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A comparison of scores of negro and white children on the Wechsler Intelligence Scale for Children

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College of the Pacific
Stockton, Calif.

A COMPARISON OF SCORES OF NEGRO AND WHITE CHILDREN
ON THE WECHSLER INTELLIGENCE SCALE FOR CHILDREN

A Thesis

Presented to
the Faculty of the Department of Psychology
College of the Pacific

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
John Robert Blakemore
July 1952

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CHAPTER I

INTRODUCTION

This investigation concerns the intelligence of the Negro population in relation to the white population. There is a considerable difference of opinion relating to the intelligence of the Negro. Some students in the field contend that the Negro's intelligence, as measured by the tests available for all individuals, is naturally lower due to hereditary factors. Other investigators (these seem to be in the majority)¹ believe that environment plays the major role in lowering their ability to gain a comparable score with white individuals.

I. THE PROBLEM

Statement of the problem. The purpose of this study is (1) to determine whether intelligence test scores of Negroes in Stockton, California, are lower than the norms set up by David Wechsler on the Wechsler Intelligence Scale for Children; (2) to ascertain the necessity for a separate set of norms for this group; and (3) to determine the possibility of using this test with Negroes with any appreciable amount of validity, as revealed through a comparison of Negro scores with norms obtained on a white population.

¹ C. H. Thompson, "The Conclusion of Scientists Relative to Racial Differences," Journal of Negro Education, 3:494-512, July, 1934.

Reason for pursuing the problem. This is a dire need for an evaluation of Negro intelligence. It is necessary that a study be made and a standardization developed with a maximum of objectivity on the part of the experimenter. Since individual intelligence is such an important item in living we must, by experimental means, determine how best to gain a true IQ on any given group of individuals. On an all-over pattern the Negro population of the United States has a relatively lower set of intelligence scores than the white population.² Garrett, in writing about Negro-white differences in IQ states, "No responsible person to my knowledge has ever claimed that all Negroes are less intelligent than all whites."³ In the several writings studied the same conclusion is predominant, but even so the Negro is too often unable to attain a score as high as the Caucasian.

There have been few investigations to find an intelligence test scale which may be adequately relied upon to test the intelligence of the Negro. Wechsler, in his explanation

² H. E. Garrett, "Negro-White Differences in Mental Ability in the United States," Scientific Monthly, 65:329, April, 1947.

³ Loc. cit.

of the Wechsler Intelligence Scale for Children, indicated that:

Intelligence cannot be separated from the rest of the personality, and a deliberate attempt has been made to take into account the other factors which contribute to the total effective intelligence of the individual.⁴

It may be assumed from this explanation that a test may here be developed to test those factors which will give a true result even though he did not standardize it on a Negro population. This thesis, therefore, was an attempt to determine the possibility of using the WISC with a Negro population.

II. PROCEDURE AND TECHNIQUES

Standardization sample. At the beginning of this study it was felt that all age groups from five years through fifteen years should be included in the test sampling. This group was to include an equal number of boys and girls totaling fifty. It was soon clear that with this already small sampling the experiment would be further weakened by spreading over such a wide age group. The sample was then changed to twenty-five boys and twenty-five girls all ten years of age. Each child was tested within one and one-half months of his mid-year (i.e., the children were ten years, four

⁴ David Wechsler, Wechsler Intelligence Scale for Children (New York: The Psychological Corporation, 1949), p. 5.

months, and fifteen days, but were not yet ten years, seven months and fifteen days). This was in direct accord with Wechsler's standardization methods.

It proved an impossibility to match the parental occupations of this Stockton group with Wechsler's standardization group, inasmuch as the Negro economic and occupational status in Stockton did not parallel that of the white population. It was found that of the fifty children tested, one parent was a minister, thirty-four were day laborers in construction, agriculture, and cotton compress, and eight had no job at that time or the occupation was unknown by the child. Most of the children in this last group indicated by answers to questions that their fathers were day laborers. Seven had no fathers, but their mothers worked as domestic servants and service workers.

By the census figure of 1940 it was found that only 875 Negroes lived in Stockton, as compared to the 49,632 whites.⁵ Since that time the Negro population has increased considerably. This influx occurred first when the cotton compress was built at the Port of Stockton, but with the initial group followed many others from the South to work in seasonal crops. This explanation is necessary to show that

⁵ "Sixteenth Census of the United States, 1940," Population, Volume II, Part I. (Washington, D.C.: United States Government Printing Office, 1940).

the Negroes tested were not a native California population. Without an exception all the children tested had been born in the South.

Testing procedures. The sampling was drawn from seven elementary schools in Stockton and each child was tested individually by the same examiner. The complete Wechsler Intelligence Scale for Children, including twelve tests, was given to each subject. Ordinarily the Scale is reduced to ten tests with the Digit Span in the Verbal and Mazes in the Performance part of the examination omitted. It was necessary to prorate the scaled scores before IQ's could be computed and also before comparisons of these obtained scores to the WISC norms.

After obtaining scaled scores for the subtests, Performance, Verbal, and Full Scale, the means for each were computed. The results of this computation, as well as others mentioned here, are discussed and results interpreted in a later chapter. The next step was the development of scattergrams in preparation for computing correlations of each test with the Verbal, Performance, and Full Scale Scores, and of these three composite scores with each other. Since each single test was correlated with a composite of which it was a contributing member, it was necessary to correct the coefficients of correlation for spuriousness. The significance of the difference between correlations on

Wechsler's subtests and the Negro subtests were computed to add to the completeness of the statistical study. For final comparison the standard deviation was computed for purposes of contrast.

Organization of the remainder of the thesis. It has been the aim in this thesis to determine whether scores obtained on the Wechsler Intelligence Scale for Children with a Negro population are discriminatory. Since Wechsler has indicated, concerning the Measurement of Adult Intelligence, that those norms cannot be used for the colored population of the United States,⁶ it may reasonably be assumed that the same might be true for the WISC.

In the following pages an attempt is made to explore every possibility for carrying out the objectives of this study. A review of the literature is included to familiarize the reader with the efforts in this field. This includes writing on Negro intelligence, intelligence scales, as well as the small amount that has been done on the WISC itself.

