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ABSTRACT

This study found major differences among types of Chicago (Illinois) elementary schools in the amount and time that sixth grade students spent on homework, and that differences were related to the income level and prior student achievement in those schools. Ten magnet schools, 10 integrated schools and 10 primarily minority schools were chosen for study. Objectives were to do the following: (1) determine the extent of differences in the amount of homework completed among the three types of schools; (2) compare the reported amount of homework to the Board of Education policy on the assignment of homework; and (3) determine the relationship between students' report of homework completed and school background variables. Data were analyzed from responses to student questionnaires. Summary findings included the following: (1) students in integrated schools do more homework in math, science, and social studies, but not in reading, than those in magnet and predominantly minority schools; (2) students in predominantly minority schools do the least amount of homework; (3) students in poorer and lower-achieving schools do less homework than those in less-poor and higher-achieving schools; and (4) almost all schools assign more homework than the amount required by Board of Education policy. Statistical data are included on four graphs and four tables. A list of six references is included. (FMW)

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# Homework in Different Types of Schools

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Homework is an alterable variable generally credited with increasing student achievement. What Works, (1986), a recent Department of Education review of educational research findings, includes homework among the approximately 18 classroom level variables that have consistently produced stable positive results. Walberg, Paschal, & Weinstein (1985) estimate that homework assigned without teacher feedback can move an average student from the median to the 60th percentile. When the homework has comments and teacher grades, the effects are even greater, raising the average student's performance to the 79th percentile. The Walberg et al. meta-analysis of 15 studies provided 81 comparisons between different amounts and types of homework. Of these, 85% had higher achievement results in the groups with more homework. A large-scale survey (Keith, 1982) of high school students provided evidence that homework has a compensatory effect, enabling lower ability students to perform as well or better than higher ability students if they complete more homework. Summary findings from a recent review of homework literature in elementary and secondary schools suggest that the positive effects of homework are strongest for high school students, less strong at the junior high school level, and possibly negligible for upper elementary students (Cooper, 1988).

This survey study on homework in sixth grade classrooms derives its rationale from research and writing on equity in education and from the revived interest in homework as a potent ingredient in the educational recipe. One way to measure equity in a school system is to determine the magnitude of differences that exist among different groups--boys and girls, blacks and whites, rich and poor, etc. This study examines the equity issue in terms of amount of homework assigned and completed in three different types of schools in the Chicago Public Schools system.

Previously, we have studied achievement and achievement gain differences among different types of schools that each enroll students of three different races. This study revealed that while absolute achievement levels differed by type of school, achievement gain did not differ, suggesting that rate of learning equalized over time for different groups of students in different types of schools (Easton, Bennett & Seymore, 1988). This present study continues that line of equity research by examining another important dependent variable.

This study uses student reports to determine the amount of homework that a sample of 6th grade students completes. The study has three major objectives: 1) to determine the extent of differences in the amount of homework completed among three different types of elementary schools in the Chicago Public Schools system (magnet schools, integrated schools, and predominantly minority schools); 2) to compare the reported amount of homework to Board of Education policy regarding the assignment of homework (Chicago Public Schools, 1986); and 3) to determine the relationship between students' report of homework completed and school background variables (prior achievement and percent free or reduced lunch). This study leaves the much larger and more difficult and important questions about the effectiveness of homework to future work that should grow from this initial base.

One of the two major goals of Chicago's Student Desegregation Plan is to reduce disparities in educational outcomes provided to minority and nonminority students (and by implication to predominantly minority and other schools) and to reduce achievement gaps between groups of students. The Plan recognized that its other major goal--to desegregate as many schools as was practicable--would still leave many schools "racially identifiable." Because of this unique educational component of the Student Desegregation

Plan, studies of differences and similarities among different categories in the Chicago Public Schools take on special meaning. The system is achieving or making progress toward meeting an objective of the Plan when there are no or few differences among categories of schools.

In creating the greatest number of desegregated schools as possible, the system created or maintained about 35 elementary magnet schools. Most of these are required to have a racial composition of 15-35% white and 65-85% non-white; they do not have attendance areas; and they enroll students from broad geographical areas. The system permits and encourages voluntary transfer in order to maintain integration or desegregation in a group of about 80 elementary schools that are between 30% and 60% white and 40% and 70% non-white. Integrated schools maintain this racial composition mainly because a neighborhood attendance area is integrated. In these schools, voluntary transfer assists in maintaining stable integration. Desegregated schools are located in primarily white neighborhoods and accept students from outside the attendance area in order to maintain a racial composition within the prescribed range. Racially identifiable schools are 85% or more non-white and usually enroll students from within their attendance areas only. There are about 300 such schools in the Chicago Public School system that are the primary target for the educational component of the Student Desegregation Plan. (The term "predominantly minority" is used in the remainder of this paper instead of "racially identifiable.")

