DOCUMENT RESUME

ED 121 811 TM 005 239

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TITLE Evaluation in Mandated Integration: Decision Making and Program Planning.
PUB DATE [Apr 76]
NOTE 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (60th, San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS Academic Achievement; *Bus Transportation; Classroom Environment; Decision Making; *Elementary Education; *Integration Effects; Participant Satisfaction; Predictor Variables; Program Planning; *School Integration; Student Attitudes; Student Behavior; *Student Evaluation; Suburban Schools

ABSTRACT

This study reports the evaluation of the effects of a mandated busing program which integrated the student body in a K-8 suburban school district. A two phase, three year study gathered evaluation data on achievement, classroom instruction, student and staff attitudes, perceived classroom environments, and student behavior incidents. Evaluation data were gathered on 2,500 students in the first two years and 300 fourth grade students in the third year. The data were analyzed using the variables of race, sex, grade, school, achievement, and classroom environment. The evaluation results, their use and implication for decision making and program planning are discussed. On the whole, the effects of mandated busing and integration on the Forrestville School system were contrary to much of the national picture. All children appeared to benefit both academically and socially from integration. (Author/RC)

Evaluation in Mandated Integration: Decision Making and Program Planning

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Paper presented at the AERA Annual Meeting in San Francisco, California

April 19-23, 1976 #29.07

ABSTRACT

This study reports the evaluation of the effects of a mandated busing program which integrated the student body in a K-8 suburban school district. A two phase, three year study gathered evaluation data on achievement, classroom instruction, student and staff attitudes, perceived classroom environments, and student behavior incidents. Evaluation data were gathered on 2500 students in the first two years and 300 fourth grade students in the third year. The data were analyzed using the variables of race, sex, grade, school, acievement and classroom environment. The evaluation results, their use and implications for decision making and program planning are discussed.

Evaluation in Mandated Integration: Decision Making and Program Planning

Introduction

"In the past ten years, school desegregation has been a major policy issue in education, perhaps the major policy issue," (Coleman, 1975, p.3). As the courts and administrative branch have increased their pressure, profound changes have resulted in within district resegregation, frequently with reverse effect to the original policy intentions (Coleman, 1975). Among integration issues, busing, which changes schools' racial mix has become one of the most sensitive and emotionally toned. In a sample population purposely chosen for commitment to liberal views, Caditz found in a study of attitudes toward six levels of integration-- busing, work situation, housing purchases, college admission quotas, housing rentals, and hiring--busing from neighborhood schools for purposes of integration received one of the highest negative ratings (Caditz, 1975).

Thus, while integrated education has been a much sought-after goal by segments in the population, it has been difficult to achieve and stressful in practice when it has been mandated by outside authorities. Fierce resistance by local groups has often turned the schools into legal, ideological, and physical battle grounds. Under these conditions the school climate has shifted and white flight has resulted, with a consequent resegregation of the schools (Coleman,1975). It should be noted that even though the extent of white flight has been questioned, (Green and Pettigrew, 1976) the movement of whites from black majority schools is well documented. As a result, questions are being raised about the

feasibility of mandated integration as an educational stimulus for students. If the main effects are simply to polarize racial groups, turn over real estate, and shift residential patterns, the contribution to education is at best questionable.

Within the line of research reported and summarized by Armor (1972), Coleman (1975), Pettigrew et al. (1973), St. John (1975), and others this study reports a field evaluation of a mandated integration of a school system and the union of evaluation research and policy making to maintain a viable educational setting.

With the onset of mandated integration in the school system a number of measures were administered to monitor attitudes and achievement. Over a three year period student perceived learning environment, student achievement, student discipline. and instruction were examined to chart the effects of integration and to provide a data base for projecting policy and plans for improving the educational opportunities for children.

Design

Forrestville, a bedroom suburb of a large metropolitan area, contains a racially mixed population of 80% white and 20% black. The K-8 school population reflected housing patterns and 90% of the black students, (K-6), were enrolled in one elementary school. Under a mandate from the state, a busing program was instituted, to reconstitute the student population of each school to reflect the ratio of the racial composition of the community (20%-80%). After the integration plan was developed, a local university group was invited to assist with drawing an evaluation design that would produce data to be used to alert decision makers to problems, guide policy making, and aid in program planning and implementation.

