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ABSTRACT

A detailed analysis was made of 600,000 New York City school children in grades 2 through 6 to ascertain the effects of nonschool periods (vacations) on reading and word knowledge. The Metropolitan Achievement Test was administered to the children in September and April of 2 school years, 1965-1966 and 1966-1967. The schools involved were divided into six analysis subsets according to racial and economic composition. Statistics on reading achievement showed a gap of up to 2.7 years between ghetto schools and relatively rich schools between the second and sixth grades. For word knowledge there was a 2.8-year gap by the end of the sixth grade for the same type schools. The statistics showed that half or more of the differentials in reading and word knowledge achievement were associated with the months the children were out of school. The study suggests that perhaps the formal jurisdiction of the school authorities may prove to be too narrow for the responsibility of developing the reading and vocabulary skills. References are included. (NH)

The School Year and Vacations:

When Do Students Learn?

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Revision of a paper presented at the Eastern Sociological Association Convention, New York City, April 19, 1969.

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ABSTRACT

Differentials in white and non-white reading achievement have been traced, in part, to differential rates of learning during non-school periods. This finding has been corroborated in data on several hundred thousand New York City elementary students over two successive years. The effects of the spring to fall vacation periods appear to affect adversely non-white word knowledge even more than reading achievement.

Grether (1968), using reading achievement statistics from seventy-seven elementary schools in New York City, reported that white and non-whites progress in their reading skills at very different rates during non-school periods. A similar finding was reported by Fox (1967) in his analysis of the twenty-three schools in the More Effective Schools program in New York. Both were quite cautious because there was evidence of irregularities in the official statistics. So striking are these non-school differentials that a more detailed analysis, including the entire New York City school system, over two years was undertaken. To it was added an analysis of the students' progress in word knowledge. The Grether and Fox findings are generally borne out in this study and the irregularities highlighted. The general finding remains: much of the differences between white and non-white can be traced to differential progress in reading and word knowledge during non-school periods.

In considering the evidence, we will work with two important assumptions: (a) the official figures are essentially valid, i.e., errors of many kinds undoubtedly exist but their correction would not significantly alter our findings, and (b) we will treat the statistics as if they were longitudinal, e.g., we will assume that the behavior of second graders a year hence can be closely approximated by using the behavior of this year's third graders. Partial support for the latter assumption comes from our analysis of the same schools over two years. The pattern of the findings

reported in this paper under the longitudinality assumption is similar to comparing the same classes' performance over two years. The validity of the tests themselves is beyond the scope of this paper.

The Sample

The data were provided by the Board of Education of New York City. The published statistics report the mean grade level obtained by students on the reading and word knowledge sections of a nationally standardized test--the Metropolitan Achievement Test. Students in the second through sixth grades of over 600 elementary schools are included in the statistics for 1965-6 and 1966-7. Nearly one-half of the close to 600,000 students are white, almost a quarter are Puerto Rican and the balance are black.[1] In 1965-6, the test was administered to 370,000 students in early October and again in early May by the classroom teacher under the direct supervision of the school principal. In 1966-7 the tests were administered in September and April. No first graders were tested. 50,000 Puerto Ricans whose English was considered inadequate for meaningful testing, were also excluded. Three forms of the tests were used, one for the second grade, another for the third and fourth grades and still another for the fifth and sixth grades. The answer

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[1]Orientals and other small racial populations in New York were calssified as white in these surveys.

sheets are machine coded by the representatives of Harcourt, Brace and World, publishers of the tests.

Two attributes of each school, its racial composition and the economic character of its neighborhood, are available. The distribution of the schools on these attributes is shown in Figure 1. The number of students eligible for the school's

-- Figure 1 --

free lunch program constitutes our index of the economic condition of the neighborhood served by each school. Economic level is shown as the horizontal axis. The vertical axis is the proportion of the students in each school who are white. This is derived from a school census of racial and ethnic composition in 1965-66. The Figure shows that the chances are that a student entering the New York school system will attend either a segregated, predominantly white school where very few of his classmates are so poor as to need a free lunch or he will attend a black or Puerto Rican majority school where, likely as not, half of his classmates will not pay for their lunch. So polarized had matters become by 1965 that in all of New York City, there were only 2200 students attending schools whose neighborhoods were both white and poor enough that half were provided a lunch free. By contrast there were 146,000 students coming from both poor and black or Puerto Rican neighborhoods.