## Method

### Sample

This study selected 30 elementary schools--10 magnet schools from a population of about 35, 10 integrated or desegregated schools from a

population of about 80, and 10 predominantly minority schools from a subset of 82 of the 300 predominantly minority schools. This group participates in a school improvement project. This project aims to overcome the current effects of past segregation through application of "effective schools" practices (for example, Edmonds, 1982) and is implemented in a group of relatively low-achieving, poor, predominantly minority schools. The random selection technique that created this sample stratified the three subpopulations by geographic location in order to insure an accurate representation of school and student background characteristics.

On the average, the magnet schools in this sample are the largest schools, followed by the integrated schools, then the predominantly minority schools. The integrated schools have the fewest students receiving free or reduced cost lunches, followed by the magnet schools, with the predominanlty minority schools receiving the most. About half of the students in the integrated schools are white, about one-fifth of the students in magnet

Table 1

Characteristics of the Sample Schools

| | Integrated | Predominantly Minority | Magnet |
|---|---|---|---|
| # of Schools | 10 | 10 | 10 |
| Average membership | 586 | 569 | 712 |
| Median Free lunch | 27% | 98% | 49% |
| Racial Composition | | | |
| % White | 51.2% | 1.3% | 21.3% |
| % Black | 14.8% | 81.8% | 45.7% |
| % Hispanic | 20.5% | 16.8% | 26.9% |
| % Other | 13.5% | 0.2% | 6.1% |
| Sample | | | |
| # of Classrooms | 17 | 18 | 17 |
| # of Students | 444 | 429 | 457 |

schools are white, and about one percent of the students in the predominantly minority schools are white. Table 1 contains this information.

Most schools in all three groups of schools had two regular (ie., not special education or bilingual) sixth grade classrooms, although two or three schools in each group had only one. In the two schools that had more than two sixth grade rooms, the investigators requested the principal to select two typical rooms.

Questionnaire

The portion of the questionnaire analyzed here asked students two questions: how many days each week they usually had homework in reading/language arts, math, science and social studies; and how much time they usually spent on assignments in each of the four subjects. For the data analysis, the first question was coded from zero to five days. For the second question, students responded either none, 1 to 15 minutes, 15 to 30 minutes, 30 to 45 minutes, or more than 45 minutes. These responses were transformed to numeric responses by using the midpoint of each response interval. A variable representing total time spent on homework each week was calculated by multiplying responses to the first question by responses to the second question.

Data Collection

Researchers scheduled school visits early in the morning and administered the questionnaires immediately following classroom startup activities. The researchers read the questionnaires to the students who completed them. The entire process took about ten minutes.

Central office sources provided background information about schools, including the percent of students in the schools eligible for free or reduced cost lunch as of June 1988, and the spring 1988 fifth grade median Iowa Tests

of Basic Skills (ITBS) scores (in grade equivalents) in reading, mathematics, science, and social studies. These spring test scores represent the median scores of the students surveyed in this study; school medians are used, not individual or room level scores.