No pre-integration measures of the school climate were obtainable, and only a limited amount of group achievement data were available. Thus, an evaluation design was formulated within the limitations of previous measures and observing restrictions on the amount of data that was politically and financially feasible to gather.

During each of the first two years of the study all elementary students in the district (N=2500) in grades 3-8 were administered a measure of the learning environment. This instrument (Anderson, 1971) which has been widely tested and internationally used in research studies, obtains students' perceptions of the learning environment prevailing in classrooms and has been found to correlate with measures of student achievement. Achievement tests were administered to all students on a pre and post basis for three years. In addition a study was conducted of behavioral incidents reported at the junior high school during the second and third year of integration to determine the number of racially related incidents. Previously, students were first integrated at grade six of the junior high school, and it was hypothesized that earlier cross-racial experience would reduce racial incidents among students in the upper grades.

In the third year an intensive study of instruction was made of the fourth grade, since it represented a transition grade in the school organization (K-3, 4-6, 7-8) and was viewed as being a critical grade for adjustment by both parents and teachers. All fourth grade classes (N=14) were observed using a standardized form (Kunkel and McElhinney, 1970) and each teacher was interviewed on her/his classroom work and her/his participation in the school. In addition three students from each fourth grade class were interviewed regarding their attitudes

toward school and their classroom. All fourth graders completed a learning environment measure and pre and post achievement tests for the year. A fourth year follow up on achievement is underway and data will be available in September, 1976.

Results

The data on the first two years of the integration were analyzed by multiple regression techniques using the variables of race, sex, grade level, school, achievement and perceived learning environment. Differences in achievement by race were found but these paralleled the previous years' achievement data. Over the two year period achievement for all children improved. Several significant differences were found in achievement and perceived learning environment by sex, grade level,and school. Of particular significance was the finding that some black children were doing especially well in a few schools and poorly in other schools.

Table 1 presents the reading total achievement scores for all grade 4 students by school in 1973-1974. On the reading posttest scores, school mean raw scores for white students vary from 52.7 to 61.1, a range of 8.4 while school mean averages for black students vary from 32.9 to 45.2, a range of 12.3. It is interesting to note that while both white and black students scored highest at school E, white students scored lowest at schools A and B, and black students scored lowest at schools C and D. Since the mean achievement scores of each group of black students were similar prior to integration, it is apparent that selected schools are better meeting the needs of the black students. While Table 1 presents data for only one grade, these results were found to be consistent throughout the grades and for all achievement scores in years

1973 and 1974.

As a consequence these differences were used by the central administration in 1973 to look more closely at instructional practice and to plan the inservice program. In the next year's (1974) achievement data payoff for inservice efforts began to appear. Documentation of these changes as seen in the example in Table 2 were fed back to the administrators and School Board.

The benefits of integration appeared to be cumulative and increased over the two year period. Evidence of these benefits came from several data sources. For all grades, white students perceived their learning environment more favorably in 1974 than in 1973; black students perceived the learning environment similarly (and favorably) in 1973 and 1974. Black students in the lower grades (3-5) in both years perceived significantly more difficulty in their learning environment. As seen in Table 1, black students scored significantly lower than white students in achievement. Thus, it was concluded that black students perceive the learning environment as more difficult because, in fact, it is more difficult for them. This lends strong support to the accuracy of measuring learning environment perceptions as a source of evaluative data, since students are describing their environment as it is, rather than how they might like it to be.

These data on learning environments became exceedingly useful to the School Board when the community was swept by rumors that one school's discipline had broken down and that both black and white students were fearful and unable to learn in the environment. Besieged by calls, the School Board asked the administration for an investigation and explanation.

The outside evaluators were asked to compute analysis of the learning environment measures that had been recently taken in all schools. Table 3 presents the average for the learning environment variables in all schools and for the school which was under fire. From these data it quickly became clear that the school targeted by rumors did not deviate in learning environment from the district average. After examining the evidence in a public presentation, the School Board concluded that the school was functioning well and being victimized by rumors. They also vowed that they were not going to base decisions on the selected evidence of rumors telephoned to School Board members.

