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ABSTRACT

This report is the fifth in a series of studies on 14 elementary magnet schools in the Montgomery County Public Schools in Maryland. The focus is over a three-year period from 1983 through the 1985-86 school year. Ten of the elementary schools are from the Montgomery Blair High School area and four are in the Bethesda-Chevy Chase High School area. In addition to providing quality education, these programs are intended to improve the racial balance among schools by attracting and retaining pupils needed for racial balance. First, background and study methods are discussed. The next chapter focuses upon the findings concerning pupil attitudes and social interaction. A chapter is devoted to academic achievement discussion. Finally, parental involvement and satisfaction with the magnet schools are discussed. Appended are: (1) school sample and measures for the nonacademic analyses; (2) technical notes on the academic sample, measures, and analyses; and (3) magnet and normagnet school sample for parent interviews. (SI)

MONTGOMERY COUNTY
PUBLIC SCHOOLS
ROCKVILLE, MARYLAND

A Microscope on Magnet Schools 1983 to 1986

VOLUME 2:

Pupil and Parent Outcomes

January 1988

Harry Pitt
Superintendent of Schools

Prepared by the Department of Educational Accountability

A MICROSCOPE ON MAGNET SCHOOLS, 1983 TO 1986

Volume 2:

Pupil and Parent Outcomes

by

John C. Larson

Brenda A. Allen

January 1988

EXECUTIVE SUMMARY

A MICROSCOPE ON MAGNET SCHOOLS, 1983 TO 1986
Pupil and Parent Outcomes

BACKGROUND

MCPS has 14 elementary magnet schools which offer distinctive programs for quality education. All 10 of the elementary schools in the Blair High School area (Area 1) have magnet programs, and four of the seven elementary schools in the Bethesda-Chevy Chase High School area (Area 2) operate magnet programs. The programs have special attractions, some of which are found in no other schools, and others of which offer more intensive educational experiences than similar programs found in the nonmagnet schools. In addition to providing quality education, these programs are also intended to improve the racial balance among schools through attracting and retaining pupils needed for racial balance.

Elementary magnet schools were first established in MCPS in 1976. After the programs had been operating for several years, a revised magnet plan was formulated in 1981-82, and a "second generation" of magnet programs was initiated in the fall of 1983. Some of the schools retained their original magnet programs, some programs were continued in different schools, and new programs were begun elsewhere. Free transportation for pupils transferring into magnet schools was added as a feature of the plan, additional resources were provided to schools, and several schools were remodeled or expanded. The Area 1 magnet cluster expanded from seven schools to ten, and in Area 2 four schools were formalized as a grade-paired, magnet cluster.

This report is the fifth in a series of studies on those schools over the last 10 years, addressing such issues as magnet school effects on school racial balance, on pupil academic performance, and on pupil attitudes toward school. Volume 1 of the current evaluation study (July, 1986) reported on the implementation of magnet programs and on school racial balance. This report, focusing on the three-year period from 1983 through the 1985-86 school year, discusses the pupil academic performance and pupil attitudes in the elementary magnet schools, as well as parent involvement and satisfaction with the magnet schools.

SUMMARY OF FINDINGS

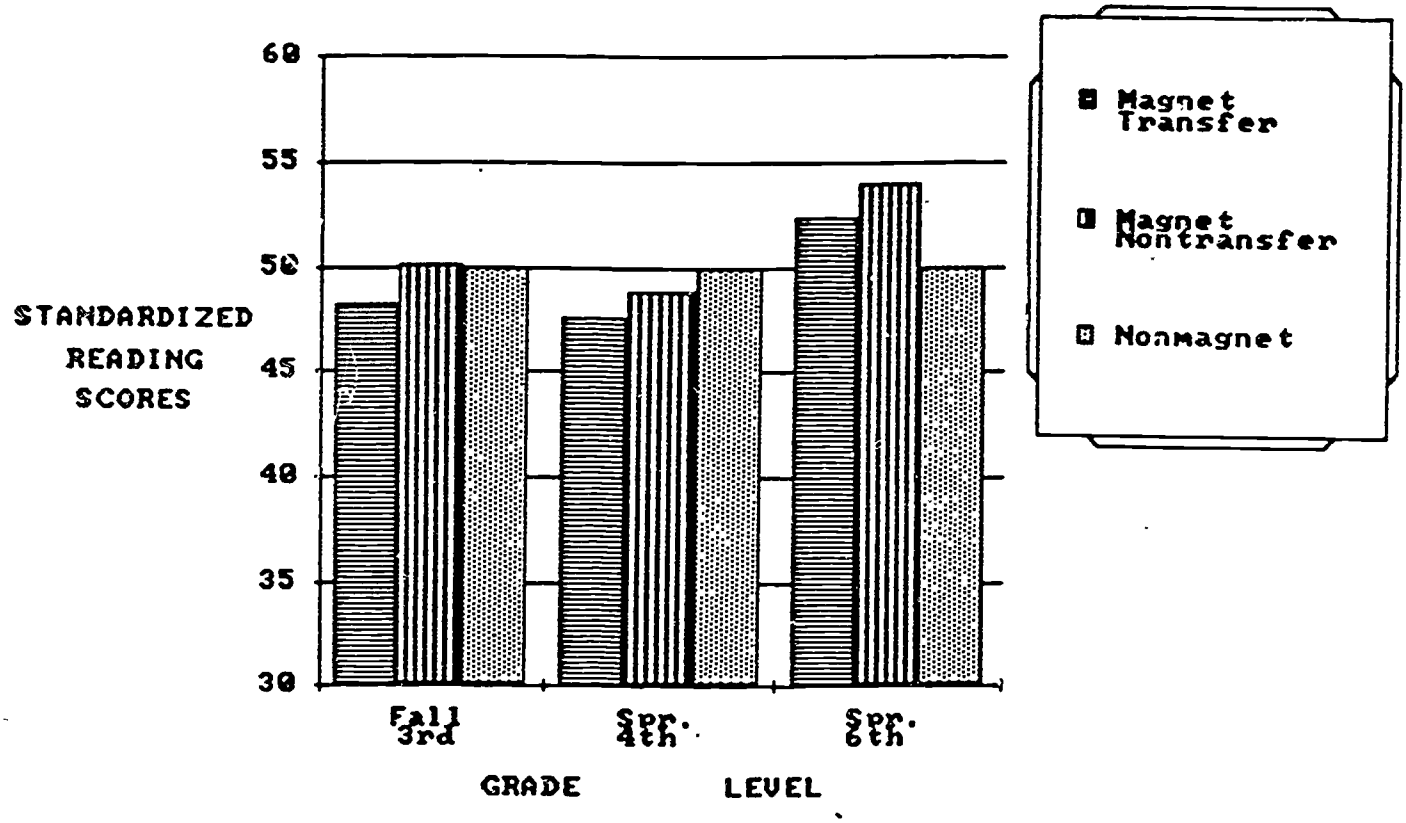
The mission of the magnet schools is to provide quality integrated education for students and wider educational choices of parents for their children. The results from this three-year evaluation suggest that the elementary magnet schools are accomplishing these goals.

ACADEMIC OUTCOMES

The findings show significant academic benefits in the upper grades of the magnet schools after pupils have generally been exposed to the magnet programs for a longer period. And, there is some evidence from the analysis of reading gains that the magnet programs in the last two years boosted scores more than in the prior years. Exhibit E.1 shows that while the magnet school students scored at about the same reading level as their nonmagnet school peers at the beginning of third grade, by the end of sixth grade they were significantly higher in reading than the comparison group. Such gains may be related to the fact, cited in a previous report, that program implementation was improved in many magnet schools within the last two years.

EXHIBIT E.1

Magnet School Students Overtake Nonmagnet School Students
In CRT Reading Performance Between Fourth and Sixth Grades



Note: The nonmagnet "norm group" average was set to 50 on the standardized reading scores at each grade level.

All racial groups in the upper grades showed positive magnet school effects on their reading and math gains with one minor exception. The Asian pupils who in the third grade already outscored their nonmagnet school peers maintained their relative advantage through the sixth grade with no significant change.

In the lower elementary grades, the findings on reading gains were mixed; that is, magnet school effects on reading differed between transferring and nontransferring pupils. Pupils transferring into magnet schools already scored higher than their nonmagnet comparison group at the outset, and they decreased only slightly through the third grade so that they still outscored the nonmagnet group. However, magnet pupils attending their neighborhood schools, while initially scoring on par with the nonmagnet group, progressed at a slower pace in reading than did the nonmagnet comparison group so that by the third grade they were behind their nonmagnet peers by a significant margin. [No math scores were analyzed in the third grade due to the lack of an adequate baseline math score in the first grade.] There were no significant differences in the magnet school effect on reading gains across the four racial groups.

The positive magnet school effects on academic scores cited here for the older students were not found in earlier evaluations of magnet programs in MCPS. It may be that improved magnet programs account for some of this finding in the upper cohort, but such an effect was not observed in the lower cohort. It may also be that the magnet programs are stronger in the upper elementary grades relative to the nonmagnet schools, since the upper elementary group showed no relative gains on the nonmagnet group in the lower grades but did show greater gains in the upper grades. It is important for future studies that the cumulative effects of annual gains be assessed when the gains for any single year may be too small to register significance.

We should also add that the basic academic scores used here offer only a partial coverage of the diversity of topics and the richness of the magnet program activities. In the last several years, pupils in the various magnet schools have produced nationally recognized videotape shows, visited the President of the United States, performed in the Kennedy Center and produced daily radio shows for broadcast within the school, attracted several grants from national sponsors for their curriculum, and conducted many other activities within the school and community all designed to support the academic and social growth of the pupils. It is difficult to quantify the tangible effects of such activities, but they are an important part of the magnet school attractions.

PUPIL ATTITUDES AND SOCIAL INTERACTIONS

The current findings on pupil attitudes toward school and pupil friendships are important for magnet school planning and are reassuring for parents thinking of transferring their child to a magnet school.

The results show that magnet school pupils generally like their schools and that those who transfer into magnet schools like their new school as much or more than the magnet students attending their own neighborhood schools. Teacher ratings on classroom cooperation also suggest that transfer pupils get along in school as well as their nontransfer classmates. In addition, transfer pupils in the magnet schools tend to have more friends than do their classmates from the immediate school neighborhood, regardless of the transfer pupils' greater distances from home. Asian pupils appear particu-

larly well adjusted to school. They tend to like school more than others, they are rated highest by teachers on cooperation and expectations, and they also tend to have a larger circle of friends than other students.

The finding of positive teacher expectations for pupils' success suggests that the magnet schools are using one of the active ingredients of effective schools--high expectations for pupils. Also important is the finding that teacher expectations are essentially the same for black, Hispanic, and white pupils at any given level of pupil academic performance.

Finally, the results on the question of interracial friendships emphasize the importance of the magnet schools' racial balance goal as a means for enhancing interracial contact. The findings show that the racial balance of the school environment plays a strong role governing the extent to which pupils form interracial friendships. Our estimations show that, if given an equal chance, pupils of each racial group would choose about the same mix of other-race friends, thus suggesting that pupils are generally "color-blind" in their choices of friends in elementary school. As it is now, pupils' choices of other-race friends tend to fall into line with the proportion of other-race classmates around them in the school environment.

PARENT INVOLVEMENT AND SATISFACTION

A telephone survey of over 1,000 parents revealed few differences in school satisfaction and involvement between the magnet and nonmagnet parents. Both groups are involved with their children's schools, are satisfied with them, and give high marks to the education and experiences offered.

Over 90 percent of the parents are involved at least minimally with their schools, since that percentage reported having visited the school to talk with teachers or staff at some point in the year. About 75 percent of the parents had visited their children's classes, and close to 70 percent reported having attended a PTA meeting. And, 46 percent had volunteered for some activities in their schools.

Interestingly, the parents of transfer pupils reported school involvements slightly higher than those of the nontransfer pupils. Thus, for the elementary school parents one's distance from the school is not in itself enough to suppress one's involvement in the school below the level of those living in the immediate school neighborhood nor, as noted above in the pupil outcome discussion, to reduce the pupils' social involvement with their classmates.

Regarding satisfaction with the schools, both magnet and nonmagnet parents gave their schools a strong "B+" rating (3.4 on a scale from 0 to 4). For magnet parents this level of satisfaction was essentially unchanged since the 1980 survey, but satisfaction in the nonmagnet schools is up slightly since 1980. Satisfaction was slightly higher among Hispanics and Asians than among blacks and whites. The fact that satisfaction levels run so high in the nonmagnet schools may mean that the magnet schools will have to work even harder than in the past to attract transfers away from other schools.

Parents also indicated how satisfied they were with their ethnic group's representation (or integration level) in the school. The results show two patterns: (1) Most parents (close to 75 percent in all racial groups) express satisfaction with the status quo, and (2) many parents express an affinity for their own ethnic group. For example, across the sample of 27 schools, as the school minority composition increases, the black parents' satisfaction with their group's representation increases, and the white parents' satisfaction decreases. Such a pattern may play a role in parents' decisions for or against transferring their children to magnet schools.

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ACKNOWLEDGMENTS

This three-year study of 14 elementary magnet schools was made possible in part through the sustained cooperation of the magnet school principals and their teaching staff. The authors appreciate the school staffs' support in scheduling the many classroom testing sessions and completing the questionnaire forms.

The authors are grateful to Heidi Snyder for her assistance throughout the project in scheduling and coordinating the field data collection activities, and for the seemingly endless chores of coding and editing data, and developing analytic files. Rita Kirshstein, Kathy Tuck, Laura Salganik, Donny Yuen, June Bogushefsky, Lisa Sprehn and Kurt Hirsch also contributed to the data collection, file development and analysis efforts at various points during the life of the project, as did a field staff of over 15 telephone interviewers speaking to parents in five languages.

The authors also thank Dr. Nancy Karweit and Dr. Joyce Epstein of the Center for Research on Elementary and Middle Schools at The Johns Hopkins University for their assistance with the sociometric measures and analysis, and for Dr. Karweit's sociometric scoring program.

CHAPTER 1

INTRODUCTION

ELEMENTARY MAGNET SCHOOLS IN MCPS

MCPS has 14 elementary magnet schools which offer distinctive programs for quality education. All 10 of the elementary schools in the Blair High School area (Area 1) have magnet programs as do four of the seven elementary schools in the Bethesda-Chevy Chase High School area (Area 2). The programs have special attractions, some of which are found in no other schools and others which offer more intensive educational experiences than similar programs found in the nonmagnet schools. In addition to providing quality education, these programs are also intended to improve the racial balance among schools through attracting and retaining pupils needed for racial balance.

Elementary magnet schools were first established in MCPS in 1976. After several years of program operations, a revised magnet plan was formulated in 1981-82; and a "second generation" of magnet programs was initiated in the fall of 1983. Some of the schools retained their original magnet programs, some programs were continued in different schools, and new programs were begun elsewhere. Free transportation for pupils transferring into magnet schools was added as a feature of the plan, additional resources were provided to schools, and several schools were remodeled or expanded. The Area 1 magnet cluster expanded from seven schools to ten, and in Area 2 four schools were formalized as a grade-paired, magnet cluster.

This report is the fifth in a series of studies on those schools over the last 10 years, addressing such issues as magnet school effects on school racial balance, on pupil academic performance, and on pupil attitudes toward school. Volume 1 of the current evaluation study (July, 1986) reported on the implementation of magnet programs and on school racial balance. This report, focusing on the three-year period from 1983 through 1985, discusses the pupil academic performance and pupil attitudes in the elementary magnet schools, as well as parent involvement and satisfaction with the magnet schools.

