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THE UNIVERSITY OF OKLAHOMA
GRADUATE COLLEGE

THE ACADEMIC ACHIEVEMENT OF FOURTH GRADE NORMAL ABILITY
BLACK STUDENTS IN READING AND MATHEMATICS IN
PREDOMINANTLY WHITE AND PREDOMINANTLY
BLACK SCHOOLS

A DISSERTATION
SUBMITTED TO THE GRADUATE FACULTY
in partial fulfillment of the requirements for the
degree of
DOCTOR OF PHILOSOPHY

BY
THOMAS O. SHERMAN
Norman, Oklahoma

1976

THE ACADEMIC ACHIEVEMENT OF FOURTH GRADE NORMAL ABILITY
BLACK STUDENTS IN READING AND MATHEMATICS IN
PREDOMINANTLY WHITE AND PREDOMINANTLY
BLACK SCHOOLS

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iii
LIST OF TABLES	vi
Chapter	
I. PROBLEM.	1
II. METHOD	20
III. RESULTS.	28
IV. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS . . .	33
REFERENCES	37
APPENDIX A	39
APPENDIX B	44
APPENDIX C	49

LIST OF TABLES

Table	Page
1. Analysis of Variance Summary Table for the Reading	27
Data of the Two Groups	29
2. Analysis of Variance Summary Table for the Mathematics	
Data of the Two Groups	29
3. Raw Scores of the Fourth Grade Black Subjects in the Predominantly White Elementary Schools	40
4. Raw Scores of the Fourth Grade Black Subjects in the Predominantly Black Elementary Schools	42
5. IQ Scores of the Fourth Grade Black Subjects in the Predominantly White Elementary Schools	45
6. IQ Scores of the Fourth Grade Black Subjects in the Predominantly Black Elementary Schools	47
7. Bi-racial Percentages of Fourth Grade Subjects in Predominantly White Elementary Schools. . .	50
8. Bi-racial Percentages of Fourth Grade Subjects in Predominantly Black Elementary Schools. . .	51

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CHAPTER I

THE PROBLEM

Many prominent educators, psychologists, sociologists, and citizens are in consensus of the need to expose all America's children of various ethnic and racial groups to an integrated education if democracy is to be developed to a full measure of its potential. To accomplish this chief objective which is proposed to meet the moral and political needs of all ethnic and racial children's groups as guaranteed by our national constitution, the school and its total environment must represent a model of a minimum democratic society.

Based on these moral and political needs assessed by most prominent psychologists, educators, sociologists, and citizens, the Supreme Court made and mandated its decision in 1954 that separate schools for black and white children were inherently unequal. A national descriptive survey

implemented and completed by the National Center of Educational Statistics of the U.S. Office of Education, known as the Coleman Report on the Equality of Educational Opportunity, was authorized by the United States Civil Rights Act of 1964:

In addition to its own staff the Center used the services of outside consultants and contractors. James Coleman of John Hopkins University had major responsibility for the design, administration, and analysis of the survey. Ernest Campbell of Vanderbilt University shared this responsibility and particularly had major responsibility for the college surveys (Coleman, 1966, p. 1).

The Coleman Survey of 1964-65 revealed that where Negroes formed a significant proportion of the population, public education was not completely equitable in the respective school districts (Coleman, 1966, p. 1). With the court ordered desegregation of public schools, Congress requested that a descriptive survey of educational opportunity on a national basis be reported in documentary form. The United States Office of Education made the following statement with respect to the analysis of the data gathered by this descriptive survey: "The Office of Education will make all the data gathered by this survey available to research workers. It must be done in the form of tabulations or statistics." (Coleman, 1966, p. 2).

One of the effects of the 1954 Supreme Court decision concerning separate schools was a need to define the following terms: racial balance, desegregation, non-segregation, and integration, where schoolmen and scholars did not agree on a universal "racial composition" definition for each of

these terms (St. John, 1970, p. 111). St. John provided for a partial differentiation among these terms by making the following statement:

Some use these words interchangeably, while others distinguish between them according to whether or not the school ethnic mix matches that of its community, whether or not a uni-racial school has become bi-racial, whether or not the process was planned, and whether or not the minority group is accepted into the social life of the school (St. John, 1970, p. 111).

In further pursuit of an adequate and workable definition of integration, Bolner pointed out that: "Desegregation" in the 1964 statute is pointedly defined as

the assignment of students to public schools and within such schools without regard to their race, color, religion, or national origin, but "desegregation" shall not mean the assignment of students to public schools in order to overcome racial imbalance (1968, p. 122).

He presented a background which involved the 1964 Civil Rights Act which specifically bared Federal assistance to facilitate the overcoming of racial imbalance and on the other hand cutting off Federal funds to local authorities who refused to take action on racial imbalance.

In regard to a somewhat legal definition of racial balance, Bolner cited the following quotation from under Title VI of the Civil Rights Act of 1964:

Neither does the "Statement of Politics for School Desegregation" (Under Title VI of the Civil Rights Act of 1964) promulgated by the Office of Education of the Department of Health, Education, and Welfare contain any definition of racial imbalance. Finally, the statement indicates that school systems which had used "free choice plans" in the past must double or triple the percentage of

nonwhites transferring out of formerly segregated schools, depending on whether the percentages of such transfers had been high or low in the past. In its most concrete illustration the statement declared that a "formerly white" school system with as few as 12 to 18 per cent nonwhites enrolled in 1966-1967 would be approved, thereby implying that schools which remained 82 to 88 per cent nonwhite would be approved, at least temporarily (1968, p. 123).

The question was obvious. What was a "good" racial balance? This presented problems of percentages (Bolner, 1968, p. 123). Thus far governmental authorities have not sought to fix a rigid "quota-type" definition dealing with the problem of racially imbalanced schools. An investigation in 1968 (Bolner, pp. 123-124) revealed that the two official bodies acting most decisively to define racial imbalance were the Massachusetts Legislature and the New York City Board of Education. Although these two official bodies differed numerically in expressed percentages in defining racial imbalance, it was believed by some psychologists and educators that neither of the legislative bodies would adhere to a fixed and rigid "quota-type" definition. Bolner in dealing with the problem of "Defining Racial Imbalance in Public Educational Institutions" proposed the following definitive statements:

The proper percentage of non-whites in a school should range between 20 per cent and 45 per cent. A workable definition of what constitutes racial balance will depend heavily on the racial population and politics of the community involved (1968, pp. 114-126 and 1970, p. 83). Consider the statement by Thomas E. Pettigrew and

Patricia J. Pajonas: At least from a social psychological viewpoint, a percentage of Negro students ranging from approximately 20% to 45% would appear an optimal transitional definition for "balance." This is the range that has proven effective in interracial housing developments, both public and private (1968, p. 124).