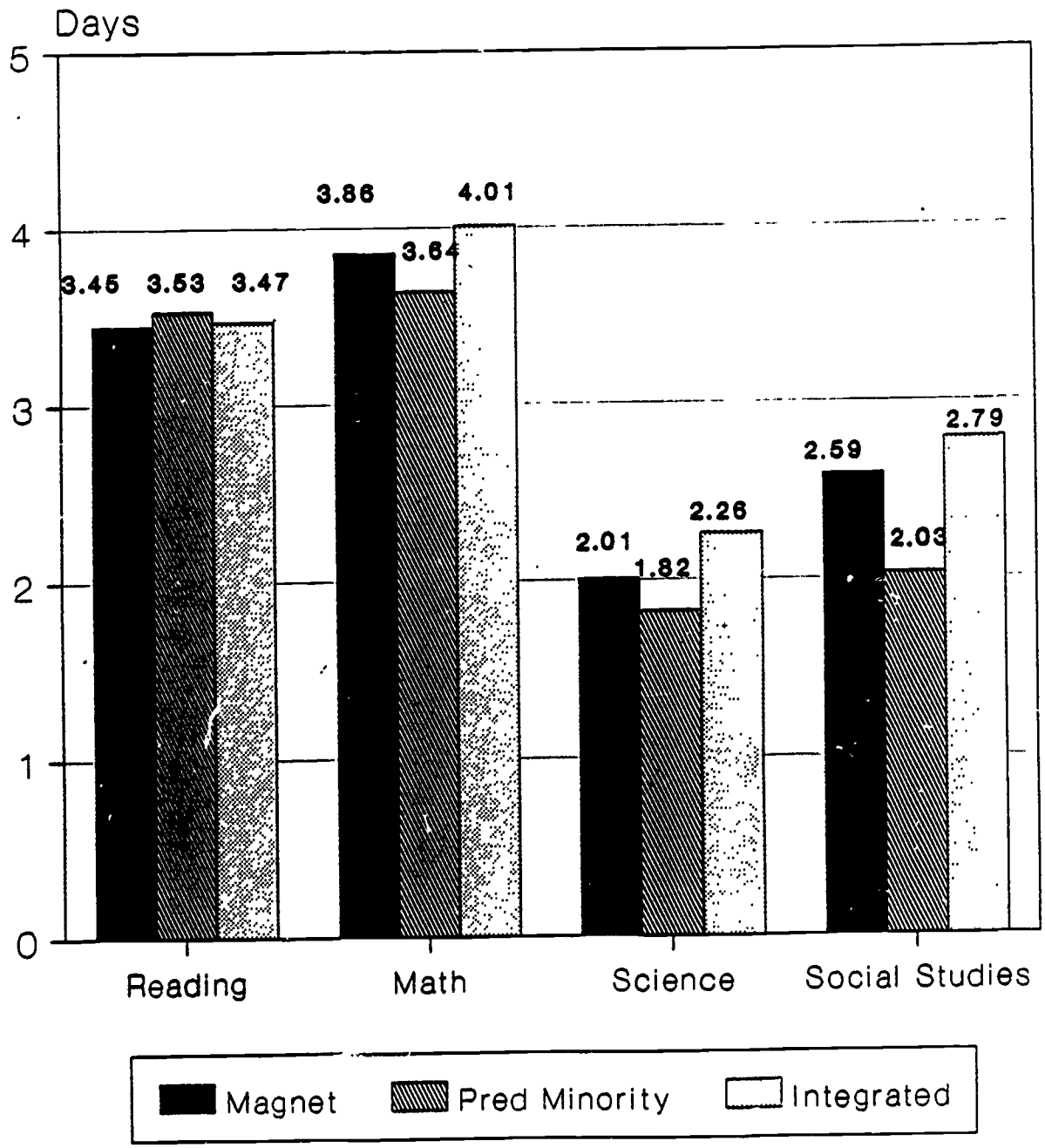
## Results

### School Type Differences

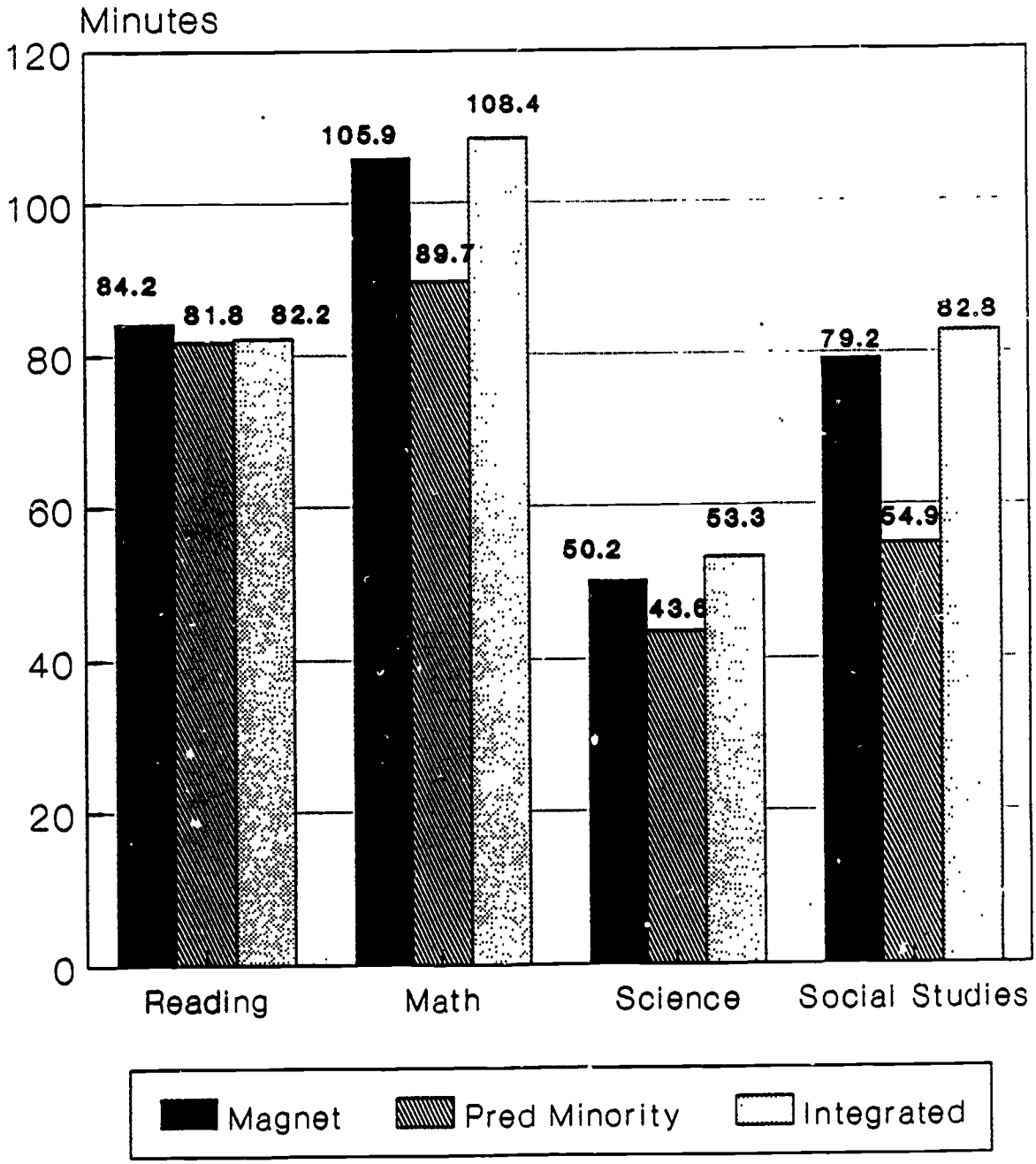
With responses aggregated to the school type level (magnet schools, predominantly minority schools, and integrated schools), students in all three types of schools report that they do homework in reading/language arts about 3.5 days each week. School type differences are apparent in the three other subject areas, with students in the integrated schools reporting more homework in math, science, and social studies than the students in other types of schools. Magnet school students report doing homework more often than students in the predominantly minority schools. Students do homework most often in math (almost four days a week in the integrated schools and somewhat less in the other two types of schools). Students do homework least often in science, about two days a week for magnet school students, somewhat less in the predominantly minority schools and somewhat more in the integrated schools. There is greater variability among school types in social studies, where students in predominantly minority schools report doing homework twice a week, students in magnet schools over 2.5 days, and students in integrated schools closer to 3 days each week. See Figure 1 on page 7 and Table 3 on page 18 in the Appendix.