Earlier studies of the elementary magnet schools in MCPS found that short-term academic gains in the magnet schools kept pace with those in the nonmagnet schools. A 1978 study of one-year and two-year gains in schools which had just implemented grade-pairing and magnet program desegregation plans found that gains in the desegregating schools were no different from those in the schools outside the plan. A more extensive analysis of the magnet schools through 1980 found a similar result. The current report examines gains for some pupils over a four-year period and provides both an updated and more comprehensive analysis of academic benefits of the magnet schools.

A report (March, 1979) of the first two years of magnet schools touched on the issue of social interactions. It suggested that interracial sharing, working together, and social interactions were more positive in the magnet schools. The present study looks closer at the extent to which magnet schools facilitate interracial friendships.

Teacher expectations for students have not been studied previously in the MCPS magnet schools, but the topic has been widely discussed in other studies of effective schools and minority education. This study examines racial differences in teacher expectations and, as is necessary in such an analysis, statistically controls the effects of pupils' actual performance levels on the expectation ratings.

Finally, an earlier report (February, 1981) showed fairly high parent satisfaction with the magnet schools. This study reassesses the question of satisfaction and examines the extent to which magnet parents become involved in the new schools which their children attended.

These topics on pupil and parent outcomes are discussed in three major chapters in this report: Pupil Attitudes and Social Interactions, Academic Achievement, and Parent Involvement and Satisfaction. What follows is a brief overview of the study methods for these three topics, and further technical details are included in the appendix.

STUDY METHODS

SAMPLE

The magnet school sample included pupils from all 10 of the elementary schools in Area 1 (Blair High School cluster) and the four magnet schools in Area 2 (B-CC High School cluster), as listed below in Exhibit 1.1. In order to represent the lower and upper elementary grades of the magnet schools, the study of pupil outcomes assessed one group of pupils annually as they passed from first through third grades and another group as they progressed from fourth through sixth grades. However, when the pupil results were

EXHIBIT 1.1

Elementary Magnet Schools Included in This Evaluation

AREA 1	AREA 2
East Silver Spring	Chevy Chase
Forest Knolls	North Chevy Chase
Highland View	Rock Creek Forest
Montgomery Knolls	Rosemary Hills
New Hampshire Estates	
Oak View	
Pine Crest	
Piney Branch	
Rolling Terrace	
Takoma Park	

analyzed for the third and sixth grades, some schools were deleted since, due to grade pairing plans, those schools either had no third graders (Montgomery Knolls, Rosemary Hills, and Piney Branch) or no sixth graders (Montgomery Knolls, East Silver Spring, Takoma Park, and Rosemary Hills).

The samples used for the three major chapters--pupil attitudes, pupil academics, and parent responses--differed in several ways. First, the pupil attitude measures were assessed only in the magnet schools. Thus, no nonmagnet school comparisons are discussed. Second, the pupil academic measures were taken from existing measures administered systemwide. Thus, nonmagnet comparison schools were available at no extra cost to the study. The magnet schools and the matched set of nonmagnet schools used in the academic analyses are discussed in the appendix together with the strategy used for matching the nonmagnet comparison schools. Third, the parent study included a sample of parents from all the magnet schools as well as a set of nonmagnet schools, somewhat different from those in the academic study, which are contiguous to the magnet clusters and thus most likely to contribute potential transfers of pupils to the magnet clusters. These schools also are detailed in the appendix.

MEASURES

Attitudinal measures. During the spring of each year, all magnet school pupils in the lower- and upper-grade groups were administered a brief questionnaire on attitudes toward school, and they identified, from a roster of the pupils in their grade level, the classmates who were their friends. Also, the teachers checked for each of their pupils a four-item rating form concerning pupil cooperation, readiness for next year's school work, and relationships with other pupils. These measures are described in more detail in Chapter 2.

Academic measures. Academic performance scores were obtained from measures administered each spring to pupils throughout MCPS. The Criterion-referenced Tests for Reading (CRT-R) and the Criterion-referenced Tests for Math (CRT-M) were used in this study since they were developed locally to match the MCPS core curriculum. In addition, baseline scores for the upper-grade group were taken from existing data on that group's third grade California Achievement Test scores. The systemwide availability of the academic measures meant that a nonmagnet comparison group could be used in the analysis of academic gains at no extra cost to the evaluation nor extra testing burden for the schools.

Parent measures. Parents' involvement with their schools and their satisfaction with the schools were assessed through a telephone survey of over 1,000 parents in the magnet and nonmagnet schools. The survey was conducted during the spring of 1984 and again in the spring of 1985. The items used in the analysis are discussed in more detail in Chapter 4.

CHAPTER 2

PUPIL ATTITUDES AND SOCIAL INTERACTIONS

BACKGROUND

MCPS recognizes, in its Goals of Education statement, that education must engage the whole child; and the magnet schools address that goal with their diversity of activities, clubs, and labs, as well as with their cultural pluralism. The pupil's adjustment to school life and the social setting is an important goal in itself apart from its contribution to academic success. In this chapter we examine how the magnet school children view their schools and how teachers view their pupils. We also discuss pupil friendships and interracial friendships as part of the magnet program's interest in school racial balance.

Since the pupil transfer question is important to parents and school administrators, this chapter includes comparisons between pupils who transferred into the magnet schools and their nontransferring classmates. Also reported are racial differences in the pupil responses. Since the attitudinal measures were administered only in the magnet schools, no magnet-nonmagnet comparisons are available.

The pupil outcomes reported in this chapter come from a study of pupils in 12 elementary magnet schools of Area 1 and Area 2. We collected longitudinal data on two groups of pupils: (1) first graders as they progressed to third grade in the spring of 1986 and (2) fourth graders as they progressed to sixth grade by the spring of 1986. Two other magnet schools did not have third or sixth graders due to grade-pairing plans with other schools. The magnet schools included in this analysis are listed in the appendix.

FINDINGS

PUPIL ATTITUDES TOWARD SCHOOL

The overall response to a questionnaire on school attitudes shows that the magnet school pupils as a whole like school. Moreover, pupils who transfer into magnet schools enjoy school somewhat more than do their nontransferring peers. That is, in spite of their travel to a school outside of their immediate neighborhoods and the adjustments to new surroundings and friends, magnet transfer pupils report higher liking for school by a small but statistically significant margin over their classmates who attend the neighborhood school.

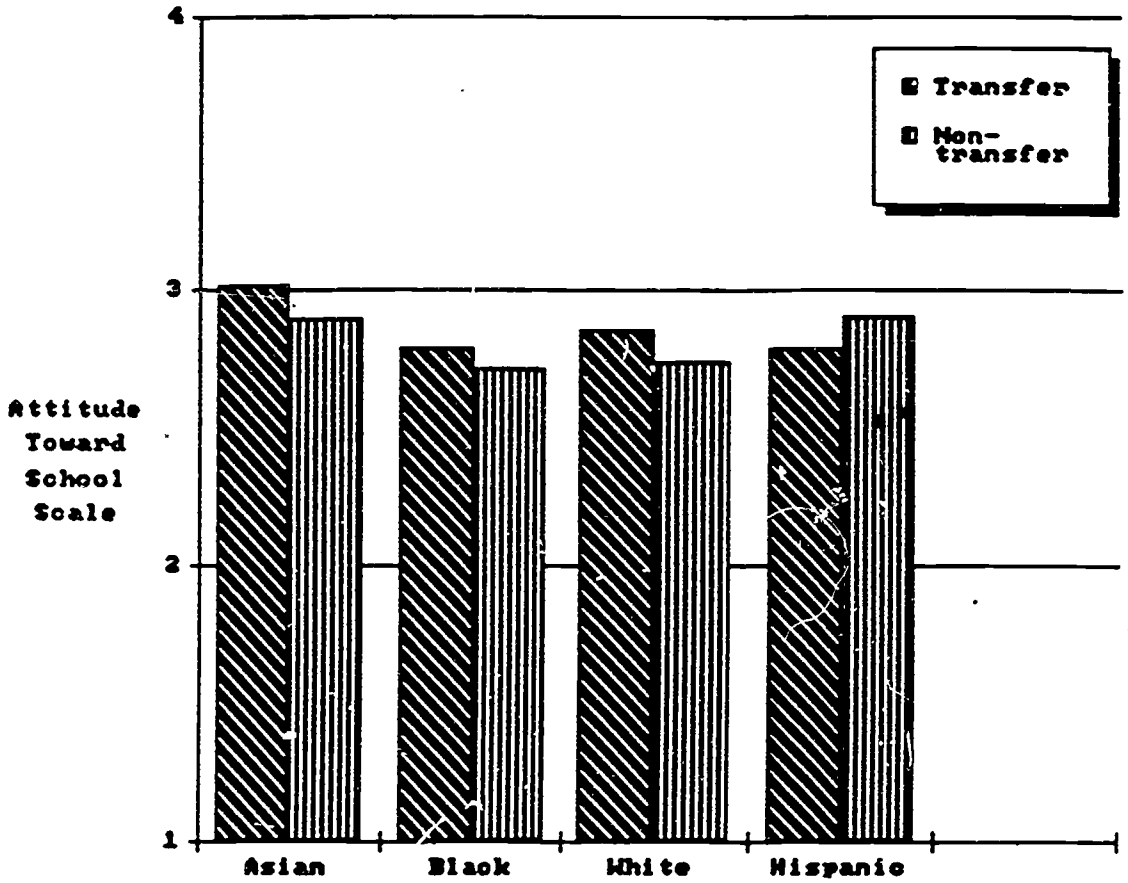
These results are summarized below in Exhibit 2.1 from scores on the "My Life at School" scale. This 19-item, multiple-choice questionnaire, derived

from local modifications to the Quality of School Life scale developed at Johns Hopkins University, addresses three aspects of school life: how well pupils like their teachers, their class work, and the school in general. Preliminary analyses show that the questionnaire provides a single, global score of "liking for school" rather than three distinct scores in the areas noted above. The score combines several types of items to produce a pupil attitude scale with the following general meaning:

(4) Very favorable toward school; (3) Likes school; (2) Lukewarm toward school; (1) Dislikes school.

EXHIBIT 2.1

Average Attitude Toward School Scores for Racial Groups and Transfer-Nontransfer Groups in the Magnet Schools



The sample average of 2.8 shows that the pupils generally like school. In addition, blacks (2.73) and whites (2.77) score essentially the same with a moderately high liking for school, but Asian (2.92) and Hispanic pupils (2.88) report liking school slightly more than the other two racial groups.

Further analyses also show that, as found in much other research, younger pupils in the third grade like school more that their sixth grade classmates who are approaching early adolescence. In addition, our results confirm the common finding that girls report a higher liking for school than do boys.

Finally, more detailed analyses show that pupils who enjoy school more than others tend also to be seen by teachers as more cooperative in class, a finding not likely to surprise many teachers. The correlation between cooperation and liking for school is .32. However, it is rather surprising to note that pupils' liking for school bears no relationship to their academic standing. The correlation with reading performance is only .09. Thus, for these elementary school children, attitudes toward school may be important outcomes in their own right; but such attitudes do not generally improve or inhibit academic performance, nor does academic performance appear to affect these attitudes.

TEACHERS' VIEWS OF THE PUPILS

Much has been written about the need for staff to maintain high expectations as a condition for effective schools and about potentially lowered expectations for blacks. The analyses here support the former contention but not the latter. At any given level of pupil academic performance, teachers in the magnet schools predict about the same level of future academic success for blacks, whites and Hispanics. Other analyses regarding transfer pupils show that teacher expectations for them are essentially the same as their ratings of the nontransfer pupils.

These findings come from the analysis of teacher ratings of pupils in the magnet schools. Teachers were asked to rate their pupils on classroom cooperation and on expectations for next year's performance in school. The rating items read as follows:

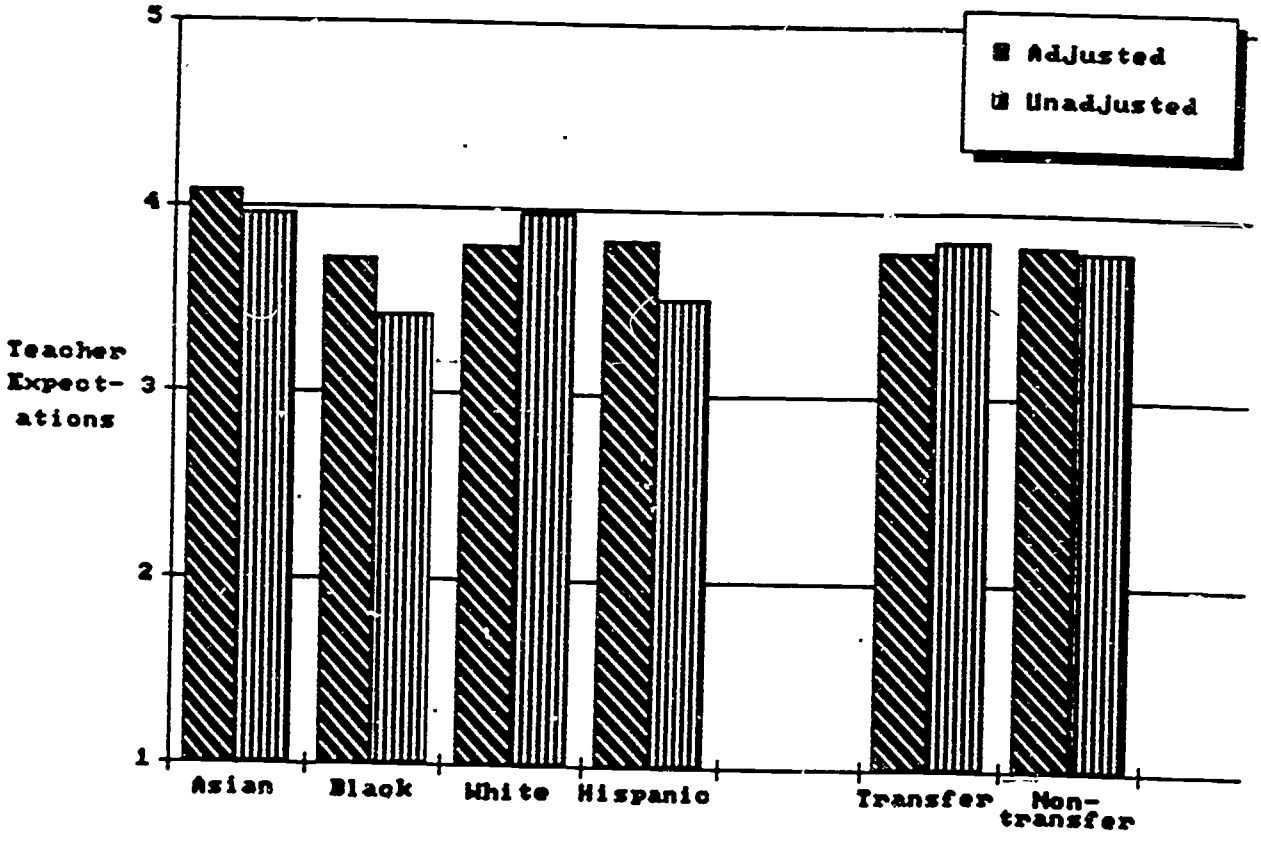
1.	2.
"Rate the pupil's likely overall performance on next year's course content":	"Rate the pupil's cooperation":
(5) Likely to do very well	(5) Excellent: cooperates without adult encouragement
(4) Likely to do above average	(4) Above average: cooperates well
(3) Likely to do about average	(3) Waits his/her turn: average for grade level
(2) Likely to do poorly	(2 Frequently demands attention: often speaks out of turn
(1) Likely to fail	(1) Continually disrupts class: unable to inhibit responses

The results show that teacher expectations of pupil future academic success are indeed linked to pupil academic performance in the magnet schools (correlation is .54). This is most likely due both to brighter pupils producing higher teacher expectations as well as higher teacher expectations reinforcing better pupil performance. The results also show that teachers in the magnet schools do not hold unduly low expectations for blacks, as can be seen below in Exhibit 2.2 on the "adjusted" scores. The results on the cooperation ratings are shown in Exhibit 2.3.