This definition makes it feasible for the existence of the predominantly white schools, providing that the limits of the range percentages of this definition are executed. The Coleman Report on The Equality of Educational Opportunity statistically supported the hypothesis advanced by many psychologists, educators, and only a few sociologists that Negro students' academic achievement as a group is greatest when the school and the classrooms enrollments are more than 50% white students (Coleman, 1966).

Integration and its effects (Coleman, 1966, pp. 330-333) on the academic performance of Negro students as related to the proportion of white classmates demonstrated greater achievement in reading and mathematics when the whites were more than 50% of the class enrollments for grades 6, 9, and 12 in the regions of the metropolitan northeast and the metropolitan Midwest. A statistical analysis of the data for the metropolitan northeast and midwest regions on the two standardized achievement tests' average scores in reading and mathematics received by Negro students who attended classes of different racial composition for the administrative grades 6, 9, and 12, demonstrated that the general pattern of the highest averages occurred where more than 50% white students were enrolled. In reading, the general pattern of the .

increase in average test performance for the Negro students was in proportion to the white classmates ratios of the enrollments from less than half to one-half. Coleman in reference to reading test performance stated: "In many cases the average for the Negro students in totally segregated classes is higher than the average for those in classes where half or less of the students were white" (1966, p. 331).

A section of the Coleman Report on The Equality of Educational Opportunity disclosed evidence that in the nonmetropolitan North, there was a lower frequency of remedial reading teachers for Negro elementary students and for Caucasian elementary students. For example, in the non-metropolitan South, 15 percent of Negro elementary students and 11 percent of Caucasian elementary students attended a school with a remedial reading teacher as compared to the non-metropolitan North, where 37 percent of Negro elementary students and 46 percent of Caucasian elementary students attended such a school (Coleman, 1966, p. 38).

In 1965, a nation-wide survey was conducted to assess the educational opportunity offered by the public schools in certain academic skills such as reading, writing, calculating, and problem solving. Standardized achievement tests were used to measure these skills, and several tests were administered to pupils in grades: 1, 3, 6, 9, and 12.

Scores on each test at each grade level were standardized so that the average over the national sample equaled 50 and the standard deviation equaled 10. This means that for

all pupils in the Nation, about 16 percent would score below 40 and about 16 percent above 60 (Coleman, 1966, pp. 20-21).

The racial or ethnic groups of pupils who performed on these tests were placed into two categories: 1- majority (Caucasian), and 2- minority (Puerto Ricans, Indian Americans, Mexican Americans, Oriental Americans, and Negroes). The average minority public scores were significantly lower on these tests at each grade level than the average majority public with some exceptions which were attributed to the Oriental Americans (Coleman, 1966, p. 21). On the national level, the minority pupils' scores were as much as one standard deviation below the majority pupils' scores in the 1st grade. At the 12th grade level the minority scores were farther below the majority scores than were the 1st graders. These means and standard deviations at each grade level were based on the same verbal and nonverbal skills as measured by standardized achievement tests. However, for some minority groups, the relative decrease was negligible while for other minority groups it was significant.

The gap between the 1st and 12th grades represented an increasing difference over the intervening grades as indicated by a constant difference in the standard deviations. In translating these standard deviations into regions, "Negroes in the Metropolitan Northeast are about 1.1 standard deviations below whites in the same region at grades 6, 9, and 12. But at grade 6 this represents 1.6 years behind; at grade 9, 2.4 years; and at grade 12, 3.3 years" (Coleman,

1966, p. 21). In general, this measure of the deficiency in achievement became progressively greater for the minority pupils at progressively higher grade levels. These measurements of variance between minority groups and majority groups became more emphatic when a comparison of scholastic achievement was made on a racial basis. Coleman attributed the variance between these racial groups to the variance between segregated black and segregated white schools, and the cultural deprivation of blacks (1966, pp. 20-21 and pp. 290-302).

A statistical analysis of the variance in scholastic achievement between these racial groups (black and white) was as follows:

A difference of one standard deviation in median scores means that about 84 percent of the children in the lower groups are below the median of the majority students--but 50 percent of the white children are themselves below that median as well (Coleman, 1966, p. 21).

The above norms when taken on regional basis and comparison by regions were expressed as follows:

By grade 12, both white and Negro students in the South score below their counterparts--white and Negro--in the North. In addition, Southern Negroes score farther below Southern whites than Northern Negroes score below Northern whites. The consequences of this pattern can be illustrated by the fact that the 12th grade Negro in the non-metropolitan South is 0.8 standard deviation below--or, the terms of years, 1.9 years behind--the Negro in the metropolitan Northeast, though at grade 1 there is no such regional difference (Coleman, 1966, p. 21).

Research studies (Coleman, 1966, pp. 21-22) that dealt with the relationship of achievement to school characteristics

revealed that the schools were significantly similar in the way they related to the achievement of their pupils when the socioeconomic background of the students was taken into consideration. Coleman's research findings revealed the following facts:

It is known that socioeconomic factors bear a strong relation to academic achievement. When these factors are statistically controlled, however, it appears that differences between schools account for only a small fraction of differences in pupil achievement. The schools do differ, however, in their relation to the various racial and ethnic groups (1966, pp.21-22).

The interpretation of these findings indicated that the minority pupils were more dependent on the schools they attended for academic achievement than the majority pupils were on the schools they attended. In statistical terms, Coleman expressed this as follows:

Thus, 20 percent of the achievement of Negroes in the South is associated with the particular schools they go to, whereas only 10 percent of the achievement of whites in the South is. Except for Oriental Americans, this general result is found for all minorities (1966, p. 22).