A complete analysis of the results of tests and statistical data is developed with explanations of comparisons and charts. In this section the work of this individual study is brought out and hypothesis offered. Interpretations

⁶ David Wechsler, The Measurement of Adult Intelligence (Baltimore: The Williams and Wilkins Company, 1944), p. 107.

are made in relation to the objectives and comparison of these results are made with other studies.

A final interpretation and conclusion which includes evaluation of the thesis, recommendations, and a final summary concludes the study.

CHAPTER II

REVIEW OF THE LITERATURE

Very little research has been attempted by psychologists on the Wechsler Intelligence Scale for Children. It has been difficult to find much concerning the reliability of this Scale and nothing about its adaptability to a Negro population. Wechsler's first test battery, Measurement of Adult Intelligence, had been used extensively in making comparisons, but has not been employed to measure the Negro intelligence. Much writing has been done concerning Negro intelligence and a substantial difference of opinion has arisen over environment and heredity as the cause for lower IQ scores.

I. LITERATURE ON NEGRO INTELLIGENCE

There was but a small amount of research attempted on Negro intelligence before World War I, but since that time many studies have been attempted. Evolving from this has been the question of the existence of Negro-white differences in mental ability. Garrett, in his writing on this subject, prefaces his research with the following paragraph:

The question of the existence of Negro-white differences in mental ability within the United States has of late been sadly confused with social and political issues of racial superiority, discrimination, and the like. As a result of this confusion, many writers seem to take the position that racial differences ought not to be found, or if found should immediately be explained away as somehow reprehensible and socially undesirable.

With this attitude the present writer is in sharp disagreement. While he is heartily in favor of every genuine effort to aid the Negro in improving his status as an American citizen, he does not believe it is at all necessary to "prove" the nonexistence of race differences in order to justify a fair policy toward the Negro. It cannot be said too often that the honest psychologist, like any other true scientist, has no racial bias; he does not care which race (if any) is the more intelligent or whether all races are potentially equal in mental ability. But he is interested in discovering whether differences in mental ability exist, and in making inferences concerning the origin of such differences. And this would seem to be an entirely legitimate enterprise.¹

Garrett points out the advantages and disadvantages of making Negro-white comparisons. He feels that decided advantage is the fact that "Negroes and whites have lived side by side in our country for more than three hundred years."² They both have the same native language and customs. The disadvantages, as he sees them, concern social and economic differences and opportunities for conventional goals are unequal.

Garrett cited McGraw's study done in 1931 with sixty-eight white and sixty Negro infants, two to eleven months old, all living in a Southern community. The conclusion was that environmental influences were at a minimum, and still the Negro was lower in development.

¹ H. E. Garrett, "Negro-White Differences in Mental Ability in the United States," Scientific Monthly, 65:329, April, 1947.

² Loc. cit.

Another study cited by Garrett was the Army Alpha and Beta Tests given to 1,750,000 soldiers in 1917-18. This test is cited by many writers since it has had the largest sampling used in contrasting Negro-white intelligence. The conclusions drawn here by Garrett are in effect that since Southern Negroes tested out lower than Southern whites, and Northern Negroes were lower than Northern whites, it may be assumed that the race as a group has a lower intelligence due to inheritance. Also, since the Northern Negro is able to get a higher score on a test than the Southern Negro, it is a case of "selective migration" of the more intelligent Negroes to the North.

Another author, Maurice R. Davie,³ concludes, "One can say that there is no proof that Negroes and whites are inherently different in mentality, or that they are inherently the same."

Klineberg,⁴ who has made several studies from which Garrett draws material for his thesis, concludes that environment is the reason for lower IQ and not selective migration. He gives as a basis for this statement the statistics shown on a group of children in New York City.

³ Maurice R. Davie, Negroes in American Society (New York: McGraw-Hill, Incorporated, 1949), p. 373.

⁴ Otto Klineberg, Race Differences (New York: Harper, 1935), p. 189.

On a Stanford-Binet test averages showed an 81.1 IQ for recent arrivals to New York and a 98.5 IQ for those Negroes born in New York. There seems to be a significant difference shown in this study which indicates that the influence of culture is an important factor in determining the scores made on intelligence scales.

Pasamanik⁵ used Gesell's developmental schedules to contrast a group of Negro infants and three groups of white infants in New Haven. He found the Negro infants to be fully equal to white infants in all respects including intelligence. Since the experiment had been carried to the point of regulating the diet of the mothers during the prenatal period, this discloses a relevant fact. Intelligence is not a racial difference but instead a difference of environment.

Pastore⁶ refuted Garrett's hypothesis by attacking the test criteria used by Garrett. In reference to the Army Alpha and Beta scores, the author stated that since there were a large proportion of zero scores for both white and Negro subjects, the tests were not operative as a measure of intellectual ability, at least in the lower ranges.

⁵ Pasamanik, "Racial Differences Study Wins Psychiatric Award," Science Newsletter, 55:371, June 11, 1949.

⁶ Nicolas Pastore, "A Fallacy Underlying Garrett's Use of the Data of the Army Alpha and Beta Tests--A Comment," Scientific Monthly, 69:279-280, October 1949.

Also, there were may more zero scores in the Negro group, therefore, the Negro group would be more adversely affected by inclusion of zero scores than the white group.

Mareuse and Bitterman⁷ indicated their disapproval of Garrett's findings by also attacking the Army Alpha and Beta tests given during World War I. They felt that the Beta differences in the Negro and white groups failed to show innate racial inequality. They stated in defense of their position that there was a direct correlation between educational expenditures in the various states and scores obtained on the Beta test.

Montague sums up a rebuttal of Garrett's work with the following statement:

I do not think that it is possible to draw any conclusions from tests as they are at present set up other than that what they measure is socioeconomic experience and schooling. Where these variables have appreciably varied, the results obtained should be expected to vary.⁸

The same conclusions have been disclosed by Embree.⁹

⁷ F. L. Mareuse and M. E. Bitterman, "Notes on the Results of Army Intelligence Testing in World War I," Science, 104:231-232, September 6, 1946.

⁸ Ashley F. Montagu, "Racial Intelligence," Scientific Monthly, 66:81-82, January 1948.

⁹ Edwin R. Embree, Brown Americans: The Story of a Tenth of the Nation, (New York: Viking Press, 1945) p. 165.

