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THE RELATIVE INFLUENCE OF SCHOOL DESEGREGATION AND OF CLASSROOM DESEGREGATION ON THE ACADEMIC ACHIEVEMENT OF NINTH GRADE NEGRO STUDENTS. INTERIM REPORT.

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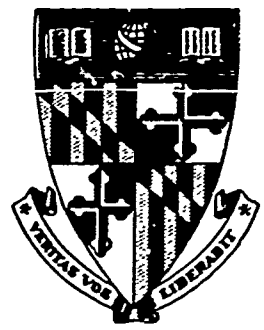
THE RELATIVE INFLUENCE OF DESEGREGATION AT THE SCHOOL AND THE CLASSROOM LEVEL WAS EXAMINED BY MEANS OF U. S. OFFICE OF EDUCATION DATA FROM THE 1965 EDUCATIONAL OPPORTUNITIES SURVEY. USING THE 5,075 NINTH GRADE NEGRO STUDENTS FROM A SAMPLE OF SCHOOLS SELECTED IN THE METROPOLITAN AREAS OF NEW ENGLAND AND MIDDLE ATLANTIC STATES, WHO HAD ATTENDED THEIR PRESENT SCHOOL IN THE PREVIOUS YEAR, THREE VARIABLES WERE ASSIGNED. THE AUTHOR CONSTRUCTED A SIX-LEVEL FAMILY SCALE BASED ON MOTHER'S EDUCATION AND FAMILY POSSESSIONS, A FOUR-CATEGORY RATING BASED ON THE PERCENT OF WHITE STUDENTS IN THE NINTH GRADE OF THE STUDENT'S SCHOOL, AND A FOUR-CATEGORY RATING BASED ON THE PROPORTION OF WHITE CLASSMATES. THE ANALYSIS OF THE DATA INDICATED THAT--(1) THE EFFECTS OF SCHOOL DESEGREGATION ON ACHIEVEMENT CAN BE OFFSET BY SEGREGATION WITHIN THE SCHOOL, (2) CLASSROOM DESEGREGATION HAS AN APPARENT BENEFICIAL EFFECT ON VERBAL ACHIEVEMENT OF NEGRO STUDENTS IRRESPECTIVE OF RACIAL ENROLLMENT OF THE SCHOOL, AND (3) THE DIFFERENCES IN VERBAL ACHIEVEMENT BETWEEN NEGRO STUDENTS IN MOSTLY WHITE CLASSES AND THOSE IN MOSTLY NEGRO CLASSES IS NOT EXPLAINED BY SELECTION PROCESSES WHICH OPERATE WITHIN THE SCHOOL. (SF)



THE JOHNS HOPKINS UNIVERSITY
THE CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS

Interim Report

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Introduction

There are now several studies which have shown that the academic growth of Negro secondary students is affected by the degree of racial or social class segregation which has characterized their schooling. The U.S. Office of Education report of its 1965 nationwide Educational Opportunities Survey showed that the social class segregation which accompanies racially segregated schooling accounted for more of the variation in the achievement of Negro high school students than did any of the differences in school facilities, curriculum or teaching staff which were measured by the survey. (Coleman et. al., 1966, p.307) Further analysis of the Office of Education survey data (U.S. Commission on Civil Rights, 1967) showed that after measures of student family background were held constant there remained an average difference of about one year of academic growth between ninth grade Negro students who attended majority white classes and those in entirely Negro classes. This difference, which is equal to about half the racial gap in achievement scores between white and Negro students in the ninth grade, was even larger when comparisons also took into account the length of time the students had been in desegregated classes. Wilson (1967), in a study of Richmond, California students, strengthened these results with similar findings from an analysis which controlled on students' early school achievement as well as their family background.

Whereas these previous studies have treated desegregation either at the level of the school or at the level of the classroom, this paper will use the Office of Education survey information to compare the influence of desegregation at these two levels.

Classroom and School Desegregation

Data on the students analyzed are from the sample of schools selected from the metropolitan areas of the New England and Middle Atlantic states. Using only the 5,075 ninth grade Negro students in this sample who had attended their present school in the previous year, three variables were used to set up cross-classifications. A six-level family background scale was constructed from the student's report of his mother's education and his responses on a nine item check list of possessions in his home. The percent of white students in the ninth grade of a student's school was partitioned into four categories. Four groupings were also used on the student's report of the proportion of his classmates who were white.

Average achievement scores were calculated within the cells of cross-classifications of these variables. These scores are from a 60 item test of verbal achievement taken from the Educational Testing Service SCAT series. Achievement scores are expressed in standard deviation units, obtained by dividing the scale score by the regional standard deviation on this test for Negro students. Summary measures were then derived from the cross-tabulations.