Slone (1968, pp. 1-121) concluded an experiment on the effects of one school pairing upon the achievement, anxieties, and attitudes of Negro and White pupils and compared these effects with those of Negro and White pupils in two, matched racially imbalanced schools. The procedure of this research study involved two academic years including Negro and White pupils in three schools in New York City. The pupils were matched in reading achievement, socioeconomic background,

intelligence and ethnicity. There were 32 Negro and 30 White pupils in the fourth grade of the paired schools, 80 Negro pupils in the fourth grade of a racially imbalanced Negro school, and 57 White pupils in the fourth grade of a racially imbalanced White school. The objectives of this study of the growth in academic achievement of the Negro and White pupils of the three schools were to determine the growth in achievement in: (1) language (spelling, capitalization, punctuation, usage), (2) work-study skills (maps, graphs, reference), (3) arithmetic skills (concepts, problems), and (4) reading (vocabulary, comprehension). The analyses of the adjusted means of the experimental groups and the control groups were used to note the differences. The level of statistical significance required to support the alternative hypotheses was set at .05. Slone reported the following findings:

1. there were no significant differences between White Paired and White Segregated pupils in achievement, anxieties, and attitudes.
2. the Negro pupils in the paired school achieved greater growth in arithmetic skills than the Negro pupils in the segregated school. An F Score of 3.95 was needed to demonstrate a significant difference at the .05 level. The obtained F was 4.969.
3. the Negro pupils in the paired school achieved greater growth in reading than the Negro pupils in the segregated school since the difference in reading achievement approached significance with an obtained F of 3.024. An F score of 3.96 was needed to demonstrate significance at the .05 level.
4. the Negro pupils in the paired school showed a higher level of general anxiety than the Negro pupils in the segregated school (1968, pp. 3-4).

Robertson (1967, pp. 1-119) conducted a research study on the effects of segregation experience in junior high school on the achievement, behavior and academic motivation of Negro and White 10th grade students who subsequently attended an integrated high school. A random sample of 120 tenth grade students was drawn from the Pontiac Central High School (Pontiac, Michigan). The statistical factorial design that was used for the investigation of the major independent variable (segregation experience), also included race and sex as the other independent variables, was represented by basic $3 \times 2 \times 2$ factorial ANOVA design. This design consisted of three levels of Segregation Experience, two each of race and sex (Robertson, 1967, p. 92). The three levels of segregation experience were termed High Segregation, Moderate Integration and High Integration.

The data utilized in this study pertaining to achievement, academic motivation and intelligence were obtained from the tests results of the California Survey Series (Reading, Mathematics, Language, and Total). The Otis and Cattell intelligence tests were utilized as covariance controls to eliminate the error in the event that academic ability was not evenly distributed among the experimental groups.

The segregated experience acquired during the years of attendance at the segregated junior high school negatively affected the grades of both Negro and White students who subsequently attended an integrated high school. There was no objectively measured achievement, behavior ratings or

academic motivation that could be attributed to the segregated experience. However, a significant race with sex interaction on GPA under covariance control for Otis Quick-Scoring Mental Ability Test (Gamma) results suggested that the Negro boys received higher grades than the White boys, the White girls, and the Negro girls with the same Otis IQ scores. The Negro-White differences on objective achievement and grades can be attributed to differences in the abilities measured by the Otis intelligence test.

Prichard (1968, pp. 33-37) who was the author and Director of Teacher Education, Chapel Hill city public schools, Chapel Hill, North Carolina, conducted a citywide research study on the effects of desegregation on student success in the Chapel Hill city schools during the school year 1965-66. The background of this study was initiated when the district school authorities decided to comply with the Supreme Court order of 1954 for all school districts in the United States to desegregate their school systems. This legal cancellation of the traditional dual system of education created apprehension on the part of many white parents over the possibility of desegregation lowering academic standard and achievement in the Chapel Hill city public schools (Prichard, 1968, p. 34). Because of this, some white parents decided to send their children to private schools. The research design of this study proposed to make comparisons of achievement in mathematics and reading between students in grades 5, 7, and 9, of segregated schools with students at the same grade level of the

desegregated schools, who had experienced one and two years of desegregation (Prichard, 1968, p. 34). The Sequential Tests of Educational Progress (STEP) were administered to the desegregated control grades to ascertain the students' levels of achievement in mathematics and reading. When the comparison was made of achievement in mathematics and reading on a racial basis by using the national norms as the criteria, the mean scores for Whites fell in a percentile range which was above average, while the mean scores for Negroes fell in a percentile range which was below average.

The desegregation effects on students' success in the Chapel Hill city public school system appeared not to have had any significant negative effects on the academic achievement of either race. The only significant changes which occurred can be accepted as being of a positive nature. Significant changes in achievement in mathematics scores for Negro students occurred at the fifth and seventh grade levels, but only at fifth grade level for White students. Neither race demonstrated any significant change in mathematics scores at the ninth grade level. There was no statistical significant increase in reading achievement at any grade level for either race in this study (Prichard, 1968, p. 35).

St. John (1970, p. 116) reported the research study conducted by Radin (1966) of black students in two neighboring elementary schools (45% and 100% Negro) in Ypsilanti, Michigan. The schools and students were equated on the following variables: financial support, curriculum, IQ

scores, and socioeconomic level, respectively. No statistically significant differences were found in the mean scores on the IQ test or the Iowa Test of Basic Skills. However, the direction of the difference between the mean scores on these tests was uniformly in favor of the integrated school. The investigation of the performance of very high and low achievers revealed that the differences were in favor of the segregated school.

St. John gave an account of a study (St. John and Smith, 1969) which analyzed the academic achievement of a sample of 1388 black ninth graders in the city of Pittsburg in 1966. The research findings demonstrated that when the effects of individual background, neighborhood SES, and sex were eliminated through the statistical process of regression analysis, "arithmetic achievement was significantly and negatively related to the average racial composition of a pupil's school in grades 1-9" (St. John, 1970, p. 119).

St. John reviewed the Coleman and Commission Reports of the Equality of Educational Opportunity Survey (EEOS) of which the investigators administered a series of achievement tests and questionnaires to more than 600,000 students in some 4,000 elementary and secondary schools. The verbal ability scores demonstrated more variation than other test scores and were chosen as the chief measure of academic achievement. For Negro students up to 30% of the between school variance was attributed to the differences in family background. However, for a composite of all student races only a small

portion (10-20%) of the variance in academic achievement was discovered to be between rather than within schools. Further research findings indicated that when the following variables were controlled (student background, school characteristics, and the characteristics of the student body), the school percentage of White students had almost no positive effect on the verbal ability variance of the Negro students.