Alper and Boring,¹⁰ Davis,¹¹ and many others, All this places Garrett in a minority group regarding the low intelligence level of the Negro population. He was rebuffed by one writer who wished to know whether he had reached his conclusions prior to research and had not altered his opinion even with evidence pointing in opposition to his thesis.

II. LITERATURE ON THE WISC

One of the few evaluations thus far on the Wechsler Intelligence Scale for Children was done by Seashore, Wesman, and Doppelt.¹² These authors have given it a favorable appraisal, however, it is more an analytical evaluation than critical. They have indicated that this test was exceptionally well standardized since a cross-section of the United States was employed. A reasonable number of subjects were taken from both rural and urban areas and from occupational fields in relation to the

¹⁰ Thelma G. Alper and Edwin G. Boring, "Intelligence Scores of Northern and Southern White and Negro Recruits in 1918," Journal of Abnormal Psychology, 39:471-474, 1944.

¹¹ Allison Davis, Social Class Influences upon Learning (Cambridge, Massachusetts: Harvard University Press, 1950), pp. 38-88.

¹² J. Doppelt, H. Seashore, and A. Wesman, "The Standardization of the Wechsler Mental Ability Scale," Journal of Consulting Psychology, 14:99-110, April 1950.

population gainfully employed therein. This is a much better standardization in their opinion than that used for the Wechsler-Bellevue, inasmuch as only a few hundred people in New York were used in the standardization of that adult scale.

III. COMPARISON OF INTELLIGENCE SCALES

When the Wechsler Intelligence Scale for Children was constructed psychologists of New York City were anxious to try it out, for it seemed to answer many of their criticisms of the Stanford-Binet test that they had been using for some time. The Revised Stanford had certain limitations which might be corrected by the WISC.

Before accepting the WISC as superior to the Binet test, the psychologists felt that it was necessary to compare the two scales. Krugman, Justman, Wrightstone, and Krugman,¹³ psychologists with the Bureau of Educational Research, Board of Education, New York City, proceeded with this comparison in conjunction with Dr. Wechsler's administration of the WISC standardization activities.

Eighteen schools were included in the sampling with various socioeconomic strata and ethnic groups represented. Children were tested at each age level from five and one-

¹³ J. I. Krugman, J. Justman, J. W. Wrightstone, and M. Krugman, "Pupil Functioning on the Stanford-Binet and the Wechsler Intelligence Scale for Children," Journal of Consulting Psychology, 15:475-483, December 1951.

half years to fifteen and one-half years with both the WISC and Form L of the Revised Stanford-Binet. The order of presentation of these tests was alternated.

Certain statistical comparisons were made to gain a full picture of the usefulness of the scales. Correlations between the tests at all levels proved significant with a range of .642 to .884. The mean IQ's at each level were contrasted, and it was found that the Binet score was higher from three to eleven points at each age level. The highest IQ's observed on the WISC were 145 compared with 167 on the Stanford-Binet. This fact was brought out previously by Seashore, Wesman, and Doppelt¹⁴ when they indicated that, "Examiners used to very extreme scores, on either end of the scale, might be disturbed by the inability of the WISC to give such results." Approximately twenty per cent of those tested received a higher rating on the Wechsler Scale as contrasted with the Binet.

Another conclusion reached after contrasting the scores for the entire group was that on the lower ranges the differences in IQ scores were less between the two scales than they were at the higher IQ brackets. Also, the study points to the fact that the younger the child, the greater the difference in favor of the Stanford-Binet.

¹⁴ Doppelt, Seashore, Wesman, op. cit., p. 110.

The final decision regarding the use of the WISC in place of the Binet was that the discrepancies were too great to permit the use of the WISC in place of the Binet until further study had been done. It is not certain from this investigation whether the WISC underestimates abilities or the Binet overestimates them.

IV. SUMMARY

As the reader may readily observe, the bulk of the literature investigated and reviewed in this section centers primarily on the controversy over inherited and environmental causes with regard to intelligence quotient of Negroes. Not much has been written on Wechsler's Children's Scale and no published studies have appeared in regard to Negro Scores on the WISC. It appears that such studies are warranted and may eventually be accomplished.

CHAPTER III

TABLES OF RESULTS

In this chapter some of the tables necessary in gathering and developing the statistical data are presented. The tables shown here will be explained more fully in Chapter Four with more emphasis on the reasons for the results shown.

I. EXPLANATION OF THE TABLES

To show evidence of the lower socioeconomic status of the Negro used in this study, Table One is shown. Since this study has shown some concern over the question of environment versus inheritance in relation to intelligence test scores, it seems practical that this information be supplied in treating the obtained data.

This table describes the sample by occupation of the father for both Wechsler's standardization and the standardization for the Negro population used in this study. The statistics gathered for this study are superimposed on Wechsler's table.¹

As a second step in considering the obtained data, the mean scaled scores for the subtests and for the Verbal, Performance, and Full Scale score were computed. Com-

¹ David Wechsler, Wechsler Intelligence Scale for Children (New York: The Psychological Corporation, 1949), p. 9.

TABLE I
 OCCUPATION OF FATHERS OF CHILDREN
 IN STANDARDIZATION SAMPLE

Occupational Group*	Employed Negro	Males White	Wechsler's Sample %	Negro Sample %
1	1.8	5.9	8.0	2.0
2	21.1	14.0	10.0	.0
3	1.3	10.6	11.6	.0
4	2.0	13.9	12.7	.0
5	4.4	15.6	17.9	.0
6	12.5	18.8	16.5	.0
7	15.2	6.0	5.5	.0
8	40.9	14.5	13.8	82.0
9	0.5	.7	1.4	8.0

* A consolidation of 14 Census groups, 1940:

- | | |
|-----------------------|---|
| 1. (I and II) | Professional and semiprofessional |
| 2. (III) | Farmers and farm managers |
| 3. (IV) | Proprietors, managers and officials |
| 4. (V) | Clerical, sales, and kindred workers |
| 5. (VI) | Craftsmen, foremen and kindred |
| 6. (VII) | Operatives and kindred workers |
| 7. (VIII, IX and X) | Domestic, protective and other services |
| 8. (XI, XII and XIII) | Farm laborers and foremen, and laborers |
| 9. (XIV) | Occupation not reported |

parisons were made between the Negro mean and the white mean, as obtained by Wechsler, and these are shown in Table Two. The standard deviations are also given for the purposes of contrasting the findings of this study with those of Wechsler. This table is chiefly concerned with the correlations of each subtest with the other subtests and also with the Verbal, the Performance, and the Full Scale Scores. At the bottom of the chart is the Full Scale Scores before correction for spuriousness. The upper numbers in the main body of the table are the r 's obtained from the Negro sampling. The lower numbers in brackets are for Wechsler's group.