The data for the first two years were used by the staff and School Board in several policy planning areas. Fears in the community about the deterioration of the climate of learning and achievement in the schools were quieted through public release of the results. As a consequence the integration plan drew increasing support from elected School Board members, parents, and the staff (Sigler, 1973). From the results of the data several areas of curriculum were selected for inservice education for the staff in an attempt to shore up weaknesses revealed in the evaluation.

One especially useful bit of evidence for planning came from a study of behavioral incidents in the junior high schools (Eash and Sparkis, 1973) which indicated that most students were involved in disciplinary behavioral incidents only once or twice, a not atypical developmental pattern. A few students were involved in up to 26 incidents (see Table 4). Thus, discipline problems among the great majority of students were minimal; a few students who were constantly sources of problems accounted for almost all disciplinary incidents. The incidents were found not to be interracial. This finding reassured Forrestville staff and parents that on the whole, few discipline problems were resulting as a result of integration. As a policy it was suggested

that social service be concentrated on these selected students. In a follow up study the next year these students' names did not appear as high incidence discipline offenders.

The third year data of the fourth grade were analyzed on variables gathered on classroom observations, student interviews, classroom environment, and achievement.

Classroom observation proved to be especially revealing. While a wide diversity of teaching techniques were observed and some teachers seemed to be able to handle students who reflected a wide range of ability, other teachers were inflexible, ritualistic and completely unable to organize a classroom for learning. Table 5 presents a profile of high, low and average teacher ratings on the 8 areas* in which they were observed. Despite the district's emphasis on individualized instruction to handle the greater range of abilities in classrooms, several teachers

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*Sample items from each of the 8 areas are listed below. Items were rated on a five point scale A complete list of items is available upon request.

1. Instructional Materials
   No resources are available/Abundant resources are available.

2. Classroom Interaction
   Learning activities entirely chaotic, unplanned, listless, etc./ Each student engaged in systematic effort.

3. Use of Rewards
   Rewards are not noticeable/Rewards are frequent and noticeable.

4. Use of Punishment (Polarity on this item was reversed in Table 5 for clarity)
   Inattentiveness punished/Inattentiveness not punished.

5. Teacher (1.0.) vs. Student (5.0) Choice (Polarity on this item was reversed in Table 5 for clarity) Tasks based on teacher's choice/Tasks appear based on students' choice.

were unable to do more than go through the motions. A number needed help in using small group activity; almost all needed assistance in utilizing materials more efficiently. In short the broader range of student abilities produced through integration required more individualized and small group approaches to instruction and a greater variety of instructional materials. The rooms were found to have sufficient quantity of the latter, but in the rooms of the teachers rated lowest in the observations, materials were often in such a state of disorganization that they could not be used. Where teachers had adjusted and organized instruction for the greater range of ability levels, all students were observed to be performing better. These data suggested that administrators should be spending more time on supervising instruction and encouraging flexibility in methodology. Upon presenting this finding, the central administration found it needed to provide inservice training to building administrators to increase their competence in supervision of instruction. One positive outcome of systematic instructional supervision by administrators was the resignation of three tenured teachers identified as low classroom performers. The 1976 achievement data will be analyzed for achievement gain trends and for increases in the specific subject areas where teacher inservice training

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6. Climate
   Instructors and learners are energetic, lively, and alert/Instructors and learners are apathetic, listless, and bored.

7. Pupil Behavior
   Students appear afraid to try, embarrassed, tense, shy, and timid/Students anxious to try new activities, not disturbed by mistakes, relaxed, speak with assurance.

8. Teacher and Teaching Characteristics
   I would describe the teacher as: understanding, friendly/aloof

has been held this year. We believe that replacing poorer teachers will show up in achievement gains in the next few years.

The fifteen fourth grade teachers were interviewed regarding students' behavior during the period of integration, interrelations among black and white students, and administrative support of teachers' classroom efforts. The majority believed that student decorum during special programs and activities was about average. On the whole, teachers felt that students get along with each other well, 40% viewed interactions among racial groups as very good, 47% saw them as about average, and only 13% responded that racial interactions are not good. Several teachers stated that the staff in general has set a positive tone regarding integration. Twelve of the 15 teachers interviewed stated that interactions among racial groups were even better this year (1975) compared to last year (1974), and the remaining 3 did not see any change. Many teachers who believed racial interactions were improved in 1975 attributed these results to Forrestville administrators' effort to make integration work. In the first year's feedback session to administrators, the evaluators had emphasized the importance of maintaining a stable, secure environment for children, if white flight from the community was to be avoided. Evenhanded administration of discipline within a set of behavioral expectancies became the expressed policy of the administrators.