St. John (1970, p. 126) reviewed Wilson's study on the relation of school ethnic composition to minority group academic performance. A sample of 2,400 elementary and secondary Negro students was randomly selected from the school population in the San Francisco Bay area. By regression analysis the variation in the IQ at each grade level was controlled so that the effects of school social class on the academic achievement of Negro students could be determined. The findings were that social class of the primary school had a significant effect on the sixth grade reading level, social class of the intermediate school had a significant effect on the eighth grade verbal reasoning scores, and school racial composition had no significant effect on the academic achievement over and above school social class.

Wilson (1968, pp. 77-84) reported the results of his study on Social Class and Equal Educational Opportunity. He stated his research finding concisely: "Social Class is more salient for the academic achievement among the disadvantaged Negro students than the influence of their white counterparts." Wilson further supported his findings by making the

following statement: "Correlation between IQ and learning ability in a controlled laboratory setting was found to be much greater among middle-class children than among lower-class children" (1968, p. 84).

Cohen (1968, pp. 114-119) reported that sources of racial inequality in Educational Opportunity existed deeply embedded in the social structure of cities and their school systems. In the 1044 school districts involved in the study only 2.6% showed statistically significant gains in student reading achievement. When all academic subjects were combined only 2.3% of the school districts showed statistically significant gains in student achievement. Cohen concluded that the low rate of academic achievement was due to the following variables: school, social class and the educational background of students' classmates. He further supported his conclusion by citing Coleman's (1966, pp. 302-312, and p. 319) reference research study.

Smolinske (1972, p. 447) reported that the analysis of school achievement test data collected in 1965 by his agency and the U.S. Office of Education prompted a conclusion that environmental and social factors statistically cancel out the differences of school achievement between the majority and minority races. Smolinske related that the national average for school achievement test scores for pupils was 50. With statistically "adjusted" achievement test scores for each race, the following means were derived: Puerto Rican, 47.1;

American Indians, 48.6; Orientals, 51.1; Mexican-Americans, 47.5; Negroes, 49.3; and whites 50.5.

Statement of the Problem

The problem of this research study was to compare the academic achievement in reading and mathematics of fourth grade black students, whose IQs range from 90 to 110, attending predominantly white schools (percentages of enrollment of black children ranged between 20% and 45%) with black students attending predominantly black schools (percentages of enrollment of white children ranged between 20% and 45%).

Operational Definitions

Predominantly White Schools.--A random selection of several elementary schools whose bi-racial enrollments range in percentages from 20% to 45% black children. Also, the schools are to include 4th grade reading and mathematics classes with enrollments in the same percentage range.

Predominantly Black Schools.--A random selection of several elementary schools whose bi-racial enrollments range in percentages from 20% to 45% white children. Also, the schools are to include 4th grade reading and mathematics classes with enrollments in the same percentage range.

Normal Mental Ability.--A resultant IQ score within the 90-110 range as measured by the Short Form Test of Academic Aptitude, Level 2.

Academic Achievement.--The resultant score acquired by a student taking the Comprehensive Tests of Basic Skills, Level 1 (Reading and Arithmetic: Grade 4).

Hypotheses

Based on the assumption that the current integrated schools' bi-racial enrollments, whose range percentages are between 20% and 45% white children, are equal to offer the equality of educational opportunity of the schools' curricula as compared to that of the current integrated schools' bi-racial enrollments, whose range percentages are between 20% to 45% black children which are located in the same region, school district, or similar school districts. The academic achievement in reading and mathematics of the 4th grade black students in the predominantly black and the predominantly white schools will be investigated and compared.

The following hypotheses are to be tested for statistical significance:

H₀₁ - There will be no statistically significant difference between the mean raw scores in reading achievement of 4th grade black students who attend predominantly white schools and those who attend predominantly black schools.

H₀₂ There will be no statistically significant difference between the mean raw scores in mathematics achievement of the 4th grade

black students who attend predominantly white schools and those who attend predominantly black schools.

Significance of Study

The present study should have particular significance to motivate the administrators and teachers of the predominantly black and the predominantly white elementary schools to test the hypothesis of the learning ability of the black students who attend them. Such an evaluation could serve as a guide, and as a means of measuring the quality of integrated education. To achieve this objective, standardized intelligence and achievement tests should be used to determine the equality of the curricula of the predominantly black and the predominantly white schools and to compare the academic achievement of black elementary students who attend these two groups of bi-racial schools. These two groups of bi-racial schools should be located in the same region, school district, or similar school district.

CHAPTER II

METHOD

Subjects

In the present study 222 fourth grade black subjects were selected according to their IQ scores which were in the IQ range of 90 to 110: 111 were males and 111 were females. The fourth grade black population were enrolled in the 10 predominantly white and the six predominantly black elementary schools. The predominantly white schools had a combined black enrollment in the fourth grade of 263 students. The predominantly black schools had a combined black enrollment in the fourth grade of 276 students. A total of 60 male and 60 female fourth-grade black subjects in reading and the same number in mathematics were randomly selected and evenly divided from the fourth grade black population of the 10 predominantly white elementary schools and the six predominantly black elementary schools. Table 7 and Table 8 present the median percentages of the enrollment of the predominantly white and the predominantly black schools, respectively. The percentages of the bi-racial enrollment of the fourth grade of the 10 predominantly white schools ranged from 61% to 74%.

The percentages of the biracial enrollment of the fourth grade of the six predominantly black schools ranged from 55% to 75%. The median percentages of the fourth grade enrollment of each group of bi-racial schools is presented in Table 7 and Table 8, respectively.

These black enrollments in the fourth grade of the 16 elementary schools were located in an integrated Metropolitan Area of a Public School District in the South. The figures of the bi-racial enrollment of the fourth grade of the 10 predominantly white elementary schools and the six predominantly black elementary schools were released in January 1976 to the writer by the Department of Research and Evaluation of the school district.

The 60 males and 60 females were used as subjects in the present study and randomly selected from the fourth grade black population of the 222 subjects whose IQ scores fell within the 90 to 110 range. Thirty males and 30 females were randomly selected from 54 males and 54 females from the 10 predominantly white elementary schools' subjects whose IQ scores fell within the 90 to 110 range. Then 30 males and 30 females were randomly selected from 57 males and 57 females from the six predominantly black elementary schools subjects whose IQ scores fell within the 90 to 110 range. The randomization coin tossing method was used to achieve the pure chance selection of the fourth grade subjects (Best, 1970, pp. 144-146). The subjects' data of percentile ranks converted from the raw scores of the Short Form Test of Academic Aptitude,

Level 2, and the raw scores of reading and mathematics of the Comprehensive Tests of Basic Skills, Level 1 on the fourth grade Class Record Sheets, and the fourth grade taped Class Information Sheets, respectively, were individually, numerically, and consecutively matched. When tails appeared with the toss of the coin, the subject was assigned to the reading and mathematics group of the predominantly white or the predominantly black schools, respectively. When the coin was tossed and heads appeared, the subject was excluded from the reading and the mathematics group.