Table Three is the table of significance of difference between the correlations that Wechsler obtained by intercorrelating subtests with subtests and with Verbal, Performance, and Full Scale Scores, and the correlations of the Negro group used in this sample. The significance shown in the table are those that are shown at the .05 level to be different not by chance, but instead because there is a real difference in the two samples used in this study.

II. EXPLANATION OF FORMULAS USED

It was necessary, inasmuch as the number of correlations of coefficients were of such quantity, to find a rapid means for computing. The most useable formula was

McNemar's² which was developed for use with a calculating machine. This formula involves several large numbers but does not entail the use of negative numbers as in the Pearson product moment correlation coefficient formula.

The Full Scale Score r 's were corrected for spuriousness by using the Par-Whole Correlation suggested by McNemar.³ This formula is used when a total score is correlated with a subscore which is part of the total score.

The final formula was that used to determine the significance of the difference between the r 's obtained from the Negro scores and Wechsler's r 's. The r 's in this case are transformed into z 's and the standard error between the two z 's is obtained.⁴ If the z 's are significantly different, we conclude that the two r 's are significantly different. The significance is taken at the .05 level and in the twenty-nine cases noted it may be said that the difference is not by chance, and they are therefore significant.

² Quinn McNemar, Psychological Statistics (New York: John Wiley and Sons, Incorporated, 1949), p. 92.

³ Ibid., p. 139.

⁴ Ibid.,

TABLE II

COMPARATIVE INTERCORRELATION OF TESTS IN THE WECHSLER

INTELLIGENCE SCALE FOR CHILDREN---AGE $10\frac{1}{2}$

	INFORMATION	COMPREHENSION	ARITHMETIC	SIMILARITIES	VOCABULARY	DIGIT SPAN	PICTURE COMPLETION	PICTURE ARRANGEMENT	BLOCK DESIGN	OBJECT ASSEMBLY	CODING B	MAZES	VERBAL SCORES	PERFORMANCE SCORES	FULL SCALE SCORES
COMPREHENSION	.24 (.65)														
ARITHMETIC	.21 (.69)	.19 (.48)													
SIMILARITIES	.35 (.67)	.23 (.55)	.33 (.63)												
VOCABULARY	.62 (.75)	.43 (.75)	.35 (.62)	.46 (.64)											
DIGIT SPAN	.32 (.38)	.01 (.41)	.40 (.45)	.33 (.39)	.23 (.48)										
PICTURE COMPLETION	.25 (.41)	.31 (.37)	.03 (.32)	.29 (.34)	.18 (.47)	.17 (.10)									
PICTURE ARRANGEMENT	.60 (.51)	.41 (.48)	.26 (.48)	.50 (.41)	.50 (.56)	.21 (.33)	.39 (.35)								
BLOCK DESIGN	.15 (.48)	-.15 (.44)	.04 (.48)	.07 (.38)	.07 (.54)	.26 (.34)	.13 (.46)	.12 (.51)							
OBJECT ASSEMBLY	.21 (.28)	.06 (.35)	.23 (.33)	.35 (.25)	.30 (.41)	.19 (.35)	.26 (.38)	.39 (.30)	.47 (.59)						
CODING B	.12 (.37)	.11 (.32)	.06 (.38)	.24 (.29)	.12 (.41)	.19 (.30)	-.12 (.20)	.19 (.36)	.14 (.27)	.50 (.23)					
MAZES	.18 (.41)	-.03 (.34)	-.07 (.35)	-.02 (.26)	.15 (.44)	.12 (.34)	.04 (.39)	.33 (.35)	.30 (.53)	.29 (.43)	.24 (.24)				
VERBAL SCORES	.64 (.82)	.52 (.70)	.62 (.70)	.71 (.72)	.77 (.82)	.57 (.50)	.24 (.45)	.62 (.58)	.12 (.55)	.32 (.38)	.21 (.42)	.07 (.43)			
PERFORMANCE SCORES	.43 (.59)	.20 (.56)	.17 (.57)	.42 (.48)	.38 (.68)	.24 (.40)	.45 (.48)	.69 (.53)	.58 (.66)	.76 (.52)	.51 (.35)	.59 (.55)	.47 (.68)		
FULL SCALE SCORES *	.50 (.77)	.25 (.69)	.30 (.69)	.49 (.65)	.57 (.83)	.26 (.50)	.25 (.51)	.62 (.62)	.28 (.64)	.46 (.47)	.25 (.43)	.13 (.53)	.83 (.93)	.87 (.90)	
MEAN SCORES	8.1 (9.9)	8.5 (10.1)	7.5 (10.2)	11.6 (10.0)	8.4 (10.1)	8.5 (10.0)	8.3 (10.0)	9.1 (9.9)	8.6 (10.1)	8.7 (10.0)	9.7 (10.0)	9.5 (10.1)	44 (50.2)	45 (50)	92 IQ (100.2)
STANDARD DEVIATION	2.1 (2.9)	2.4 (3.1)	2.1 (3.1)	2.8 (3.0)	2.3 (3.1)	2.2 (2.9)	2.4 (3.0)	2.8 (3.1)	2.1 (3.0)	2.7 (2.9)	2.4 (3.1)	2.3 (2.9)	7.6 (12.8)	7.5 (10.5)	12.8 (21.4)
FULL SCALE SCORES	.62 (.82)	.42 (.76)	.45 (.76)	.65 (.72)	.68 (.87)	.43	.42 (.61)	.78 (.70)	.41 (.72)	.66 (.58)	.42 (.54)	.36	.83 (.93)	.87 (.90)	

* FULL SCALE SCORES ON THE UPPER CHART HAVE BEEN CORRECTED FOR CONTAMINATION.

