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ABSTRACT

This report examines 1974-1975 achievement test results for Philadelphia Follow Through pupils in the light of "quasi-longitudinal" variables from the Follow Through longitudinal pupil file. In Part I, Head Start effects are examined by comparing the Head Start group and the Non Head Start group of pupils within the maximum exposure category at each grade level. Evidence is presented for three effects: the effect of Head Start or equivalent preschool experience, the effect of maximum program exposure, and the effect of low absence. These effects were found to show a good degree of consistency for the Total Follow Through population. Model-specific variation is discussed. In Part II, the actual levels of performance were examined for four quasi-longitudinal groupings: the total group tested (cross-sectional), pupils with maximum program exposure, pupils with maximum program exposure and Head Start or equivalent experience, and pupils with maximum exposure, Head Start or equivalent experience and fifteen or fewer days of absence. The general pattern of results indicates increasingly higher levels of performance with each increasingly restrictive grouping as expected. Model-specific variation is noted for three time-points: first program grade (kindergarten), final program grade (third), and highest grade of program "graduates" (sixth). The importance of strictly longitudinal analysis for better emphasis of these effects vis-a-vis other variables is emphasized. (JMB)

FOLLOW THROUGH

PUPIL ACHIEVEMENT CHARACTERISTICS

IN PHILADELPHIA

1974 - 1975

VOL. II: QUASI-LONGITUDINAL DATA

June 1976

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June 1976

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DISCLAIMER

The activity which is the subject of this report regarding the original, national Follow Through Program was supported in whole or in part by the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

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1974-75

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CONTENTS

ABSTRACT

The present report examines 1974-1975 achievement test results for Follow Through pupils in the light of "quasi-longitudinal" variables from the Follow Through longitudinal pupil file. Data for present program participants (grades K-3) and for past program participants (grades 4-6) are considered separately. Evidence is presented for three effects: the effect of Head Start or equivalent preschool experience, the effect of maximum program exposure, and the effect of low absence. The consistency of these effects over the years for which data are available (since 1971) is also examined. Model-specific variation is discussed in the text. Findings for the Total Follow Through population include the following:

> In the program as a whole, pupils with maximum exposure and with prior Head Start or equivalent experience performed better in reading and mathematics than maximum exposure pupils without Head Start or equivalent experience both in the program grades (K-3) and in the post-program grades (4-6).
>
> In the program as a whole, pupils with maximum exposure to the program performed better in reading and mathematics than the total (cross-sectional) group of pupils (all degrees of exposure), in both the program grades (K-3) and in the post-program grades (4-6).

In the program as a whole, maximum exposure pupils with fifteen or fewer days of absence performed better in reading and mathematics than maximum exposure pupils with more than fifteen days of absence, both in the program grades (K-3) and in the post-program grades (4-6).

Over the years, these effects show a good degree of consistency for the Total Follow Through population.

In addition to these effects, the actual levels of performance were examined for four quasi-longitudinal groupings: the total group tested (cross-sectional), pupils with maximum program exposure, pupils with maximum program exposure and Head Start or equivalent experience, and pupils with maximum exposure, Head Start or equivalent experience and fifteen or fewer days of absence. The general pattern of results indicates increasingly higher levels of performance with each increasingly restrictive grouping (i.e., as groups become more selective within the respective categories noted above), as expected. Model-specific variation is noted for three time-points: first program grade (kindergarten), final program grade (third), and highest grade of program "graduates" (sixth).

For the first time, evidence of all three effects (Head Start, exposure, absence) is found in the case of the Total Follow Through aggregate at all grades (K-6). The importance of strictly longitudinal analysis (to be resumed in 1975-1976 reporting) for better emphasis of these effects vis-à-vis other variables is emphasized.

Introduction

An earlier volume analyzed 1974-1975 Follow Through pupil achievement test data from a cross-sectional view. Comparisons were made among Follow Through, Non Follow Through, and Total District groupings, as a general indication of program effects. The present volume analyzes that same year's test data in the light of preschool experience, length of program exposure, and daily absence data, using a computerized longitudinal file. (A full description of the file will be found in the introduction to previous years' quasi-longitudinal reports.) This "quasi-longitudinal" view supplements the earlier cross-sectional report and provides an alternative to strict longitudinal analysis of pupil achievement.

Local evaluation of Follow Through is based on city-wide test data for its standardized, norm-referenced achievement dimension. In 1974-1975, city-wide achievement testing was moved to mid-year administration. Strict longitudinal analysis of pupil achievement was suspended until data from the 1975-1976 year became available, thereby providing two consecutive mid-year administrations of the same tests (the Stanford Early School Achievement Test - SESAT - in kindergarten and the California Achievement Test - CAT - in all other grades). In the absence of such a longitudinal capability, data from the Follow Through longitudinal pupil file will be employed to analyze the 1974-1975 test results in a manner which approximates a longitudinal dimension, hence "quasi-longitudinal."

The format of the 1974-1975 quasi-longitudinal report has been modified somewhat. In the cross-sectional report (Report #7664), it was anticipated that two quasi-longitudinal volumes would follow. However, these two

volumes have been combined into the present report. This report focuses on twelve questions regarding evidence for three program "effects": an effect for Head Start or equivalent preschool experience, an effect for maximum program exposure, and an effect for different rates of absence. Since an initial objective of Follow Through was to sustain the performance advances registered in Head Start, one indication of program success would be evidence of a Head Start effect through the grades. Another indication of program success would be found if pupils who have been enrolled in the program for the maximum possible number of years perform better than the entire group of pupils with different rates of program participation. A third indicator of program success would be found if pupils who attended more days of schooling in the program performed better than pupils who attended fewer days.

Evidence for these effects does not take account of the actual levels of performance associated with the different groups. Part I of this report presents such evidence for effects. Part II examines the levels of performance for various quasi-longitudinal groupings.

Evidence of these effects will be sought in the reading and mathematics scores for the program grades (K-3) and the post-program grades (4-6). The "post-program" grades include mostly pupils with no additional Follow Through inputs after the completion of grade 3. However, pupils at the Wilson School (Philadelphia Process Model), the Duckrey School (Behavior Analysis Model) and the Wister School (EDC Model) have had the additional assistance of the William Penn Foundation Transition Program. This program extended Follow Through into the fourth grade at these schools in 1973-74 and into the fourth and fifth grades at these schools in 1974-75. The criteria used to examine

these effects are (1) the National percentile rank of the mean score for a given group, (2) the percentage of pupils scoring below the National sixteenth percentile, and (3) the percentage of pupils scoring at or above the National fiftieth percentile. For each of the twelve questions examined, data from the 1974-1975 year will be presented first, followed by data on the consistency of the effects over available years (either the period 1971-1975 or the period 1973-1975).

As an orientation to the subsequent analysis, several terms are preliminary:

"Head Start": In the context of this report, pupils with documented evidence of participation in a Head Start or equivalent preschool program were designated Head Start, whereas pupils without such documented evidence were designated Non Head Start. It should be noted that this is a conservative criterion which probably results in some pupils with (non-documented) Head Start or equivalent experience being included in the "non Head Start" group. This would tend to mitigate Head Start effects in the comparisons effected here.

"Exposure": A pupil's exposure to Follow Through is based on an update of the Follow Through longitudinal file at each point of issue of the School District's Pupil Directory System. The number of months' enrollment in a Follow Through class is summed across all program grades (K-3) for each pupil and that value is converted to a whole number in years.

Of particular interest is the group of pupils with maximum exposure to the program. In kindergarten, pupils with one year of exposure constitute the maximum exposure (MAX) group. The MAX group in first grade has two years' exposure; in second grade, three years' exposure; and in third grade, four years' exposure. Since exposure is computed for only the program years, graduates in grades four, five and six are designated as MAX pupils if they have had four years' exposure.

"Absence": Pupil absence is recorded by the classroom teacher. Two convenient intervals are employed: pupils with more than fifteen days annual absence and those with fifteen or fewer days' absence.

As a precaution, it should be noted that the Parent Implemented Model comprises only one school. The number of pupils for that model in certain of the quasi-longitudinal groupings is sometimes quite small.

Basic data tables for 1974-1975 quasi-longitudinal analyses are provided in Appendix C. Data tables for previous years referred to in the text will be found in the quasi-longitudinal reports of those years.

PART I

I. Head Start or Equivalent Experience

1. WHAT EVIDENCE EXISTS FOR A HEAD START EFFECT ON READING SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year Data, 1974-1975

Head Start effects are examined by comparing the Head Start group (HS) and the Non Head Start group (NHS) of pupils within the maximum exposure category (MAX) at each grade. The MAX group is generally the largest of the exposure groups in each model, and examination of only this group stabilizes the Head Start comparison across the models. If all exposure groups were included, the different distributions of exposure across models might confound the Head Start effects. Table A1 (Appendix A) shows the numbers of Head Start and Non Head Start pupils within the maximum exposure group at each grade for each model.

In this context, a Head Start effect on the "means" criterion refers to a higher percentile ranking for the mean of the HS group than for the NHS group. A Head Start effect on the "below 16th" criterion refers to a smaller percentage of pupils scoring below the National 16th percentile in the HS group than in the NHS group. A Head Start effect on the "at or above 50th" criterion refers to a higher percentage of pupils scoring at or above the National 50th percentile in the HS group than in the NHS group.

For the Total Follow Through aggregate (TFT), a Head Start effect is observed at all grades and by all three criteria, except the at or above 50th criterion in grade 3. The size of the effect is from 3 to 10 percentile points for the comparison of means, from 1 to 4 percentage points for the below 16th comparison, and from 2 to 8 percentage points for the at or above 50th comparison.

Among the models, the most consistent effects are seen in the Bank Street and the Philadelphia Process Models (effects at all grades and for all three criteria), and strong effects are observed in the Parent Implemented Model (all grades for the means and about half the grades on the other two criteria). The Behavior Analysis Model shows a Head Start effect at three grades for the means and half the grades for the other two criteria. The Florida Parent Model shows the effect at half the grades for the means and the at or above 50th criterion and at all grades on the below 16th criterion. By contrast, the EDC Model shows no Head Start effect on the means and an effect at only one grade each for the other two criteria.