To control the extraneous variables (age, socioeconomic level, and teacher competence), Best's (1970, pp. 144-146) randomization method was used. Best submitted the following statements of the randomization method:

Randomization can be achieved by a pure chance selection of subjects from a population Randomization provides an effective method of elimination systematic bias and of minimizing the effect of extraneous variables Randomization is the most effective method of equating groups and controlling extraneous variables and should be used whenever circumstances permit (1970, pp. 145-146).

Instruments

Two instruments were used for the purpose of collecting data in the present study. These were the Short Form Test of Academic Aptitude, Level 2 (Sullivan, Clark, and Tiegs, 1970) and the Comprehensive Tests of Basic Skills, Level 1 (Sullivan, Clark, and Tiegs, 1970).

Sullivan, Clark, and Tiegs (1970, pp. 2-9) reported that the Short Form Test of Academic Aptitude was derived from the California Test of Mental Maturity Series and was standardized jointly with the California Achievement Tests, 1970 Edition. The Short Form Test of Academic Aptitude has been correlated with two achievement tests, namely: the California Achievement Tests, 1970 Edition, and the Comprehensive Tests of Basic Skills (Sullivan, Clark, and Tiegs, p. 38). The total correlations of the SFTAA with the California Achievement Tests, 1970, Edition, Form A, Level 2 for grade 4 were as follows: Reading .83 and Mathematics .78, respectively (Sullivan, Clark, and Tiegs, 1971, pp. 19-25).

Sullivan, Clark, and Tiegs made and reported the following statement concerning the reliability coefficients of the Short Form Test of Academic Aptitude: "Evidence of the reliability of all scores (subtests, sections, and Total) of the SFTAA has been determined by three methods" (1970, p. 35). These methods were test-retest reliability, inter-level articulation, and internal consistency. The correlation coefficient of the test-retest reliability was .95 (1971, p. 7). The correlation coefficient of the interlevel articulation was .90 (1971, p. 14). The correlation coefficient of the internal consistency reported was .95 (1970, p. 35). The test-retest reliability and the interlevel articulation methods were ascertained by the use of the Pearson product-moment coefficient of correlation method. The internal

consistency method was determined by the use of the Kuder-Richardson Formula 20.

The Comprehensive Tests of Basic Skills (Grades: 2.5-4, 4-6, 6-8, 8-12; 1968-70) as reported by Buros (1972, pp. 9-10) showed relatively high correlations on reading, language, and arithmetic among similar tests of the California Achievement Tests. The correlation of a total of 9 scores yielded a statistic as high as .93. The majority of correlations reported were between .70 and .85.

The reliability coefficients of the Comprehensive Tests of Basic Skills were estimated by the use of the Kuder-Richardson Formula 20 (Buros, 1972, p. 9). The subtest scores and the total scores were used to calculate the reliability coefficients which were frequently in the .85 to .95 region (a few drifted downward as low as .75).

The Comprehensive Tests of Basic Skills, Level 1 contained the following reading and mathematics skill areas: Test 1 -- Reading Vocabulary, and Test 2 -- Reading Comprehension; Test 6 -- Mathematics Computation, and Test 7 -- Mathematics Concepts and Applications.

Procedure

To assess the academic aptitude, the Short Form Test of Academic Aptitude, Level 2 was employed and administered to the population of the fourth grade black subjects. To measure the academic achievement in reading and mathematics of the fourth grade black population, the Comprehensive Tests of

Basic Skills, Level 1 was employed and administered. The teachers of the fourth grade of the predominantly white and the predominantly black schools administered the Short Form Test of Academic Aptitude, Level 2 and the Comprehensive Tests of Basic Skills, Level 1 under the supervision of the Research and Evaluation Committee of the school district. On the district basis only, the enrollments of the fourth grade of all the elementary schools (total number = 32) were administered the Short Form Test of Academic Aptitude and the Comprehensive Tests of Basic Skills. The testing program was initiated October 15, 1975.

The data of the Short Form Test of Academic Aptitude, Level 2 from the selected 10 predominantly white elementary schools and the selected six predominantly black elementary schools were compiled from the fourth grade classes answer sheets on the Class Record Sheets by the California Testing Bureau Department of McGraw-Hill. Duplicate copies of the Class Record Sheets were released by the Department of Research and Evaluation to the writer. Each Class Record Sheet contained the following information: chronological age, mental age, each student national percentile rank, total raw scores, and reference scale score. The data of the Comprehensive Tests of Basic Skills, Level 1 from the selected 10 predominantly white elementary schools and the selected six predominantly black elementary schools were taped for the fourth grade class of each of the 10 predominantly white elementary schools and for the fourth grade class of each of

the six predominantly black elementary schools by the California Testing Bureau Department of McGraw-Hill. Duplicate copies of the taped Class Information Sheet data were released by the Department of Research and Evaluation to the investigator. Each class Information Sheet contained the following information: the name of the school, each student number in class, race, sex, total reading raw score, reading reference scale score, total mathematics raw score, and mathematics reference scale score. The national percentile rank in reading and mathematics for each student was listed on the Class Record Sheet, also. The scoring of the SFTAA and the CTBS tests were accomplished by an electronic scoring machine. These data were released to the investigator in January of 1976. The Short Form Test of Academic Aptitude, Level 2 raw scores were converted to IQ scores and the IQ scores were converted to national percentile ranks. The individual student's IQ score was determined by the ratio of his or her mental age and his or her chronological age by calculating it from the raw score achieved by his or her performance on the Short Form Test of Academic Aptitude, Level 2 (Sullivan, Clark, and Tiegs, 1970, pp. 35-55, and Tables 5-9). The Comprehensive Tests of Basic Skills, Level 1 raw scores in reading and mathematics were converted also to national percentile ranks. The national norms were used as the percentile range criteria.