Table 1 shows parameters measuring the effect of differences in classroom and school racial composition on Negro student achievement. These parameters are the analogue for continuous variables of measures developed by Coleman (1964). They show the average increment in achievement between successive categories of the racial composition variables for students who are matched on categories of other variables. Since there are four levels of the racial composition variables, there are three increments to be averaged for each matched group. In forming these averages, a procedure outlined by Boyle (1966) was used which weights each achievement increment by the ratio of the product and the sum of the frequencies of the two groups being compared.

For example, the first value in Table 1, +.16, is an estimate of the average number of units of achievement gained by moving from one category of "proportion white classmates" to the next higher category. Five important results as found in this Table.

1. Controlling family background characteristics of the Negro students does not seriously reduce the effect parameter measuring the influence of racial composition on achievement. The average achievement increment between categories of the classroom racial composition variable is +.16 standard deviation units when no family background controls are used and is only slightly reduced to +.13 when increments are averaged over students matched on the family background measure. The corresponding parameters for effects due to differences in school racial composition are +.13 and +.11.

2. Controlling for the percent white enrolled in the school does not eliminate the effect of differences in classroom racial composition on Negro student achievement. When achievement increments due to differences in classroom racial composition are averaged for students matched on both their family background and on the percent white in their school, the effect parameter is the same (+.13) as that calculated for students matched only on family background. This means that regardless of the racial composition of the school, the average achievement of Negro students increases with the proportion of their classmates who are white.

3. The components which contribute to this overall parameter suggest that the amount of influence which classroom desegregation has on Negro student achievement is different in schools with contrasting racial enrollments. Table 1 shows separately the effect parameter for students matched on family background within each of the four categories of percent white in the school. There is a regular trend in the average achievement increment due to changes in classroom racial composition as the percent white in the

school increases.[1] That is, differences in classroom racial composition are associated with smaller increments in achievement for Negro students in mostly Negro schools compared to those in mostly white schools.

4. On the other hand, when classroom racial composition as well as family background differences are held constant, there is no evidence that the percent white enrolled in the school generally has any appreciable influence on Negro student achievement. While the average increment in achievement due to changes in the school racial composition is +.11 standard deviation units when students are matched on the family background measure alone, the parameter reduces to +.02 when the degree of classroom desegregation is held constant as well.

5. The component effect parameters shown in Table 1 which combine to yield the +.02 value specify this previous generalization more precisely. The only group of Negro students for which increases in the percent white enrolled in their school has any noteworthy influence on their academic performance are those in mostly white classes. The +.09 effect parameter for this group suggests that Negro students in mostly white classes exhibit increased academic performance if they also attend mostly white schools. For the other groups of students, school desegregation has no beneficial effect. Stated differently, Negro students who remain in segregated classes receive no benefit in terms of their academic growth from attendance at desegregated schools. Indeed, the small negative effect parameters for students in mostly Negro classes suggests that segregated classes may be more detrimental for Negro student achievement if they occur in mostly white schools rather than mostly Negro schools.

Taken together, the above results strongly suggest that it is desegregation at the classroom level which encompasses the factors having important influences on Negro student academic performance. No matter what

the racial composition of the school, increases in Negro student achievement accompany increases in the proportion of their classmates who are white. The only students who appear to derive benefit from attendance at mostly white schools are those in predominantly white classes within the school. As far as differences in their achievement are concerned, the students in segregated classes may as well be in segregated schools as desegregated ones.

Other studies have suggested that the student peers who form the immediate environment for an individual will have a greater influence on him than those in his school with whom he has little regular contact or association. Studies by Campbell and Alexander (1965) and McDill, Meyers and Rigsby (1966) have shown that the attributes and values of a student's close friends will usually affect him more than any characteristics which may typify the general student body of his school. In explaining these differences between the influence of an immediate peer group and the more general student environment, these studies make the distinction between contextual or structural effects and interpersonal influences. The total collectivity may affect individual behavior by creating the set of norms and standards to which many of the individuals in the school respond. An individual's close friends may exert their influences not so much by collectively defining the climate and expectations for behavior, but through individual encounters where personal attitudes and values are revealed. When the values of a close friend coincide with the standards defined by a larger social context, his interpersonal influence will be to enforce and strengthen these norms.

If the different groups of fellow students in a school are placed on a continuum according to their proximity to a particular individual student, the fellow classmates would lie in an intermediate position

between the total student body of a school and his close friends. As such, fellow classmates might serve to influence behavior in both the structual and interpersonal sense Any standards and expectations which are set by fellow classmates will be more frequently and readily perceived by an individual than any climate or value structure established by the student body at large The regular social encounters between fellow classmates makes their potential for enforcing a set of standards on an interpersonal basis particularly strong.