The schools were divided into six sub-sets for analytic purposes. The division lines are marked in Figure 1, and the

-- Table 1 --

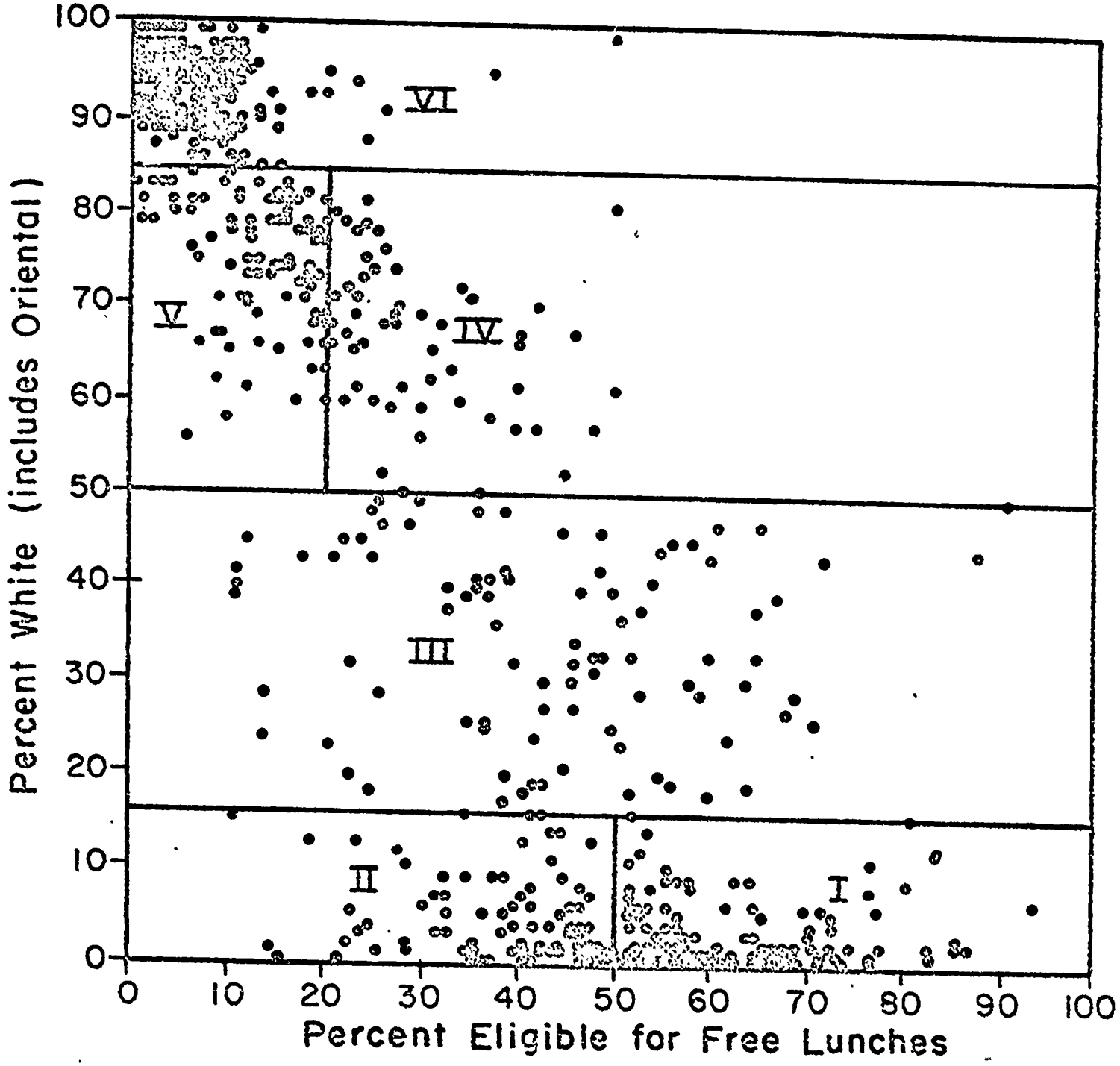


Figure 1. Racial and economic composition of six subsets of 604 New York City elementary schools. (1965-1966)

Table 1

The Six Analytic Sets of New York Elementary Schools

Set	N	% white*	% Free lunch*
1	101	4	63
2	74	4	38
3	95	33	43
4	63	67	30
5	80	75	12
6	191	94	6

* Mean of all schools in the set

sets are described in Table 1. Set I (predominantly Ghetto schools) contains virtually no white and 63% of its sutdents qualify for the free lunch program. Set II is equally non-white but less poor. Set III schools are integrated but the majority of their student bodies are non-white. Sets IV and V are integrated schools with white majorities. They differ primarily in the economic condition of the neighborhoods, IV being poorer than V. Set VI schools (the relatively rich whites) are 95 percent white and fewer than 4% of the students receive free lunches. Sets I and VI are the extremes of poverty and wealth, all-black and Puerto Rican or all-white.