An analysis of the student interview data showed that most students perceive their teachers favorably and felt they are doing much better in school this year (1975). Black students felt less certain if things will go well for them in the future (a finding consonant with other studies; see Coleman, 1966) and reported they are praised by their

teachers less frequently than are white students. However, black students more than white students felt their teachers are helpful with and concerned about their schoolwork. These latter attitudes expressed by black students may be a function of several elements in the environment. First, as previously stated, white students score higher than black students in most academic areas; thus, it may be that black students do in fact receive less praise for their classroom performance. An outside source for pessimism for the future may stem from homes that were much harder hit by the economic recession and parents who were less secure in their jobs, which contributes to a feeling of insecurity and of being less in charge of a future (Gurin, 1969). Nevertheless, Forrestville teachers were seen as being concerned about helping black students achieve and black students freely acknowledged this in their interviews.

Again, in 1975 black students perceived the learning environment as being significantly more difficult than did white students. However, both white and black students in 1975 perceived the learning environment less favorably than they did in 1974; the major reason seems to be that both groups of students perceived increasing difficulty in the environment. Some of this may be attributed to the fact that all of these students had to adjust from attending a school where they were the oldest to a school where they are now the youngest (this is due to the grade reorganization of the Forrestville district: K-3, 4-6, 7-8). Curriculum changes requiring more subject matter may also be a contributor to this finding.

Most encouraging were the 1975 achievement data results. As seen in Table 6, white and black students made significantly higher gains in

achievement in 1975 than in 1973 and 1974.* These findings were most pronounced where students had spent the highest proportion of their school years in an integrated classroom. Under integration overall achievement in Forrestville is increasing; all students are benefiting. The 1976 data will be examined carefully to see if this trend continues.

A series of regression analyses were performed to see how well race, sex, socioeconomic status (SES)and home support predict gain achievement. Home support was determined by teacher rating of the support parents give to children at home regarding their school work. Race was found to be highly correlated with SES and home support; thus, these variables were entered both separately and together into the regression equation to see which was the strongest. Table 7 presents the results of the regression analyses. It is seen that home support is the single best predictor of gain achievement. Race predicts only gain arithmetic applications achievement, while SES predicts gain reading comprehension and gain reading total achievement. Thus, race in general does not appear to be a good predictor of gain achievement; rather the differences between black and white students in gain achievement discussed earlier can be attributed mainly to the amount of home support a child receives---the more home support, the greater the achievement. These results led the evaluators to suggest that Forrestville

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*Gain scores are computed as follows: gain score = $Y-([\overline{Y} - (w*\overline{X})] + (w*X))+\overline{Y}$, where Y is the posttest score, X the pretest score, $\overline{Y}$ the mean of the posttest, $\overline{X}$ the mean of the pretest and w the raw regression weight of the pretest regressed on the posttest.

administrators encourage parent participation in school activities and to give attention to parent education on how to assist their children in school.

Conclusion

On the whole, the effects of mandated busing and integration on the Forrestville school system have been contrary to much of the national picture. All children have appeared to benefit both academically and socially from integration. Much of this success can be attributed to a concerted effort first by Forrestville administrators and by Forrestville teachers to "make it work." There has been a need to improve instruction, a need that was less clear under segregation. Being lower achievers, black children needed teachers who gave more attention to instructional design if they were to gain in achievement. The evaluation evidence would suggest that all children benefited from the increased concern for improved classroom instruction that was a consequence of integrating the classrooms. For further improvements to continue, the evaluators believe it is vital that further attention be given to classroom instruction and parent education and that staff who perform poorly on these two tasks receive training and, if this fails, be replaced. Active involvement on the part of principals in the everyday processes of classroom instruction and a forthright and direct evaluation of teacher and administrator performances is mandatory. Administrators have been involved during 1975-76 in an inservice program on defining and improving their role in instructional improvement.

Admittedly, the community has had a favorable racial balance which is seen as a requirement by some experts for integration to succeed. Nevertheless early signals of community reaction to busing indicated that if white parents became persuaded that the schools were deteriorating, the community could have rapidly tipped toward within district segregation through white flight.