Other tabulations of these data not reported here suggest an explanation for the apparently larger effects of classroom desegregation within the predominantly white schools. In predominantly Negro schools, the differences between the student composition of predominantly Negro classes and predominantly white classes are not large. There is little to distinguish the environment which might be defined by the student body at large in these schools from the climate in a particular classroom. Within mostly white schools, on the other hand, desegregated classes appear to be considerably different from the others in terms of student values and achievement standards. Here the greater potential of classmates to define and enforce norms will appear because the classroom climate is distinctly different than the school-wide student environment.

Controls on Program and Track Placement

An understanding of the mechanisms which place Negroes in segregated classes within desegregated schools is needed before the above results can be accepted with confidence. Tables 2 and 3 present data which explain two mechanisms. These two tables show that the likelihood of a Negro student having mostly white classmates is a function of the program and of the track or ability group in which he is enrolled Except for the predominantly

Negro schools, Negro students in the college preparatory program more frequently have mostly white classmates than students in other programs. With the same exceptions, Negro students in the high track level of English courses are more likely than other Negro students to be in mostly white classes. Hickerson (1963) found that Negro students in a racially mixed school were under-represented in certain academic classes, programs and activities.

Assignments to particular programs and tracks may often be based on existing achievement differences between students. Because of the correspondence between classroom racial composition and the program or track level within the school, it is necessary to investigate whether the observed relationships between classroom racial composition and Negro student achievement are simply a function of assignments within schools based on existing achievement levels.

The next tables show comparisons between effect parameters calculated on the entire sample with parameters obtained after the sample is partitioned into subgroups of students enrolled in the same program or track. If the observed relationship between classroom racial composition and Negro student achievement is to be explained simply by prior achievement differences which preceed classroom assignments, then the parameters calculated from the partitioned sample should be reduced to a value close to zero.

In these comparisons, the four categories of the classroom racial composition variable were collapsed into two categories. The average achievement increment presented in Table 4 is between Negro students in classes where less than half of the students are white and those in classes where half or more are white.

In Table 4 it is shown that partitioning the students by their program of study does not greatly reduce the classroom racial composition parameter. The parameter is +.28 when comparisons are made for students matched on family background and the school racial percentage categories. When students are matched on their program of study in addition to the other variables, the value is +.20.

The parameters for the separate subgroups in each program are not uniformly smaller than the original value. This is also evidence that the classroom effect is not simply the result of program assignments. The parameters for students in vocational, commercial and industrial arts programs and in the college preparatory program are about half the value calculated without the program control. For students in the general course of study, the average achievement increment due to classroom desegregation is considerably larger than the original value.

Table 5 gives parameters measuring the classroom desegregation effect separately for students who report they are in the high, middle or low track sections of English courses. Because the school racial percentages were combined in different ways for each of these subgroups,[2] three separate parameters without the track control are shown as the point of comparison. The effect parameter for high track students alone is to be compared with the parameter calculated for the entire sample of students matched in a corresponding way on the family background and school racial enrollment variables. For the other track subgroups, a separate parameter calculated from matching cross-tabulations of the entire sample is presented for comparison.

The effect parameter shown in Table 5 which was calculated for high track students is not greatly reduced from the value obtained for the

entire sample. These values are +.14 and +.17. Similarly, the parameters for the middle track group and the entire sample have comparable values, +.23 and +.21. For the low track group, the parameter is about half the size of the value for the entire sample, although it is not reduced to zero.

If the effect parameters for each track subgroup are compared with parameters from the rest of the sample which does not include the subgroup, the results are the same. Table 5 also shows these residual values which are very similar to the parameters obtained from the complete sample.

Since the classroom racial composition effect remains within subgroups of Negro students who are matched on either their track or their program of study, there is evidence that the observed achievement increments due to classroom desegregation are not simply the result of differences which preceded the classroom assignments.

Summary

Analysis of ninth grade Negro students in the Metropolitan Northeast has suggested that the effects of school desegregation on achievement can be offset by segregation within the school. Only the Negro students in predominantly white classes demonstrate any added achievement growth due to attendance at mostly white schools. On the other hand, classroom desegregation has an apparent beneficial effect on verbal achievement of Negro students irrespective of the racial enrollment of the school. Other evidence indicates that the differences in verbal achievement between Negro students in mostly white classes and those in mostly Negro classes is not explained by selection processes which operate within the school.

Footnotes

[1]This trend in effect parameters could result from differences in the achievement increments between particular categories of the classroom racial composition variable (non-linearity), together with different distributions among the categories of this variable for students in racially different schools. An examination of unweighted parameters and parameters based on comparisons of the extreme categories of the classroom variable showed that such factors were not the source of this trend.