Findings-Reading

-- Figure 2 - 1965-6 --

-- Figure 3 - 1966-7 --

The statistics on reading achievement are shown in Figures 2 and 3. There are three notable points: First, the often-reported gap between white/non-white achievement is evident. Approximately seven-tenths of a year separates Set I (ghetto schools) from Set VI (the relatively rich schools) at the beginning of 2nd grade, and up to 2.7 years separates them by the end of 6th grade--nearly a two-year differential has developed within a five year period. Second, the slopes of the Fall to Spring lines--which represent reading progress during school--are insufficient to account for the two-year gap. And third, the Spring to Fall period shows differential progress during those five-month intervals,

FIGURE 2

READING ACHIEVEMENT
NEW YORK CITY SCHOOLS
1965-1966

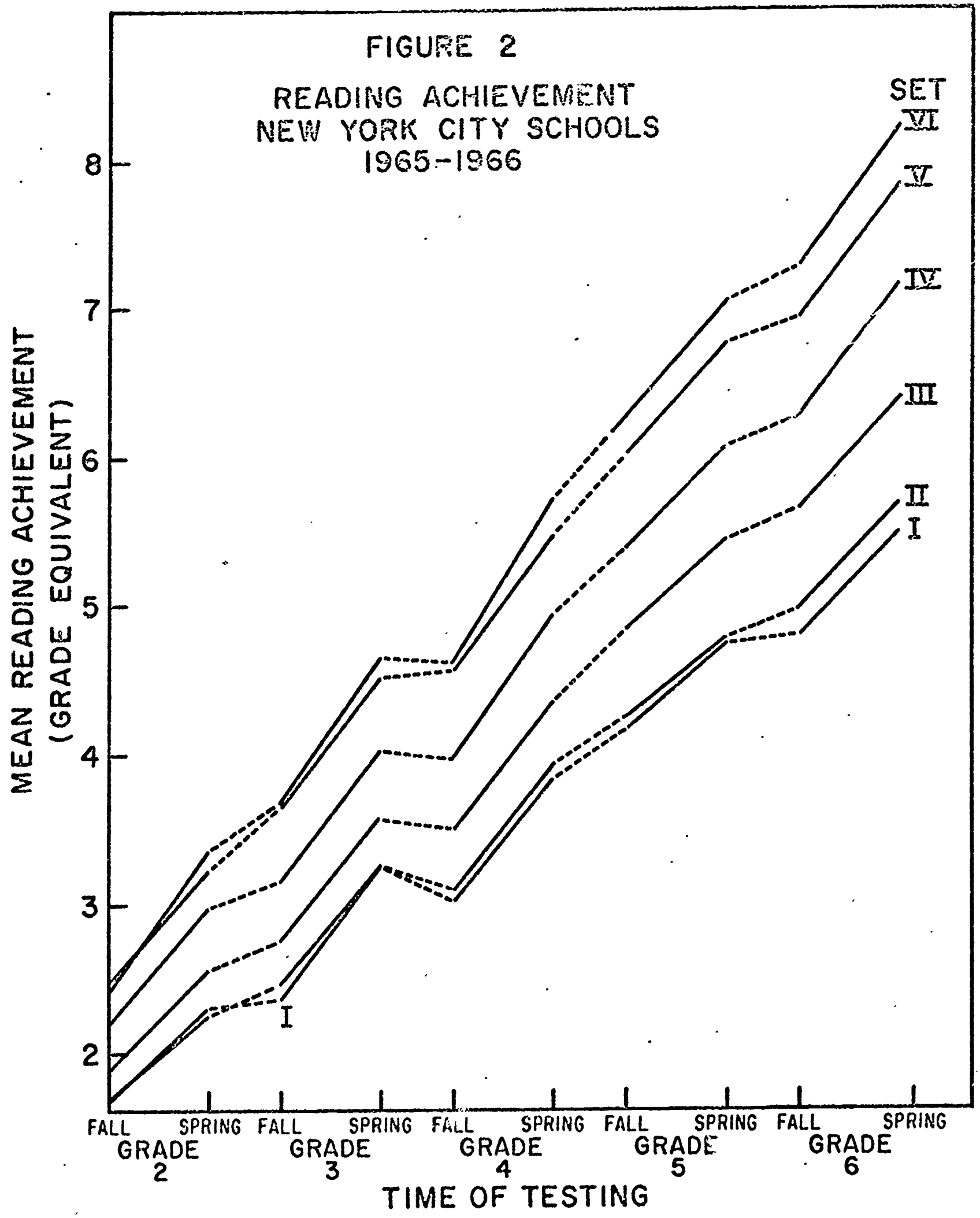
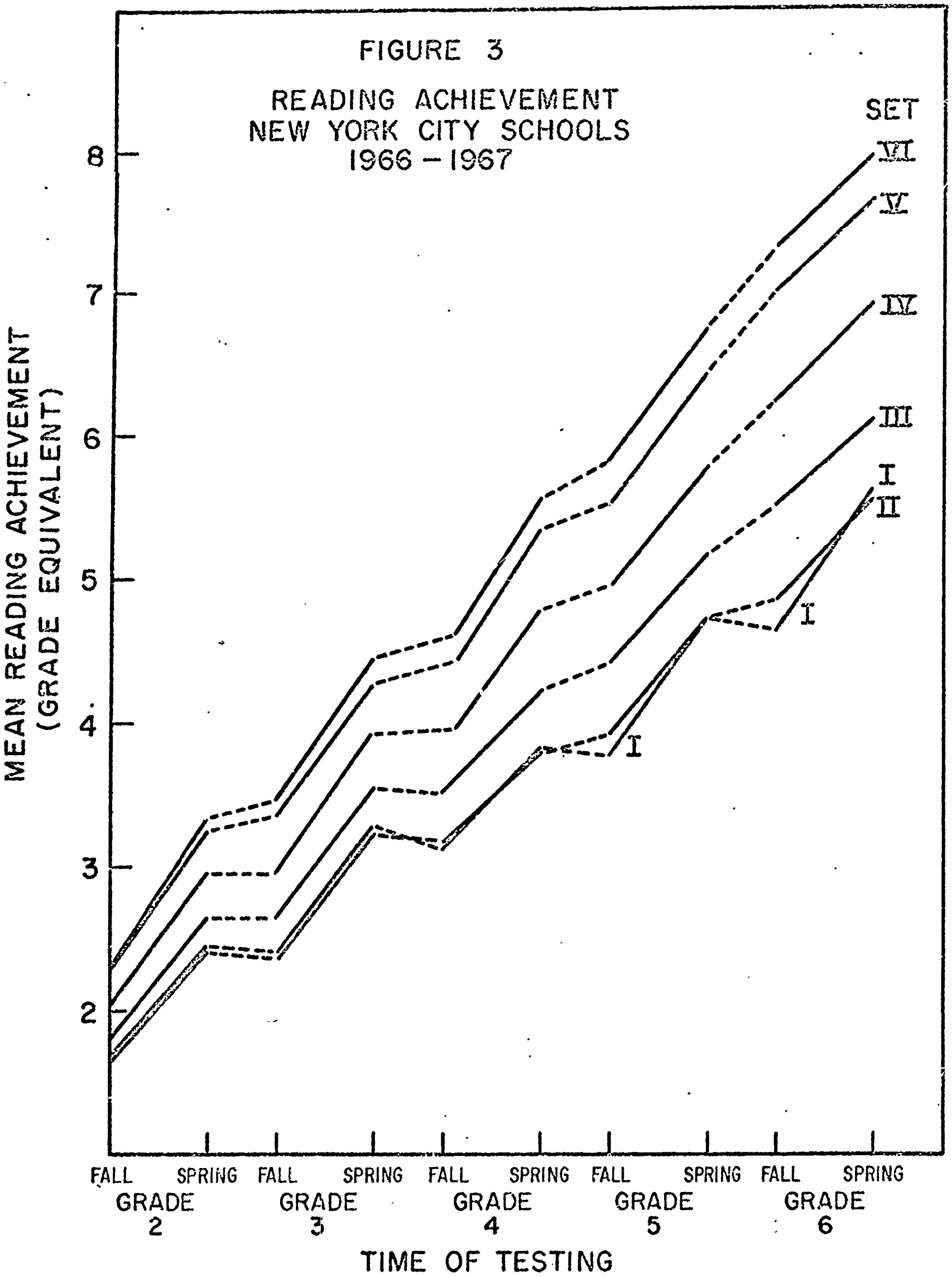


FIGURE 3

READING ACHIEVEMENT
NEW YORK CITY SCHOOLS
1966 – 1967



mainly summer vacation. The relative progress in reading occurring in school and during vacations can be seen in Tables 2 and 3.