Similar results are apparent from an analysis of the total amount of time students spend on homework. (Figure 2 on page 8 and Table 4 on page 18.) There are negligible differences among the types of schools in total time on reading homework. In math, science and social studies, students

# Figure 1
# Average Number of Days Per Week Students Do Homework



# Figure 2
# Average Minutes Students Spend on Homework Each Week



in integrated schools report spending the most amount of time on homework, students in magnet schools the next most amount of time, and students in the predominantly minority schools the least amount of time.

On the average (by school type), students report doing about 80 minutes of homework each week in reading, between about 90 and 108 minutes in math, between 43 and 53 minutes in science, and between 55 and 83 minutes in social studies. The greatest difference among types of schools occurs in amount of time students spend on social studies homework.

As shown in the preceding figures and in Tables 3 and 4 on page 17 in the appendix, the three groups of schools differ in terms of group averages in total time spent on homework in math, science and social studies. In addition, the distributions of classroom means within groups of schools show the same pattern, and confirm that the group differences are not due to one or two idiosyncratic classrooms or schools. Figure 3 on the following page shows the distributions of classroom means of total time on homework by subject area and school type. The distributions appear relatively similar for reading in the three groups, although there is somewhat greater dispersion among the classrooms in the integrated schools. There are more classrooms in the integrated and magnet schools that spend a great deal of time on math homework than in the predominantly minority schools. In science, the distributions appear similar, although there are more classes in the predominantly minority schools that report spending very little time on science homework. The distributions are the most dissimilar for social studies, with magnet school classrooms showing a symmetrical curve and with integrated and predominantly minority schools having distinctly different modes.

Figure 3

Distribution of Classroom Means

Total Time on Homework in Minutes

| Minutes | Magnet | Predominantly Minority | Integrated |
|---|---|---|---|
| **READING** | | | |
| 120+ | J | BCG | II |
| 91-120 | BCDEGGJ | EGI | ABB |
| 61-90 | ABCDHI | AABCFFH | ACDEGGHH |
| 31-60 | AFI | DDHJJ | EFJ |
| 0-30 | | | C |
| **MATH** | | | |
| 120+ | ACFGGJ | BF | ADEEGI |
| 91-120 | ACHIJ | GCCDEGIJ | BCCGHHIJ |
| 61-90 | BBDDE | AABDFGHH | BF |
| 31-60 | I | J | A |
| 0-30 | | | |
| **SCIENCE** | | | |
| 120+ | J | | B |
| 91-120 | J | C | I |
| 61-90 | AE | CIJ | BDI |
| 31-60 | BCFGGI | BBDDEGJ | AAFGHHJ |
| 0-30 | ABCDDI | AAFFGHH | CCEEG |
| **SOCIAL STUDIES** | | | |
| 120+ | GJ | | CF |
| 91-120 | ABEH | BCF | B |
| 61-90 | CCFGIJ | FI | AABCDEEGHIJJ |
| 31-60 | BDDI | ABCDDEGHHJJ | GH |
| 0-30 | A | AG | |

Note: Each letter represents a classroom average. A repeated letter within the same group indicates two classrooms in one school.