Exhibit 2.2 shows both the expectations for future performance as recorded by teachers (unadjusted) and the ratings statistically adjusted for the pupils' current academic performance differences. This adjustment is necessary since the expectation ratings interact so much with pupil test scores. It is mainly the teacher ratings apart from test scores we want to study here, not the pupil academic differences. The adjusted expectation ratings average about the same level for all groups except the Asian pupils. That is, at any given level of academic performance, teachers tend to have slightly higher expectations for Asians than for others. These expectations are consistent with the image of high-achieving Asian students which permeates news media reports and educational research studies throughout the nation.

EXHIBIT 2.2

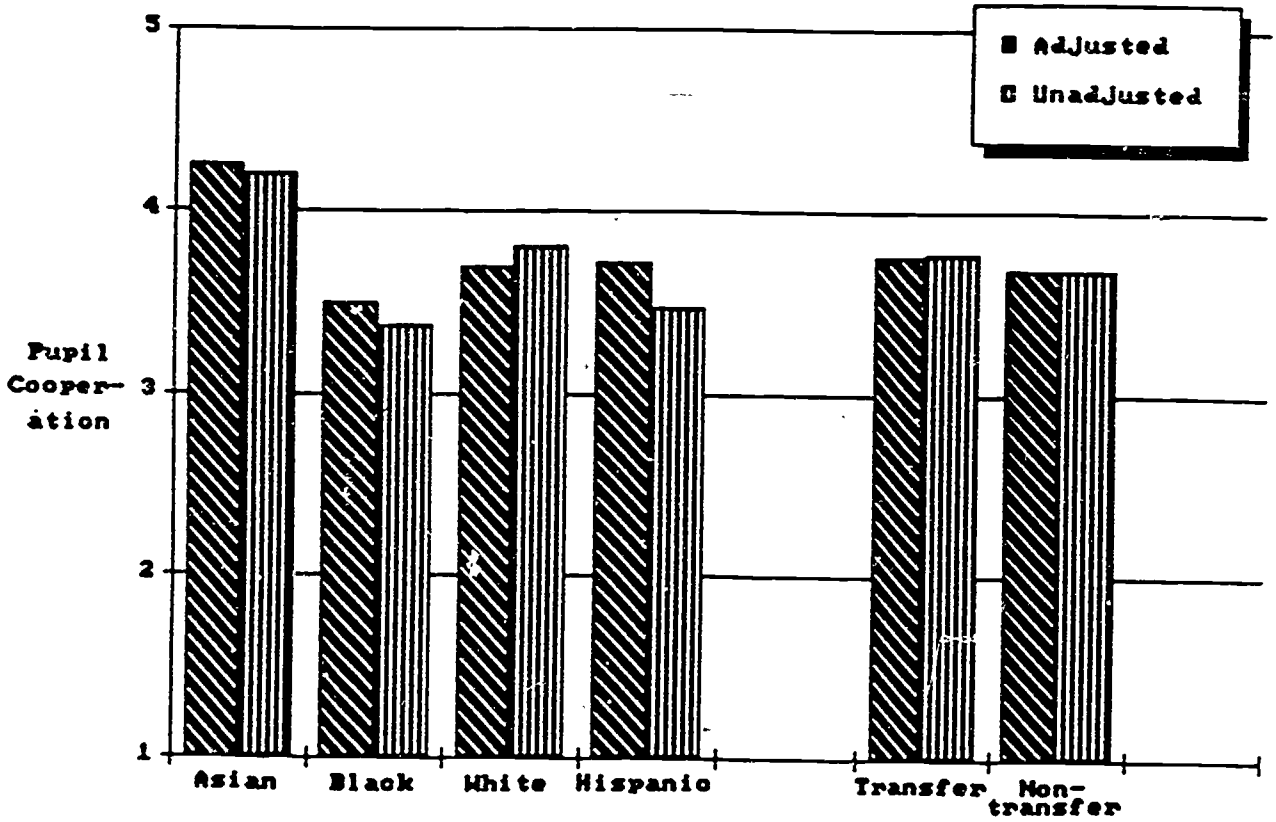
Average Teacher Expectation Ratings for Racial Groups and Transfer-Nontransfer Groups in the Magnet Schools



On the classroom cooperation ratings shown below in Exhibit 2.3, teachers see Asians as more cooperative than whites and blacks as slightly less cooperative than whites. The moderately low correlation (.24) between the cooperation rating and achievement scores means that when pupil achievement differences are adjusted out of the ratings, the black-white difference is reduced but not eliminated. The results on the transfer-nontransfer groups, as with the expectation ratings, show no statistically significant differences in classroom cooperation between the transfer and nontransfer pupils.

EXHIBIT 2.3

Average Classroom Cooperation Ratings for Racial Groups and Transfer-Nontransfer Groups in the Magnet Schools



PUPIL FRIENDSHIP CHOICES

The magnet school staff recognize the value of cultural diversity in their schools and the need for pupils to learn and appreciate the values and rights of their classmates. One important indicator of pupil interactions is friendship selections. In this section we use pupil friendship choices to examine the child's social integration into the school and the extent of interracial contact brought about by pupil friendship selections.

Some parents may worry that transferring their child to a magnet school may lead to social isolation among strangers. The results reviewed above suggest that transfer pupils do not decrease their liking for school, and the results summarized below suggest that they also do not become socially isolated in a new school. The findings here also show that magnet school pupils generally develop interracial friendships and that the racial mixture of the school setting influences the formation of interracial friendships.

The following three measures of pupil friendship selections are used in these analyses:

1. Gregariousness--The number of classmates a pupil identifies as "A good friend of mine"

2. Popularity--The number of times a pupil is chosen as a friend by other classmates

3. Interracial friendships--The percentage of a pupil's friends who are of another racial group

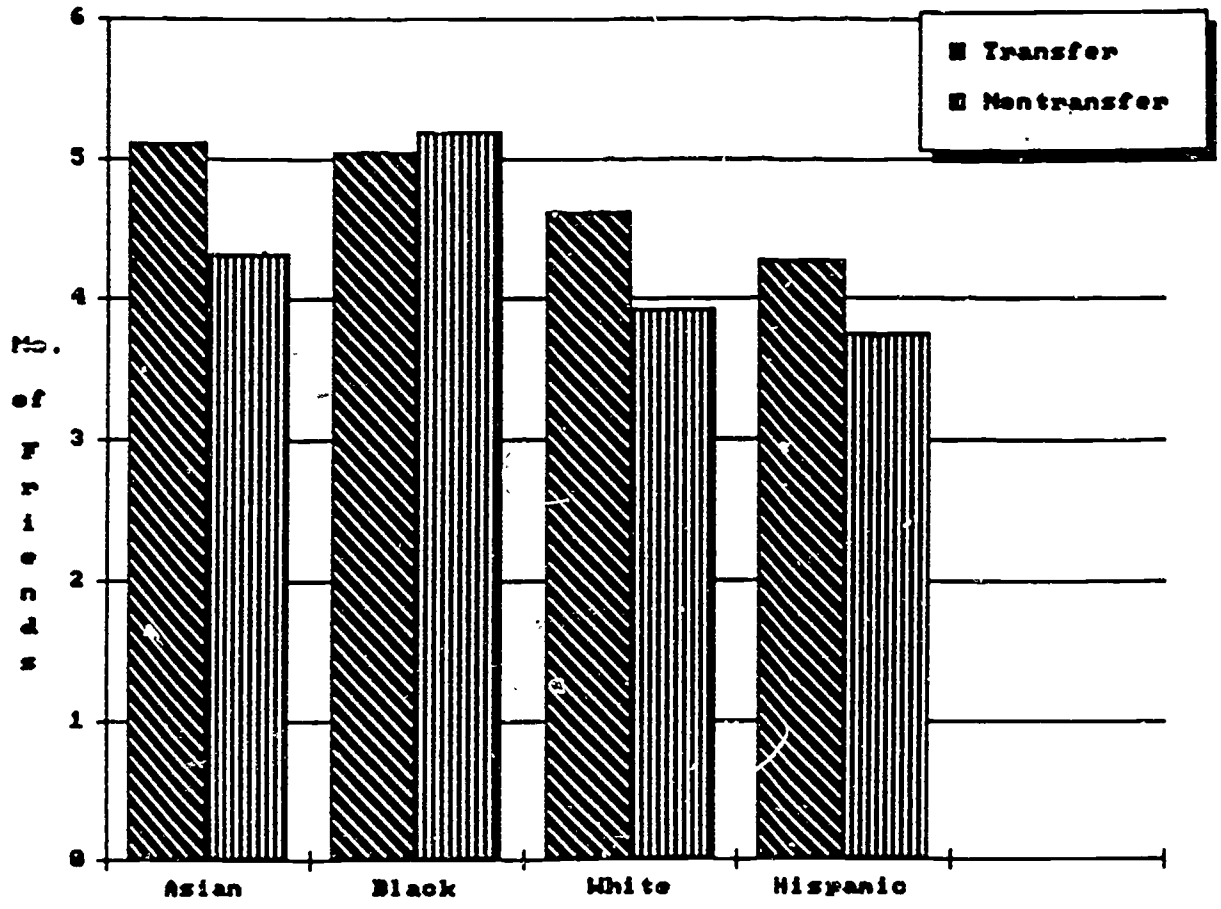
These scores were obtained from a checklist given to pupils. The third and sixth grade pupils in the magnet schools were each given an alphabetized list of all the pupils in their grade level in the school. They were asked to check those classmates who are "A good friend of mine."

For example, on the "Gregariousness" score, about half (51 percent) of the pupils named between one and three classmates as friends. The average number of friends named was 4.4, and only about 7 percent named more than 10 friends. Results on the "Popularity" score were similar. About half (54 percent) of the pupils were named as a friend by one, two, or three classmates The mean "Popularity" score was 3.92, and only 5 percent of the pupils were named by more than 10 classmates as a friend.

Exhibits 2.4 and 2.5 below summarize these scores for the four racial groups as well as the transfer-nontransfer groups. These charts show that pupils who transfer into the magnet schools do not become socially isolated. Rather, they tend to be more gregarious than their nontransferring classmates (Exhibit 2.4), and they also tend to be slightly more popular than the nontransferring pupils (Exhibit 2.5).

EXHIBIT 2.4

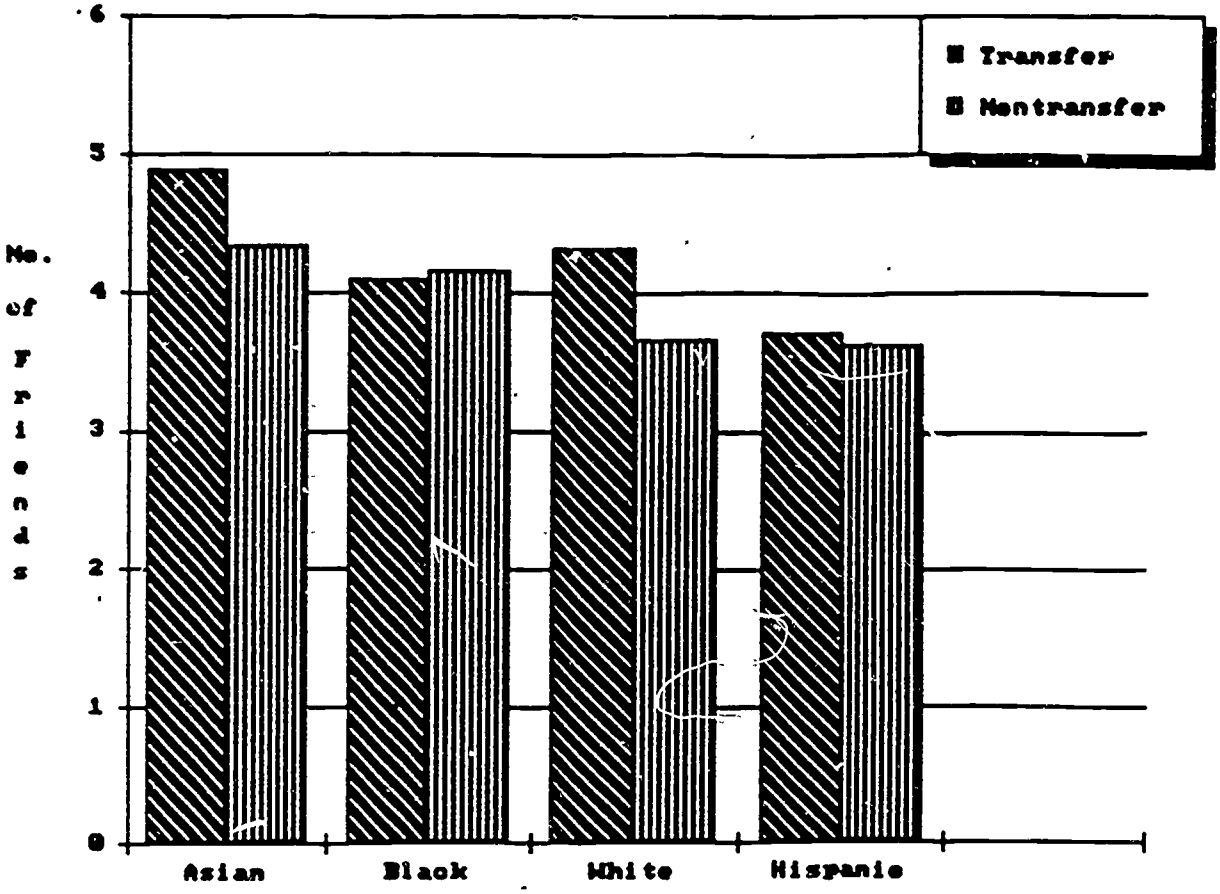
Average Number of Friends (Gregariousness) Which Pupils Chose by Racial Groups and Transfer-Nontransfer Groups



Asians and blacks have larger friendship circles than do whites and Hispanics. The mean numbers of friends named in Exhibit 2.4 by blacks (5.15) and Asians (4.39) are more than the averages for whites (4.08) and Hispanics (3.89). Also, the average popularity in Exhibit 2.5 of Asians (4.39) or blacks (4.13) is higher than the mean for whites (3.81) or Hispanics (3.64). These results attest to the interracial climate of the magnet schools and suggest that no single group dominates the pupils' social circles.

EXHIBIT 2.5

Average Number of Times Pupils Were Chosen by Classmates
(Popularity by Racial Groups and Transfer-Nontransfer Groups



These scores do not, however, spell out the extent of interracial friendships since pupils could possibly be popular or gregarious only within their own racial groups, and not include many "outsiders." A more direct indicator of interracial friendships is the percentage of each pupil's friends who are of another racial group. The percentage of other-race friends used here has an advantage over simply reporting the number of other-race friends because it takes into account specifically the racial mixture of the pupil's friendship circle.

The percentage of other-race friends named (interracial gregariousness) for the entire sample averaged 46 percent, and interracial popularity averaged 44 percent. That is, the magnet school pupils tend to have almost half of their friends from a racial group other than their own. This finding reveals more directly the success of the magnet schools in promoting cultural diversity and presumably intercultural respect based on pupil friendships.