The analysis of the data was achieved by utilizing the reading and the mathematics achievement raw scores which were derived from the results of the 120 fourth grade black

subjects' performances on the Comprehensive Tests of Basic Skills, Level 1. The data of the reading and mathematics achievement raw scores of the 120 fourth grade black subjects were statistically compared by using an analysis of variance to determine if there was a statistical significance difference between the two reading groups and the two mathematics groups, respectively. The level of statistical significance required to reject the null hypotheses, and to support the alternative hypotheses was set at $p < .05$.

CHAPTER III

RESULTS

The results of the analyses of variance for the data of the two groups of fourth grade black subjects in reading and mathematics of the 10 predominantly white and the six predominantly black elementary schools are presented herein. The two groups of data for the 120 subjects in reading and mathematics were analyzed separately in the present study. In addition, this chapter contains statements of the research findings of the group's median performances in reference to the data of the raw scores in reading and mathematics which were converted to the equivalent of the national norms that were used as the percentile criteria. The median percentile norm of the IQ scores of each group of black subjects was compared with the national percentile norm.

Table 1 and Table 2 summarize the analysis of variance results for the raw scores in reading and the raw scores in mathematics, respectively. In reference to the analysis of the reading data (Table 1) no statistically significant difference was demonstrated. The main effect, $F(1, 118) = 1.28$, $p > .05$ was obtained. Similarly, in reference to the

Table 1
Analysis of Variance Summary Table for the Reading
Data of the Two Groups

Source of Variation	df	Sum of Squares	Mean Square	F
Between groups	1	300.83	300.83	1.28*
Within groups	118	27,757.54	235.23	
Total	119	28,058.37		

* = not significant at the .05 level

Table 2
Analysis of Variance Summary Table for the Mathematics
Data of the Two Groups

Source of Variation	df	Sum of Squares	Mean Square	F
Between groups	1	291.41	291.41	1.18*
Within groups	118	29,172.39	247.22	
Total	119	29,463.80		

* = not significant at the .05 level

analysis of the mathematics data (Table 2) no statistically significant difference was demonstrated. The main effect, $F(1,118) = 1.18, p > .05$ was obtained.

In the present study it was hypothesized that:

Hypothesis 1. There will be no statistically significant difference between the mean raw scores in reading achievement of 4th grade black students who attend predominantly white schools and those who attend predominantly black schools. Analysis of the reading data (Table 1) revealed no statistically significant main effect, $F(1,118) = 1.28, p > .05$. Therefore, the null hypothesis was supported.

Hypothesis 2. There will be no statistically significant difference between the mean raw scores in mathematics achievement of the 4th grade black students who attend predominantly white schools and those who attend predominantly black schools. Analysis of the mathematics data (Table 2) revealed no statistically significant main effect, $F(1,118) = 1.18, p > .05$. Therefore, the null hypothesis was supported.

Table 3 presents the median of 50.25 which represents the achievement in reading and the median of 66.5 which represents the achievement in mathematics of the black group subjects of the predominantly white bi-racial schools. Table 4 presents the median of 54.0 which represents the achievement in reading and the median of 69.5 which represents the achievement in mathematics of the black group subjects of the predominantly black bi-racial schools. The standardized Comprehensive Tests of Basic Skills, Level 1 national norm in reading achievement

was 56, and in mathematics was 75. Each national norm of the achievement in reading and in mathematics equals the 50th percentile. The national percentile rank of the median in reading, and the median in mathematics of Table 3 are 42.5 and 40.5, respectively, as compared to the median in reading, and the median in mathematics of Table 4 are 48.0 and 43.5, respectively.

The standardized test national norm and the percentile norm for the IQ, SFTAA, Level 2 is 100, and 50th, respectively (Sullivan, Clark, and Tiegs, 1970, p. 43, Table 6). Table 5 and Table 6 of this research study present the means and the medians of the IQs of the group subjects of the predominantly white and the predominantly black schools. The mean and the median IQs of the group subjects of the 10 predominantly white schools fourth grade are 98.07, and 96.75, respectively, as compared to the mean and the median IQs of the group subjects of the 6 predominantly black schools fourth grade are 99.35, and 98.8, respectively. The national percentile ranks of the median fourth grade IQs of the group subjects of the predominantly white school, and the group subjects of the predominantly black schools are 43.0, and 48.0, respectively.

Discussion

The comparison of the results of the academic achievement in reading and mathematics of the two black groups of subjects in the fourth grade of the predominantly white schools

and the predominantly black schools demonstrated no statistically significant differences at the .05 level.

The comparison by the national percentile ranks in achievement in reading of the group of subjects attending predominantly white schools and the group of subjects attending predominantly black schools are 42.5 and 48.0, respectively. The difference between these percentiles in reading suggests a greater improvement of the group of subjects in the predominantly black schools as compared to the group in the predominantly white schools. The comparison by the national percentile ranks in achievement in mathematics of the group of subjects attending predominantly white schools and the group attending predominantly black schools are 40.5, and 43.5, respectively. The difference between these percentiles in mathematics is relatively moderate.

The utilization of the assessed academic aptitude in achievement of the fourth grade group in the predominantly white bi-racial elementary schools and the fourth grade group in the predominantly black bi-racial elementary schools were represented as follows: in the predominantly white schools the national percentile ranks were 43.0 for IQ, 42.5 for reading achievement, and 40.5 for mathematics achievement. For the group attending the predominantly black schools the national percentile ranks were 48.0 for IQ, 48.0 for reading achievement, and 43.5 for mathematics achievement.

CHAPTER IV

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research study was to compare the academic achievement in reading and mathematics of fourth grade black students, whose IQs ranged from 90 to 110, who were attending predominantly white schools with black students who were attending predominantly black schools. It was hypothesized that there would be no statistically significant differences between the mean raw scores in reading and mathematics of the two randomly selected samples of these 4th grade black students. The hypotheses were based on the assumption that the current integrated schools' equality of educational opportunity would be similar because of the geographical region and the schools being located in the same school district.

The fourth grade black population of 222 subjects was randomly selected from 10 predominantly white and the six predominantly black elementary schools where the combined enrollment of fourth grade black students was 539. These 16 elementary schools were located in the same integrated Metropolitan Area of a Public School District in the South.