Relationship between Homework and School Board Policy

The Chicago Public School system suggests that sixth grade students be assigned a minimum total of 45 minutes per day homework in all subjects, which is equivalent to 225 minutes weekly. Of the 52 classrooms surveyed in this study, all but 7 exceeded the minimum of 225 minutes weekly. One of these seven classrooms is in a magnet school and the remaining six are in predominantly minority schools. The total average minutes for each of the three groups of schools exceeds the 225 minute minimum (319 minutes for magnet schools, 270 minutes for predominantly minority schools, and 327 minutes for integrated schools).

Relationship Between School Characteristics and Homework

There are moderate negative correlations between the percent of students in a school who receive free or reduced cost lunches and the amount of time that students report spending on homework in math and social studies; a low, positive correlation between free lunch count and reading homework; and little or no correlation between free lunch and science homework. Similarly, there are moderate positive correlations between fifth grade school median

Table 2

Correlations between School Characteristics

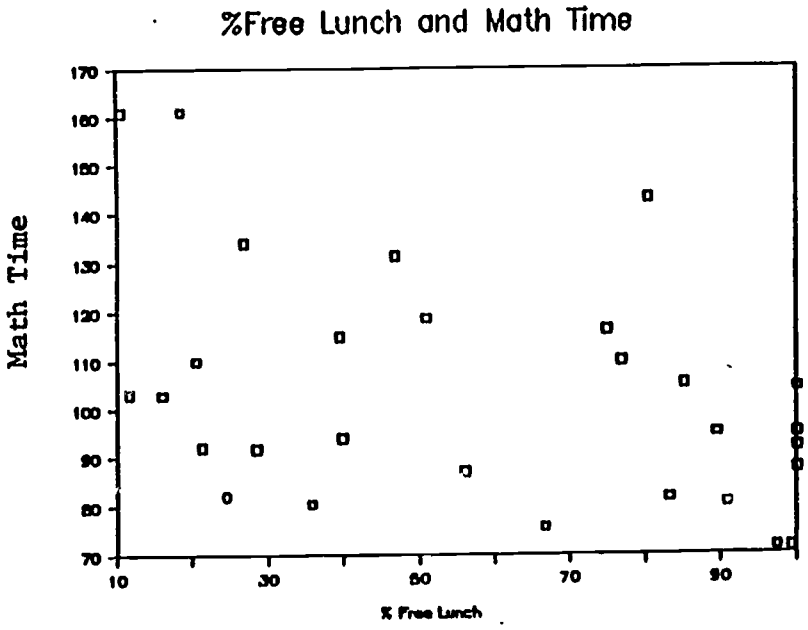
and Student Time on Homework

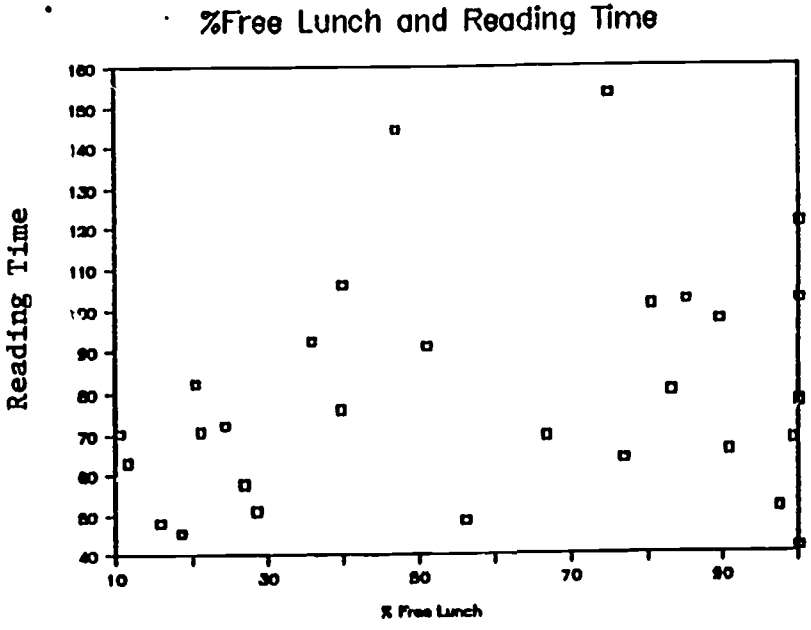
| | Reading | Math | Science | Social Studies |
|---|---|---|---|---|
| %Free lunch | .22 | -.40 | -.09 | -.47 |
| Prior Year ITBS | -.09 | .41 | .05 | .51 |