TABLE III

SIGNIFICANCE OF DIFFERENCE BETWEEN WISC CORRELATIONS AND
NEGRO SCORE CORRELATIONS

	Information	Comprehension	Arithmetic	Similarities	Vocabulary	Digit Span	Picture Completion	Picture Arrangement	Block Design	Object Assembly	Coding B	Mazes	Verbal Scores
Comprehension	9986												
Arithmetic	9998	9586											
Similarities	9940	9822	9862										
Vocabularies	-----	9984	9636	-----									
Digit Span	-----	9914	-----	-----									
Picture Completion	-----	-----	-----	-----	9544	-----							
Picture Arrangement	-----	-----	-----	-----	-----	-----							
Block Design	9786	9998	9973	9586	9990	-----	9762	9936					
Object Assembly	-----	-----	-----	-----	-----	-----	-----	-----	-----				
Coding B	-----	-----	9642	-----	-----	-----	-----	-----	-----	-----			
Mazes	-----	9544	-----	-----	9522	-----	9544	-----	-----	-----	-----		
Verbal Score	9862	-----	-----	-----	-----	-----	-----	-----	9980	-----	-----	9836	
Performance Score	-----	9920	9968	-----	9920	-----	-----	-----	-----	9996	-----	-----	9512

CHAPTER IV

ANALYSIS OF RESULTS

In this chapter an attempt is made to analyze the statistical results of this study. A comparison of the means of the WISC and the Negro scaled scores is a logical starting point. The next step is an interpretation of the correlations. Perhaps the most interesting, from a standpoint of group contrasts, is the significant differences between the r's. The discussion in this chapter will deal with the most significant findings since not all can be included without burdening the report.

I. MEANS

The means of the Verbal, Performance, and Full Scale Scores are of interest in that they vary slightly, but they are still in the same intelligence classification as Wechsler's means.¹ The lowest scaled score among the subtests in the Negro group was Arithmetic in which no child was able to gain an average score. This was Wechsler's highest scaled score which seems very significant. Wechsler states that, "Children who do poorly in Arithmetic reasoning have trouble in other subjects."²

¹ David Wechsler, Wechsler Intelligence Scale for Children (New York: The Psychological Corporation, 1949), p. 16.

² David Wechsler, The Measurement of Adult Intelligence (Baltimore: The Williams and Wilkins Company, 1944), p. 82.

This hypothesis seems to be correct in the light of this Negro sampling who, as a general rule, have difficulty in school.

Another mean that was significantly different was that of Similarities but in the opposite direction of Arithmetic. This is explained by Wechsler's statement that, "The test is so constructed that linguistic factors are almost entirely nonexistent."³ This was done by using words which were familiar to everyone but still became increasingly difficult to find similar. This test seemed to gain a better spread among the Negro group tested for this comparison. Another factor which was noted in testing this group, was the interest appeal this test appeared to have. This was substantiated by Wechsler. The test has qualitative features which throw light upon the logical character of the subjects thinking process. The following statement by Wechsler indicates this.

There is an obvious difference both as to maturity and as to level of thinking between the individual who says that a banana and an orange are alike because they both have skin, and the individual who says that they are both fruit.⁴

Terman has said that, "It is not until the individual

³ Ibid., p. 86.

⁴ Loc. cit.

approaches adult mentality that he is able to distinguish the difference between essential and superficial likenesses.⁵

II. COEFFICIENTS OF CORRELATION

Information. This subtest correlated consistently better with other subtests than any one of the other subtests. This corresponded to the WISC correlations. The WISC, however, showed higher overall correlations. The highest relationship shown was with Vocabulary (.62). This was also indicative of Wechsler's findings.⁶

Comprehension. The Comprehension test had some very low correlations on both the Verbal and Performance parts of the test battery. A negative relationship is shown with the scores of this subtest and Digit Span (.01), Block Design (-.15), Object Assembly (.06), and Mazes (-.03). These four tests, correlated with each other more favorably than with the other subtests of the battery. This is further brought out in the WISC correlations which showed the same relative results. The Comprehension test, as shown in the correlation table, correlated highest with Vocabulary (.43). In regard to the last point, it might be explained that

⁵ Loc. cit.

⁶ Wechsler, op. cit., p. 79

⁷ Ibid., p. 81

Wechsler has referred to the fact that poor verbalizers have difficulty expressing the proper response, and therefore, are equally unable to gain superior scores on similar verbal tests.⁷

Arithmetic. This test had several low correlations, but yet it showed a fair relationship to the Verbal scores as a group. The best positive association with any other subtest score was with that of Digit Span. Although the r's were quite similar for the WISC correlations and the Negro group, Wechsler had other tests correlating more favorably with Arithmetic than found in this study. The correlation of .40 can indicate only that these two tests measure a small degree of the same factors. Arithmetic measures scholastic achievement and in only a few cases were these children achieving equally with their age group. This subtest correlated lower than any other with the Performance Scale. This did not correspond to Wechsler's r's for the Scale, since the latter found that Arithmetic correlated rather well with the Performance Scale.

Similarities. The test of Similarities had relatively high correlations with most of the other subtests. But it seemed to have very little in common with Block Design (.07), and Mazes (-.02), as far as the Negro sample was concerned. This was not shown in the WISC intercorre-

⁷ Ibid., p. 81.

lation table; the test correlated with all the other tests to a greater degree in the Wechsler investigation than was shown in this experimental group. The high correlation of Similarities in the present study in relation to other r's of the table with the Picture Arrangement (.50) may indicate that these two tests required answers and performances that were more within the range of experience and vocabulary of this group.

Vocabulary. This subtest correlated better with the Verbal Scale (.77) than any other test in the battery. It correlated rather poorly with the Performance (.38), but this was a typical result of this experimental group. It may be noted here that Vocabulary related to the Full Scale Score more highly than any other subtest (.57); a good indication that this test alone will give a fairly accurate measure of general intelligence.

Digit Span. This test had more indifferent and negligible relationships, as shown by correlations, than any other in the entire battery. This was also the case in the WISC table although to a lesser degree. The best relationship shown was with Arithmetic (.40).

Picture Completion. As the first of the series of Performance tests in this battery, Picture Completion failed to show a closeness to any of the other tests. There was

very little correlation with the Rull Scale Score (.25). Indifferent or negligible relationship was shown in six of the eleven tests with half of these being in the Performance group (Block Design .13, Coding -.12, Mazes .04). This test could not show what might be expected on other tests of this Scale.