The Short Form Test of Academic Aptitude, Level 2 was administered to these 539 students. The equal number of male and female students' IQ scores which fell in the range of 90 to 110 comprised the population. The randomization coin tossing method was used to achieve the pure chance selection of 60 subjects from the IQ range of the predominantly white elementary schools and 60 subjects from the same IQ range of the predominantly black elementary schools.

The comparison of the mean IQ of 99.35 for the group of subjects from the predominantly black bi-racial schools with the national mean IQ of 100 showed a difference of 0.65. The national percentile rank for this group of subjects was 48 (median 98.8) which was 2 points below the national 50th percentile. The comparison of the mean IQ of 98.07 for the group of subjects from the predominantly white bi-racial schools with the national mean IQ of 100 showed a difference of 1.93. The national percentile rank for this group of subjects was 43 (median 96.75), 7 points below the national 50th percentile.

All subjects in both groups were administered the Comprehensive Tests of Basic Skills in reading and mathematics. A comparison of the obtained mean of 53.5 in reading for the group of subjects from the predominantly black bi-racial schools with the national mean of 56.0 showed a difference of 2.5. The national percentile rank for this group of subjects was 48 (median 54.0) which was 2 points below the national 50th percentile. The mean of 68.1 in mathematics for this

group of subjects compared with the national mean of 75.0 yielded a difference of 6.9. The national percentile rank for this group of subjects was 43.5 (median 69.5) which was 6.5 points below the national 50th percentile. The mean of 50.3 in reading for the group of subjects attending the predominantly white bi-racial schools with the national mean of 56.0 yielded a difference of 5.7 points. The national percentile rank for this group of subjects was 42.5 (median 50.25). This was 7.5 points below the national 50th percentile. The mean of 64.98 in mathematics for this group of subjects compared with the national mean of 75.0 showed a difference of 10.02. The national percentile rank for this group was 40.5 (median 66.5), which is 9.5 points below the national 50th percentile.

Analyses of variance were used to test the statistical difference between the two groups on achievement in reading and mathematics. The results of the analyses indicated no statistically significant difference in reading and mathematics between 4th grade black subjects who attended predominantly black schools and those who attended predominantly white schools. The hypotheses of no difference were accepted at the .05 level of significance.

The findings from this investigation tended to corroborate part of the findings reported in the Coleman report, that is, that black students attending predominantly white schools where classroom enrollments exceeded 50 per cent white students performed better in reading and mathematics. Nevertheless, when

compared with national norms, their performance fell below the median.

Within the limitations of this study, i.e., fourth grade children in one school district located in a metropolitan area in the southeast, it seemed reasonable to conclude that regardless of whether black students who attended schools which were predominantly comprised of black students or those predominantly comprised of white students had no effect on achievement in reading and mathematics. Either type of school showed the same effectiveness in student achievement.

In order to determine whether similar results would be evident at other grade levels, it is recommended that the study be replicated using the same academic variables with lower and higher grades. Similar studies might be conducted in other school districts located in metropolitan areas of other Southern States.

REFERENCES

- Best, J.W. Research in education. Englewood Cliffs, New York: Prentice-Hall, Inc., 1970.
- Bolner, J. Defining racial imbalance in public educational institutions. Journal of Negro Education, 1968, 37, 114-126.
- Bolner, J. Defining racial imbalance in public educational institutions. The Negro Educational Review, 1970, 21, 83.
- Buros, O.K. (Ed.) The seventh mental measurements yearbook. Highland Park, N.J.: The Gryphon Press, 1972.
- Cohen, D.K. Policy for the public schools: compensation and integration. Harvard Educational Review, 1968, 38, 114-119.
- Coleman, J.S. (Ed.) Equality of educational opportunity. Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1966.
- Downie, N.M. and Heath, R.W. Basic statistical methods. New York: Harper and Row, Publishers, 1965.
- Ferguson, G.A. Statistical analysis in psychology and education. St. Louis: McGraw-Hill Book Co., 1966.
- Kerlinger, F.N. Foundations of behavioral research. Chicago: Holt, Rinehart and Winston, Inc., 1964.
- Prichard, P.N. Effects of desegregation on student success in the Chapel Hill city schools. Integrated Education, 1968, 7, 33-37, (Xeroxed).
- Robertson, W.J. The effects of junior high school segregation experience on the achievement, behavior and academic motivation of integrated tenth grade high school students. (Doctoral dissertation, University of Michigan) Ann Arbor, Mich.: University Microfilms, 1967, No. 67-15, 683.

- Slone, I. W. The effects of one school pairing on pupil achievement, anxieties, and attitudes. (Doctoral dissertation, University of New York) Ann Arbor, Mich.: University Microfilms, 1968, No. 68-11, 808.
- Smolinske, D.L. Canceling out the differences. Phi Delta Kappan, 1972, 53, 447.
- Stanley, J.C. & Hopkins, D.K. Educational and psychological measurement and evaluation. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972.
- St. John, N.H. Desegregation and minority group performance. Review of Educational Research, 1970, 40, 111-133.
- Sullivan, E.T.; Clark, W.W.; & Tiegs, E.W. Comprehensive tests of basic skills. Monterey, Calif.: CTB/McGraw-Hill, 1970, 8 p.
- Sullivan, E.T.; Clark, W.W.; & Tiegs, E.W. Short form test of academic aptitude. Monterey, Calif.: CTB/McGraw-Hill, 1970, 13p.
- Sullivan, E.T.; Clark, W.W.; & Tiegs, E.W. Short form test of academic aptitude, technical bulletin no. 1. Monterey, Calif.: CTB/McGraw-Hill, 1970.
- Sullivan, E.T.; Clark, W.W.; & Tiegs, E.W. Short form test of academic aptitude, examiner's manual, level 2. Monterey, Calif.: CTB/McGraw-Hill, 1970.
- Sullivan, E.T.; Clark, W.W.; & Tiegs, E.W. Short form test of academic aptitude, technical bulletin no. 2. Monterey, Calif.: CTB/McGraw-Hill, 1971.
- Terman, L.M. & Merrill, M.A. Stanford-Binet Intelligence Scale. Boston: Houghton Mifflin Company, 1960.
- Thorndike, R.L. & Hagen, E. Measurement and evaluation in psychology and education. New York: John Wiley and Sons, Inc., 1969.
- Wilson, A.B. Social class and equal educational opportunity. Harvard Educational Review, 1968, 38, 77-84.