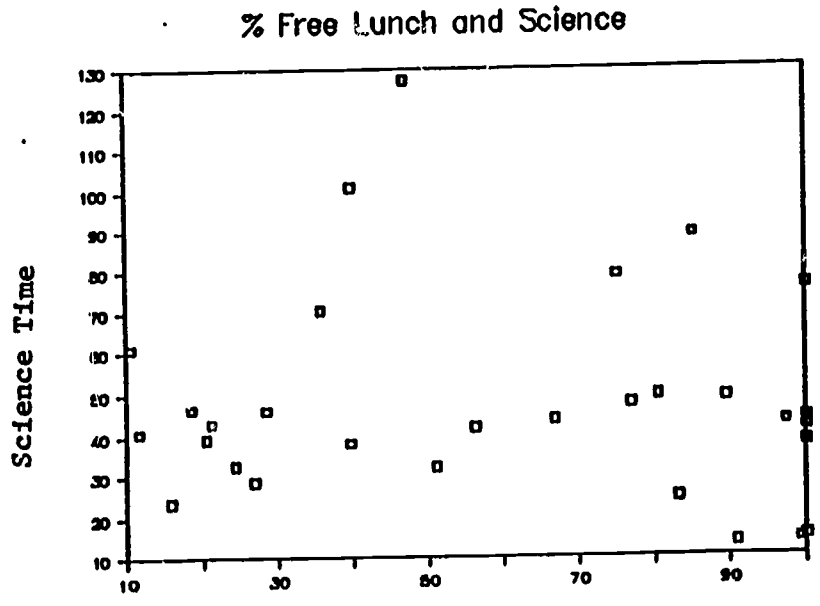
n=30 schools

Figure 4

Relationship between Free Lunch Count and Time on Homework



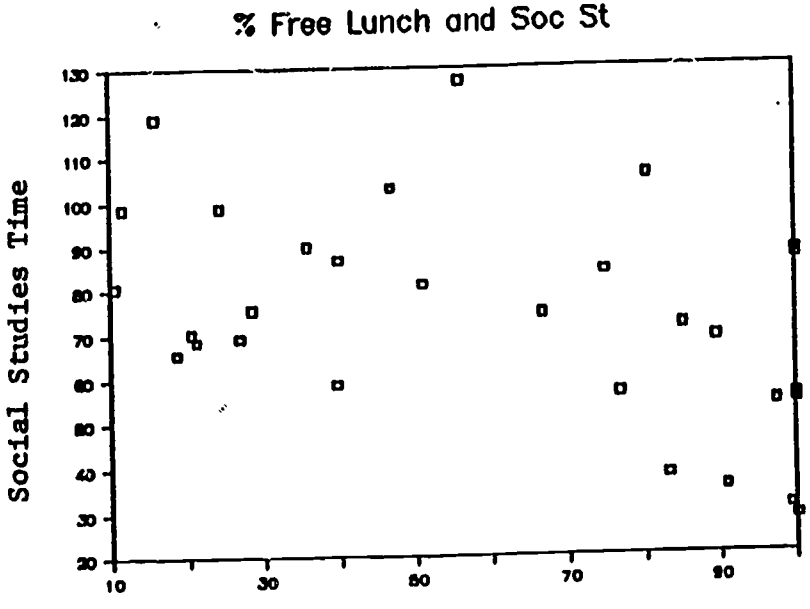
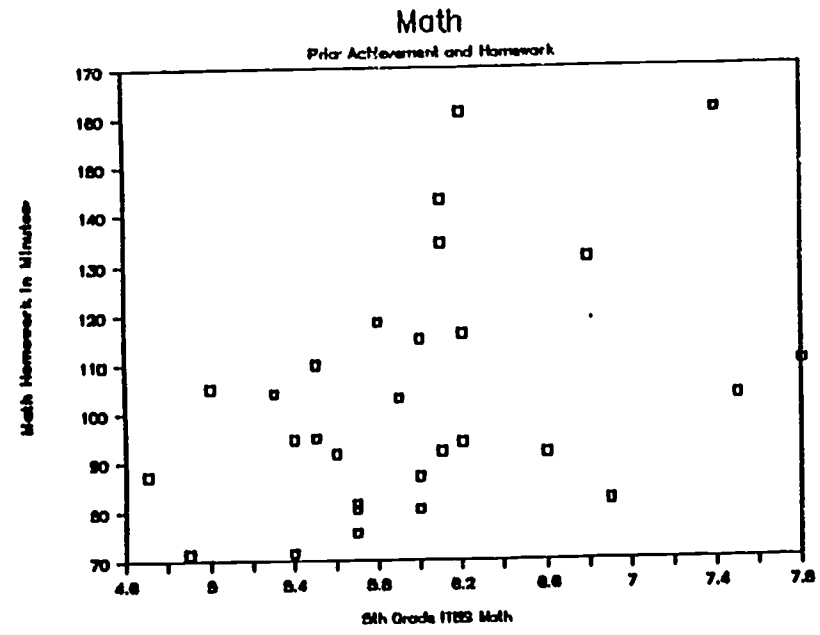
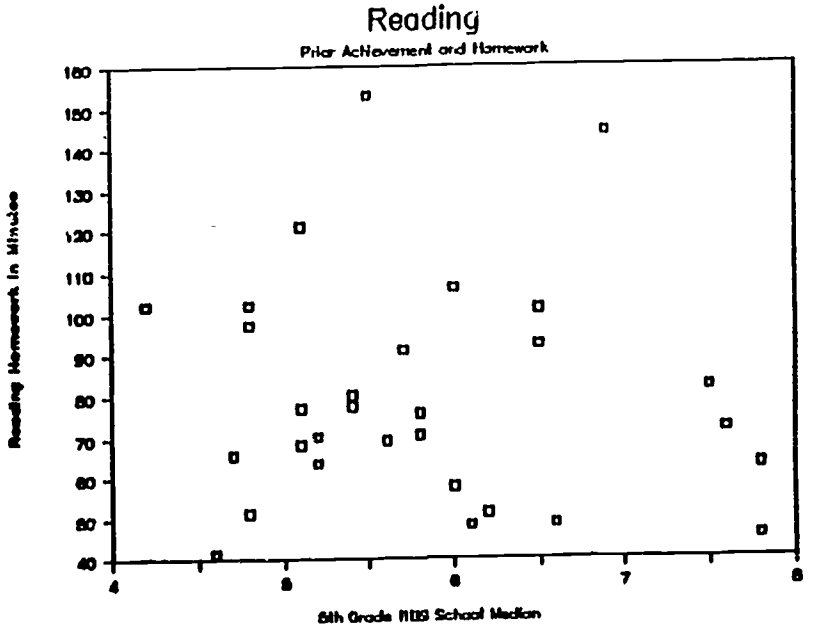
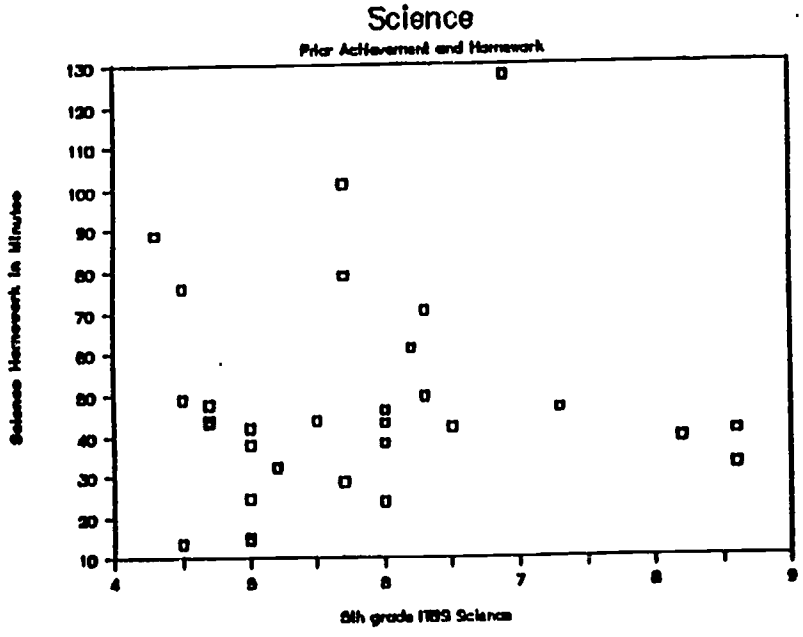