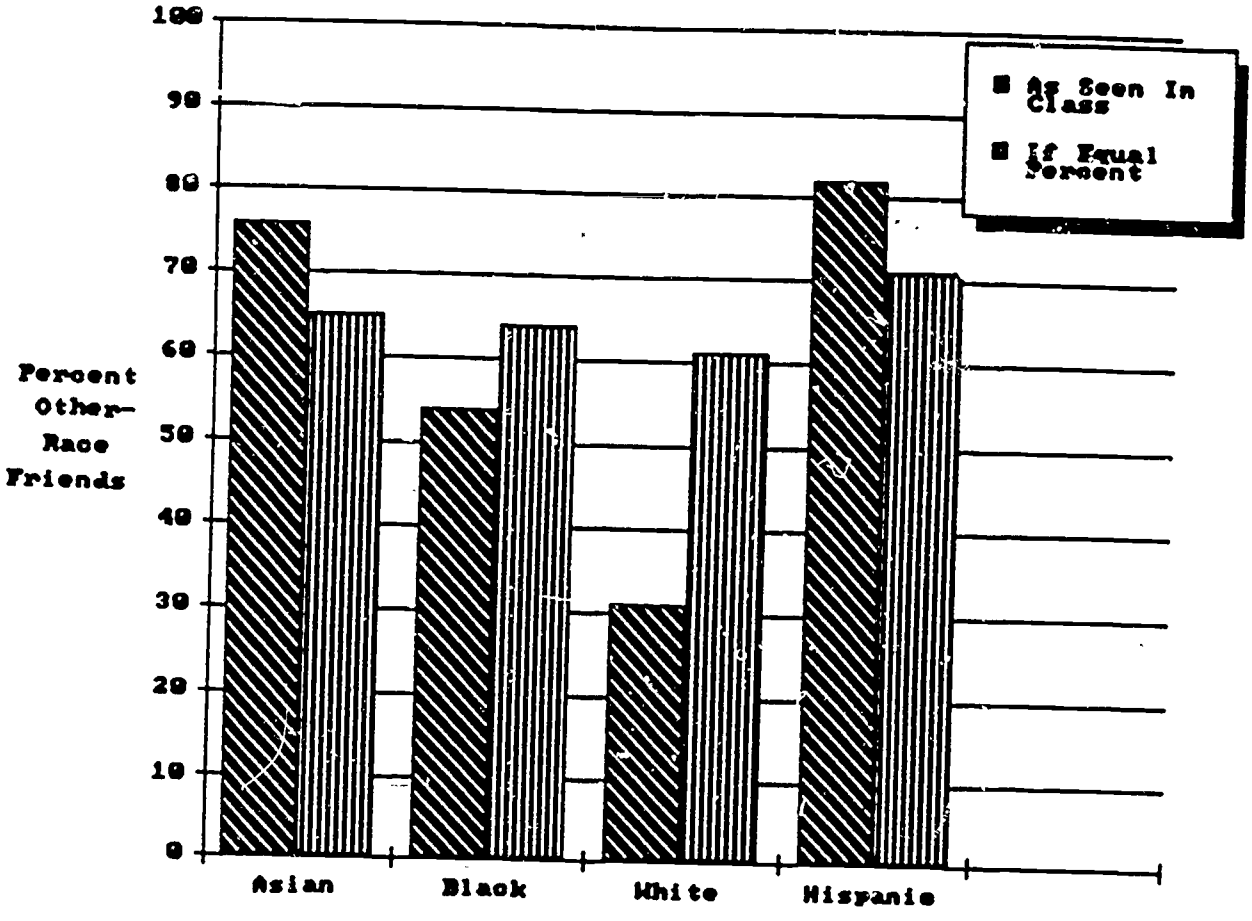
The analysis also shows that interracial gregariousness was about the same for the transfer pupils (48 percent) as it was for the nontransfer pupils (46 percent), and a similar result was found for interracial popularity. Thus, even though many transfer pupils come from schools with lower minority concentrations than the magnet schools, they nevertheless develop interracial friendships at least as much as do the nontransferring pupils.

There were, however, significant differences between racial groups in the extent of their interracial friendships as shown below in Exhibit 2.6 for gregariousness. (Results for popularity show basically the same pattern and thus are not included here.) The darker column in Exhibit 2.6 shows the extent of other-race friendships as reported by children in the classroom.

The interracial friendships as recorded in the classroom appear highest for Asians (75 percent) and Hispanics (82 percent) and lowest for whites (32 percent). For the average Asian pupil, 75 percent of chosen friends were non-Asian; and for the average white pupil, 32 percent of chosen friends were nonwhite. Does this mean that Asians and Hispanics are naturally more "interracially friendly." and that whites are more "clannish?" Not necessarily, because there are two factors at work here--the pupils' interracial attitudes and the proportions of same-racial and other-racial classmates found in their schools.

EXHIBIT 2.6

Racial Differences in Interracial Friendships as Observed in the Classroom and Estimated as if There Were Equal Numbers of Each Racial Group in the Classroom



The darker bar in Exhibit 2.6 shows our estimate of what the interracial friendships would be if each racial group were equally represented with a 25 percent share of the school's grade level.[1] This estimate shows that were all children to have the same opportunities to select other-race friends, children of all racial groups would generally have the same interracial mix of friends, that is, between 60 and 70 percent.

Putting these two findings together, we conclude that the racial composition of the school (the "opportunity structure," as it were, for selecting other-race friends) is a very important force governing the formation of interracial friendships. Another estimate, not presented here, showed that pupils have a slight tendency to select the same-race over other-race friends, but that tendency was not nearly so strong as the influence of the racial composition of the child's grade level at school.

SUMMARY

The current findings on pupil attitudes toward school and pupil friendships are important for magnet school planning, and they are reassuring for parents thinking of transferring their child to a magnet school. The results show that magnet school pupils generally like their schools, and that those who transfer into magnet schools like their new school as much or more than the magnet students attending their own neighborhood schools. Teacher ratings on classroom cooperation also suggest that transfer pupils get along in school as well as their nontransfer classmates. In addition, transfer pupils in the magnet schools tend to have more friends than do their classmates from the immediate school neighborhood, regardless of the transfer pupils' greater distances from home. Asian pupils appear particularly well adjusted to school. They tend to like school more than others, they are rated highest by teachers on cooperation and expectations, and they also tend to have larger friendship circles than other students.

The finding of generally positive teacher expectations for pupils' success suggests that the magnet schools are practicing one of the active ingredients to effective schools--high expectations for pupils. And, that fact that expectations are essentially the same for black, Hispanic, and white pupils at any given level of pupil academic performance suggests that teachers are generally fair in their expectations for pupil success.

Finally, the results on interracial friendships show the importance of the magnet schools' racial balance goal, since the racial mixture of the school environment clearly influences the extent to which pupils form interracial friendships.

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1. The estimate for the "equal percentage" condition is obtained by weighting each pupil's observed interracial friendship mixture with the following ratio: 75 percent other-race / observed percent other-race.

CHAPTER 3

ACADEMIC ACHIEVEMENT IN THE MAGNET AND NONMAGNET SCHOOLS

BACKGROUND

All of the magnet schools are academically oriented, but they differ greatly on how they approach the academic subjects. Volume 1 of this report describes the magnet schools' variety of features, including programs for language immersion; programs for gifted and talented pupils; programs which emphasize computers, math, and science; programs with an international theme or a communication arts theme; and several others. In addition, many of the magnet schools offer a variety of afterschool activities and clubs. This study did not not tackle the job of assessing each of these specialties. Instead, we studied just the academic gains of the magnet schools compared to the gains in a similar group of nonmagnet schools. The nonmagnet comparison schools and the strategy for selecting them are discussed in the appendix.

We also compared the gains of transfer pupils to nontransfer pupils because the transfer decision is on the minds of many prospective magnet school parents. In addition, we assessed the academic gains for each racial group in the magnet schools compared to their counterparts in the nonmagnet schools.

We analyzed the reading progress of the spring 1986 third graders over their second and third grades, and the spring 1986 sixth graders over their prior four years in school, using reading and math tests routinely administered throughout MCPS. Math gains were not analyzed for the third graders because no adequate measure of math performance was available as a baseline in their first grade year.

FINDINGS

SIXTH GRADE CLASS OF '86

The upper grades in the elementary magnet schools gave their pupils a significant boost in reading and math performance so that they outscored their nonmagnet peers who started out on par with them in the third grade. This positive magnet school effect appears to have benefited equally all four racial groups in math and all racial groups in reading except for the Asian pupils whose performance was already relatively high.

The reading results in Exhibit 3.1 show that the magnet school pupils (both the transfer and the nontransfer groups) outgained the nonmagnet comparison group between fourth and sixth grade. At the beginning of the third grade, the magnet pupils scored roughly the same as the nonmagnet group; and their status relative to the nonmagnet group dropped very slightly over third and fourth grades. However, in the fifth and sixth grades, the magnet pupils made more progress in reading and finished the sixth grade ahead of the nonmagnet group.

EXHIBIT 3.1

Reading Gains Across Four Years for Magnet School Pupils Compared To Nonmagnet School Baseline
[Baseline is set to zero for each year.]

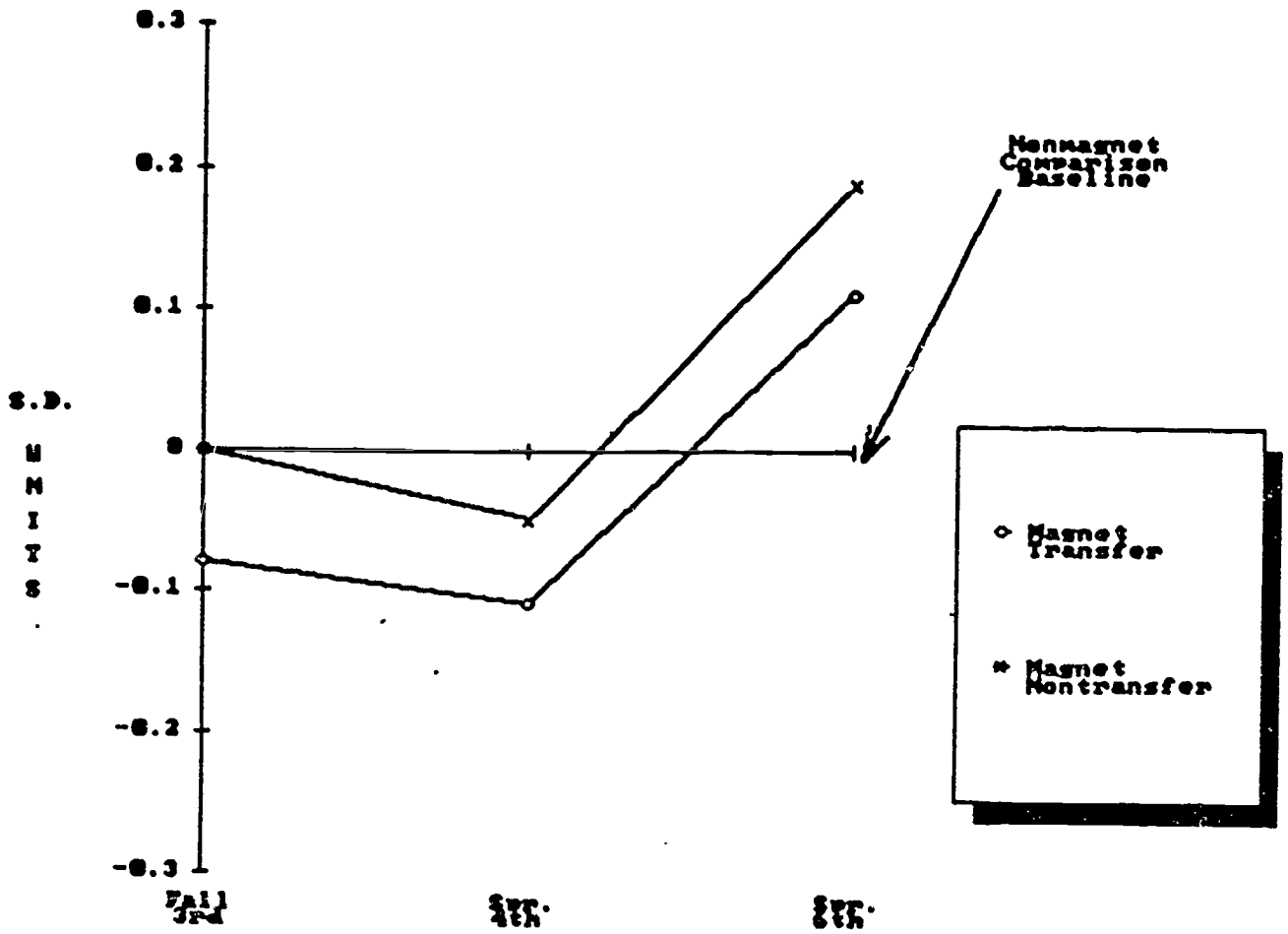
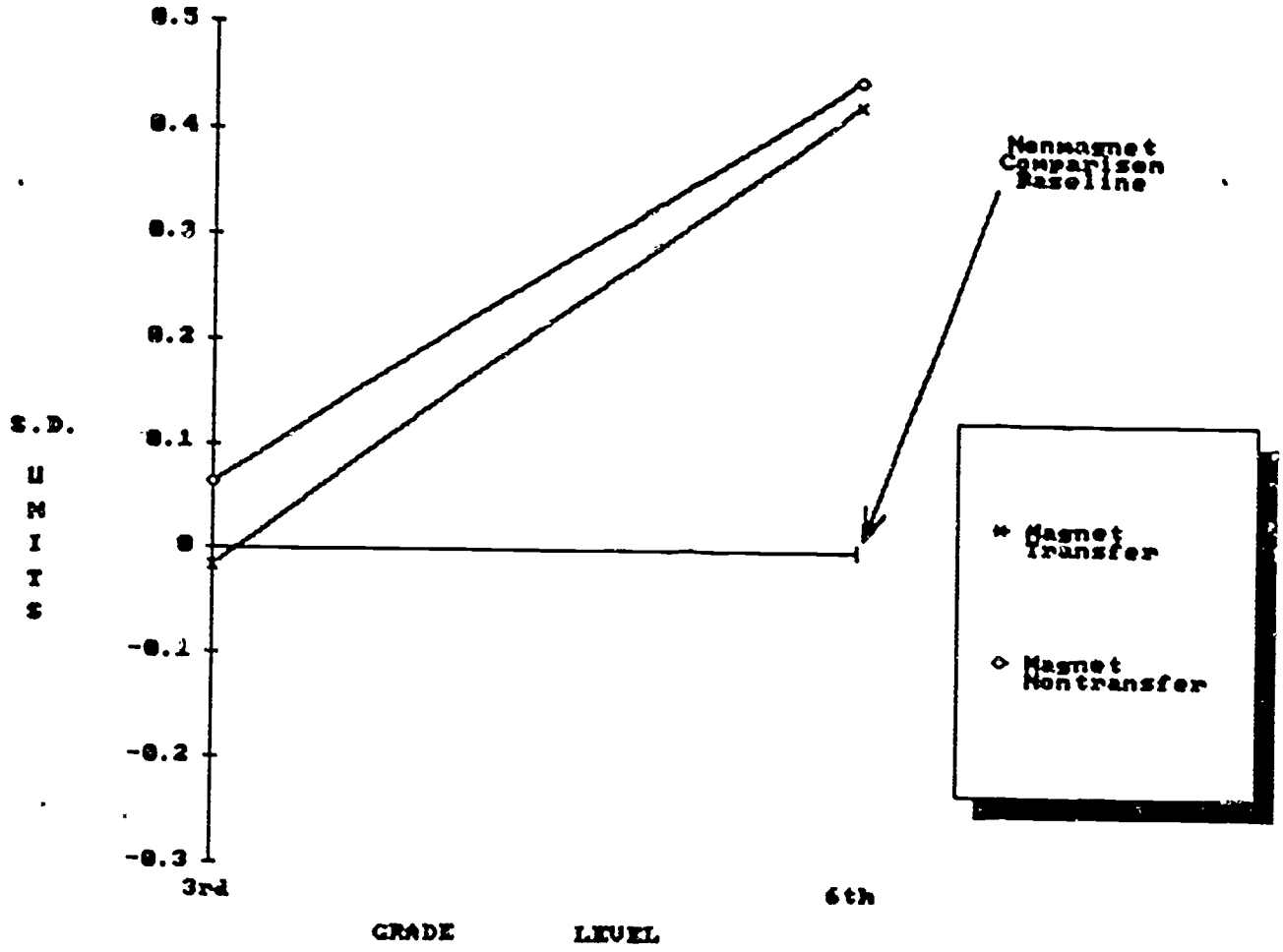


EXHIBIT 3.2

Math Gains Across Four Years for Magnet School Pupils Compared to Nonmagnet School Baseline
[Baseline is set to zero for each year.]