-- Table 2 --

-- Table 3 --

The differential progress during the twenty months spent mainly out of school accounts for approximately one year of the two-year gap in reading between the relatively rich white and the ghetto schools. The other year is accounted for by differential progress made during the thirty-five months spent in school between 2nd and 6th grades. Put another way, the four summers between 2nd and 6th grades produce a reading differential almost equal to the effects of five academic years. Month for month in 1965-6, the ghetto students were progressing at a rate 16 times as great during school as out of school. The upper-middle class student progressed at 3.5-4 times the rate in school as out. Students in all sets appear to learn while in school--it is when they are out of school that the important differentials appear. While in school, the relatively rich white school children do barely better than the ghetto school children (1.3 times as much progress per month in 1965-6) but during the summers the relatively rich whites progress at 6 times the rate of non-whites. Irregularities in the 1966-7 data make it impossible to determine these relations for that year.

Table 3

Three components of Reading Achievement in New York City Elementary Schools--1966-6

Set	Initial Test Level-- Grade 2	Five School Years-- 35 months	Four Summer Vacations-- 20 months	Final Test Level-- Grade 6
1	1.68	4.35	-.36	5.67
2	1.66	3.90	+.04	5.60
3	1.80	3.86	+.47	6.13
4	2.05	4.21	+.70	6.96
5	2.25	4.44	+.99	7.68
6	2.29	4.56	+1.13	7.98

Table 3

Three components of Reading Achievement in New York City Elementary Schools--1965-6

Set	Initial Test Level-- Grade 2	Five School Years-- 35 months	Four Summer Vacations-- 20 months	Final Test Level-- Grade 6
1	1.66	3.67	+.15	5.48
2	1.68	3.54	+.47	5.69
3	1.86	3.75	+.78	6.39
4	2.18	4.20	+.78	7.16
5	2.46	4.22	+1.15	7.83
6	2.42	4.85	+.94	8.21

Findings--word knowledge

If non-school periods are important in the acquisition of reading skills, what of the acquisition of a vocabulary--the word knowledge test? Figures 4 shows the pattern of

-- Figure 4 --

test performance for the six sets of schools for 1965-6. As with reading achievement, there is a .7 year gap in word knowledge between the richest and poorest schools by the start of the second grade. That gap grows to 2.8 years by the end of the sixth grade. The slopes of the lines representing progress in word knowledge during the school years are quite similar for each grade and for each of the six sets of schools--only one-half year separates Set I and Set VI schools. As shown in Table 4, there is a 1.7 year differen-

-- Table 4 --

tial attributable to the May to October periods. In short, very little of the enormous difference in word knowledge performance of ghetto and relatively rich whites found by the end of 6th grade appears to be attributable to what goes on in school; most of it comes from what goes on out of school. Despite all the racial, ethnic, economic, motivational, cognitive and linguistic explanations for why blacks perform less well than whites on standardized achievement tests, the ghetto blacks and Puerto Ricans appeared to perform on this test at a level virtually identical to that of the most economically favored whites. More so than was