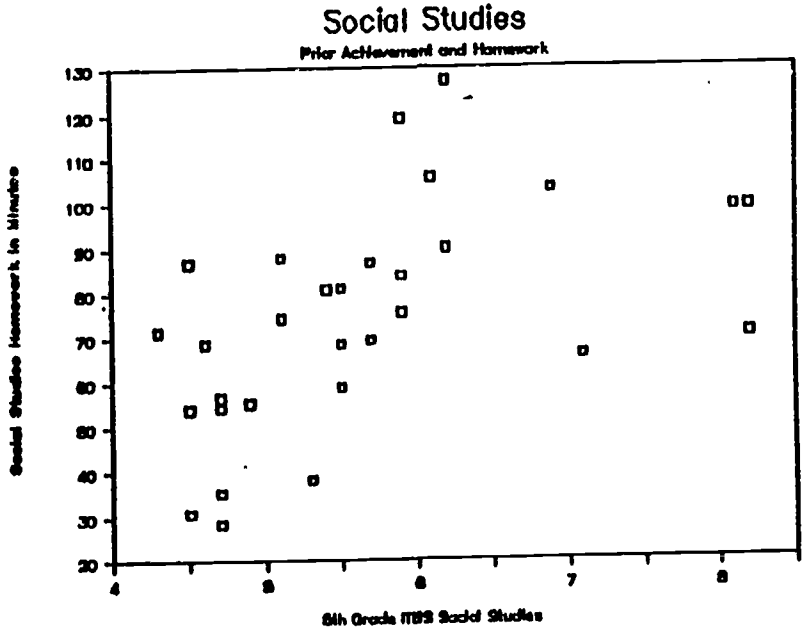
Figure 5

Relationship between Prior Achievement and Time on Homework



ITBS scores from 1988 and sixth grade homework responses in math and social studies. The correlations are near zero between fifth grade scores in reading and science and sixth grade homework in those subjects.

