of 28 personality variables (were found). On each of these measures, the total Indian group revealed greater personality disruption and poor adjustment. Notable among the more meaningful were: feelings of rejection, depression, anxiety, and tendencies to withdraw, plus social, self and emotional alienation.

Herrington and Douglas (1968) found many of these values and attitudes among Montana Indian children in their analysis of Indian assimilation. Adcock (1968) pointed out that attendance is frequently lowered where Indian children ride school buses, which forces them to

fit into the inflexibility of strict time schedules on which buses operate. He pointed out that time orientation is very different for the Indian child, and this time factor is also important when the teacher follows her prescribed teaching schedule. This point may be the source of frequent observations by white teachers that Indian children lack motivation and waste time. Obviously, time is important in many activities in school, including many tests. Time is also a part of the willingness to plan ahead and delay gratification, which is important in white culture but unimportant in Indian culture (Adams, 1966; Bryde, 1966).

Coldarci (1960, p. 25) has claimed that 75 per cent of the achievement variation in relation to I.Q. of Indian children in the Southwest can only be explained by factors "such as motivation, level of aspiration, and emotional blocking". In reference to certain cultures in the South Pacific, Spiro (1959, p. 170) commented as follows:

That culture and personality are interdependent variables is a proposition that today evokes almost universal assent... it is moreover widely assumed that some culture contact situations are more pathogenic than others.

Individuals whose life experiences were idiosyncratic developed mental illness either because extant cultural means for tension reduction were ineffective...or because these experiences gave rise to tension for which cultural means for reducing tension were nonexistent.

Leon (1960, p. 15) has asserted that "learning difficulties may also be symptoms of emotional maladjustment", which may be a point well taken.

He made this conclusion as a result of a study of emotional problems of

Indian students in federal boarding schools and related public schools. Piaget (1969, p. 46) has stated that "society, even more, in a sense, than the physical environment, changes the very structure of the individual", which is a pertinent consideration when examining the personality development of the Indian child. Wechsler (1958, p. viii) has stated that "intelligence is most usefully interpreted as an aspect of the total personality", which is a highly related consideration when one proposes to examine I.Q. scores attained by any subject on his intelligence test.

Anxiety is often considered an important personality factor in relation to performance (Kirkland, 1971; Goldman and Leslie, 1961; Ebel, 1965; K. T. Hill and S. P. Sarason, 1966). Kuhler (1968, p. 80) had indicated that a moderate amount of anxiety may spur one to greater effort, but "too high a level of anxiety may be disruptive, resulting in disorganized and avoidance behavior". He also made the point that since educators tend to come from the middle-class, it is not unlikely that both content and method in American schools are mainly oriented toward the middle-class and fail to take into account the greater variations in motivations and values from different backgrounds. All of us tend to experience an increase in anxiety when we are forced to operate in a different or strange environment.

Kirkland (1971, p. 317) has tended to generalize when she has stated that "negative correlation is found between anxiety and test

performance", but she becomes more specific when she narrows this conclusion down to correlations between achievement, I.Q. and reading tests. She has further concluded that anxiety correlates negatively only for the middle and low I.Q. groups on these three tests. She summarizes by stating that a high level of anxiety generally causes impaired performance, but the critical point is the importance of the test to the individual; although subjects react differently to anxiety, poorer students tend to be more anxious than the better students. Kirkland has claimed that high anxiety correlates positively with Negroes, rural children, children with emotional problems, unpopularity with peers, and low socioeconomic level; she also asserted that there is a negative correlation between anxiety and performance on complex tasks, and test anxiety increases with the grade level.

Keller and Rowley (1971, p. 206) conducted a study on anxiety levels and performance on the Stanford Achievement Test and concluded:

Although the correlation coefficients are modest, some support may be offered for the theoretical notion that anxiety interferes with performance on complex, cognitively demanding tasks such as those required by the Stanford Achievement Test.

In examining the question of how anxiety influences performance, Flynn (1971, p. 207) apparently agrees that anxiety is a common source of misbehavior when he commented that "if two students have equal mastery of subject matter, the student who is evidencing classroom adjustment problems is more likely to be retained". Flynn's major point

seemed to be that a child of this type is least able to stand the negative aspects of failure, so his problems are compounded when he is retained in the same grade. Rosenhan (1966) has provided additional food for thought on this issue when he pointed out that lower-class children are more responsive to approval and disapproval than middle-class children; he found no difference between Negro and white children on the basis of race, but he found a relationship based on socioeconomic status (class). However, Rosenhan is quick to point out that what is reinforcing for a particular child will depend upon his behavioral (reinforcement) history. The significance of anxiety in relation to performance is an important factor in test performance. Adams (1966) has noted that anxiety levels are more significant in the adjustment of female adolescents than male adolescents and credits aggressive male behavior with reducing anxiety levels in the males.

If the question of anxiety and self-concept is examined jointly, Wallace's (1971, p. 261) comments on the principle involved in the Rosenthal-Jacobson study may be of interest:

That expectations can be communicated to others and can importantly influence their behavior is one of the more exciting hypothesis to emerge from relative recent social psychological theorizing. The term "self-fulfilling prophecy" refers to the general case in which prediction about behavior can shade over into control over the behavior.

The question might be raised as to what effect an excessively high expectation on the part of the teacher might have on the anxiety level