Exhibits 3.1 and 3.2 show the scores of the magnet groups compared to the nonmagnet-nontransfer group for each time point. While all pupils gain in their absolute reading performance over time, the main interest here is differences in gains between magnet and nonmagnet groups. Thus, we have arbitrarily set the nonmagnet group's average to zero at each time point, and plotted the magnet group against that flat baseline,[2] even though in reality the nonmagnet students also made substantial gains. On these charts, then, an upward-sloping line means that the magnet group gained more than the nonmagnet group.

The results in Exhibit 3.2 show that the magnet transfer and nontransfer groups both made more progress in math between the third and sixth grades. By the sixth grade, the magnet group far outscored the nonmagnet group.

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[2] We standardized pupil scores relative to the nonmagnet group, using a mean of zero and a standard deviation of 1.0.

even though they started the third grade at essentially the same level as the nonmagnet average. (Intermediate grade levels were omitted from this analysis because too few pupils had a complete set of pretest. posttest, and intermediate test scores.)

The longitudinal reading and math scores were also analyzed for racial differences in the magnet school effects. That is, the gains of each of the four major racial groups in the magnet schools were compared to the gains of their respective counterparts in the nonmagnet schools. We found no racial differences in the magnet school effect on math. The positive effect of magnet schools on math gains was generally the same across all four racial groups.

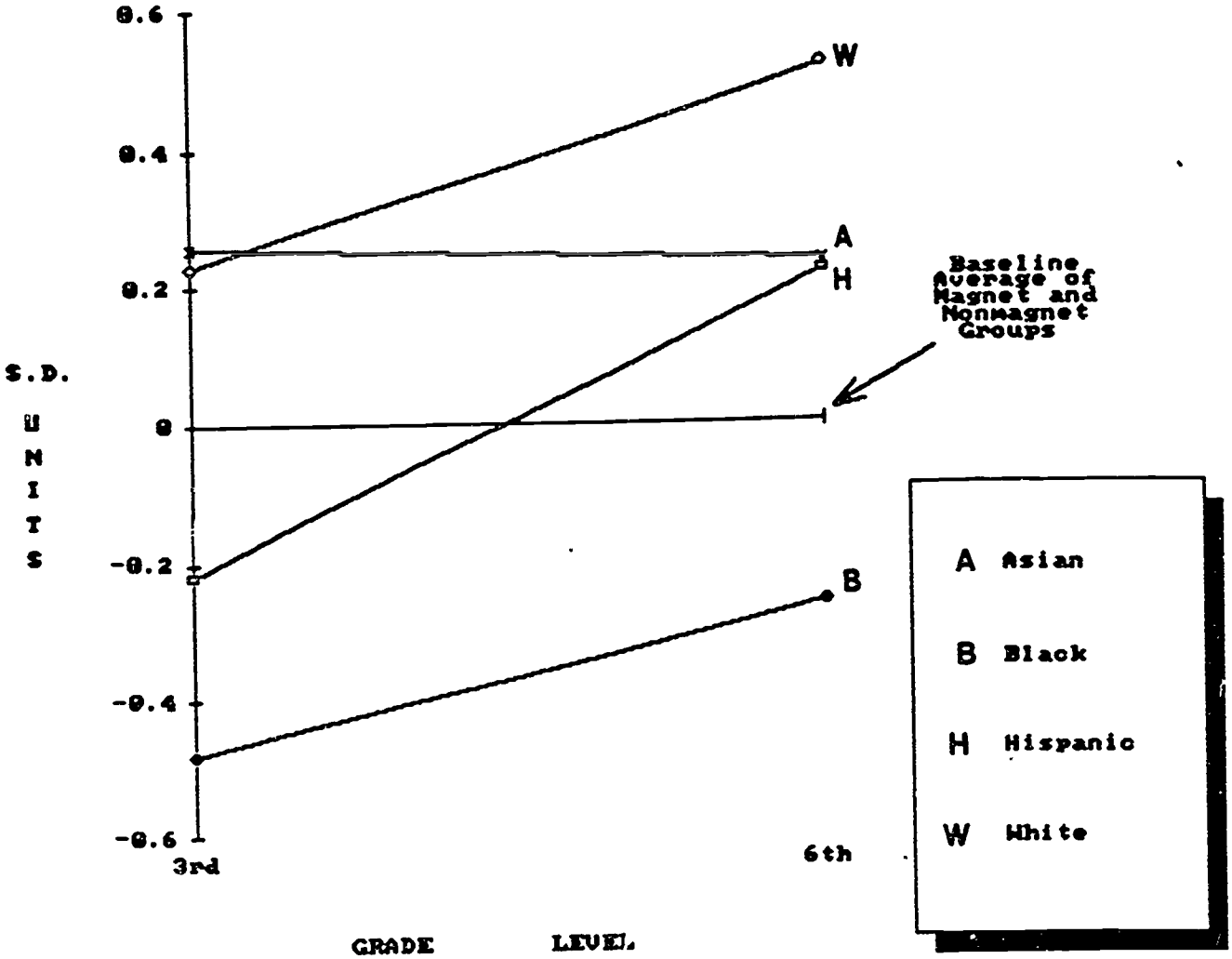
There were, however, minor differences in the magnet school effect on reading gains. The positive magnet school effect on reading gains over the four-year period was generally the same for black, white, and Hispanic pupils. However, the Asian pupils, who in third grade already scored relatively higher than their nonmagnet peers, maintained their relative lead but did not gain more than their nonmagnet Asian comparison group.

These racial differences in the magnet school effect on reading gains are shown below in Exhibit 3.3 where the gains of each racial group in the magnet schools are plotted against their respective counterparts in the nonmagnet schools. The baseline in Exhibit 3.3 represents the average reading scores for the combined magnet and nonmagent sample at each time point. Once again, even though reading scores improve over time, we have set the baseline to zero for each time point to highlight <u>differences</u> in gains; and upward-sloping lines indicate magnet-favoring gains.

In addition to the group differences in gains, Exhibit 3.3 also shows where the racial groups scored compared to the sample mean. For example, Asian and white pupils tended to score higher than the sample average. The sixth grade data points show where the magnet school groups finally scored relative to the combined magnet and nonmagnet school sample. For example, Hispanic pupils in magnet schools started the third grade below the sample average but ended the sixth grade above the sample mean. Also, white magnet school pupils had higher sixth grade scores than the other magnet school groups.

EXHIBIT 3.3

The Magnet School Effect on Four-year Reading Gains for Different Racial Groups
[Lines sloping upward show an advantage in magnet school gains relative to the nonmagnet baseline group.]

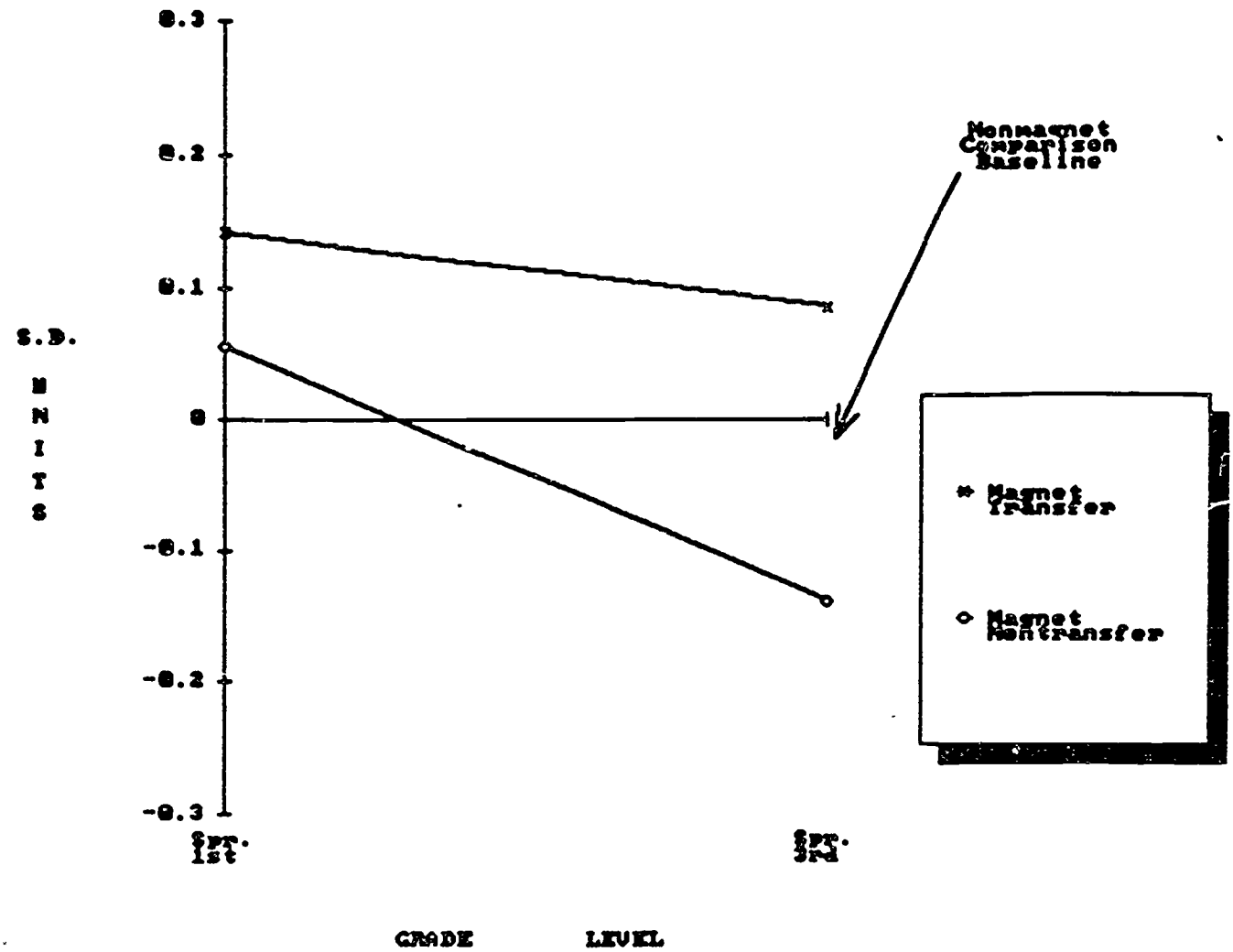


THIRD GRADE CLASS OF '86

The analysis of reading gains in the second and third grade shows a more mixed picture than the sixth grade results. The magnet transfer pupils scored higher than the nonmagnet comparison group at the end of the first grade; and with a slight but insignificant drop relative to the nonmagnet group, they maintained their relative advantage through the third grade. However, the nontransferring magnet pupils, while scoring at about the same level as their nonmagnet peers in the first grade, progressed slower so that by the end of the third grade they were behind the nonmagnet group in reading by a small but statistically significant margin. These results are shown below in Exhibit 3.4. [No analysis for the third grade math scores is reported here since there were no adequate baseline measures of math in the first grade.]

EXHIBIT 3.4

Reading Gains Across Two Years for Magnet School Pupils Compared to Nonmagnet Pupils Who Remained in Their Neighborhood Schools



We also analyzed the third grade data for race differences in the magnet school effects on reading gains. No statistically significant racial differences were found.

SUMMARY

The findings show significant academic benefits in the upper grades of the magnet schools after pupils have generally been exposed to the magnet programs for a longer period. And there is some evidence from the analysis of reading gains that the magnet programs in the last two years boosted scores more than in the prior years. Such gains may be related to the fact, cited in Volume 1 of this report, that program implementation was higher in many magnet schools within the last two years.

The positive magnet school effects on reading and math gains were generally similar across all racial groups in the upper grades. The only exception was that the Asian pupils in magnet schools who already outscored their nonmagnet school peers in the third grade maintained their relative advantage with no significant change over four years.

In the lower elementary grades, the findings on reading gains were mixed; that is, magnet school effects on reading differed between transferring and nontransferring pupils. Pupils transferring into magnet schools already scored higher than their nonmagnet comparison group at the outset, and they maintained their relative advantage through the third grade with no significant change. However, magnet pupils attending their neighborhood schools progressed at a slower pace in reading than did the nonmagnet comparison group.

There were nc significant racial differences in the magnet school effect on reading gains in the lower grades.

The positive magnet school effects cited here for the older students were not found in earlier evaluations of magnet programs in MCPS. It may be that improved magnet programs account for some of this finding in the upper cohort, but such an effect was not observed in the lower cohort. It may also be that the magnet programs are stronger in the upper elementary grades relative to the nonmagnet schools, since the upper elementary group showed no relative gains on the nonmagnet group in the lower grades but did show greater gains in the upper grades. It is important for future studies that the cumulative effects of annual gains be assessed when the gains for any single year may be too small to register significance.

We should also add that the basic academic scores used here offer only a partial coverage of the diversity of topics and the richness of the magnet program activities. In the last several years pupils in the various magnet schools have produced nationally recognized videotape shows, visited the President of the United States, performed in the Kennedy Center, produced daily radio shows for broadcast within the school, attracted several grants from national sponsors for their curriculum, and conducted many other activities within the school and community, all designed to support the academic and social growth of the pupils. It is difficult to quantify the tangible effects of such activities, but they are an important part of the magnet school attractions.

CHAPTER 4

PARENT INVOLVEMENT AND SATISFACTION

BACKGROUND

It is important to determine whether or not magnet programs produce greater parental satisfaction with the schools, since school reputation is a big factor in magnet school interest. Parent involvement is also important to magnet schools, as is the question of whether parents of transferring pupils become less involved because of greater distance from the schools. To address such issues, a parent telephone interview was incorporated into the magnet school evaluation.

The data reported here are taken from a representative sample of 1,080 magnet and nonmagnet school parents interviewed in a survey in the spring of 1985. The 14 magnet schools and the 13 nonmagnet schools included in the sample, as well as the nonmagnet selection criteria, are discussed in the appendix. The analyses reveal important group differences on certain questions, and some results on parent satisfaction obtained most recently have remained largely unchanged from similar surveys going back five years earlier.

We review first the level of parent involvement in the magnet and nonmagnet schools, and then discuss parent satisfaction with the school programs and their attitudes concerning the school's racial composition. Since both magnet and nonmagnet schools were included in the survey, the results examine comparisons between these groups as well as between race groups and those transferring their children versus those whose children remain in their neighborhood schools.