The largest effect for the means criterion is observed in the Parent Implemented Model (ranging from 9 to 20 percentage points) and in the Philadelphia Process Model for the other two criteria (from 7 to 20 percentage points on the at or above 50th criterion and from 3 to 11 points on the below 16th criterion).

B. Patterns of Consistency, 1971-1975

In this section, the consistency of Head Start effects over four years (1971-1972 year through 1974-1975 year) will be examined. The same comparison of maximum exposure pupils with prior Head Start or equivalent experience and those without such experience provides the basis for this section.

The format for this section involves inspection of the pattern of Head Start effects at each grade over four academic years. To simplify the presentation, the following terms will be employed. The Head Start effect will be termed "fully consistent" if it appears in all years. "Partially consistent" will refer to the presence of the effect in three years. The effect will be termed "intermittent" if it appears in only one or two years, and "non-existent" if it appears in no year.

In this section, only the pattern of presence or absence of the effect will be noted, not the size. Since the tests vary across the years, effect size cannot readily be compared across the period. For the Total Follow Through aggregate (TFT), the Head Start effect is partially consistent in grades K and 1, and intermittent in grades 2 and 3.

Among the models, the most consistent Head Start effect is observed in the Parent Implemented Model, although 1972-1973 data are unavailable for all grades and 1973-1974 data are

unavailable for kindergarten. The effect is present for all other years in grades K, 1, and 3, and it is present in two of three years in grade 2. The next most consistent effect is found in the Bilingual Model, which shows a fully consistent effect at grades 1 and 2, a partially consistent effect at grade 3, and an intermittent effect at kindergarten.

The Florida Parent and the Philadelphia Process Models each show fully consistent Head Start effects at one grade, partially consistent effects at one grade, and intermittent effects at two grades. Partially consistent effects appear at three grades in the Bank Street Model, with an intermittent effect at grade 2. In the Behavior Analysis Model, the effect is fully consistent in grade 1 and intermittent elsewhere; in the EDC Model, the effect is intermittent at three grades, and nonexistent at grade 2.

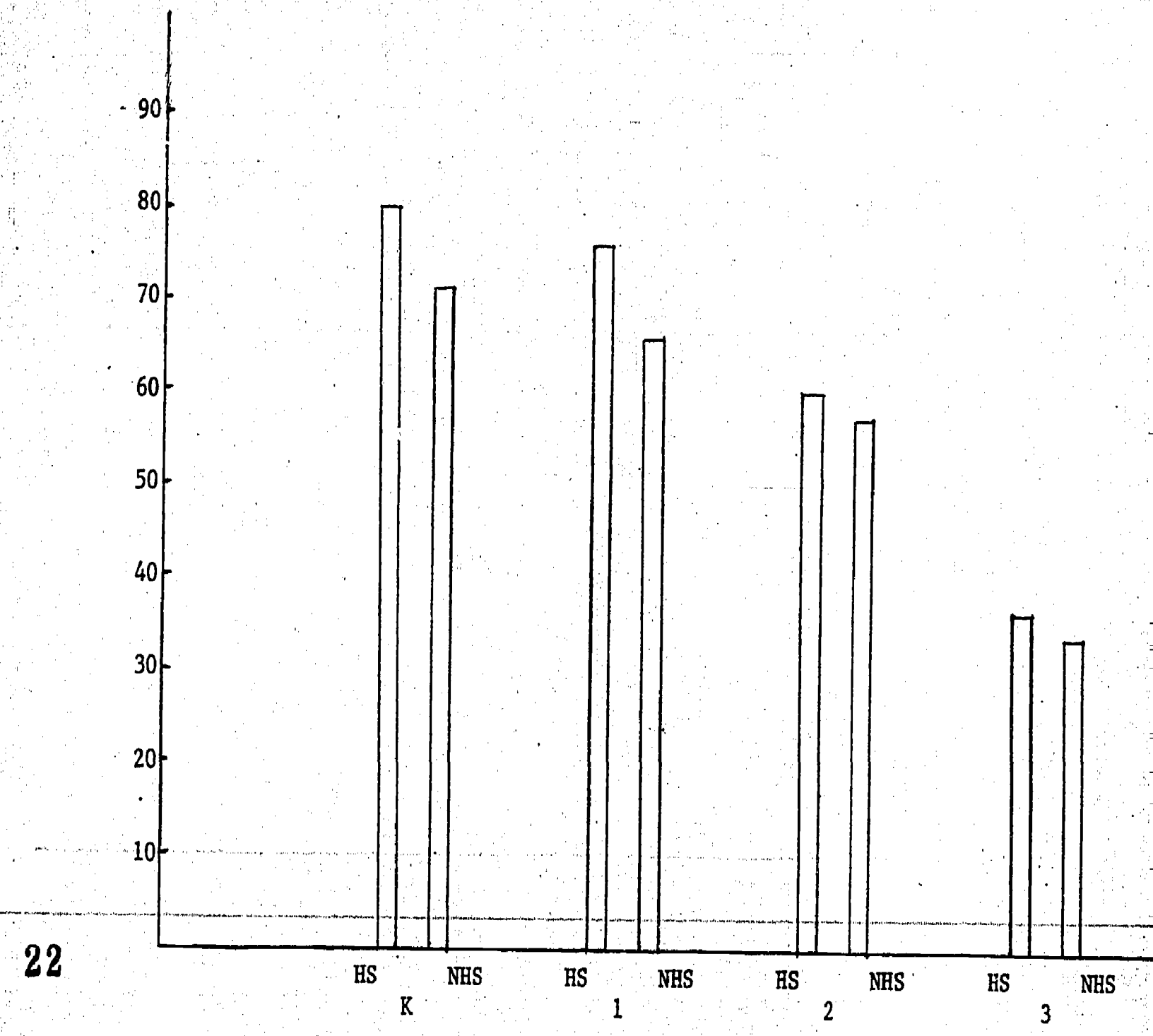

Figure 1. Percentile Rank of Mean Reading Scores for MAX HS and MAX NHS Pupils, by Grade, for Total Follow Through in 1974 - 1975.

Table 1. Patterns of Head Start Effects on Reading Scores in the Program Grades (K-3): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X
BA					
	Mean	X	X	X	
	16th	X	X		
	50th	X	X		
BI					
	Mean	X	X	X	X
	16th	X		X	
	50th	X	X		X
EDC					
	Mean				
	16th		X		
	50th	X			
FP					
	Mean	X	X		
	16th	X	X	X	X
	50th	X	X		
PI					
	Mean	X	X	X	X
	16th		X	X	X
	50th	X	X	X	
PP					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X
TFT					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	

In sum: For TFT in 1974-1975, a Head Start effect on reading scores is observed at all grades. Figure 1 shows the results in terms of the percentile rank of mean scores. The strongest effects are seen in the Bank Street and the Philadelphia Process Models (effects at all grades, by all criteria). The full pattern of effects if portrayed in Table 1. Across the years 1971-1975, TFT shows partially consistent Head Start effects at grades K and 1 and intermittent effects at grades 2 and 3. Greatest consistency of effects is found in the Parent Implemented and the Bilingual Models.

2. WHAT EVIDENCE EXISTS FOR A HEAD START EFFECT ON READING SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year, 1975-1975

Head Start effects during the post-program years are examined on the same basis used above (question 1). Scores for the HS group are compared with scores for the NHS group within the maximum exposure (MAX) group. The same three criteria are used: the percentile rank of the mean score, the percentage below the 16th percentile, and the percentage at or above the 50th percentile. For the TFT aggregate, a Head Start effect is observed at all three grades, by all three criteria. The size of the effect is from 2 to 5 percentile points for the comparison of means, from 2 to 5 percentage points for the below 16th comparison, and from 1 to 9 percentage points for the at or above 50th comparison.

Among the models, the most consistent effect is found in the Philadelphia Process Model (effects at all three grades by all three criteria), and

strong effects are found in the Parent Implemented, EDC, and Behavior Analysis Models (effects at all grades for the means criterion and at most grades for the other two criteria). The Bilingual Model shows the effect on all three criteria at two grades, and the Bank Street Model shows the effect at two grades by the means and the below 16th criteria. The Florida Parent Model shows a Head Start effect by all three criteria at one grade.

The largest effect for the means and for the at or above 50th criterion occurs in the Philadelphia Process Model (from 6 to 16 percentile points for the former and from 6 to 19 percentage points for the latter). The largest effect for the below 16th criterion occurs in the Parent Implemented Model (from 8 to 14 percentage points).

B. Patterns of Consistency, 1973-1975

Data for the post-program years permit examination of two years' effects (1973-1974 and 1974-1975) for two grades (fourth and fifth). (Program "graduates" did not reach sixth grade until 1974-1975.) In this section, "consistent" means that the effect appears in both years. As above (question 1), only the means criterion will be employed here.

For the TFT aggregate, the Head Start effect is consistent at both grades.

Among the models, a consistent effect for both grades is observed in the Philadelphia Process, EDC, and Behavior Analysis Models. A consistent effect is observed at one of the two grades in the Parent Implemented and Bilingual models. In the Bank Street and the Florida Parent Models, the effect is not consistent at either grade.