FIGURE 4

WORD KNOWLEDGE LEVEL
NEW YORK CITY SCHOOLS
1965-1966

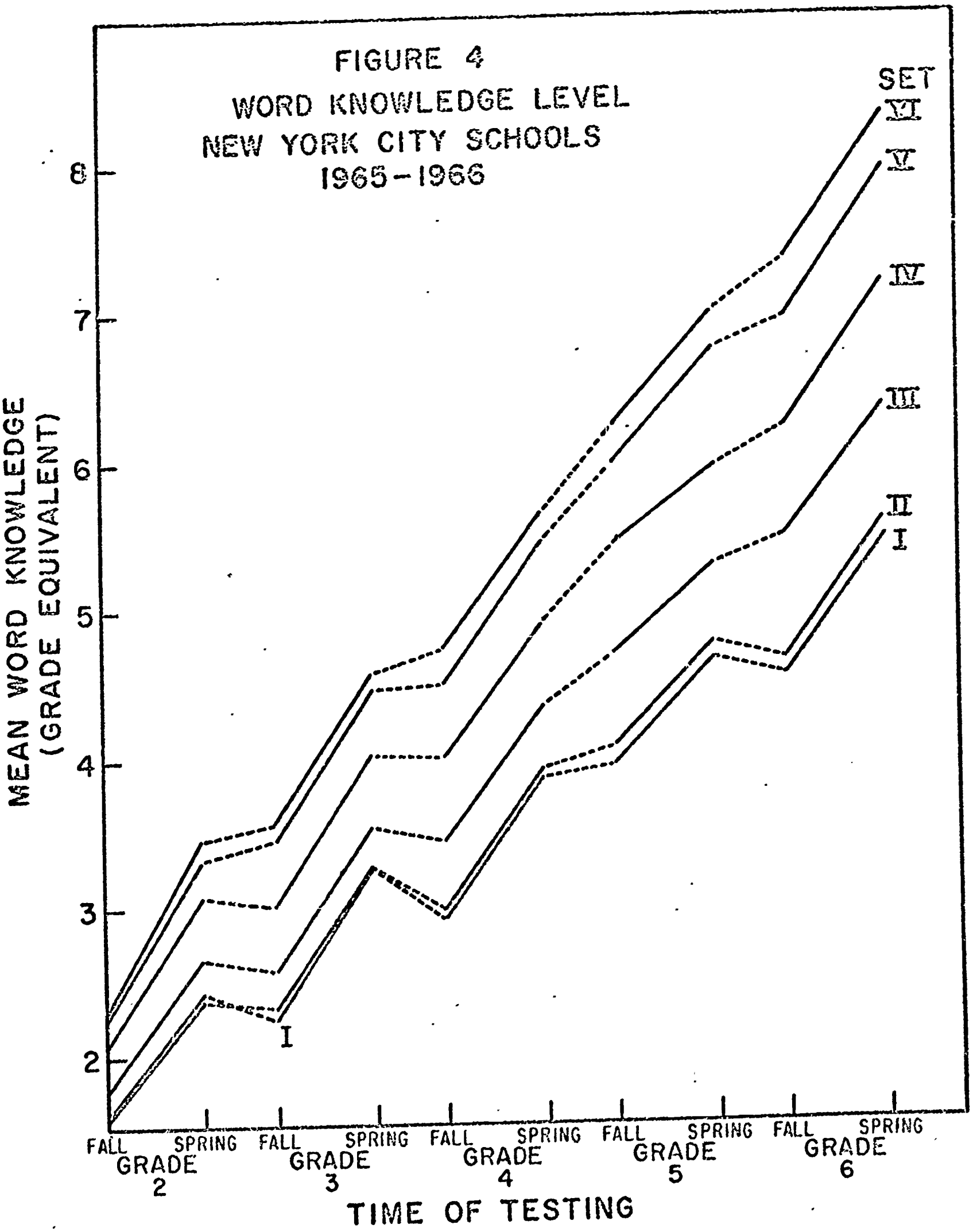


Table 4

Three components of Word Knowledge Achievement in New York City Elementary Schools--1965-6

Set	Initial Test Level-- Grade 2	Five School Years-- 35 months	Four Summer Vacations-- 20 months	Final Test Level-- Grade 6
1	1.58	4.48	-.58	5.48
2	1.58	4.38	-.38	5.58
3	1.75	4.24	+.34	6.33
4	2.03	4.50	+.67	7.20
5	2.23	4.84	+.90	7.97
6	2.25	4.94	+1.13	8.32

the case with reading, the vacation appears to have serious adverse effects on the acquisition of word knowledge for blacks and Puerto Ricans.

To summarize, the official Board of Education statistics, if accepted, show the following: (1) the richer the neighborhood and the fewer non-whites in school (these are closely related) the better the performance on the two MAT tests; (2) the spread between ghetto and relatively rich white schools grows with each successive year until the gap approaches three years; (3) the twice-a-year testing permits an estimate of when students learned. The evidence suggests that only part of the differential learning occurs in school, white schools performing better than non-white schools in reading but at virtually the same level as non-whites in word knowledge. In both reading and word knowledge, however, the differential progress made during the four summers between 2nd and 6th grades accounts for upwards of 80 percent of differences between the economically advantaged all-white schools and the all black and Puerto Rican ghetto schools. Students in the other four sets of schools perform consistently at levels intermediate to these extremes.