Picture Arrangement. This Performance test showed more relatedness to the Verbal subtests. Since this test required the subject to comprehend and size up the total situation, it seemed probable that this could be an important reason for high correlations with Information (.60), Comprehension (.41), Vocabulary (.50), and Similarities (.50).⁸

Block Design. Of all the tests in this battery, Block Design correlated least with other tests. Eight of the correlations had either negative or very low positive values. In Wechsler's group this was not the case. Wechsler indicated that this was one of the best tests of the entire Scale. It is evident from the diverging results that more study needs to be done with the Negroes on this subtest. It is not certain that the trend noted in this study would be continued if a larger and more adequate sample were tested.

⁸ Ibid., p. 88.

Object Assembly. This test had the highest correlation with the Performance Scale of any of the subtests in this group. It related better to Block Design (.47), and Coding (.50) than with any of the others. Wechsler's examiners felt that the Block Design and Object Assembly displayed the same abilities, especially of the creative type.⁹ An item of significance here is that the WISC intercorrelations showed that Coding and Object Assembly correlated poorest (.23), whereas in the Negro group the correlation was the best (.50). In this study Object Assembly did not correlate with Comprehension (.06), but Block Design and Coding do relate positively with Comprehension.

Coding B. This test correlated significantly only with Object Assembly (.50). This was in direct disagreement with Wechsler's findings as explained in the previous paragraph. Coding had a negligible relation with the majority of the tests in the Scale even though the mean score was nearly as high as that of the WISC.

Mazes. The correlation of the Maze test with the Full Scale Score showed an indifferent relationship (.13). This was due, perhaps, to those people who excelled on the

⁹ Ibid., p. 93.

Maze test and received subnormal scores on the other tests. It was shown in the statistical data that more often than by chance the children getting low Full Scale Scores had excelled on the Maze test. It may be pointed out here that children's funny books, as a regular procedure, have usually included mazes for the children's interest. One might conclude without too much contradiction, therefore, that the Maze test could be classified as a practiced test.

Verbal Scores. The scores on the Verbal Scale showed a correlation of substantial or marked relationship with all Verbal subtests and with Picture Arrangement in the Performance Scale (.62). There was no similarity with Block Design (.12) and Mazes (.07) and only a relative amount of correlation with the other Performance tests. These results correspond very closely to the WISC r's in all but four cases. The conclusion reached here was that these subjects had scores on all of the subtests more closely related to their final Verbal Score than to their Performance Scores. There was only one important exception to this conclusion. Verbal and Performance Scores correlated to some degree, but the relationship was not extremely high (.47).

Performance Scores. The subtest scores of the Performance Scale correlated more closely with the Verbal

Scores than did the Verbal subtests with the total Performance Scores. Arithmetic showed little correlation to the Performance Scale (.17). Object Assembly showed a correlation of (.76) with the Performance Scale and it should be noted that this correlation is higher than the corresponding figure given by Wechsler for his white population. According to these findings, Object Assembly more nearly predicted the final Performance Score than any other single subtest in the battery.

Full Scale Score. After correcting for spuriousness, the correlations of the Full Scale Scores with subtest, Verbal and Performance Scores, the relationships seemed quite low as interpreted by Garrett.¹⁰ The greatest degree of relationship of any one subtest to the total score was furnished by the Picture Arrangement test (.62). The next test in line was Vocabulary. This test also seemed to furnish a good index of what could be expected of the persons in this study on the WISC. This finding is closely related to that of Wechsler who stated, "The size of a man's vocabulary is not only an index of his schooling, but also an excellent measure of general intelligence."¹¹

¹⁰ H. E. Garrett, Statistics in Psychology and Education (New York: Longmans, Green and Company, 1947), p. 333.

¹¹ Wechsler, op. cit., p. 98.

III. SUMMARY

The Comprehension test correlated very low with many of the Performance subtests. Arithmetic scores showed a relatively low scholastic achievement on the part of the Negro group; there was a fair correlation with the other Verbal subtests. On Similarities, the Negroes tended to earn scores within the average intelligence range of Wechsler's standardization group. The Vocabulary test correlated very well with the Full Scale Score (.57) and substantiates the contention that vocabulary provides an excellent measure of intelligence. Digit Span was one of the poorer indices of IQ as shown by these correlations. Picture Completion did not give an indication of what to expect on other subtests in the battery. The Picture Arrangement test correlated most highly with the Full Scale (.62). This test also correlated highly with Verbal subtests which required the subject to size up the total situation (i.e., Information .60, Comprehension .41, Similarities .50). Block Design correlated least of all with the tests in the battery. This result is in direct opposition to the results of Wechsler. Object Assembly, Block Design and Coding correlated well with each other and appeared to measure the same abilities. In the white sampling of Wechsler the correlation of Coding and Object Assembly

showed a relationship. The Maze test did not correlate with any of the subtests significantly.

It should be stated here that with this small sampling it was difficult to draw any definite conclusions from the test as a whole. The correlations were lower than those of the WISC standardization group. This fact can be explained partly by McNemar's statement that, "Correlation will be lowered if the sample is from a group which is restricted in range."¹² This throws some light on the question surrounding the reason for so many low r's in this study.

¹² Quinn McNemar, Psychological Statistics (New York: John Wiley and Sons, Incorporated, 1949), p. 125.

CHAPTER V

CONCLUSIONS

I. EVALUATION OF THE THESIS

As a point of embarkation in this evaluation, the aspect of data gathering might be discussed to indicate the liabilities and assets involved. Had an investigation been made prior to gathering the sample, it would have soon been discovered that a true comparison with Wechsler's sample was impossible. The Negro population in Stockton was from a lower socioeconomic strata which cannot be compared with the white population of the United States sample used by Wechsler. The subjects were all recently from the South. According to findings by Klineberg, this will make a difference in the scores obtained.¹ In many instances the teachers of these children tested indicated that they felt at a loss about coping with their Negro students. Very often the children were reported unable to grasp the subject matter.

The question arose whether or not a white group of children of the same age group, socioeconomic background, cultural background, and migratory history as the Negroes used in this study might show a close correlation with this

¹ Otto Klineberg, Negro Intelligence and Selective Migration (New York: Columbia University Press, 1935), p. 30.

Negro group on the WISC. Perhaps such an investigation as this might help answer the problem regarding the environment effect on the IQ.