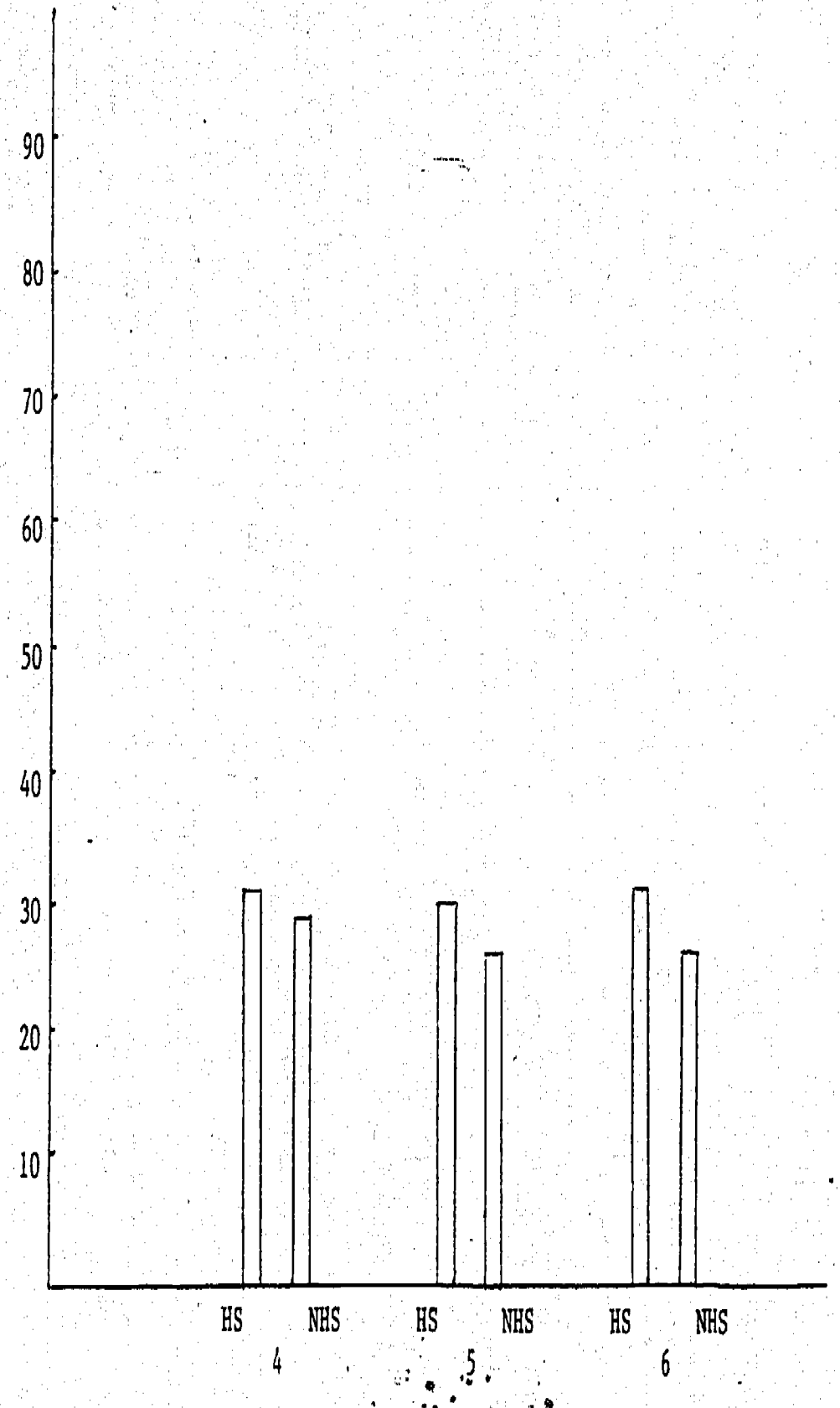

Figure 2. Percentile Rank of Mean Reading Scores for MAX HS and MAX NHS Pupils, by Grade, for Total Follow Through in 1974 - 1975.

Table 2. Patterns of Head Start Effects on Reading Scores in the Post-Program Grades (4-6): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean	X		X
	16th	X		X
	50th		X	
BA				
	Mean	X	X	X
	16th		X	
	50th	X	X	X
BI				
	Mean	X		X
	16th	X		X
	50th	X	X	X
EDC				
	Mean	X	X	X
	16th	X	X	
	50th	X	X	X
FP				
	Mean	X		
	16th	X		
	50th	X	X	
PI				
	Mean	X	X	X
	16th	X	X	X
	50th	X		X
PP				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

In sum: For TFT in 1974-1975, a Head Start effect on reading scores is observed at all three post-program grades by all three criteria. Figure 2 shows the results in terms of percentile rank of mean scores. The strongest effects are seen in the Philadelphia Process model (for the comparison of means and at or above 50th comparison) and the Parent Implemented model (for the below 16th comparison). The full pattern of effects is portrayed in Table 2. Across the years 1973-1975, TFT shows a consistent Head Start effect at both grades, as do the Philadelphia Process, EDC, and Behavior Analysis models.

3. WHAT EVIDENCE EXISTS FOR A HEAD START EFFECT ON MATHEMATICS SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year Data, 1974-1975

Head Start effects are examined here on the basis established above (question 1).

For the TFT aggregate, a Head Start effect is observed at all grades by at least two of the three criteria. The size of the effect is from 0 to 14 percentile points for the means comparison, from 0 to 8 percentage points for the below 16th criterion, and from 2 to 13 percentage points for the at or above 50th comparison.

Among the models, the most consistent effects are found in the Parent Implemented and the Philadelphia Process models (effects by all three criteria at three grades and by two criteria at the other grade), and strong effects are seen in the Behavior Analysis Model (in grades K-2). The Bank Street Model shows an effect for Head Start by the means criterion at three grades. The Bilingual and the Florida Parent Models show

effects at two grades and the EDC Model shows the effect only in kindergarten.

The largest effects by the means and the at or above 50th criteria are seen in the Parent Implemented Model (from 14 to 29 percentile points for the former and from 7 to 38 percentage points for the latter), and the largest effect by the below 16th criterion is found in the Philadelphia Process Model (from 10 to 16 percentage points).

B. Patterns of Consistency, 1973-1975

As in question 1 (above), patterns of consistency of effects from 1971-1975 are here examined. All considerations raised above (question 1) apply here.

For the TFT aggregate, the Head Start effect is partially consistent in grade 3 and intermittent elsewhere. Among the models, the most consistent Head Start effects on mathematics scores are observed in the Parent Implemented Model. The effect is present for all available years in grades K and 3, for all but one year in grade 1, and for one year in grade 2. The next most consistent pattern occurs in the Bilingual Model, where the effect is fully consistent at two grades and partially consistent at one grade. In the Florida Parent and the Philadelphia Process Models, the effect is fully consistent at two grades and intermittent at two grades, while the Bank Street Model shows one fully consistent grade, one partially consistent grade and two intermittent grades. The Behavior Analysis Model shows two partially consistent patterns and the EDC Model shows one partially consistent pattern (and both models show two intermittent patterns).

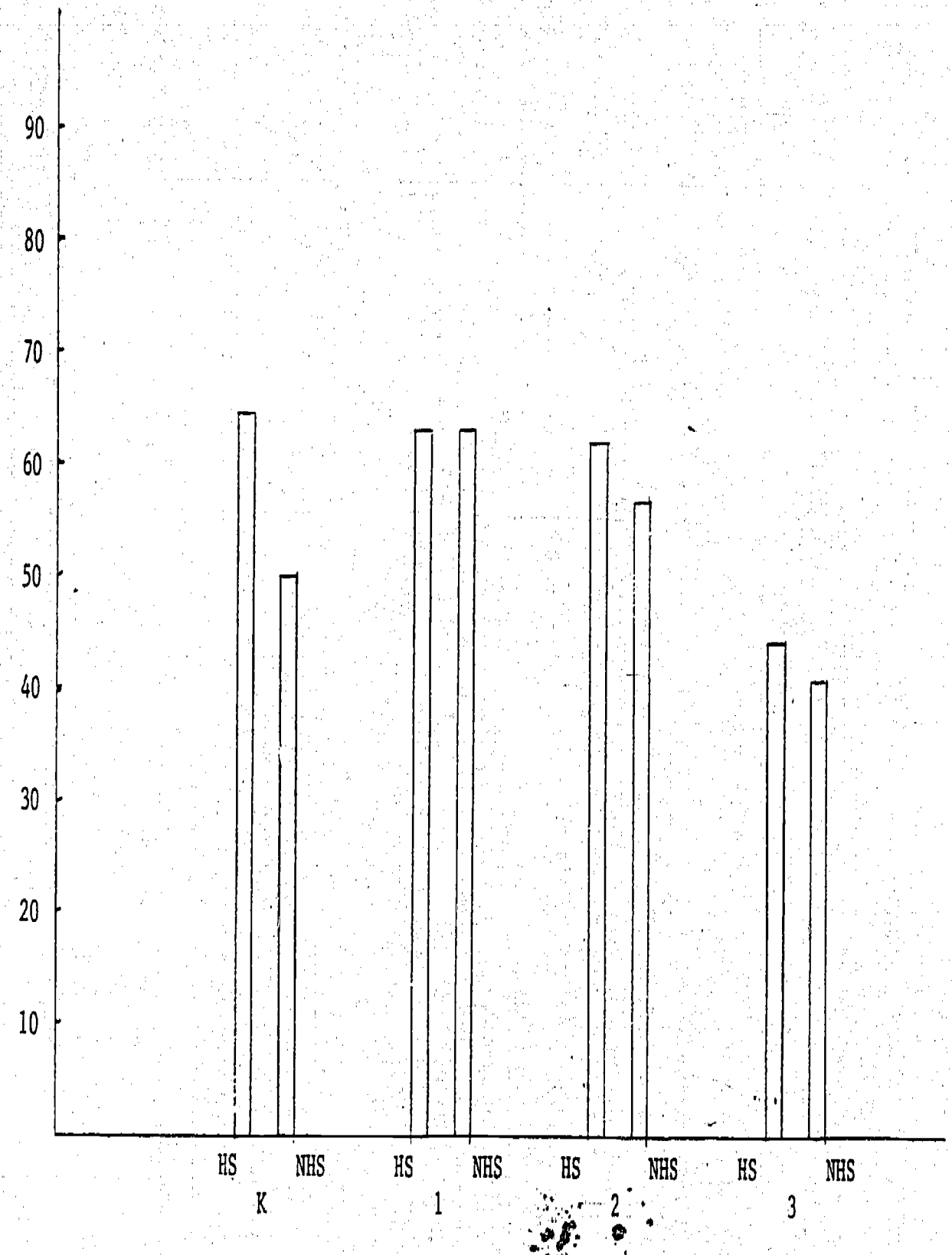

Figure 3. Percentile Rank of Mean Mathematics Scores for MAX HS and MAX NHS Pupils, by Grade, for Total Follow Through in 1974 - 1975.