APPENDIX A

RAW DATA SCORES OF THE COMPREHENSIVE TESTS OF BASIC SKILLS:

LEVEL 1

Table 3

Raw Scores of the Fourth Grade Black Subjects in
the Predominantly White Elementary Schools

Subject	Sex	Reading	Math.
1	M	23	44
2	F	78	79
3	F	79	92
4	F	39	65
5	F	54	57
6	M	43	44
7	M	50	42
8	M	47	58
9	M	23	31
10	M	58	88
11	F	60	82
12	F	26	46
13	F	44	73
14	M	58	78
15	F	62	88
16	F	37	63
17	M	45	69
18	M	32	50
19	F	69	67
20	M	56	60
21	M	68	70
22	F	45	33
23	F	42	53
24	F	65	62
25	M	24	74
26	M	70	79
27	F	61	75
28	M	43	72
29	M	41	45
30	M	54	88
31	M	73	94
32	F	72	73
33	F	66	68
34	M	34	48
35	M	36	63
36	M	67	73

Table 3, Continued

Subject	Sex	Reading	Math.
37	F	37	50
38	M	30	46
39	F	61	84
40	F	50	70
41	F	42	53
42	F	45	79
43	M	51	81
44	F	51	63
45	M	28	44
46	M	39	48
47	M	77	75
48	F	78	73
49	M	35	50
50	M	54	74
51	F	67	65
52	F	71	88
53	F	32	63
54	M	30	54
55	F	59	82
56	F	37	48
57	F	59	59
58	M	48	76
59	M	56	70
60	F	37	58
Mean		50.3	64.98
Median		50.25	66.5

Table 4

Raw Scores of the Fourth Grade Black Subjects in
the Predominantly Black Elementary Schools

Subject	Sex	Reading	Math.
1	M	64	81
2	F	45	80
3	F	59	84
4	F	57	23
5	M	46	71
6	F	33	46
7	F	44	80
8	M	41	83
9	M	67	78
10	F	65	92
11	F	71	88
12	M	63	50
13	M	65	62
14	F	35	61
15	F	31	54
16	F	36	51
17	F	38	60
18	F	59	72
19	F	80	93
20	M	45	52
21	F	71	89
22	M	57	88
23	M	22	63
24	F	35	74
25	F	69	66
26	F	52	55
27	F	79	85
28	M	74	77
29	M	61	55
30	M	48	80
31	M	76	85
32	M	57	85
33	M	72	89
34	M	22	51
35	F	52	52
36	F	58	37

Table 4, Continued

Subject	Sex	Reading	Math.
37	M	61	77
38	M	65	74
39	F	39	48
40	F	64	58
41	F	53	62
42	F	69	69
43	M	38	82
44	M	54	73
45	F	64	49
46	M	60	84
47	F	74	85
48	M	51	67
49	F	39	64
50	F	40	81
51	M	42	63
52	M	49	70
53	F	53	31
54	M	52	55
55	F	76	86
56	M	74	56
57	M	34	54
58	M	46	69
59	M	36	83
60	M	26	54
Mean		53.5	68.1
Median		54.0	69.5

APPENDIX B

SHORT FORM TEST OF ACADEMIC APTITUDE

LEVEL 2, IQ SCORES DATA

TABLE 5

IQ Scores of the Fourth Grade Black Subjects in
the Predominantly White Elementary Schools

Subject	Sex	IQ
1	M	90
2	F	101
3	F	102
4	F	91
5	F	97
6	M	90
7	M	95
8	M	92
9	M	92
10	M	109
11	F	110
12	F	95
13	F	94
14	M	108
15	F	110
16	F	99
17	M	97
18	M	97
19	F	95
20	M	96
21	M	102
22	F	90
23	F	92
24	F	106
25	M	97
26	M	107
27	F	107
28	M	96
29	M	91
30	M	97
31	M	109
32	F	93
33	F	96
34	M	93
35	M	98
36	M	103

Table 5, Continued

Subject	Sex	IQ
37	F	92
38	F	107
39	F	108
40	F	94
41	F	90
42	F	93
43	M	106
44	F	99
45	M	95
46	M	97
47	M	104
48	F	97
49	M	92
50	M	95
51	F	92
52	F	108
53	F	97
54	M	90
55	F	104
56	F	92
57	F	99
58	M	99
59	M	106
60	F	91
Mean		98.07
Median		96.75

TABLE 6

IQ Scores of the Fourth Grade Black Subjects in
the Predominantly Black Elementary Schools

Subject	Sex	IQ
1	M	105
2	F	107
3	F	106
4	F	90
5	M	98
6	F	95
7	F	106
8	M	99
9	M	105
10	F	108
11	F	110
12	M	105
13	M	97
14	F	99
15	F	91
16	F	91
17	F	92
18	F	93
19	F	106
20	M	96
21	F	109
22	M	99
23	M	92
24	F	97
25	F	101
26	F	98
27	F	110
28	M	105
29	M	104
30	M	99
31	M	97
32	M	97
33	M	99
34	M	91
35	F	92
36	F	95

Table 6, Continued

Subject	Sex	IQ
37	M	108
38	M	95
39	F	99
40	F	95
41	F	93
42	F	97
43	M	90
44	M	103
45	F	96
46	M	102
47	F	102
48	M	104
49	F	97
50	F	96
51	M	95
52	M	99
53	F	97
54	M	104
55	F	110
56	M	105
57	M	99
58	M	97
59	M	99
60	M	95
Mean		99.35
Median		98.8

APPENDIX C

BI-RACIAL PERCENTAGES DATA OF EACH ELEMENTARY SCHOOL
AND THE FOURTH GRADE

Table 7

Bi-racial Percentages of Fourth Grade Subjects
in Predominantly White Elementary Schools

School No.	School		Fourth Grade	
	White	Black	White	Black
1	65	35	61	39
2	60	40	62	38
3	57	43	66	34
4	59	41	62	38
5	75	25	71	29
6	68	32	67	33
7	74	26	70	30
8	59	41	61	39
9	73	27	74	26
10	62	38	62	38
Median	63.0	37.0	63.5	36.5

Table 8

Bi-racial Percentages of Fourth Grade Subjects
in Predominantly Black Elementary Schools

School No.	School		Fourth Grade	
	Black	White	Black	White
1	61	39	55	45
2	63	37	63	37
3	69	31	70	30
4	71	29	64	36
5	64	36	64	36
6	76	24	75	25
Median	67.0	33.0	64.0	36.0