FINDINGS

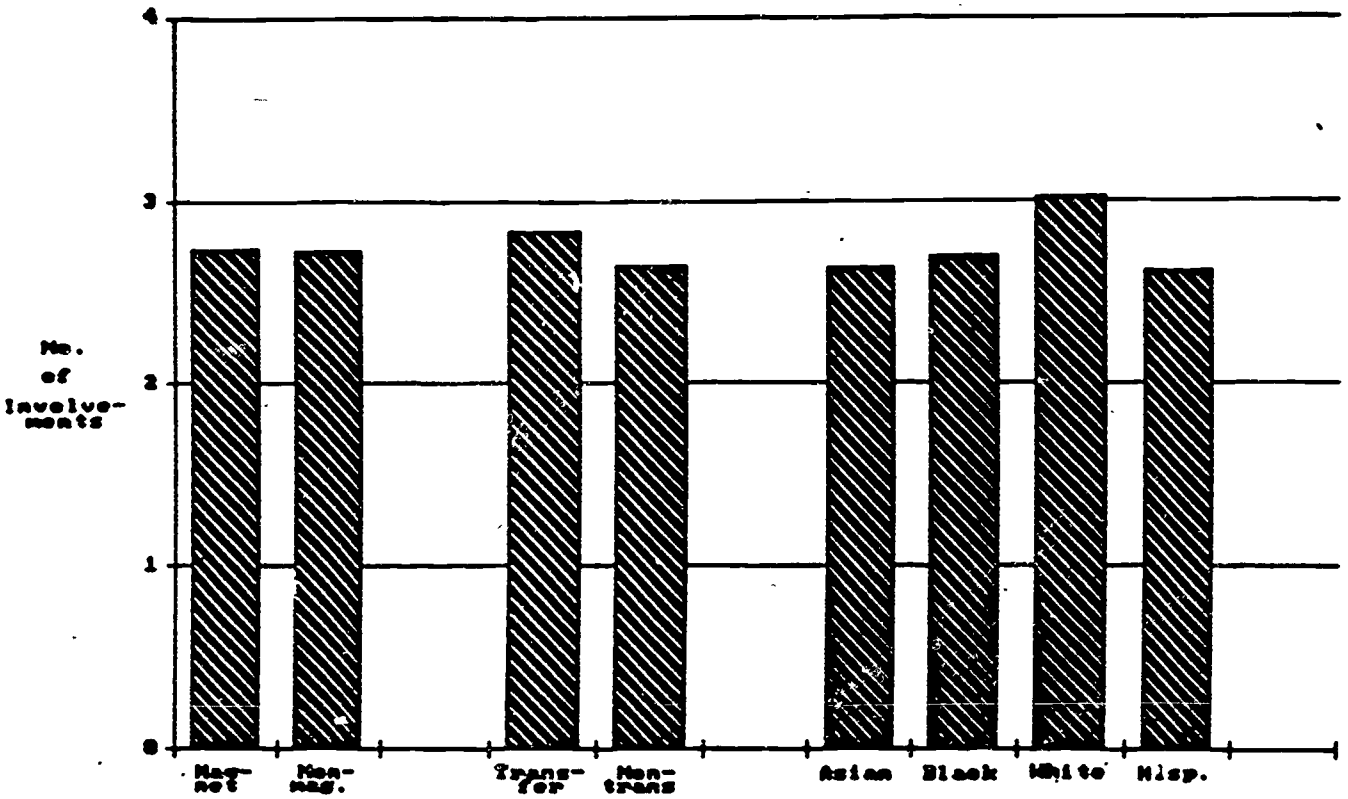
PARENT INVOLVEMENT IN THE SCHOOLS

Magnet and nonmagnet parents are both highly involved in their schools as indicated by participation rates in such activities as talks with teachers or staff (92 percent), visits to the classroom (75 percent), PTA meetings (73 percent), and volunteer work in the school (47 percent). [The participation rate here means that parents did the activity at least once during the school year.] Parents of transferring pupils tend to be more involved with their schools, particularly with volunteer work, and white parents tend to be more involved than minority parents. These general findings are summarized below in Exhibit 4.1, showing the average numbers of these four activities in which the various groups participated.

The generally high levels of contact with schools and staff suggest that both magnet and nonmagnet parents are very interested in their children's schools. However, certain subgroups of parents appear more active in specific activities in the magnet schools than in the nonmagnet schools.

EXHIBIT 4.1

Average Number of Different School Involvements Reported by Parents for Racial Groups, Magnet-Nonmagnet Groups, and School Transfer-Nontransfer Groups



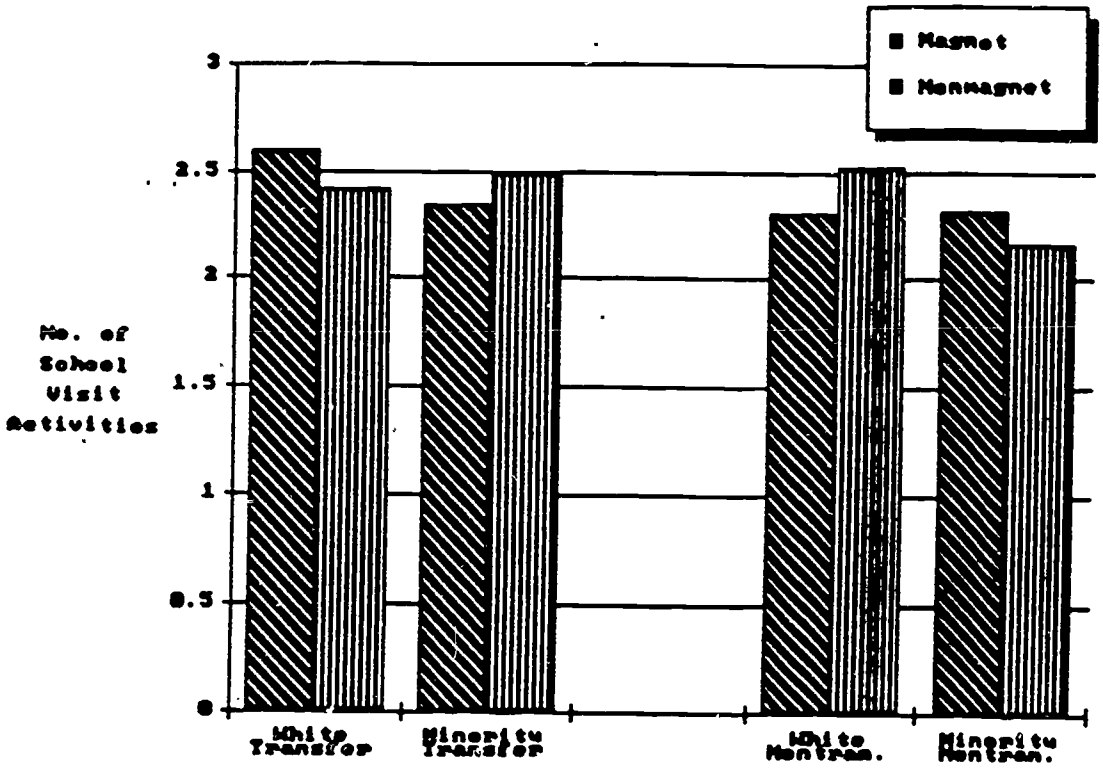
For example, parents who transfer their children into a magnet school tend to do more volunteer work (48 percent) than do parents who transfer their children into nonmagnet schools (37 percent). It is likely that the parents interested in seeking a magnet school program for their child are also interested in working with the school program they choose, at least more so than their nonmagnet counterparts. This may be due in part the the program attractions found in the magnet schools. Alongside these magnet-favoring differences in volunteer work, it may be noted that school volunteer participation is still higher among white parents (55 percent), either magnet or nonmagnet, than it is among minority group parents (35 percent).

Another example of how magnet schools produce different effects on different types of parents can be seen in the number of visits to the school and staff. For example, as shown below in Exhibit 4.2, white parents whose children transferred to magnet schools visit school more than any of the other parent groups. [Exhibit 4.2 tallies the number of different types of visits for talking with teachers, visiting the classroom, or attending a PTA meeting.] Thus, either magnet schools somehow increase white parents' interest in school visits, or magnet schools attract white transfer parents

who are already themselves more interested in visiting the school. The latter condition is more likely because, among the nontransferring parents, visits to the school are lower for magnet parents than nonmagnet parents. In other words, those parents most interested in schools, or those most willing and able to transfer their children to a school of their choice, are more likely to be able to visit their children's schools during the year and, as suggested above, to be able to volunteer for work in the school.

EXHIBIT 4.2

Number of Different Types of School Visits
[talk with teacher, visit class, attend PTA]
Which Parents Reported for Magnet and Nonmagnet
Groups Among White and Minority Group Parents



PARENTAL SATISFACTION WITH SCHOOLS

Satisfaction with School Programs. Both the magnet and nonmagnet school parents give their schools a strong B+ on a "report card." These recent grades are up slightly for the nonmagnet group since the 1980 magnet school evaluation, as shown below in Exhibit 4.3, but the magnet group's marks have remained high.

Parents were asked to give their schools a "report card grade" in several areas such as:

- o Basic skills
- o Safe and orderly atmosphere
- o Special programs for individual talents, abilities or needs
- o Critical thinking, problem solving
- o Attention to individual child
- o General student behavior
- o An overall mark for everything

These items were also included on the 1984 pilot study and the 1980 magnet school study. We calculated a Grade Point Average (GPA) based on the overall mark for everything.

EXHIBIT 4.3

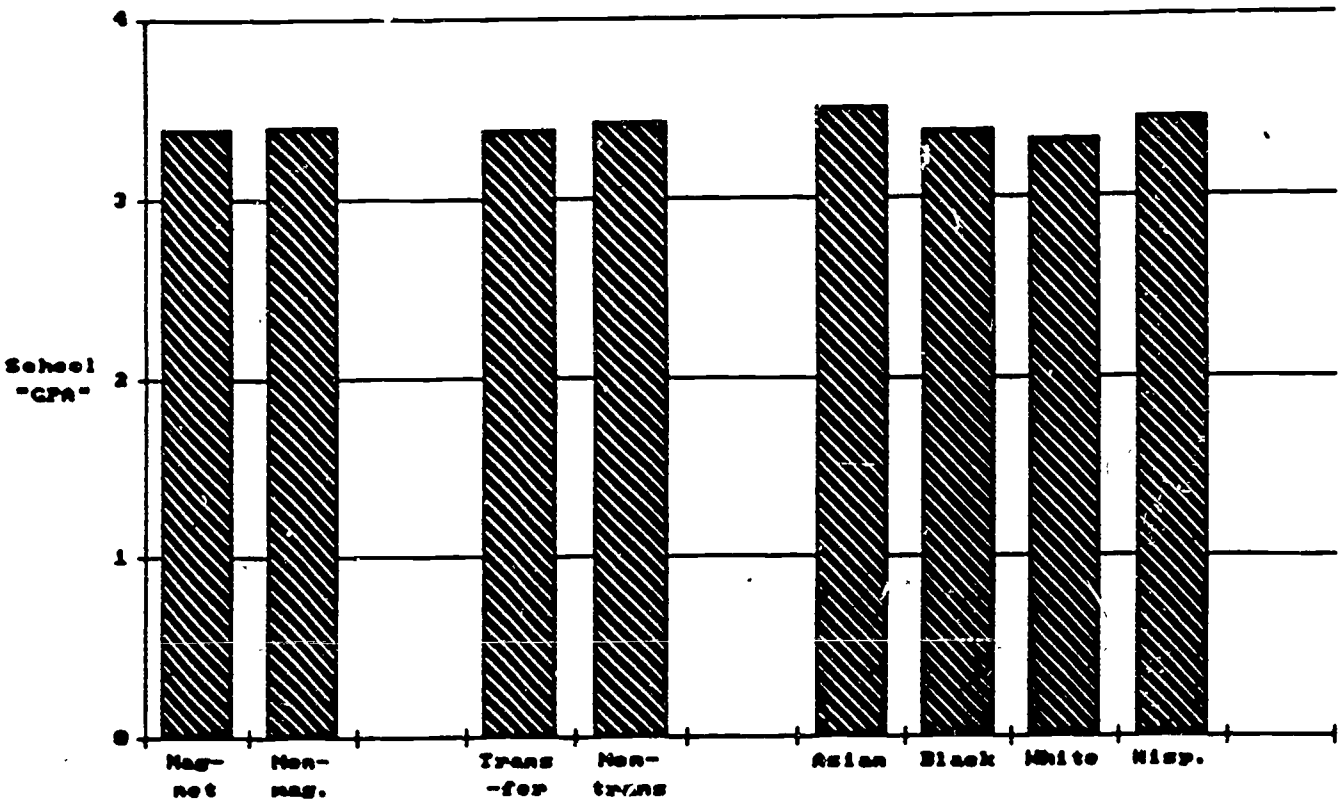
Grade Point Average for Schools Reported by Magnet, Nonmagnet, and General MCPS Parents (4.0 = Straight A)

	1981-80	1983-84	1985-86
Magnet Schools	3.36	3.40	3.40
Nonmagnet Schools	3.21	3.40	3.39

Other details of the GPA scores, in Exhibit 4.4 below, show equally high satisfaction in both the transfer and the nontransfer groups of parents. Regarding racial differences, Asians (3.50) and Hispanics (3.44) report higher satisfaction with schools than blacks (3.37) and whites (3.32) by a statistically significant margin. In that sense, race differences in parent satisfaction parallel the racial differences in pupil attitudes toward school reported above in Chapter 2.

EXHIBIT 4.4

"Grade Point Average" for Their Schools Which Parents Report for Magnet-Nonmagnet Groups, Racial Groups, and School Transfer-Nontransfer Groups
[4.0 = Straight A]



Also, the white parents who, as noted above, reported highest levels of school involvement also reported the lowest GPA rating of their schools (although their GPA rating is, of course, relatively high.) It may be that those most familiar with the schools and most interested in the program are also most willing to voice any concerns they may have about the schools.

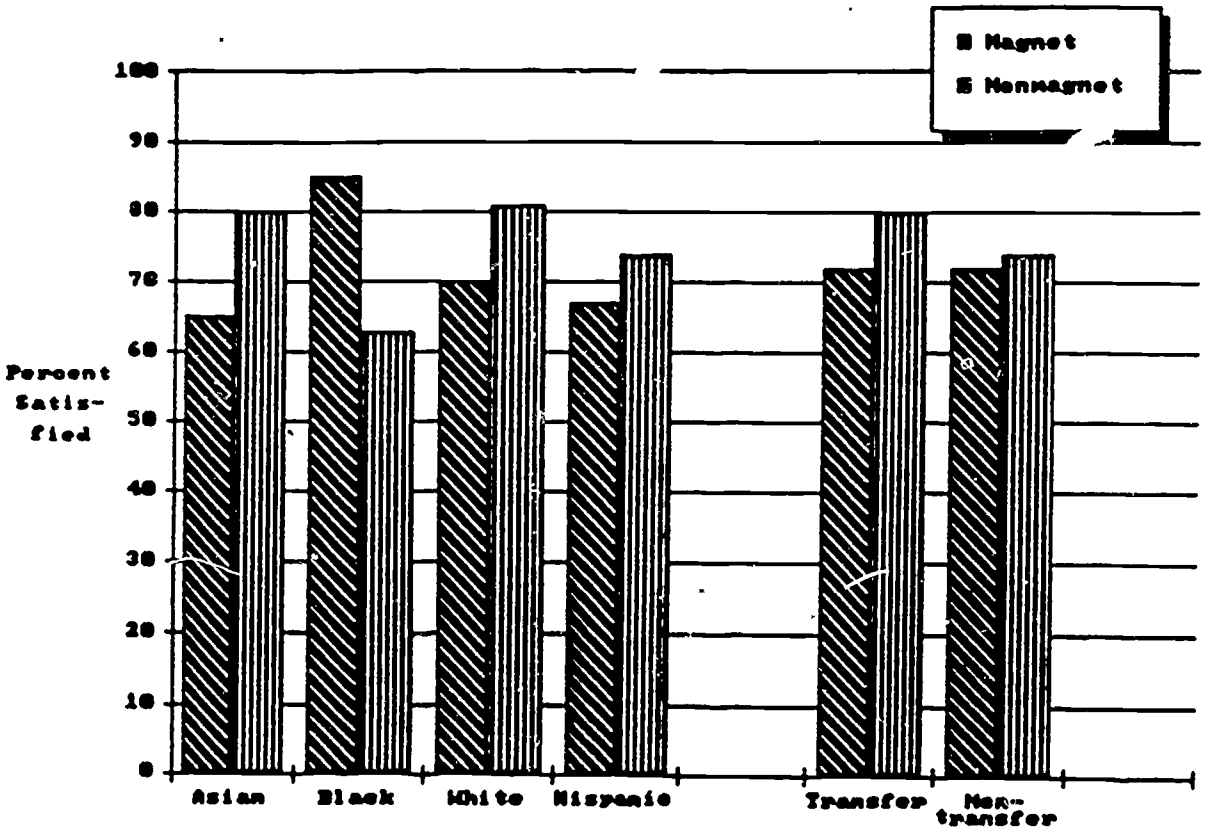
Opinions About School Minority Composition. Parents are generally satisfied (75 percent) with the extent of their ethnic group's integration level in their schools. And this type of opinion is shared relatively evenly among all ethnic groups (Asians, 74 percent; blacks, 77 percent; whites, 76 percent; and Hispanics, 71 percent), as well as among the transfer parents (72 percent) and the nontransfer parents (77 percent). The reports above on school GPA reflect general satisfaction with the "quality" component, and the findings here reflect general satisfaction with the "integration" component of the magnet schools' quality integrated theme.