Table 3. Patterns of Head Start Effects on Mathematics Scores in the Program Grades (K-3): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean	X	X	X	
	16th	X			
	50th	X			
BA					
	Mean	X	X	X	
	16th	X	X	X	
	50th	X	X	X	X
BI					
	Mean	X			X
	16th	X		X	X
	50th	X			X
EDC					
	Mean	X			
	16th	X			
	50th	X			
FP					
	Mean	X	X		
	16th	X	X	X	
	50th	X			
PI					
	Mean	X	X	X	X
	16th	X	X	X	
	50th	X	X	X	X
PP					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X		X
TFT					
	Mean	X		X	X
	16th	X	X	X	
	50th	X	X	X	X

In sum: For TFT in 1974-1975, a Head Start effect on mathematics scores is observed at all grades by at least two criteria. Figure 3 shows the results in terms of the percentile rank of mean scores. The strongest effects are found in the Parent Implemented and the Philadelphia Process Models (effects at all grades by at least two criteria). The full pattern of effects is portrayed in Table 3. Across the years 1971-1975, TFT shows a partially consistent pattern of Head Start effects at grade 3, and intermittent effects elsewhere. Greatest consistency of Head Start effects is found in the Parent Implemented and the Bilingual Models.

4. WHAT EVIDENCE EXISTS FOR A HEAD START EFFECT ON MATHEMATICS SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year Data, 1974-1975

Head Start effects on mathematics scores in the post-program grades are examined on the basis established above (question 2). For the TFT aggregate, a Head Start effect is observed at all three grades and by all three criteria. The size of the effect is from 2 to 8 percentile points for the means comparison, from 1 to 8 percentage points on the below 16th criterion, and from 2 to 6 percentage points on the at or above 50th comparison. Among the models, the most consistent effects are observed in the Bank Street and the Behavior Analysis Models (effects at all grades, by all criteria). Strong effects are also observed in the Florida Parent and the Philadelphia Process Models (effects at all grades by at least two criteria). In the Bilingual and the Parent Implemented Models the effect is present at two grades by at least two criteria, and in the EDC Model the effect is present by all criteria in grade five.

The largest effect on the means criterion is found in the Bank Street Model (from 4 to 13 percentile points), and for the other two criteria in the Florida Parent Model (from 4 to 13 percentage points for the below 16th comparison and from 5 to 18 percentage points for the at or above 50th comparison).

B. Patterns of Consistency, 1973-1975

As in question 2 (above), consistency of effects is examined for grades four and five over the period 1973-1975. Terms are defined above (cf., question 2).

For the TFT aggregate, the Head Start effect is consistent at both grades. Among the models, a consistent effect at both grades is found in the Bank Street and the Behavior Analysis Models, and for grade five in the EDC and the Philadelphia Process Models. The other models do not show a consistent Head Start effect over the two years.

In sum: For TFT In 1974-1975, a Head Start effect on mathematics scores is observed at all three grades, by all three criteria. Figure 4 shows the results in terms of the percentile rank of means scores. The strongest effects are seen in the Bank Street and the Behavior Analysis Models. The full pattern of effects is portrayed in Table 4. Across the years 1973-1975, TFT shows a consistent Head Start effect at both grades, as do the Bank Street and the Behavior Analysis Models.

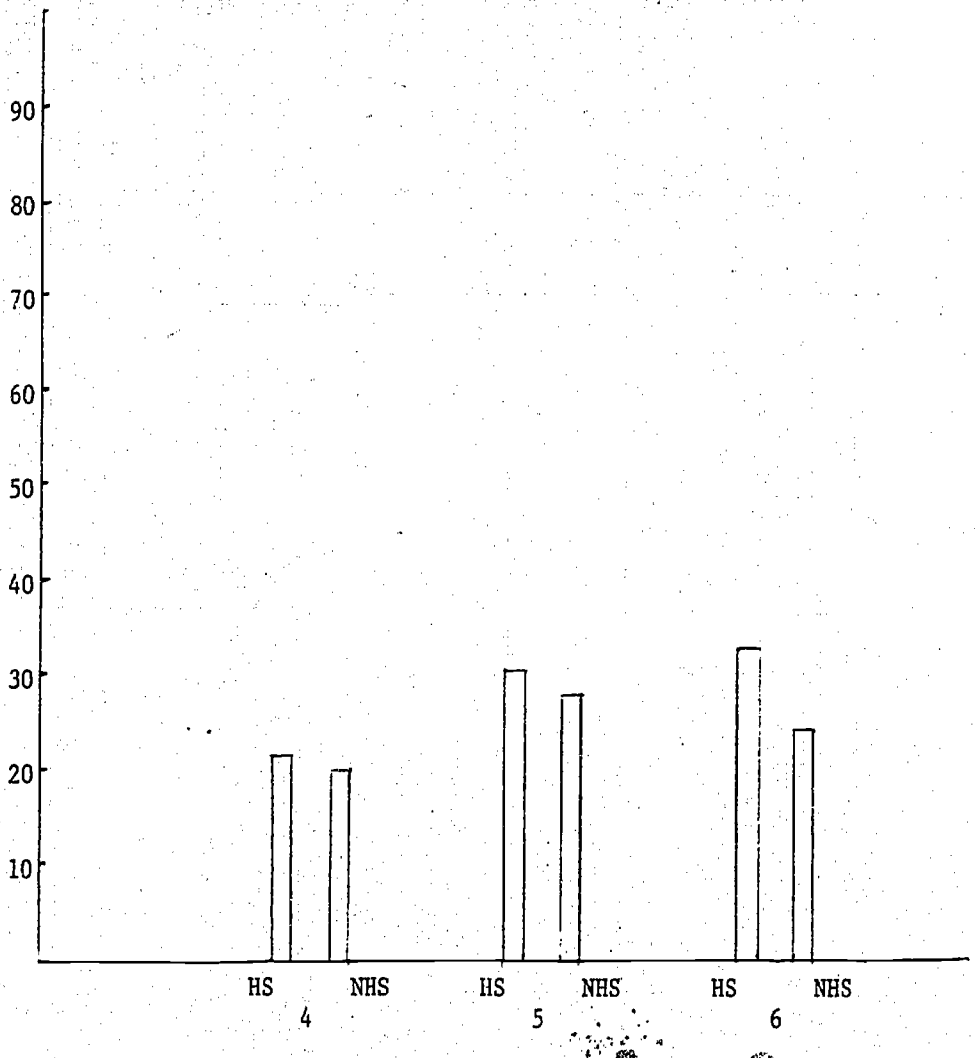

Figure 4. Percentile Rank of Mean Mathematics Scores for MAX HS and MAX NHS Pupils, by Grade, for Total Follow Through in 1974 - 1975.

Table 4. Patterns of Head Start Effects on Mathematics Scores in the Post-Program Grades (4-6): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BA				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BI				
	Mean	X		X
	16th			X
	50th	X		
EDC				
	Mean		X	
	16th		X	X
	50th		X	
FP				
	Mean		X	X
	16th	X	X	X
	50th	X	X	X
PI				
	Mean	X		X
	16th	X		
	50th	X		X
PP				
	Mean	X	X	X
	16th	X		X
	50th	X	X	X
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

B. Exposure to Follow Through

5. WHAT EVIDENCE EXISTS FOR AN EXPOSURE EFFECT ON READING SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year, 1974 - 1975

The effect of program exposure on reading scores is examined by comparing the results of the maximum exposure group (MAX) with those of the total (cross-sectional) group in the various models and the total program. An "exposure effect" will mean the MAX group exceeded the performance of the total group. The same three criteria (cf., question 1) are employed. As a supplementary consideration, each Head Start designation (HS, NHS) within the MAX group was compared with the total group. Evidence of exposure effects within these designations will be noted.

Since the MAX group in kindergarten is almost identical to the total (cross-sectional) group, exposure effects are unlikely at that grade. However, the Florida Parent Model shows such an effect by all three criteria in kindergarten, and all models show an effect by the at or above 50th criterion.

For the other three grades, TFT shows an exposure effect at all grades, by all three criteria.

Among the models, at the other three grades, the most consistent exposure effects are seen in the Behavior Analysis, Parent Implemented, and Philadelphia Process Models (effects at all grades and by all criteria). Strong effects are seen in the Bank Street and the EDC Models

(all grades for the means and the at or above 50th criteria, and two grades on the below 16th criterion). The Bilingual Model shows the exposure effect at two grades, and the Florida Parent Model at one grade.

The largest effects occur in the Parent Implemented Model (from 7 to 17 percentile points on the means, from 4 to 11 percentage points on the below 16th comparison, and from 11 to 18 percentage points on the at or above 50th comparison).

When the results are dimensioned by Head Start experience, the MAX HS group more often exceeds the total group than does the MAX NHS group. For TFT, the HS group shows exposure effects at all four grades, and the NHS group at three grades. The Bank Street, Behavior Analysis, Parent Implemented, and Philadelphia Process Models show exposure effects at all four grades for HS pupils and at only one or two grades for NHS pupils. The Florida Parent Model shows the effect at two grades each for HS and NHS. By contrast, the EDC Model shows only sporadic effects for one of the two percentile criteria among HS pupils, but shows the effect at all grades among NHS pupils.

B. Patterns of Consistency, 1971 - 1975

The consistency of exposure effects across the four years is examined on the basis of the percentile rank of the mean scores for the MAX and total groups. The definitions of terms like "fully consistent" are those detailed above, under question 1.

For TFT, the exposure effect is fully consistent in grade 1, partially consistent in grade 3, intermittent in grade 2, and non-existent in kindergarten (as expected).

Among the models, the most consistent exposure effect is seen in the Behavior Analysis Model. The effect is fully consistent at all grades except kindergarten (where it appears in one year). The next most consistent effect is found in the Philadelphia Process Model, where it is fully consistent in grades 1 and 2 and partially consistent in grade 3. The Bank Street and the Bilingual Models show a fully consistent exposure effect at one grade each and a partially consistent effect at one grade each. The Parent Implemented Model shows the effect at two of three years in all grades except kindergarten. The EDC and the Florida Parent Models show mostly intermittent effects.

When the results are dimensioned by Head Start experience, greater consistency of the exposure effect over the years is found in the HS group than in the NHS group. For TFT, the exposure effect is fully consistent at two grades and partially consistent at one grade among HS pupils, but only partially consistent at two grades among NHS pupils. All the models except the EDC Model show a similar difference between HS and NHS groups. For example, the Behavior Analysis and the Philadelphia Process Models show a fully consistent exposure effect at one grade and partially consistent effects at three grades among HS pupils, but only intermittent exposure effects among NHS pupils.