Another problem which needs to be studied is the one involving other ethnic and racial groups in contrast to the white population. It seems necessary that we find a means to judge whether or not other groups in our society can utilize the WISC as a valid measurement of intelligence.

It would be of interest to know if an adequate sample of white children in this locale were comparable to the 2200 children in the Wechsler standardization group. This investigation might also give some indication of the amount of error which arises from a small sampling on the WISC. Much research can be done on the WISC and should be done since this test is rapidly becoming more popular as an instrument for testing intelligence of school children.

The geographical setting should be an important consideration in future studies. It is noted here that Wechsler considered urban and rural populations, Northern and Southern groups as well as other diversifications in geography which might affect the norms. To gain a truer concept of Negro intelligence in relation to white intelligence (as obtained by Wechsler) it will be necessary to cover a greater area of the United States on all age levels between five and one-half years and fifteen and one-half years.

Since the Negro of the United States does not match percentagewise the white distribution of occupations, the question arises whether a sample of children should be found that matches the percentage table showing Negro occupations, or the table showing the white occupations. If the former is utilized, the sampling is not a true comparison with Wechsler's sample. On the other hand, if the latter method is pursued then this does not give a true concept of Negro intelligence for that entire racial group, but instead upgrades the results to match that of the white sample. A final outcome of a study of Negro intelligence might divulge a special set of norms for use with Negroes or perhaps to be used on any persons of certain socioeconomic and cultural status. This again is an intangible and consequently difficult to determine.

II. GENERAL FINDINGS AND INTERPRETATIONS

Before concluding this report it seems advisable to point out a few of the findings and to interpret the results in terms of the aims set forth at the onset of the study.

1. The study tends to bear out Klineberg and others who say that the lower intelligence scores of Negroes is due to a lower socioeconomic status in American society.

2. Some of the findings by Wechsler in his standardization process seem to be evident with this Negro group.

a. Information: Children coming from less intellectual homes tend to answer the information questions incorrectly more often than children coming from homes of more intellectual and educated families.

b. Comprehension: Since this test is designed to evaluate past experiences of the white standardization group, it was not applicable to the Negro group since they do not have the same types of experiences.

c. Arithmetic: Arithmetic evaluates scholastic achievement at which these children had experienced a minimum amount of success.

d. Similarities: This, perhaps, is the test that more nearly tests the intelligence of this group of Negroes than any other test in the battery. There was a better distribution of scores in this test than in any other subtest.

e. Digit Span: Since Digit Span correlated to some degree with Arithmetic (.40), it might be assumed that numbers cause a stimulus or block where these children are concerned.

f. Picture Completion: About the same relation is shown between this test and other subtests in the Negro group as is shown in Wechsler's r 's.

g. Picture Arrangement: This test correlated more

consistently with other subtests than any one of the other tests of the battery.

h. Block Design: This is the true oddity of the group where the Negroes were concerned. The correlations were low with this test throughout the entire battery including the Full Scale Score. This is in direct opposition to the correlations obtained by Wechsler.

3. It is evident that in this group, and contrary to the WISC standardization group, different patterns of relationships were brought out by these tests.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Alper, Thelma G., and Edwin G. Boring, Intelligence Scores of Northern and Southern White and Negro Recruits in 1918, Journal of Abnormal Social Psychology, 39:471-474, October, 1944.
- Armstrong, Clairette P., and Florence Heisler, "Some Comparisons of Negro and White Delinquent Boys," The Journal of Genetic Psychology, 67:81, September, 1945.
- Davie, Maurice R., Negroes in American Society. New York: McGraw-Hill Book Company, Incorporated, 1949. 542 pp.
- Davis, Allison, Social Class Influences Upon Learning. Cambridge, Massachusetts: Harvard University Press, 1950. Pp. 38-88.
- Dopplet, J., H. Seashore, and A. Wesman, "The Standardization of the Wechsler Mental Ability Scale," Journal of Consulting Psychology, 14:99-110, April, 1950.
- Dorner, G. F., "The Reliability of Wechsler-Bellevue Subtests and Scales," Journal of Consulting Psychology, 14:172, June, 1950.
- Embree, Edwin R., Brown Americans: The Story of a Tenth of the Nation. New York: Viking Press, 1945. 248 pp.
- Ferguson, G. O., "The Mental Status of the American Negro," Scientific Monthly, 12:533-543, June 1921.
- Frazier, E. Franklin, The Negro in the United States. New York: The MacMillan Company, 1949. 374 pp.
- Freeman, Frank S., Theory and Practice of Psychological Testing. New York: Henry Holt and Company, 1950. 518 pp.
- Garrett, H. E., "Negro-White Differences in Mental Ability in the United States," Scientific Monthly, 65:329, April, 1947.
- _____, Statistics in Psychology and Education. Third edition; New York: Longmans, Green and Company, 1947. 487 pp.
- Klineberg, Otto, Characteristics of the American Negro. New York: Harper and Brothers, 1944. 409 pp.

- _____, Negro Intelligence and Selective Migration. New York: Columbia University Press, 1935. 66 pp.
- _____, Race Differences. New York: Harper and Brothers, 1935. 367 pp.
- Krugman, Judith I., Joseph Justman, J. Wayne Wrightstone, and M. Krugman, "Pupil Functioning on the Stanford-Binet and the Wechsler Intelligence Scale for Children," Journal of Consulting Psychology, 15:475-483, December, 1951.
- McNemar, Quinn, Psychological Statistics. New York: John Wiley and Sons, Incorporated, 1949. 346 pp.
- F. L. Mareuse, and M. E. Bitterman, "Notes on the Results of Army Intelligence Testing in World War I," Science, 104:231-232, September 6, 1946.
- Montague, Ashley F., "Racial Intelligence," Scientific Monthly, 66:81-82, January, 1948.
- Mundy, Paul, "The Young Negro Worker in Washington, D. C.," Journal of Negro Education, 18:104, 1949.
- Passamanik, "Racial Differences Study Wins Psychiatric Award," Science Newsletter, 55:371, June 11, 1949.
- Pastore, Nicolas, "A Fallacy Underlying Garrett's Use of the Data of the Army Alpha and Beta Tests--A Comment," Scientific Monthly, 69:279-280, October, 1949.
- Porteus, S. D., The Psychology of a Primitive People. New York: Longmans, Green and Company, 1931. 453 pp.
- Rabin, A. I., J. C. Davis, and M. H. Sanderson, "Item Difficulty on Some of the Wechsler-Bellevue Subtests," Journal of Applied Psychology, 30:492, October, 1946.
- Stoddard, George D., The Meaning of Intelligence. New York: The MacMillan Company, 1943. 504 pp.
- Thompson, C. H., "The Conclusion of Scientists Relative to Racial Differences," Journal of Negro Education, 3:494-512, July, 1934.