Discussion

Because the conclusions from this analysis do not coincide with the impressions of many educators, including Deutsch (1963) and Goldberg (1963), we have examined the statistics closely for evidence which challenges their validity.

Several authors, including Fox (1967) and Rogers (1968), have suspected misuse of the test by a sizeable number of teachers or administrators in New York City schools. Evidence for this is reported in David Fox's evaluation of the More Effective Schools Program (an enrichment program). Students in a sample of the MES classes were administered the MAT-R test for a third time in the 1966-7 school year--in June. Fox's staff, rather than classroom teachers, supervised the test taking. Although a mean increase of .2 year in reading level might have been expected "between 40% and 59% of the classes . . . tested at each grade level showed no progress or declined" (Fig. 1968:65). Fox considered and rejected the possibility that his test administrators could have so adversely affected the performance. Rather, he suspected that the April test scores had been "inflated."

Suspected evidence of "inflated" performance appears in the Set I statistics for 1966-7, but interestingly, is much lower for the same Set in its previous year's statistics. The 1966-7 figures show that the students in the poorest, non-white schools gained 4.35 years over the 35 months of school between 2nd and 6th grades. On close examination it is clear that the progress made during the 6th grade, and to a lesser degree 5th grade, between September and April was phenomenal--greater by far than that shown by any other Set, including the high-achieving Set VI schools. The mean 6th grade progress for Set I schools over the seven months from September 1966 to April 1967 was in excess of one year. The

maximum progress of the next closest set (III) was .68 year. Set I's 6th grade progress for 1965-66 was .69. Such an irregularity in the face of an otherwise consistent set of findings among the other sets and in the previous year casts doubts on the 1966-7 figures. Similar but less striking irregularities appear in both reading and word knowledge statistics in 1965-6. Given the pattern of results shown by Sets III, IV, V and VI, an extrapolation suggests some inflation of performance for Set II but especially Set I. Any adjustment downward of such scores would increase the estimate of learning during the summers for these schools but would still leave unaffected the conclusion that summers are associated with differential progress in reading and vocabulary.

Misuse of the test would not be difficult, despite the obvious concern of the school system's testing officials. In New York City, teachers may receive the test booklets up to three weeks before the tests are to be administered. They know which form is to be given in advance of the test. They are told to prepare the students for testing but not to use the MAT-R for this purpose. In interviews with both teachers and principals on the validity of the testing, David Rogers was told that it was "common practice" for teachers to test students more than once and then turn in the highest score. Test time limits were also reported to be modified to meet the situation. The teachers "are told to be very strict with the time limits in October . . . but to give the kids time

in May to make sure they finish." Rogers considered such practices in the context of pressure from black and Puerto Rican parents to "upgrade" their children's reading performance.

In summary, despite the dubious 1966-7 statistics from ghetto schools, the pattern of results appears clear enough to reach the tentative conclusion that half or more of the differentials in reading and word knowledge are associated with non-school periods. This conclusion is based on the assumption that a portion of the .7 year gap between Sets I and VI schools may represent the effects of differential learning in the first grade. It is, however, unlikely that all that gap developed during those nine months. More likely, most of the differential developed during the pre-school ages. When this initial gap is combined with the differential summer performances, it now appears that non-school periods may have contributed a majority of the differentials in reading and word knowledge noted among the six sets of schools. If this conclusion is correct, our whole approach to equalizing educational opportunities and achievements may be misdirected. Enormous amounts of money and energies are being given to changing the school and its curriculum, re-training its teachers, and tinkering with its administrative structure -- local, city and state. We may be pouring money and energy into the one place which our results say is not primarily responsible for the reading and word knowledge differentials that have been measured. The same point appears

as one of the Coleman Report's (Coleman, et al., 1966) main theses--some of the most important sources of variation in students' academic achievement are not now under the direct control of teachers, principals, or school boards.

Serious reading and vocabulary disabilities are not only an important source of personal frustration for the student and his teachers, but functional illiterates pose serious employment and welfare problems for the larger society as well. The school system is charged with the responsibility for developing these skills in all children, but on the basis of what the Coleman Report and this study suggest, the formal jurisdiction of the school authorities may prove to be too narrow for these responsibilities.

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