In sum: For TFT in 1974-1975, an exposure effect is observed at all three grades (1-3) by all three criteria. Figure 5 shows the results in terms of the percentile rank of the mean scores. The strongest effects are found in the Parent Implemented, the Philadelphia Process, and the Behavior Analysis Models (effects at all three grades by all criteria). The full pattern of effects is portrayed in Table 5. Across the years 1971-1975,

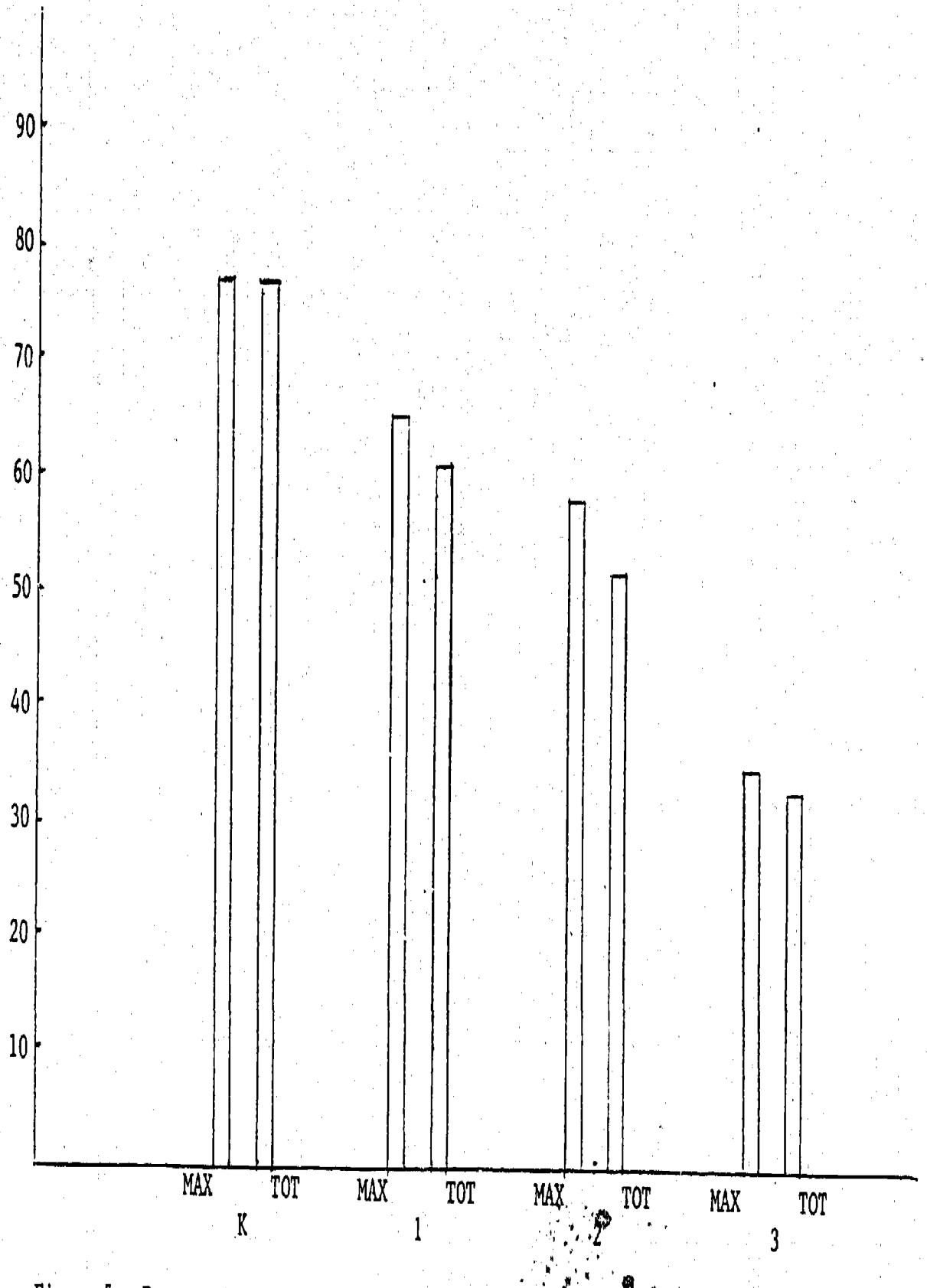

Figure 5. Percentile Rank of Mean Reading Scores for Maximum Exposure (MAX) and Total (TOT) Groups, by Grade, for Total Follow Through in 1974 - 1975.

Table 5. Patterns of Exposure Effects on Reading Scores in the Program Grades (K-6): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean		X	X	X
	16th		X	X	X
	50th	X	X	X	X
BA					
	Mean		X	X	X
	16th		X	X	X
	50th	X	X	X	X
BI					
	Mean		X	X	
	16th		X	X	
	50th	X	X	X	X
EDC					
	Mean		X	X	X
	16th		X		X
	50th	X	X	X	X
FP					
	Mean	X	X		
	16th	X	X		X
	50th	X	X		X
PI					
	Mean		X	X	X
	16th		X	X	X
	50th	X	X	X	X
PP					
	Mean		X	X	X
	16th		X	X	X
	50th	X	X	X	X
TFT					
	Mean		X	X	X
	16th		X	X	X
	50th	X	X	X	X

the exposure effect for TFT is fully consistent at grade 1, partially consistent at grade 3, and intermittent at grade 2. Greatest consistency of the exposure effect across the years is found in the Behavior Analysis Model. When results are dimensioned by Head Start experience, stronger exposure effects are observed in the HS group than in the NHS group in 1974-1975, and more consistent effects are observed in HS over the period 1971-1975.

6. WHAT EVIDENCE EXISTS FOR AN EXPOSURE EFFECT ON READING SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year, 1974-1975

The effect of program exposure on reading scores during the post-program years is examined on a similar basis to that used for the preceding question. Results for the MAX group are compared to results for the total group. Here, however, the total group is an aggregate of pupils across all exposure categories in the various models and the total program, since there is no cross-sectional grouping of program graduates.

As a further indication of exposure effects, the MAX group was compared with the total district for each model and with the total of districts 1 to 6 for the total Follow Through program. Note will be taken of these results when necessary. As in question 5, supplementary consideration of HS - NHS differences on exposure effects are included. The same three criteria (cf., question 1, above) apply.

For TFT, an exposure effect is observed at all three grades by all three criteria. The size of the effect is 2 percentile points for the means and 2 or 3 percentage points for the other two criteria.

Among the models, the most consistent exposure effects are seen in the Behavior Analysis and the Bilingual Models (effects at all grades by all criteria). Very strong exposure effects are found in the Parent Implemented Model (all grades, all criteria except the at or above 50th comparison in grade 3). The Bank Street and the Florida Parent Models show exposure effects at grades 5 and 6, and the Philadelphia Process Model at grade 4. By contrast, the EDC Model shows no exposure effect at any of these grades.

The largest effects are observed in the Behavior Analysis Model (from 3 to 6 percentile points for the means and from 4 to 8 percentage points for the at or above 50th comparison) and the Parent Implemented Model (from 2 to 5 percentile points for the means and from 2 to 5 percentage points for the below 16th comparison).

In comparison with the districts: the MAX group exceeds the district average at all grades by all criteria in the Bank Street, the Behavior Analysis, and the Parent Implemented Models, and at grade 4 in the Philadelphia Process Model. TFT does not exceed the Districts 1-6 average.

When the results are dimensioned by Head Start experience, the HS group within the MAX group exceeds the total group more often than the NHS group does. For TFT, the exposure effect appears at all three grades by all criteria among HS pupils, but among NHS pupils it appears only in grade 4 (all criteria) and grade five (by only the below 16th criterion). Among the models, the MAX HS group exceeds the total group at all grades by all criteria in the Behavior Analysis, the Bilingual, the Parent Implemented, and the Philadelphia Process Models, and at all grades by two criteria in the Bank Street Model. In contrast, the MAX NHS group exceeds the total group by at least two criteria

at all grades in the Behavior Analysis and the Bilingual Models, and at two grades by all criteria in the Bilingual Model.

In comparison with the districts, the MAX groups in the Bank Street and the Behavior Analysis Models generally exceed their districts at all grades among both HS and NHS pupils. In the Parent Implemented Model, MAX pupils exceed the district by all three criteria at all three grades for HS and at two grades for NHS. The Philadelphia Process Model shows the effect at two grades for HS and no grades for NHS. The Bilingual, the EDC, and the Florida Parent Models do not generally exceed their districts in either Head Start designation. TFT exceeds the District 1-6 scores at grade 3 for HS and at no grade for NHS.

B. Patterns of Consistency, 1973-1975

As in question 2 (above), patterns of exposure effects for two post-program grades (fourth and fifth) over two years (1973-1974 and 1974-1975) are examined here. Once again, "consistent" in the section means that the effect appears in both years.

For TFT, the exposure effect is consistent at grade 4 but not at grade 5.

Among the models, the exposure effect is consistent at both grades in the Behavior Analysis, the Bilingual, and the Parent Implemented Models, and at one grade in the Bank Street Model. In the EDC, the Florida Parent, and the Philadelphia Process Models, the effect is not consistent at either grade.

Against their own districts, consistent exposure effects are found for both grades in the Bank Street and the Parent Implemented Models.

When the results are dimensioned by Head Start experience, consistent differences between the HS MAX group and the total group occur more frequently than differences between the NHS MAX group and the total group. For TFT, a consistent effect is seen in grade 4 for both HS and NHS pupils. Among the models, a consistent effect is observed for HS pupils at both grades in the Behavior Analysis and the Parent Implemented Models, and at one grade in the Bank Street, the Bilingual, and the Philadelphia Process Models. For NHS pupils, however, only the Behavior Analysis Model shows a consistent effect at both grades, and only the Parent Implemented Model shows it at one grade.

Against the districts, the Parent Implemented Model shows a consistent effect at both grades for both HS and NHS pupils. The Bank Street and the Behavior Analysis Models show a consistent effect at both grades for HS and at one grade for NHS.