United States Bureau of Census, "Sixteenth Census of the United States," Population, Volume II, Part I. Characteristics of the Population. Washington, D. C.: United States Government Printing Office, 1940. p. 118.

Wechsler, David, The Measurement of Adult Intelligence. Third edition; Baltimore: The Williams and Wilkins Company, 1944. 288 pp.

_____, Wechsler Intelligence Scale for Children, Manual. New York: The Psychological Corporation, 1949. 113 pp.

SCALED SCORES OF INDIVIDUAL CASES

BOYS' CASES

	Information	Comprehension	Arithmetic	Similarities	Vocabulary	Digit Span	Picture Completion	Picture Arrangement
1.	10	7	9	12	8	8	9	7
2.	8	12	9	15	10	12	10	12
3.	7	6	9	12	7	11	10	10
4.	7	5	4	9	5	5	11	7
5.	7	12	9	14	10	11	8	13
6.	8	11	9	14	9	8	9	11
7.	7	9	6	13	7	9	9	7
8.	9	11	7	12	5	9	13	13
9.	7	11	7	10	8	8	10	5
10.	11	5	8	13	7	11	7	13
11.	4	6	7	12	10	6	9	8
12.	7	13	10	11	9	8	9	9
13.	11	9	10	9	12	11	6	10
14.	11	8	13	13	10	11	14	10
15.	9	10	7	8	10	8	7	6
16.	6	9	6	13	7	11	5	6
17.	8	8	8	12	8	6	8	15
18.	6	10	10	12	9	8	6	11
19.	10	6	4	9	8	6	8	7
20.	10	10	5	12	10	6	9	9
21.	8	10	9	15	9	10	9	7
22.	6	7	5	5	6	6	9	7
23.	8	9	7	12	12	11	8	12
24.	10	8	4	14	11	9	10	11
25.	7	8	8	12	8	8	9	7

SCALED SCORES OF INDIVIDUAL CASES

BOYS' CASES

	Block	Object Assembly	Coding	Mazes	Verbal	Performance	FULL SCALE
1.	9	8	7	8	45	40	85
2.	11	13	12	8	55	55	110
3.	9	13	11	8	43	50	93
4.	10	10	9	10	30	48	78
5.	10	10	9	9	53	49	102
6.	3	7	9	8	49	39	88
7.	6	2	9	11	43	37	80
8.	11	10	7	11	44	54	98
9.	9	4	6	6	43	33	76
10.	13	10	10	9	46	52	99
11.	8	8	7	9	38	41	79
12.	6	9	6	8	48	39	87
13.	8	6	9	11	52	42	94
14.	11	12	9	11	55	56	111
15.	11	10	8	9	43	43	86
16.	9	9	9	9	43	39	82
17.	5	12	10	11	42	51	93
18.	13	13	9	15	46	56	102
19.	10	8	9	9	36	43	79
20.	11	11	11	12	44	53	97
21.	5	7	8	5	51	34	85
22.	7	7	6	10	29	38	67
23.	8	7	10	12	49	48	97
24.	10	10	8	10	47	49	96
25.	9	6	8	8	43	39	81

SCALED SCORES OF INDIVIDUAL CASES

GIRLS' CASES

	Information	Comprehension	Arithmetic	Similarities	Vocabulary	Digit Span	Picture Completion	Picture Arrangement
1.	8	9	7	5	10	9	7	10
2.	7	7	7	5	4	8	7	7
3.	5	10	5	6	5	6	8	7
4.	8	5	6	12	10	9	7	9
5.	7	7	5	5	4	6	5	5
6.	12	13	7	16	11	5	13	15
7.	11	11	4	12	10	5	9	12
8.	7	7	8	12	9	9	11	9
9.	11	13	9	12	12	12	6	12
10.	8	9	8	13	7	12	6	7
11.	13	12	12	15	13	6	10	13
12.	5	4	9	12	6	8	2	4
13.	7	6	7	14	5	12	7	12
14.	5	8	4	9	6	6	9	4
15.	7	11	9	14	9	5	14	11
16.	8	6	11	9	8	8	3	5
17.	7	6	8	10	5	8	9	8
18.	9	6	5	14	8	8	7	7
19.	11	11	7	14	11	9	9	13
20.	8	11	8	12	8	8	7	9
21.	5	7	7	12	6	6	7	5
22.	5	9	7	12	8	6	6	9
23.	10	7	7	13	8	11	7	10
24.	11	7	8	14	12	12	9	9
25.	10	5	10	14	10	12	8	11

SCALED SCORES OF INDIVIDUAL CASES

GIRLS' CASES

	Block	Object Assembly	Coding	Mazes	Verbal	Performance	FULL SCALE
1.	9	8	11	11	40	47	87
2.	9	4	9	6	32	35	67
3.	8	8	11	15	30	45	75
4.	10	8	8	8	42	42	84
5.	6	4	6	6	28	27	55
6.	8	7	13	9	53	55	108
7.	6	9	12	13	44	51	95
8.	13	15	13	11	43	60	103
9.	6	8	11	8	58	43	101
10.	9	12	20	10	48	53	101
11.	8	10	10	7	59	48	107
12.	7	6	9	6	37	28	65
13.	9	4	10	10	43	43	86
14.	6	9	11	7	32	38	70
15.	8	8	9	8	46	48	94
16.	8	6	11	11	42	37	79
17.	7	10	7	10	37	43	80
18.	7	8	8	9	42	38	80
19.	10	12	10	11	53	54	107
20.	9	9	12	7	46	44	90
21.	10	8	11	7	36	40	76
22.	8	10	13	8	39	45	84
23.	11	10	11	15	47	53	100
24.	10	9	9	10	53	47	100
25.	8	12	12	13	51	53	104