The evidence on student achievement and attitudes would suggest that many of the problems associated with integration are in fact instructional problems common to most schools:1) How to teach students in the same classroom who evidence a wide range of abilities.2) How to organize a classroom which uses a wide variety of instructional materials.3) How a classroom community can be set up that obtains cooperation of children in maintaining norms of behavior that contribute to using the teacher's time for instruction as opposed to discipline. Forrestville is identifying and moving toward solution of these problems. As a consequence, community instability, white flight, and parent dissatisfaction with the schools have receded during the four years of integration. Equally important, Forrestville schools are improving academic and social learning of all students, and this is the basic premise underlying the rationale for a public common school.

Table 1

Total Reading Achievement Raw Scores by School for Grade 5 Students

	White Students Pretest Scores			Posttest Scores			Black Students Pretest Scores			Posttest Scores		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Reading Total Score												
School A	45.3	18.9	53	52.7	20.2	47	33.1	16.7	30	37.4	19.4	34
School B	46.7	18.1	86	55.2	16.3	89	34.8	19.7	24	42.3	18.4	25
School C	49.2	16.8	85	55.8	15.9	82	28.9	12.7	12	34.1	12.2	8
School D	47.3	18.1	68	57.7	16.9	64	31.3	16.5	22	32.9	15.7	22
School E	56.3	15.3	47	61.1	15.5	49	37.1	16.7	17	45.2	20.2	17

Table 2

Comparison of 1973 and 1974 Grade 5 Raw Score Math Achievement

By Race

	1973			1974			t
	Mean	S.D.	N	Mean	S.D.	N	
Math Computation							
White Students	34.4	8.5	378	36.0	7.6	276	2.57*
Black Students	26.3	10.2	82	30.1	9.9	80	2.40*
Math Concepts							
White Students	20.9	5.6	376	22.3	5.6	275	3.29**
Black Students	13.5	6.4	83	15.8	6.8	79	2.26*
Math Application							
White Students	12.6	4.6	376	13.3	4.3	275	2.05*
Black Students	7.9	4.2	82	8.9	4.8	78	1.48
Math Total							
White Students	67.8	16.8	375	71.6	15.9	275	2.92**
Black Students	48.2	18.8	81	54.4	19.6	80	2.06*

* Significant at the .05 probability level

** Significant at the .01 probability level

Table 3

Learning Environment Scores for "Troubled" School and District in Grades 4 and 5

	"Troubled School" Grade 4 (N=111)		District Grade 4 (N=429)		"Troubled School" Grade 5 (N=89)		District Grade 5 (N=405)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Scale								
Satisfaction	20.2	4.7	19.3	4.9	20.3	4.7	20.2	4.8
Friction	19.7	4.0	21.1	4.1	19.0	4.0	20.4	3.9
Competitiveness	20.0	4.1	20.8	3.9	20.4	3.9	20.7	3.7
Difficulty	14.9	3.7	15.1	3.5	13.9	3.3	14.3	3.3
Cohesiveness	20.3	4.0	20.2	3.9	20.4	3.1	20.3	3.6