In sum: For TFT in 1974-1975, an exposure effect is found at all three grades by all three criteria. Figure 6 shows the results in terms of the percentile rank of means. The strongest effects are found in the Behavior Analysis, the Bilingual, and the Parent Implemented Models. The full pattern of effects is portrayed in Table 6. Against the districts, the same three models show the strongest effects. Across the two years, 1973-1975, a consistent exposure effect is observed for TFT at grade 4 and for the above three models at both grades. Against the districts, the Bank Street and the Parent Implemented Models show a consistent effect at both grades. When results are dimensioned by prior Head Start, the HS group is more likely to produce a difference against the total group than is the NHS group, both for

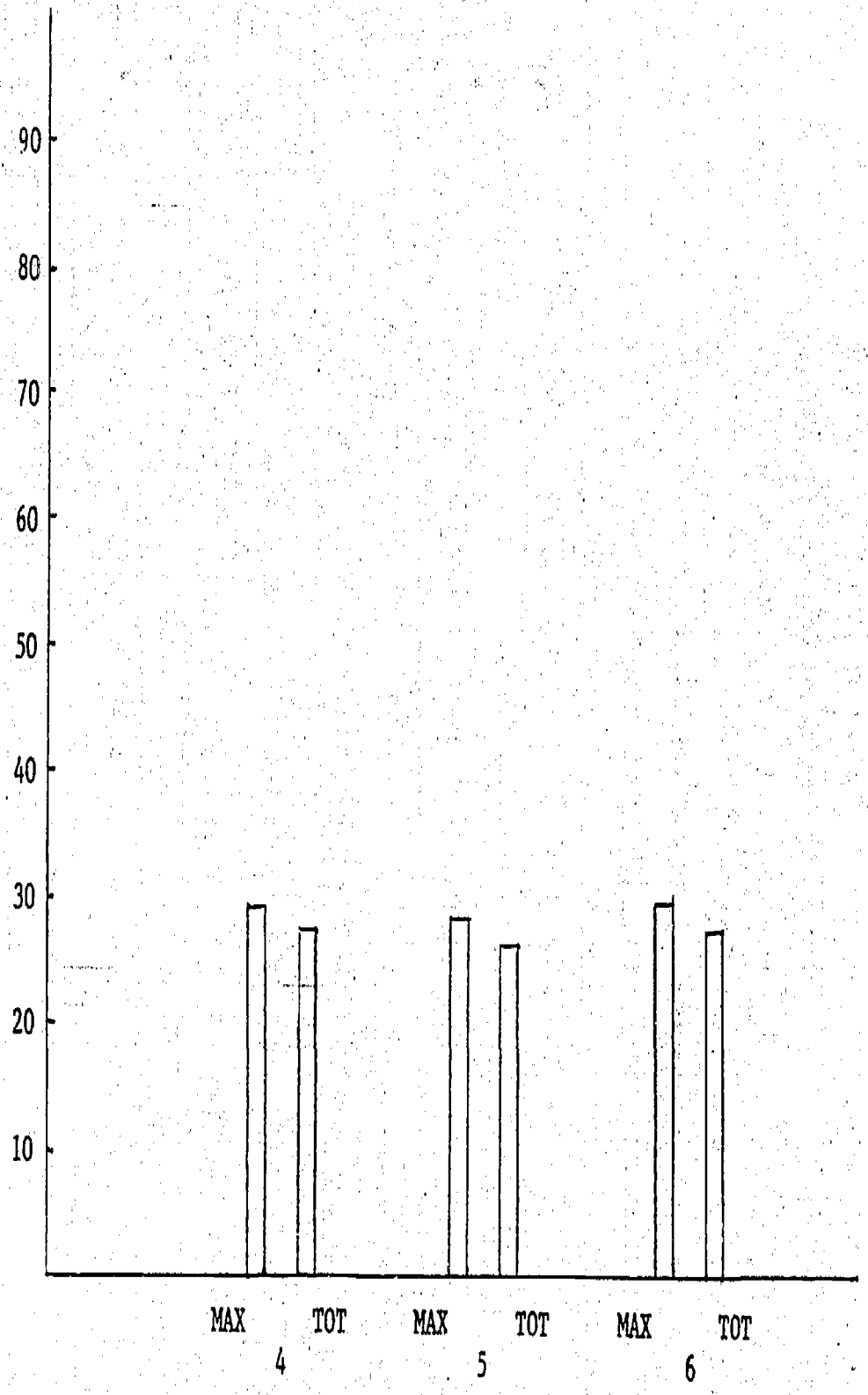

Figure 6. Percentile Rank of Mean Reading Scores for Maximum Exposure (MAX) and Total (TOT) Groups, by Grade, for Total Follow Through in 1974 - 1975.

Table 6. Patterns of Exposure Effects on Reading Scores in the Post-Program Grades (4-6): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean		X	X
	16th	X	X	
	50th		X	X
BA				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BI				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
EDC				
	Mean			
	16th			
	50th			
FP				
	Mean		X	X
	16th	X	X	X
	50th		X	X
PI				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	
PP				
	Mean	X		
	16th	X	X	
	50th	X		
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

the present year and the patterns of consistency over two years. Against the districts, the difference between HS and NHS groups is strongly attenuated both in terms of the present year and in terms of the patterns across two years.

7. WHAT EVIDENCE EXISTS FOR AN EXPOSURE EFFECT ON MATHEMATICS SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year Data, 1974-1975

The effect of program exposure on mathematics scores is examined on the basis established above (question 5). As noted there, the MAX group in kindergarten is virtually identical with the total (cross-sectional) group at that grade, and therefore an exposure effect at kindergarten is unlikely. Nonetheless, the Florida Parent and the Behavior Analysis Models show such an effect by all three criteria and the Philadelphia Process and the Parent Implemented Models show it for one and two criteria respectively.

For the other three grades (1-3), TFT shows an exposure effect at all grades by all three criteria.

Among the models, at the other three grades, the most consistent exposure effects are seen in the Behavior Analysis and the Bank Street Models (effects at all grades, by all criteria). Strong effects are also seen in the EDC, the Parent Implemented, and the Philadelphia Process Models (effects at all grades by at least two criteria). The Bilingual Model shows exposure effects at two grades, and the Florida Parent Model at one grade.

The largest effect on the means occurs in the Parent Implemented Model (from 3 to 11 percentile points), and the largest effects by the other two

criteria occur in the Behavior Analysis Model (from 2 to 5 percentage points for the below 16th criterion and 6 or 7 percentage points for the at or above 50th criterion).

When the results are dimensioned by previous Head Start experience, the MAX HS group more often exceeds the total group than does the MAX NHS group. For TFT, the HS group shows the exposure effect at all four grades, while the NHS group shows it at two grades. The Parent Implemented, the Philadelphia Process, and the Behavior Analysis Models show the effect for all four grades among Head Start pupils, but at only zero, one, or two grades (respectively) among NHS pupils. The Bank Street and the EDC Models show the effect at three grades for both HS and NHS pupils, and the Bilingual and the Florida Parent Models show the effect at one or two grades for each Head Start grouping.

B. Patterns of Consistency, 1971-1975

Consistency of patterns over the four years is examined on the basis established above (question 5).

For TFT, the exposure effect is fully consistent at grades 1, 2, and 3, and intermittent at kindergarten (as expected). Among the models, the most consistent exposure effect is found in the Behavior Analysis Model, where it is fully consistent at grades 1 and 3 and partially consistent at grades K and 2. The next most consistent pattern is found in the Parent Implemented and the Philadelphia Process Models (fully consistent at one grade and partially consistent at two grades). The Bank Street Model shows one fully consistent pattern and one partially consistent pattern, and the Bilingual Model shows three partially consistent patterns of effects. In the EDC and

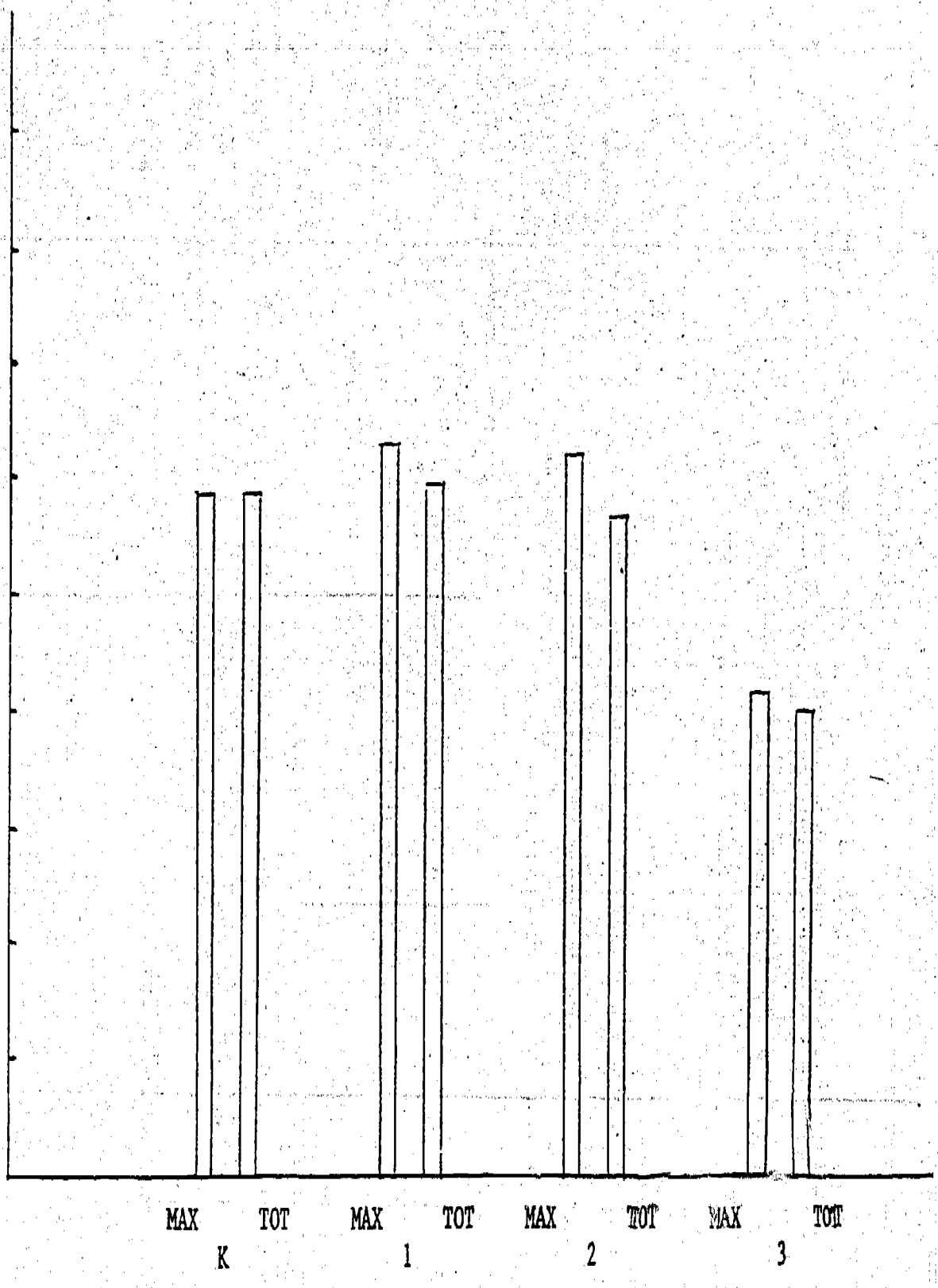

Figure 7. Percentile Rank of Mean Mathematics Scores for Maximum Exposure (MAX) and Total (TOT) Groups, by Grade, for Total Follow Through in 1974 - 1975.