The scatterplots in Figures 4 and 5 (page 12 and 13) display this pattern. In schools with higher proportions of students who receive free lunch (that is, poorer schools) students report spending less time on homework in math and social studies than students from schools with a lower proportion of low-income students. Likewise, in schools where fifth grade achievement in math and social studies is lower, students report doing less homework in math and social studies than students from schools with higher previous achievement.

## Summary and Discussion

The results of this study can be summarized briefly as follows. Students in integrated schools report doing more homework (days each week and total time) than students in magnet schools and students in predominantly minority schools in math, science and social studies, but not in reading. Students in the predominantly minority schools report the least homework, with the greatest differences between predominantly minority and integrated and magnet schools occurring in social studies and math. Students in poorer and lower-achieving schools report doing less homework in social studies and math tha students in less poor and higher-achieving schools. Almost all of the 55 classrooms surveyed report doing as much or more homework than school policy recommends. Of the seven exceptions, six occur in the predominantly minority schools.

These results clearly show a major difference among types of schools in the amount and time that students spend on homework, and that these

differences are related to the background characteristics (prior achievement and low income) of the schools. This implies that educational opportunities, in terms of curriculum and instruction, school management, educational intervention strategies, and expectations for students are unequal among these different types of schools. If homework is viewed as one part of a comprehensive instructional strategy, these findings suggest that students in the lower achieving, poorer, and predominantly minority schools are receiving less instruction in math and social studies, and to some extent in science, than students in more advantaged schools. If the findings of Keith (1982) are generalizable to this population, then the students in the lower-achieving schools who receive less homework are also missing the compensatory effects of homework that would help to promote increased achievement and bring the students closer to desirable achievement levels.

These findings do not address the more complex question of whether homework helps students learn more in school. Would more homework in social studies and math improve performance in these subjects for students in lower achieving, poorer, predominantly minority schools? Or is it the case that the students in those schools are receiving an appropriate amount of homework that challenges but does not frustrate them? This research also ignores the difficult questions about how to assign homework, how to grade it, and what instructional purpose it should address.

However, this research does point to the need to conduct systematic inquiry into how school policy is implemented and whether differential standards operate in different school settings, especially regarding homework. These results suggest that local school policies should ensure that students are afforded equivalent instructional benefits in all schools.

This report provides baseline data that can be extended and expanded to increase our knowledge base about the role of homework in school achievement. Room level achievement data from the spring 1988 and the spring 1989 testing will permit a study of the relationship between homework and achievement gain by room. Teacher responses to a homework questionnaire, available but not analyzed here, will permit additional study of school type differences and closer examination of the reliability of student responses.

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APPENDIX

Table 3

Average Number of Days Students Do Homework

| | | Magnet (n=457) | Predominantly Minority (n=429) | Integrated (n=444) |
|---|---|---|---|---|
| Reading | $\bar{X}$ | 3.45 | 3.53 | 3.47 |
| | SD | 1.32 | 1.45 | 1.42 |
| Math | $\bar{X}$ | 3.86 | 3.64 | 4.01 |
| | SD | 1.15 | 1.24 | 1.00 |
| Science | $\bar{X}$ | 2.01 | 1.82 | 2.26 |
| | SD | 1.47 | 1.48 | 1.48 |
| Social Studies | $\bar{X}$ | 2.59 | 2.03 | 2.79 |
| | SD | 1.52 | 1.52 | 1.47 |

Table 4

Average Total Amount of Time in Minutes

Students Spend on Homework

| | | Magnet (457) | Predominantly Minority (429) | Integrated (444) |
|---|---|---|---|---|
| Reading | $\bar{X}$ | 84.2 | 81.8 | 82.2 |
| | SD | 65.8 | 68.9 | 69.3 |
| Math | $\bar{X}$ | 105.9 | 89.7 | 108.4 |
| | SD | 65.4 | 64.7 | 66.3 |
| Science | $\bar{X}$ | 50.2 | 43.6 | 53.3 |
| | SD | 60.3 | 51.2 | 55.9 |
| Social Studies | $\bar{X}$ | 79.2 | 54.9 | 82.8 |
| | SD | 66.8 | 61.1 | 67.1 |