[2]There are four school racial percentages categories for the middle track group, three categories for high track students, and two for the low track group. Categories were combined to obtain sufficient cases for estimating achievement increments and so that students would be matched on the school track criterion as well as the track level. An estimate of the school criteria for admission to each track level was obtained by calculating the average achievement score separately for all ninth grade students who reported they were in the high, middle or low track. Generally it was found that within track levels and within categories of the school racial percentages, the track criteria for the average Negro student was not positively associated with his proportion white classmates. One exception to this was the high track students in schools where 80 percent or more of the enrollment was white. These students were eliminated from the calculations for Table 5.

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Table 1

WEIGHTED PARAMETERS OF MAIN EFFECTS ON NINTH GRADE NEGRO STUDENT VERBAL ACHIEVEMENT, UNDER DIFFERENT CONTROL CONDITIONS[a]

Effect Variable	Effect Parameter	
Proportion white classmates (3 comparisons)	+.16	
Proportion white classmates, controlling family background (18)	+.13	
Proportion white classmates, controlling family background and percent white in School (72)	+.13	
0-19 percent white in school (18)		+.07
20-49 percent white in school (18)		+.16
50-69 percent white in school (18)		+.19
70-99 percent white in school (18)		+.34
Percent white in school (3)	+.13	
Percent white in school, controlling family background (18)	+.11	
Percent white in school, controlling family background and proportion white classmates (72)	+.02	
No white classmates (18)		-.03
Less than half white classmates (18)		-.02
About half white classmates (18)		+.03
More than half white classmates (18)		+.09

[a]The numbers in parentheses are the number of comparisons which were combined in the weighted average of achievement increments. Each value in this Table is based on 5,075 cases.

Table 2

PERCENT OF NINTH GRADE NEGRO STUDENTS IN MAJORITY WHITE CLASSES, BY PROGRAM OF STUDY AND PERCENT WHITE ENROLLMENT IN THEIR SCHOOL[a]

Program of Study	Percent white enrolled in the school				
	0-9	10-19	30-49	50-69	70-99
College Preparatory	2.2 (452)	16.5 (187)	32.2 (255)	41.9 (179)	88.0 (133)
General	2.8 (253)	15.5 (116)	8.6 (140)	36.0 (89)	67.5 (114)
Vocational, Commercial, Business, or Industrial Arts	2.1 (514)	14.3 (210)	14.9 (275)	33.8 (201)	69.7 (99)

[a]Numbers in parentheses represent the number of cases on which percentages are based.

Table 3

PERCENT OF NINTH GRADE NEGRO STUDENTS IN MAJORITY WHITE CLASSES, BY TRACK LEVEL IN ENGLISH COURSES AND PERCENT WHITE ENROLLMENT IN THE SCHOOL[a]

Track Level in English Courses	Percent white enrollment in the school				
	0-9	10-29	30-49	50-69	70-99
High	3.1	24.1	30.0	50.0	70.8
	(291)	(170)	(183)	(118)	(72)
Middle	1.6	17.2	14.6	33.4	72.0
	(845)	(313)	(343)	(326)	(218)
Low	4.0	16.7	22.0	32.8	66.7
	(74)	(36)	(50)	(61)	(27)

[a]Numbers in parenthese represent the number of cases on which percentages are based.

Table 4

WEIGHTED PARAMETERS OF EFFECT OF CLASSROOM RACIAL COMPOSITION ON NINTH GRADE NEGRO VERBAL ACHIEVEMENT, GIVEN FAMILY BACKGROUND AND PERCENT WHITE IN THE SCHOOL, BY STUDENT'S PROGRAM OF STUDY

Program of Study	Effect Parameter	
All students responding to program of study question (24 comparisons, 3,245 cases)	+.28	
All students, partitioned by their program of study (72 comparisons, 3,245 cases)	+.20	
College Preparatory (24 comparisons, 1,206 cases)		+.15
General Program (24 comparisons, 667 cases)		+.47
Commercial, business, vocational or industrial arts (24 comparisons, 1,372 cases)		+.12

Table 5

WEIGHTED PARAMETERS OF EFFECT OF CLASSROOM RACIAL COMPOSITION ON NINTH GRADE NEGRO VERBAL ACHIEVEMENT, GIVEN FAMILY BACKGROUND AND PERCENT WHITE IN THE SCHOOL, BY STUDENT'S TRACK LEVEL IN ENGLISH COURSES

Track Level	Effect Parameter
All Students (18 comparison, 4,717 cases)	+.17
High track students (18 comparisons, 991 cases)	+.14
All other students (18 comparisons, 3,726 cases)	+.16
All students (24 comparisons, 5,075 cases)	+.21
Middle track students (24 comparisons, 1,979 cases)	+.23
All other students (24 comparisons, 4,096 cases)	+.18
All students (12 comparisons, 5,075 cases)	+.22
Low track students (12 comparisons, 255 cases)	+.13
All other students (12 comparisons, 4,820 cases)	+.23