Table 7. Patterns of Exposure Effects on Mathematics Scores in the Program Grades (K-3): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean		X	X	X
	16th		X	X	X
	50th		X	X	X
BA					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X
BI					
	Mean		X	X	
	16th		X		
	50th		X	X	
EDC					
	Mean		X	X	X
	16th			X	
	50th		X	X	X
FP					
	Mean	X	X		
	16th	X	X		X
	50th	X	X		
PI					
	Mean		X	X	X
	16th	X	X		X
	50th	X	X	X	X
PP					
	Mean		X		X
	16th		X	X	X
	50th	X	X	X	X
TFT					
	Mean		X	X	X
	16th		X	X	X
	50th		X	X	X

the Florida Parent Models, a partially consistent pattern appears at one grade.

When the results are dimensioned by previous Head Start experience, scores for the MAX HS group more often exceed those for the total group than do scores for the MAX NHS group. For TFT, the HS group shows a fully consistent effect at three grades and a partially consistent effect at kindergarten, while the NHS group shows partially consistent effect at two grades and intermittent effects elsewhere. All the models except EDC show a similar superiority of the HS pupils in the consistency of exposure effects. For example, the Behavior Analysis odel shows three fully consistent effects and one partially consistent effect for HS pupils, but three partially consistent effects for the NHS pupils.

In sum: For TFT in 1974-1975, an exposure effect is observed at all three grades (1-3) by all three criteria. Figure 7 shows the results in terms of the percentile rank of the means. The strongest effects are found in the Behavior Analysis, the Bank Street, and the Parent Implemented Models. The full pattern of effects is portrayed in Table 7. Across the years 1971-1975, TFT shows a fully consistent effects for exposure at grades 1-3. Among the models, the most consistent effects are seen in the Behavior Analysis Models (fully consistent at two grades and partially consistent at two grades). When results are dimensioned by previous Head Start experience, the MAX HS group more often and more consistently exceeds the total group than does the MAX NHS group.

8. WHAT EVIDENCE EXISTS FOR AN EXPOSURE EFFECT ON MATHEMATICS SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year Data, 1974-1975

The effect of exposure on mathematics scores during the post-program

grades is examined on the basis detailed above (question 5). The principal comparison is the MAX group against the total group, but supplementary consideration will be accorded Head Start experience and performance against the district averages.

For TFT, an exposure effect is observed at all three grades, by all three criteria. The size of the effect is from 2 to 5 percentile points for the means comparison, from 4 to 5 percentage points for the below 16th comparison, and from 2 to 3 percentage points for the at or above 50th comparison.

Among the models, the most consistent exposure effects are found in the Bank Street, the Behavior Analysis, the Bilingual, and the Philadelphia Process Models (effects at all three grades by all three criteria), and the Parent Implemented Model (all grades and criteria except the at or above 50th in grade 4). The Florida Parent Model shows the exposure effect at two grades by at least two criteria, and the EDC Model shows it for only the below 16th criterion at grade 6.

The largest effects for the means and the below 16th criteria are found in the Parent Implemented Model (from 4 to 11 percentile points for the former and from 5 to 14 percentage points for the latter), and for the at or above 50th comparison in the Philadelphia Process Model (from 2 to 6 percentage points).

When compared against their districts, the MAX group exceeds the district average at all grades, by all criteria in the Bank Street Model and at all grades by two or three criteria in the Parent Implemented and the Philadelphia Process Models. The Behavior Analysis Model exceeded its district average

in two grades, and the Bilingual Model in one grade. The TFT aggregate exceeded the District 1-6 average in sixth grade for the means comparison and in fifth and sixth grades for the below 16th comparison.

When the results are dimensioned by prior Head Start experience, the MAX group with Head Start exceeds the total group more often than the MAX group without Head Start does. For the TFT aggregate, the MAX group with Head Start exceeds the total group at all grades by all criteria, all grades by two or three criteria. In the Behavior Analysis and the Philadelphia Process Models, the exposure effect is present at all grades by all criteria among Head Start pupils and at only two grades among the Non Head Start pupils. In the Bank Street Model, the effect is present at all grades by all criteria for HS pupils and at no grade for NHS pupils, and in the Florida Parent Model the effect appears by two or three criteria at all grades for HS pupils and at one grade for NHS pupils. In the Bilingual Model no Head Start difference appears: both groupings show the effect at all grades by at least two criteria. The EDC Model shows a reversal: the effects are scattered, but more often appear under the NHS category.

In comparison with the districts, the Bank Street Model exceeds its district at all grades by all criteria in both HS and NHS groups. The Behavior Analysis, the Bilingual, the Florida Parent, and the Philadelphia Process Models more often exceed their districts with Head Start pupils than with Non Head Start pupils. For the TFT aggregate, the Districts 1-6 average is exceeded by all criteria at sixth grade and by one criterion at fourth and fifth grades for HS pupils, but among NHS pupils, it exceeds the district aggregate on only the below 16th comparison for sixth grade.

B. Patterns of Consistency, 1973-1975

As in question 6 (above), patterns of consistency of exposure effects over two years (1973-1975) are examined for two grades (fourth and fifth). Once again, "consistent" in this section means the effect appears in both years.

The exposure effect is consistent at both grades for the TFT aggregate and for the Bank Street, the Behavior Analysis, the Bilingual, and the Parent Implemented Models. It is consistent at one grade in the Philadelphia Process Model. When the models are compared with their districts, the MAX group consistently exceeds the district average at both grades in the Bank Street and the Parent Implemented Models.

When the results are dimensioned by prior Head Start, consistent differences occur more often between the MAX HS group and the total group than between the MAX NHS group and the total group. For TFT and the Bank Street and the Parent Implemented Models the effect is consistent at both grades for HS pupils and at neither grade for NHS pupils. The Behavior Analysis Model shows the effect for both grades among HS pupils and at one grade for NHS pupils. The Bilingual Model shows the effect at one grade for each HS category and the EDC and the Florida Parent Models show it at one grade among HS pupils and neither grade among NHS pupils.

Against the districts, the Bank Street Model shows a consistent effect for the MAX group in both Head Start categories at both grades. The Parent Implemented Model shows it at one grade for HS pupils and at both grades for NHS pupils. In the Behavior Analysis and the Philadelphia Process Models, the effect is observed in one grade for HS pupils and at neither grade for NHS pupils.

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In sum: For the TFT aggregate in 1974-1975, an exposure effect is found at all three grades by all three criteria. Figure 8 shows the results in terms of the percentile rank of the mean scores. The strongest effects are found in the Parent Implemented and the Philadelphia Process Models. The full pattern of effects is portrayed in Table 8. Against the districts, the strongest effects occur in the Bank Street Model. Across the two years 1973-1975, a consistent exposure effect at both grades is observed in the TFT aggregate and in the Bank Street, the Behavior Analysis, the Bilingual, and the Parent Implemented Models. Against the districts, the Bank Street and the Parent Implemented Models show a consistent exposure effect at both grades. When results are dimensioned by prior Head Start, the MAX group within HS is more likely to exceed the total group and the district than is the MAX group without prior Head Start, both for the present year data and in terms of the consistency of the effect across the past two years.