Table 4
Summary Graph of Frequencies of Behavioral Incidents

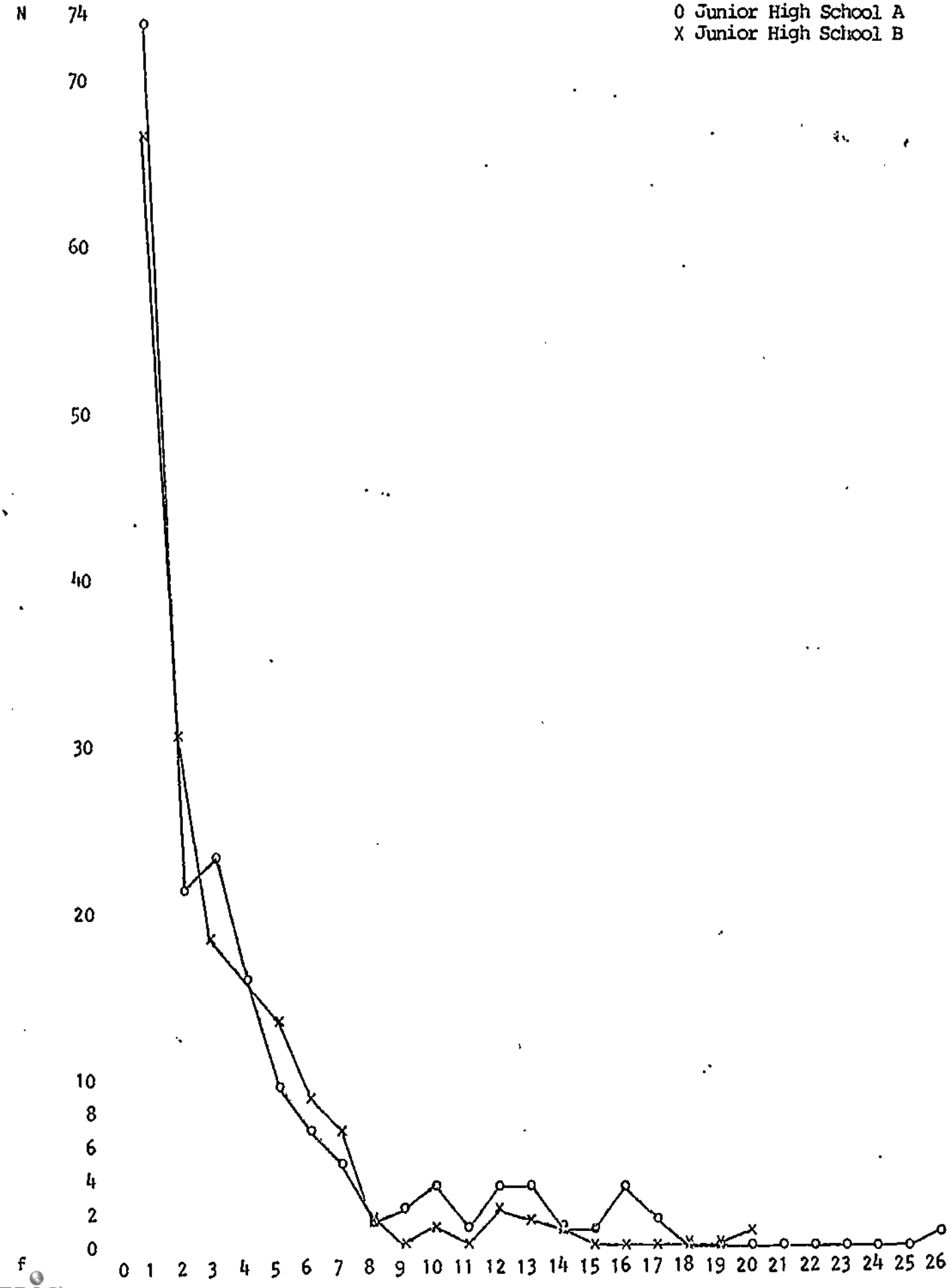

Table 5

Classroom Observation Ratings of Highest, Lowest, and Average Teacher

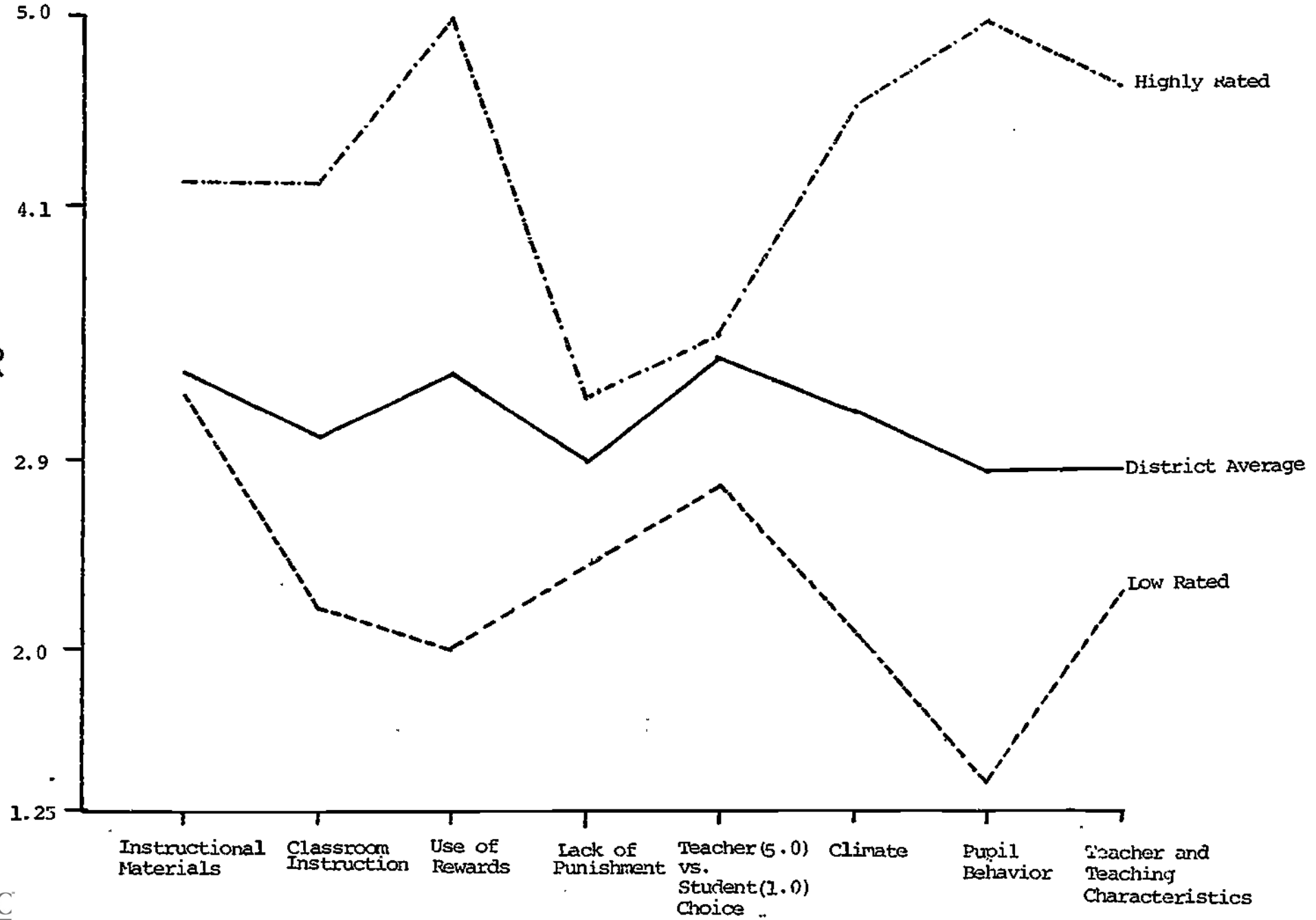

Table 6

Comparisons of 1973, 1974, and 1975 Grade 4 Gain Achievement Scores by Race

	1973			1974			1975		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
Reading Gain Score									
White Students	3.5	0.7	343	3.5	0.7	320	4.6	0.9	231
Black Students	3.3	0.6	92	3.3	0.6	108	4.3	0.8	99
Math Gain Score									
White Students	3.2	0.7	343	3.2	0.7	320	4.7	0.9	231
Black Students	3.0	0.6	92	3.2	0.7	108	4.3	0.9	99

Table 7

Regression Equations That Significantly Predict Achievement

	Independent Variables			
	Race	Sex	SES	Home Support
Dependent Variables				
Gain Reading Vocabularly	1	--	—	1
Gain Reading Comprehension	--	--	2,3,4	1
Gain Reading Total	--	--	2,3,4,5	1
Gain Arithmetic Computation	--	--	--	1
Gain Arithmetic Concepts	—	--	--	1
Gain Arithmetic Application	3,4,5	--	—	1,2,4,5
Gain Arithmetic Total	--	--	--	1,2,4,5

Key of Independent Variables included in Regression Equations

Equation 1 = Home Support and Race

Equation 2 = Home Support and SES

Equation 3 = SES and Race

Equation 4 - Home Support, SES, and Race

Equation 5 = Home Support, SES, Sex and Race

Note: Complete statistics from regression analyses are available upon request. This table summarizes the results of 35 separate stepwise regression analyses. Each dependent variable was predicted by the five sets of equations listed in the key above. The table shows in which equations the independent variables significantly predicted the dependent variables. For example, SES significantly predicts gain reading comprehension when it is entered with the sets of independent variables in equations 2,3 and 4.

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