These findings come from a questionnaire item which asked parents: "In your child's school would you say there are [too many; too few; or about the right number] of children of your ethnic type?" Only 5 percent of the parents responded "too many," and about 19 percent answered "too few." Taken together, those two responses represent some type of dissatisfaction with their ethnic group's representation in the school. The remaining 76 percent who responded "about right" thus represent parents who are generally satisfied with their ethnic group's representation, or their integration level, in the school.

While the overall satisfaction levels are high, there are differences of opinion across racial groups between magnet and nonmagnet schools. For example, Exhibit 4.5 below shows that among the magnet school parents, blacks appear particularly satisfied (85 percent) with their racial group's representation in their schools. However, among the other-racial groups, satisfaction is lower for magnet parents than nonmagnet parents. Another finding discussed below points to a possible reason for this result.

EXHIBIT 4.5

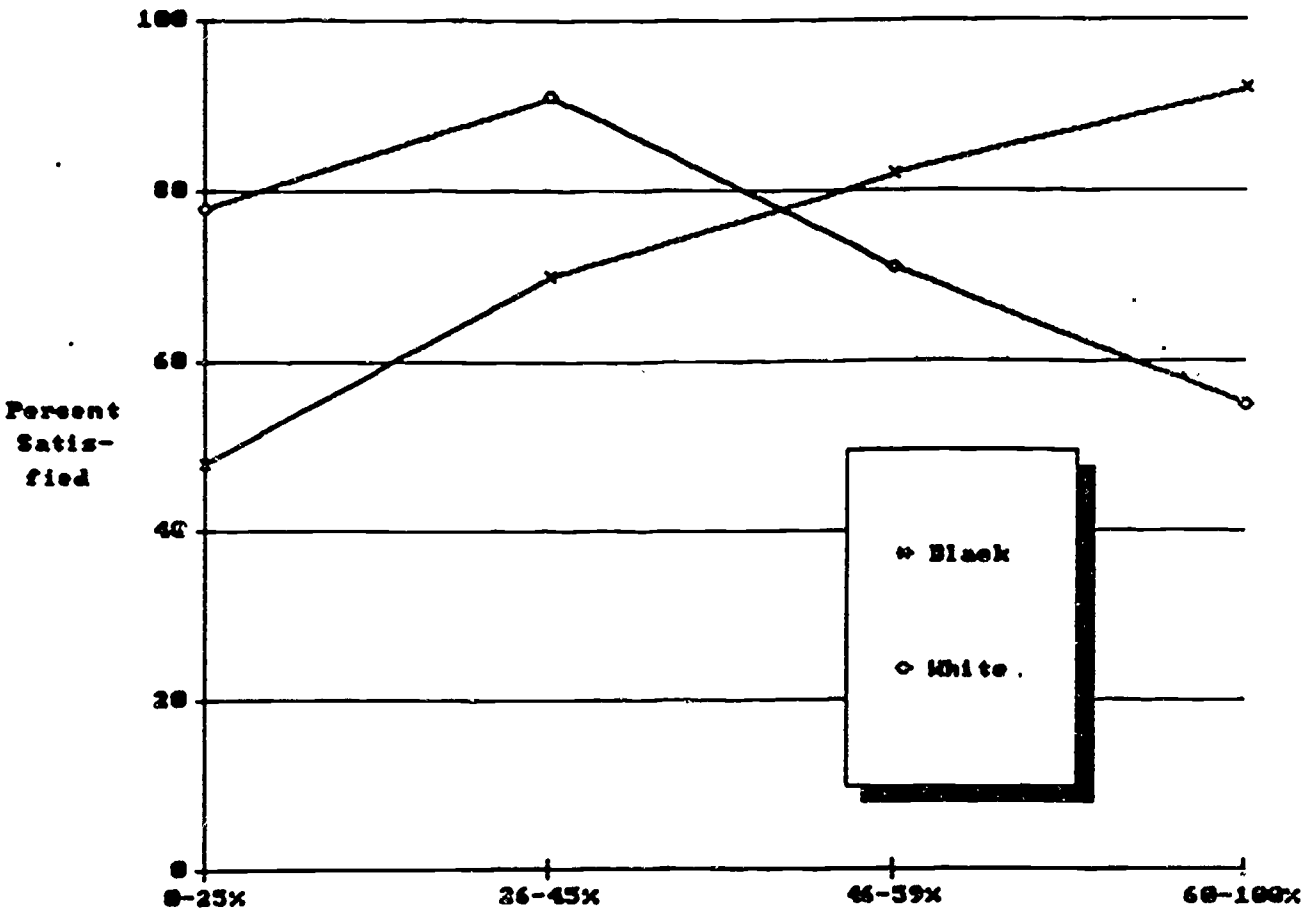
Percentage of Parents Reporting Satisfaction with Their Ethnic Group's Representation (or Integration Level) in Their Schools for Magnet-Nonmagnet Groups, Racial Groups, and School Transfer-Nontransfer Groups



The overall results show generally high levels of parental satisfaction with their schools' integration levels, but it is more meaningful to compare the schools' actual integration levels to the parents' satisfaction with school integration. Exhibit 4.6 shows that the higher the minority composition of the school, the more satisfied black parents are with their racial group's representation in the school and the less satisfied white parents are with their own racial group's representation. [Only data for black or white parents are presented since too few Asian or Hispanic parents were available within each of the school-minority-composition groupings. These data include 26 schools ranging in minority composition from 17 to 91 percent.]

EXHIBIT 4.6

Percentage of Black Parents and White Parents Reporting Satisfaction with Their Ethnic Group's Representation (or Integration Level) in Their Schools for Schools with Different Minority Compositions



These profiles of satisfaction suggest feelings of the same-racial affinity among the black and the white parents reminiscent of the small tendency among children to choose the same-race friends reported above in Chapter 2. Since the magnet schools tended to have somewhat higher minority compositions than the nonmagnet schools in this survey, the magnet school blacks tended to report more satisfaction with their schools' integration levels than did the nonmagnet school blacks. On the other hand, given the lower minority compositions of the nonmagnet schools, the white nonmagnet parents tended to report higher satisfaction with their schools' integration levels. This condition may explain much of the pattern noted above in Exhibit 4.6.

These parental attitudes may be important for magnet school planning. First, the profile for whites suggests an increasing resistance to movement into higher-minority schools. If magnet programs are to be located in high-minority schools, then their program attractions must be strong enough to overcome the tendency among some majority group parents to select or remain with lower-minority schools.

Second, the profile for black parents suggests that they become increasingly dissatisfied with their racial group's representation as the school's minority composition decreases. If magnet programs were to be located in low-minority schools, a practice not found in MCPS, then such programs may encounter some resistance in recruiting black students.

What these results do not tell us is how important this source of satisfaction is for parents contemplating a school transfer for their child. The profiles of satisfaction discussed here suggest that a more precise survey of this topic may be helpful for future racial balance and magnet program planning.

SUMMARY

The elementary school parents surveyed here report generally high satisfaction with their schools across the board. Parental satisfaction with the nonmagnet school programs has increased over a five-year period so that it is now on par with satisfaction in the magnet schools. Parents are generally satisfied with their respective racial group's integration levels in the schools, but at the same time there is a tendency for black parents to be more satisfied with their representation in the high-minority schools and for white parents to be more satisfied with their representation in the low-minority schools.

Parents are generally involved in their schools, since about half of the parents in magnet and nonmagnet schools report doing volunteer work in their schools, particularly the white parents. And, almost all parents report at least visiting the school to talk with teachers or staff.

Putting together the findings on satisfaction and involvement, it appears that the magnet schools are working toward their two most important goals--school racial balance and expanded parental choice among school programs--by attracting that subgroup of white parents who are interested and informed about school programs, are more willing to voice dissatisfaction with

aspects of their schools (either magnet or nonmagnet), and are more willing to get involved in working with the school programs.

Also, the fact that satisfaction levels in the nonmagnet schools are up over that found five years earlier may mean that it may be more difficult for magnet schools to recruit from a large group of parents interested in leaving their neighborhood schools. And, this may be particularly true among Asian and Hispanic parents where the satisfaction levels are the highest.

A MICROSCOPE ON MAGNET SCHOOLS - 1983-1986

Pupil and Parent Outcomes

TECHNICAL APPENDIX

APPENDIX A-1

SCHOOL SAMPLE AND MEASURES FOR THE NONACADEMIC ANALYSES

SAMPLE

Pupil outcomes were studied in two groups of pupils: those who passed from first grade in 1983 to third by spring 1986 and those who entered fourth grade in 1983 and progressed to sixth grade in spring 1986. The nonacademic analyses focused on the school attitude data, the teacher ratings, and the pupil friendship data from the spring of 1986. The schools and number of pupils included in this sample are listed below in Table A1.1. Since complete data on all questionnaires and teacher ratings were not obtained from all pupils, the number of cases in any given analysis varied slightly depending upon which measure was analysed.

EXHIBIT A1.1

Sample of Magnet Schools and Pupils Tested in Grades 3 and 6 for Nonacademic Analyses

	GRADE LEVEL: 3rd	6th	Total	Percent Minority
AREA 1 SCHOOLS:				
Piney Branch.....	.	100	100	60.0
Takoma Park.....	68	.	68	61.8
E. Silver Spring...	43	.	43	55.8
Pine Crest.....	59	53	112	58.0
Oak View.....	45	48	93	40.9
Rolling Terrace....	22	36	58	74.1
Highland View.....	35	52	87	56.3
New Hampshire Estates.....	33	.	33	84.8
Forest Knolls.....	41	39	80	31.3
AREA 2 SCHOOLS:				
Chevy Chase.....	45	67	112	26.8
N. Chevy Chase.....	54	42	96	60.4
Rock Creek Forest..	29	29	58	58.6
TOTAL SAMPLE.....	474	466	940	50.4

MEASURES

Attitudes Toward School

Pupil attitudes toward school were assessed with the My Life at School scale (MLS). This 19-item, multiple-choice questionnaire was adapted from the Quality of School Life Scale (QSL) from Johns Hopkins University. Based on earlier evaluation studies with the QSL in MCPS, we modified several items and the responses to make them more appropriate for the younger pupils. The QSL was composed of three subscales: attitude toward school, attitude toward class work, and teacher-pupil relationships. Our earlier analyses showed that these three scores were highly related. Thus, only a single score representing the pupil's global attitude toward school was used in the My Life at School analysis. The 19 items are included below in Exhibit A1.2.

We derived The MLS total score by taking the sum of the item responses and dividing by the number of items to which the pupil responded. For this purpose, the true/false items were scored with a value of (1) for choices unfavorable to school and a value of (4) for the choices favoring school. The four-point multiple choice items were coded with a value from (1) through (4) with (4) representing the response most favorable to school. The average item response score thus provides the following general interpretation:

(4)	(3)	(2)	(1)
Very favorable toward school	Likes school	Lukewarm toward school	Dislikes school

<<< MY LIFE AT SCHOOL >>>

Read each question carefully. Then decide which answer is closest to what you think. Circle the letter next to your choice. Remember — this is not a test. There are no "right" or "wrong" answers. We just want to know what you think about your life at school.

1. I hope school next year will be like it is this year.

A. True
B. False

2. Most of the work I do in class is important to me.

A. True
B. False

3. My teachers have a way with students that makes me like my teachers.

A. True
B. False

4. Most of the time I do not want to go to school.

A. True
B. False

5. A lot of times I wish the class would not end so soon.

A. True
B. False

6. Most of my teachers want me to do things their way and not my own way.

A. True
B. False

7. I don't like school very much this year.

A. True
B. False

8. Most of my teachers really listen to what I have to say.

A. True
B. False

9. I hardly ever do anything very exciting in class.

A. True
B. False

10. I am usually happy to be in school.

A. True
B. False

11. Most of my teachers do not like me to ask a lot of questions during the lesson.

A. True
B. False

12. In class I often count the minutes until it ends.

A. True
B. False

<< OVER >>

13. When I think of going to school,

A. I almost always look forward to it.
B. I usually look forward to it.
C. I look forward to it once in awhile.
D. I hardly ever look forward to it.

14. I think that other kids in my class want me to do well in my school work

A. Almost all the time.
B. Once in awhile.
C. Not very often.
D. Hardly ever.

15. When I have something on my mind to say to my teachers, I can

A. Hardly ever say it.
B. Say it once in awhile.
C. Usually say it.
D. Almost always say it.

16. When I am doing my work in class,

A. I enjoy it almost all the time.
B. I usually enjoy it.
C. I enjoy it once in awhile.
D. I hardly ever enjoy it.

17. The things I get to work on in most of my classes are

A. A real waste of time.
B. Not very interesting to me.
C. OK-school work is school work.
D. Interesting to me.

18. The school and I are like

A. Enemies, we don't get along.
B. Strangers, we hardly know each other.
C. Friends, sometimes.
D. Best friends, we get along great.

19. When I work hard in class, my teachers

A. Usually tell me I am doing well
B. Sometimes tell me I am doing OK
C. Do not say much.
D. Hardly ever notice me.

Teacher Ratings

Teachers were asked to rate each of their pupils on the following two items:

1. Rate the pupil's likely overall performance on next year's course content (circle the number of the scale appropriate to each student):

   (1) Likely to fail
   (2) Likely to do poorly
   (3) Likely to do about average
   (4) Likely to do above average
   (5) Likely to do very well

2. Rate the pupil's cooperation:

   (1) Continually disrupts classroom; unable to inhibit responses
   (2) Frequently demands attention; often speaks out of turn
   (3) Waits his/her turn; average for age
   (4) Cooperates well; above average
   (5) Cooperates without adult encouragement excellent

The teacher's estimate of how well the pupil would do on next year's course work was taken as a measure of teacher expectations. However, the raw score was not analysed as an expectation measure. Rather, the scores were adjusted statistically for the pupils' concurrent reading performance scores. The correlation between reading performance and Item 1 was .54 and Item 2, .28. We interpretted the adjusted rating scores as the attitudinal component of the teacher expectation apart from the pupil's actual performance level.

Pupil Friendship Choices

We gave pupils an alphabetized roster of the students in their same grade level in the school, and asked them to check as many names as apply to the following three questions:

   (1) This kid is a good friend of mine.
   (2) I sit close to this kid in class.
   (3) I work with this kid in class.

Responses to the friendship item were analysed for this report to provide each pupil with the following scores:[1]

Gregariousness: The total number of pupils chosen as friends

Interracial gregariousness: The total number of other-race pupils chosen as friends

Popularity: The total number of times the pupil was chosen as a friend by others

Interracial popularity: The total number of times the pupil was chosen as a friend by other-race classmates

In addition, the racial composition of the pupil's grade level was recorded from the roster.

Several of the outcomes from the analysis replicate the results from other studies, and such replication contributes to the validity of findings from this study. For example, boys in elementary school typically have larger friendship networks than do girls. In this study, boys in the third and sixth grade magnet school sample were more gregarious than girls; that is, they chose more friends (boys average = 5.15; girls = 3.19). And, boys were more popular than girls; that is, they were chosen as friends more times on the average (5.22) than were girls (2.49). Some researchers attribute such findings to the larger group nature of boys' games and sports compared to many of the girls' activities.

Other research indicates that friendship circles expand during the elementary school years, and this was also found in the magnet school analysis. Sixth graders tended to be more gregarious (average = 4.6 friend choices) than were the third graders (average = 3.9), and sixth graders were also more popular (4.4 times chosen) than were the third graders (average of 3.6 times chosen).

On another point of similarity, this analysis found, as had many other studies of elementary school children, that most of the friendship choices were for same-sex classmates. For the magnet school sample as a whole, 75 percent named no friends of the opposite sex; and almost 90 percent named either one or no friends of the other sex.

On a topic not covered in other research, this analysis indicated that pupils transfering into the school named somewhat more friends (average = 4.7) than did the nontransfering pupils (average = 4.1). Also, transfer pupils tended to be more popular (average = 4.3 times chosen) than the nontransfer pupils (average = 3.9). Thus, pupils transfering into magnet schools apparently experience no long-term social isolation as a result of their move.

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1. The authors are grateful to Dr. Nancy Karweit for providing the computer program used to score the friendship choice data and to Dr. Joyce Epstein for her recommendations on the selection and interpretation of the sociometric items used here. Drs. Karweit and Epstein are on the staff of the Center for Social Organization of Schools, The Johns Hopkins University.

APPENDIX A-2

TECHNICAL NOTES ON THE ACADEMIC SAMPLE, MEASURES AND ANALYSES

ACADEMIC MEASURES

Academic gains were analyzed for two groups of pupils, the third grade and the sixth grade classes of 1986. We adopted the Criterion-referenced Test for Reading (CRT-R), routinely administered systemwide to pupils at year's end, as one measure for this analysis. Also, the Criterion-referenced Test for Math (CRT-M) was similarly adopted for use in this study. Using these measures for the evaluation study avoided an additional testing burden in the magnet schools. Also, since these measures are used systemwide, a nonmagnet comparison group was readily available to the study at no extra cost.

The CRT-R scores were available for the lower grade level from the spring of their first grade year and the spring of their third grade year. Thus, the academic gains analysis examined the two-year, intervening period. Math scores were not systematically administered to the first graders and thus no academic gains in math were analyzed for the lower grade level.

For the upper grade level, the California Achievement Tests (CAT) scores in reading and math administered to them in the fall of their third grade year were used as the baseline scores for a four-year academic gains analysis. Data from the CAT were available for more pupils than was true of the CRT measures from third grade.

Using the systemwide CRT scores as the outcome measures provided some economies noted above but also incurred several unanticipated disadvantages which became apparent over the course of the three-year study. Not all pupils in a given grade level were administered the same level of the CRT-R. Some were "down-tested" (given a CRT-R for a lower grade level), and a few were "up-tested." Down-testing was largely (although not exclusively) practiced in the schools or classes where pupils were judged to be working below grade level in reading. Since scores from two different grade levels of the CRT-R cannot be directly compared, we developed a modified CRT-R scale to represent pupils' cumulative levels of achievement in reading across the grade levels.

For this modification, pupils were given credit for passing all the items on all CRT-R levels below the one they were administered, and then the items passed on their current test were added to that total of lower-level items. The modified scale for the CRT-R test correlated well with itself across years (between .45 and .76 depending upon time points) and correlated well with the California Achievement Tests reading scores (between .64 and .66 depending upon time points). Using this modified reading scale, the scores derived from different CRT levels administered within the same classroom or school were combined to increase the number of pupils available for the analysis.

MAGNET AND NONMAGNET SCHOOL SAMPLE

For each of the third and sixth grade groups we selected a set of nonmagnet schools as the comparison group for academic gains. We used two selection criteria for matching the nonmagnet schools: (1) the percentage of pupils tested on-grade-level with the CRT-R in spring 1986; and (2) the school mean CAT total score of the sixth grade class when they were in third grade. The results of this selection process are summarized below in Table A2.1.

Table A2.1
Comparability of Magnet and Nonmagnet Schools
In Percentage of Pupils Tested On-level with CRT
And Mean Third Grade CAT Score of the Sixth Grade Group

	Percentage of Pupils Tested On-level: In Grade 3		In Grade 6		CAT Total
	%	n =	%	n =	Mean
MAGNET SCHOOLS					
Chevy Chase.....	90	53	77	62	72.6
N. Chevy Chase.....	59	39	71	45	61.5
Takoma Park.....	56	53	*	*	*
E. Silver Spring...	56	41	*	*	*
Pine Crest.....	99	70	99	67	56.9
Oak View.....	64	34	69	41	62.6
Rolling Terrace....	81	34	43	21	58.9
Rock Creek Forest..	67	22	74	26	58.9
Highland View.....	85	39	75	43	52.1
New Hampshire Estates.....	89	40	*	*	*
Forest Knolls.....	68	36	64	36	65.8
TOTAL GROUP.....	74	461	73	341	61.7
NONMAGNET SCHOOLS					
Clarksburg.....	71	48	55	29	57.3
DuFief.....	93	70	76	68	74.0
Burtonsville.....	74	55	64	45	66.3
Bethesda.....	51	32	64	35	64.1
Westover.....	64	43	77	58	64.1
Washington Grove...	77	48	81	72	51.5
Watkins Mill.....	80	55	79	55	57.9
Highland.....	89	57	*	*	*
Weller Road.....	69	46	65	46	56.0
Wheaton Woods.....	76	56	64	49	59.6
Rock View.....	66	33	*	*	*
TOTAL GROUP.....	74	543	71	457	61.3

* No pupils in this grade level were included in the sample.

The selection procedure produced a comparable set of nonmagnet schools for the academic analysis. For the third grade cohort, the proportion tested on level with the CRT was .74 in the magnet schools and .74 in the nonmagnet schools. In the sixth grade cohort, these figures were .73 and .71, respectively. Both magnet and nonmagnet schools averaged about 61 NCE points on the sixth graders' CAT total scores administered when they were third graders.

LONGITUDINAL ANALYSIS METHOD

The method for the longitudinal analysis reported in Chapter 3 was developed by Thomas Ferb.[2] Briefly, regression equations are calculated to estimate the magnet-nonmagnet school difference in four-year gains (third through sixth grade) and the magnet-nonmagnet difference in two-year gains (fifth through sixth grade). These two-year and four-year differences in gains were converted to SD units and expressed in terms of the sixth grade reading score. The sixth grade data point for each group was plotted from their respective observed scores, and then the fall third grade data point for each group was calculated by subtracting the group's four-year gains from their sixth grade data points. Similarly, the spring fourth grade data points were plotted by subtracting each group's gain of the last two years from their observed sixth grade data points. In this manner the longitudinal pattern of gains was plotted for the magnet group relative to the nonmagnet group.

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2. Ferb, Thomas. (1975) An Interim Analysis of Longitudinal Follow Through/ Non-follow Through Site Level Differences in Academic Achievement. In Education as Experimentation: A Planned Variation Model, Vol. IIB, Monographs and Appendices, Cambridge, Mass.: Abt Associates Inc.

APPENDIX A-3

MAGNET AND NONMAGNET SCHOOL SAMPLE FOR PARENT INTERVIEWS

All 14 elementary magnet schools in Area 1 and Area 2 were included in the parent interview sample. Thirteen nonmagnet schools were selected from the school attendance zones close to the magnet schools under the assumption that such schools would be the most likely sources of nonmagnet transfers into the magnet schools. As shown below in Table A3.1, the nonmagnet schools have a somewhat lower minority composition in this sample of parents (average of 32.5 percent) compared to the magnet school parent group (average of 43.0 percent).

The parent sample was stratified by grade and race within each school. Since the school transfer issue was important to the analysis, and most transfer requests are submitted for pupils in the lower grade levels, we included parents of kindergarteners in the sample. In addition, parents of second and fifth graders were selected since they matched the grade levels of the cohorts of pupils being assessed for this evaluation. This selection allowed for the potential matching of parent and pupil data. The results of these selection procedures produced the sample of schools and respondents listed below in Table A3.1.

Telephone interviewers were recruited and trained in the interview procedures, and the interviewers included native speakers of Spanish, Vietnamese, Chinese, and Farsi to call minority group parents when necessary. A copy of the parent questionnaire is included at the end of this appendix. Interviewers were given a roster of telephone numbers blocked by race and grade within each school, and quotas were assigned for each block to produce proportional sampling across grades and racial groups.

EXHIBIT A3.1

Sample of Parents Interviewed in Magnet and Nonmagnet Schools by Grade

	KNDG. n =	GD 2 n =	GD 5 n	TOTAL n =	PERCENT MINORITY %
MAGNET SCHOOLS:					
Chevy Chase.....	*	20	17	37	40.5
East Silver Spring.	26	26	*	52	42.3
Forest Knolls.....	14	18	18	50	32.0
Highland View.....	13	19	16	48	47.9
Montgomery Knolls..	26	20	*	46	32.6
New Hampshire Estates.....	21	20	*	41	51.2
North Chevy Chase..	*	*	21	21	57.1
Oak View.....	16	19	20	55	38.2
Pine Crest.....	*	*	19	19	52.6
Piney Branch.....	*	*	32	32	50.0
Rock Creek Forest..	15	15	12	42	38.1
Rolling Terrace....	26	18	17	61	50.8
Rosemary Hills.....	21	21	*	42	35.7
Takoma Park.....	5	24	*	29	48.3
TOTAL GROUP.....	183	220	172	575	43.0
NONMAGNET SCHOOLS					
Bells Mill.....	10	17	14	41	39.0
Bethesda.....	11	24	12	47	29.8
Bradley Hills.....	8	11	*	19	21.1
Cresthaven.....	24	16	13	53	35.8
Jackson Road.....	13	13	15	41	26.8
Kensington-Pkwd....	12	9	7	28	14.3
Oakland Terrace....	16	16	16	48	39.6
William T. Page....	15	12	15	42	38.1
Somerset.....	*	13	18	31	41.9
Stonegate.....	16	11	13	40	35.0
Strathmore.....	13	13	14	40	40.0
Westbrook.....	10	11	15	36	19.4
Wyngate.....	14	10	15	39	28.2
TOTAL GROUP.....	162	176	167	505	32.5

* Grade level not sampled in this school.

MARKET SCHOOLS EVALUATION

Parent Interview
Spring, 1982

HELLO, I AM _____ OF THE MONTGOMERY COUNTY PUBLIC SCHOOL'S DEPARTMENT OF EDUCATIONAL ACCOUNTABILITY. I AM INTERVIEWING PARENTS OF ELEMENTARY SCHOOL CHILDREN IN MONTGOMERY COUNTY. YOUR TELEPHONE NUMBER WAS RANDOMLY SELECTED FROM A LIST OF TELEPHONE NUMBERS IN THE CENTRAL OFFICE. IS THIS THE RESIDENCE OF --(pupil's name)?

If "No", say, I'M SORRY, WRONG NUMBER. GOOD-BYE.

If "Yes", continue.

ARE YOU THE PARENT OR GUARDIAN OF (pupil)?

If "No", say, MAY I PLEASE SPEAK WITH (pupil's) PARENTS?

If "Yes", continue . . .

THE PURPOSE OF THIS INTERVIEW IS TO HELP THE SCHOOLS LEARN MORE ABOUT WHAT PARENTS THINK OF THE SCHOOLS. YOUR OPINIONS ARE IMPORTANT TO US, AND YOUR ANSWERS WILL BE STRICTLY CONFIDENTIAL. MAY WE ASK YOU A FEW QUESTIONS?

Students get report card grades of A, B, C, D, or F for the quality of their school work. Now I would like you, please, to give your school some report card grades in the following areas as I read them to you:

1. What grade would you give your school for teaching the basic skills such as reading and math?
2. What grade would you give your school for teaching critical thinking and problem-solving skills?
3. How would you grade the school for providing a safe and orderly atmosphere for learning?
4. How would you grade your school's attention to your child as an individual?
5. How would you grade the school on the general student behavior in school?
6. How would you grade your school for providing special programs for individual talents, abilities or needs?
7. If you could give your school just one grade for everything, what grade would you give it?

Now I would like to know how important these same areas are to you. I will read these areas back to you, and you rate them on a scale of 1-to-5 how important they are to you. Use "1" for lowest and "5" for highest rating.

8. On a scale of 1 to 5, how important is teaching of basic skills?
9. How important is teaching of critical thinking and problem solving?
10. How important is a safe and orderly learning environment?
11. How important is the school's attention to your child as an individual?
12. How important is the general student behavior at school?
13. How important is providing special programs for individual talents, abilities or needs?

NOW HERE ARE SOME OTHER QUESTIONS ABOUT YOUR CHILD'S SCHOOL.

14. How does your child usually travel to school?

Walk or bike	1	Private car	3
School bus	2	Other	4

15. How much time does it usually take for your child to travel to school?

10 min. or less	1	21 to 30 minutes	3
11 to 20 minutes	2	Over 30 minutes	4

16. In your child's school would you say there are . . [Too many (1); Too few (2); or, About the right number of(3)] . . .children of your ethnic group?

17. After school does your child play with ...[Many (3); Several (2); or No (1)] ... playmates of other ethnic groups?

18. Since the beginning of this school year, have you been to your child's school to . . .

(Code "Yes" = 1; "No" = 2; Don't Know, refusal=blank)

A. Attend a PTA meeting?
B. Talk to a teacher or other staff about your child?
C. Visit a class
D. Do volunteer work?
E. For any other reason?

19. Have you visited other schools during the last two school years?

No. (GO TO Q. 20.) 1
Yes (ASK . . .) 2
How many other schools?
One other 2
Two others 3
Three or more 4

20. Did you transfer your child into the school from some other school?

No (GO TO Q. 21) code = 999
Yes (ASK . . .)
A. What was that other school? (code = school id. number)

B. Why did you transfer your child?
20.B.1. (code first reason)
20.B.2. (code second reason)
(Code up to 2 reasons from the following list)

Reason	Code	Reason	Code
Incompatibility	1	Scheduled move	5
Emotional	2	Child care	6
Specific program	3	Educational needs	7
To complete a sequence	4	Other	9
		Don't know	0

21. Have you heard of the term "Magnet School" or "Magnet Program"?

No (GO TO Q. 24) 1
Yes 2

22. How did you hear about magnet schools or programs?
22.A. (code first source)
22.B. (code second source)
(Code up to 2 items from this list.)

Your child	1	School newsletter	5
Friends or neighbors	2	Radio, TV, newspaper	6
School staff	3	Other	7
School open house	4	Don't know	0

23. Does your child's school have a magnet program?

No 1
Yes 2
Don't know 0

24. Do you know of any special features or programs which your school offers to students? . . . Can you name any of them?
24.A. (code first feature)
24.B. (code second feature)

(Code up to 2 items from this list.)

All-day kndg.	01	Bussing program	11
Combination grades	02	Traditional structured	12
Continuous progress/individualized	03	Computer instruction	13
Extracurric. programs	04	International school	14
French immersion	05	Team teachers	15
Gifted/talented	06	Language arts program	16
Open classroom	07	Math curriculum	17
Reading program	08	Interrelated arts	18
Science emphasis	09	Communication arts	19
Spanish bilingual	10	Other	20
		Don't Know, NR	00

. . . . . .

This question was the last in the interview. Thank you for your time, and I appreciate your cooperation.