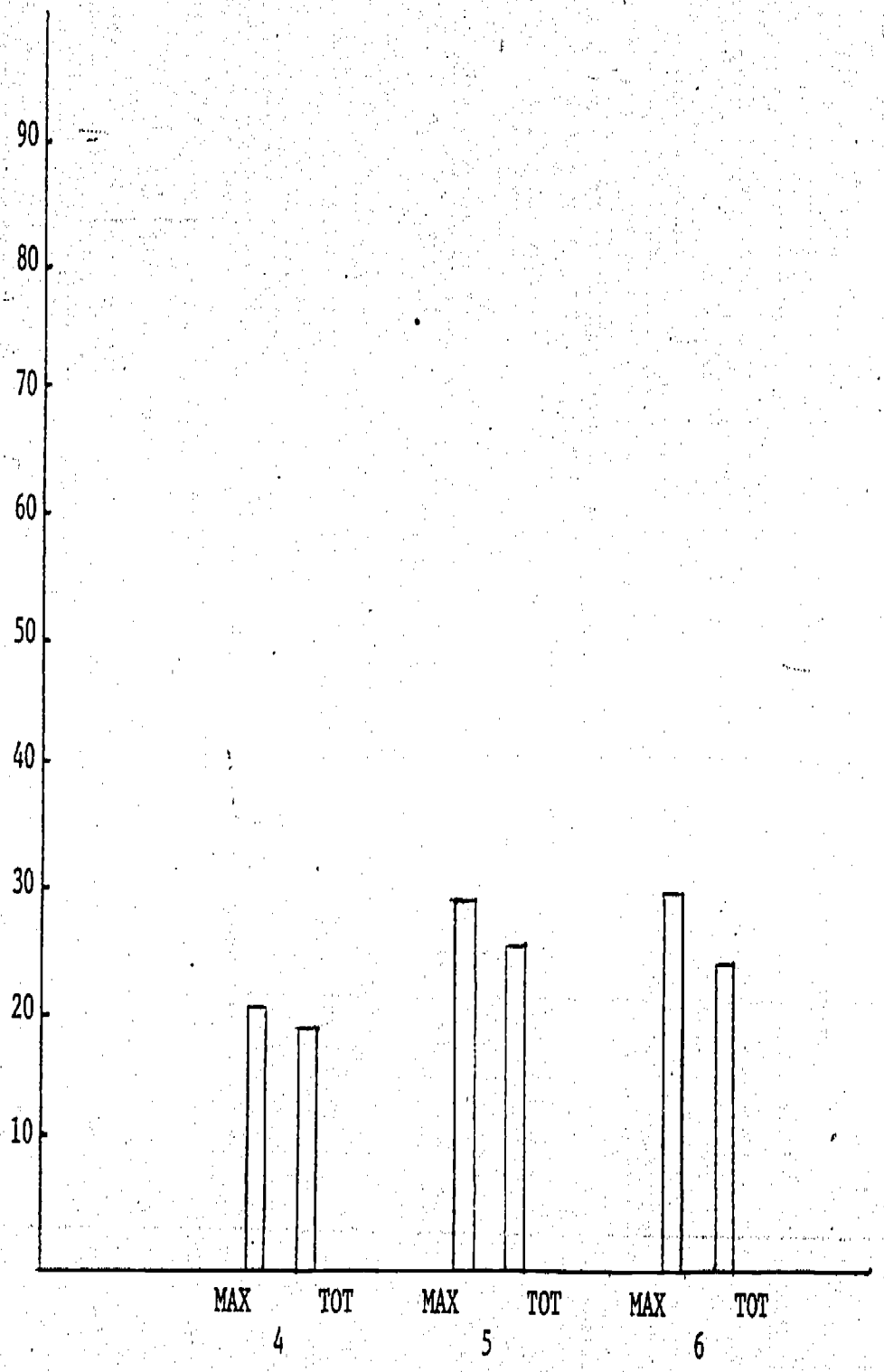

Figure 8. Percentile Rank of Mean Mathematics Scores for Maximum Exposure (MAX) and Total (TOT) Groups, by Grade, for Total Follow Through in 1974 - 1975.

Table 8. Patterns of Exposure Effects on Mathematics Scores in the Post-Program Grades (4-6): for Percentile Rank of Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BA				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BI				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
EDC				
	Mean			
	16th			X
	50th			
FP				
	Mean			X
	16th		X	X
	50th		X	X
PI				
	Mean	X	X	X
	16th	X	X	X
	50th		X	X
PP				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

C. Absence

9. WHAT EVIDENCE EXISTS FOR AN ABSENCE EFFECT ON READING SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year Data, 1974-1975

The effect of absence (or attendance) on reading scores during the program grades is examined by comparing results for maximum exposure pupils with fewer than sixteen days' absence with those for pupils with sixteen or more days' absence. When the performance of the former group is superior to that for the latter group, an absence effect is said to have occurred. As a supplementary consideration, pupils with and without Head Start experience will be examined separately. The same three criteria (cf., question 1) apply.

For the TFT aggregate, an absence effect is observed at all grades by all criteria. The size of the effect is from 3 to 21 percentile points for the means comparison, from 2 to 21 percentage points for the below 16th comparison, and from 2 to 17 percentage points for the at or above 50th comparison.

Among the models, the most consistent effects for absence are found in the EDC Model (effects at all grades, by all criteria). The Behavior Analysis and the Florida Parent Models show absence effects at all grades by at least two criteria. In the Bank Street, the Bilingual, the Parent Implemented, and the Philadelphia Process Models the effect appears in three grades by at least two criteria. The largest effects are observed in the EDC Model (from 5 to 27 percentile points for the means comparison, from 2 to 37 percentage points for the below 16th comparison, and from 10 to 22 percentage points for the at or above 50th comparison).

When the data are dimensioned by prior Head Start experience, absence is found to have a greater effect among HS pupils than among NHS pupils in the Florida Parent and the Philadelphia Process Models, and a greater effect among NHS than among HS pupils in the Behavior Analysis and the Bilingual Models.

B. Patterns of Consistency, 1973-1975

Consistency of absence effects is examined for the period 1973-1975, the only years for which such data exist. The term "consistent" here refers to the presence of an absence effect in both years. For TFT and the EDC Model, the absence effects is consistent for all four years. In the Bank Street, the Behavior Analysis, the Florida Parent and the Philadelphia Process Models, the effect is consistent in three grades, and in the Bilingual and the Parent Implemented Models it is consistent in two grades.

When results are dimensioned by prior Head Start experience, TFT shows consistent absence effects for both Head Start groups at all grades. The EDC, the Bank Street, the Florida Parent, and the Philadelphia Process Models show consistent effects for three grades among HS pupils and for four, three, two, and two grades respectively for NHS pupils. The Behavior Analysis and the Bilingual Models show such a consistency at one grade for each Head Start group. The Parent Implemented Model shows consistency of absence effect for first grade in HS group.

In sum: For the TFT aggregate in 1974-1975, an absence effect is observed at all grades, by all criteria. Figure 9 shows the results in terms of the percentile rank of mean scores. The strongest effects are found in the EDC Model. The full pattern of effects is portrayed in Table 9.

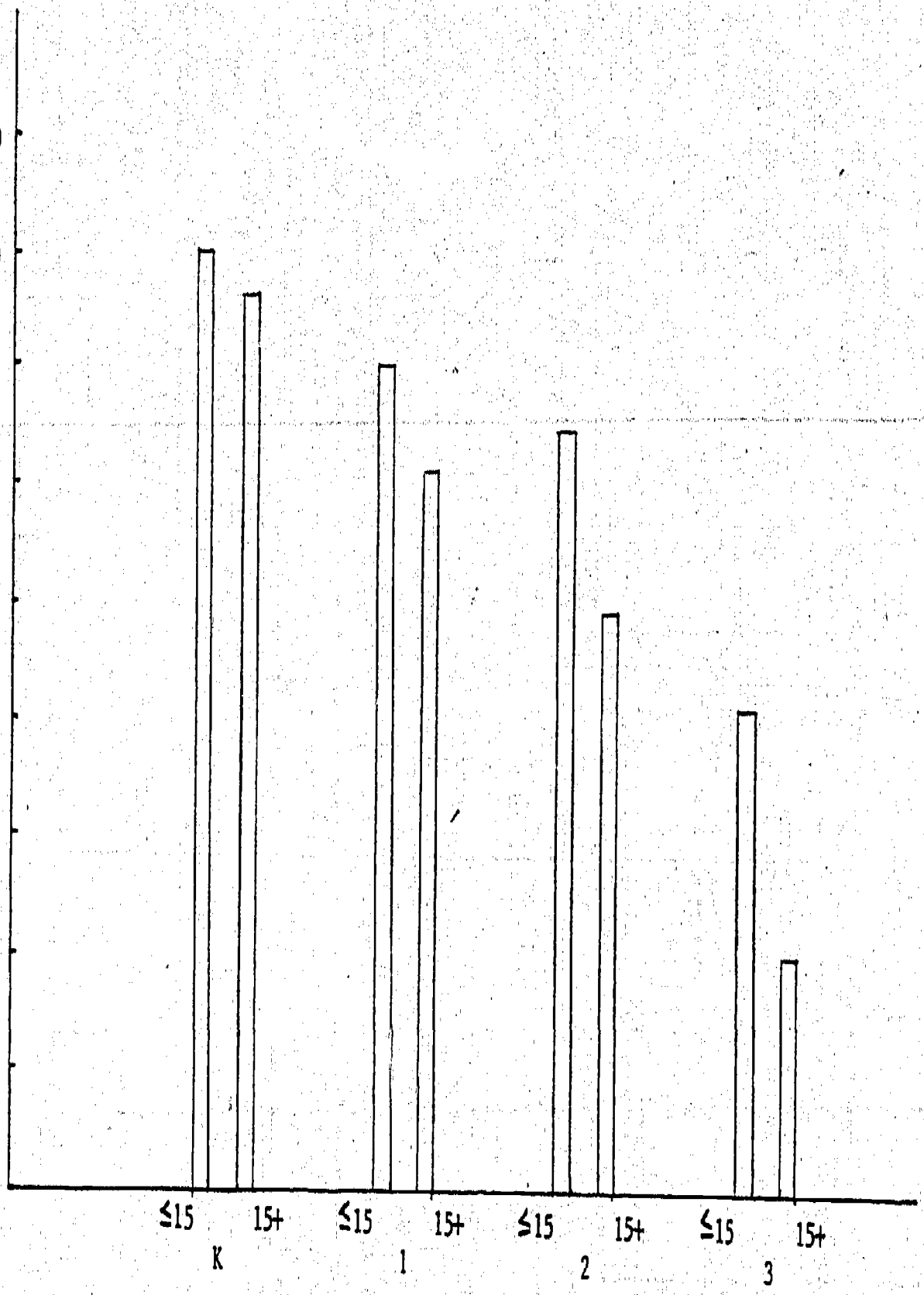

Figure 9. Percentile Rank of Mean Reading Scores for Maximum Exposure Pupils with Fifteen or Fewer Days' Absence (≤ 15) and with More than Fifteen Days' Absence (15+), by Grade, for Total Follow Through in 1974 - 1975.

Table 9. Patterns of Absence Effects on Reading Scores in the Program Grades (K-3): for Means, Percent Below 16th Percentile, and Percent at or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean	X	X	X	
	16th	X	X	X	
	50th	X	X	X	
BA					
	Mean	X	X	X	X
	16th	X	X		X
	50th	X	X	X	X
BI					
	Mean	X		X	X
	16th	X		X	X
	50th	X		X	X
EDC					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X
FP					
	Mean			X	X
	16th	X	X	X	X
	50th	X	X	X	
PI					
	Mean		X	X	
	16th	X		X	X
	50th	X	X	X	
PP					
	Mean		X	X	X
	16th		X	X	X
	50th		X		X
TFT					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X

Across the two years, 1973-1975, the absence effect is consistent at all four grades for TFT and the EDC Model. When results are dimensioned by prior Head Start, model-specific differences emerge.

10. WHAT EVIDENCE EXISTS FOR AN ABSENCE EFFECT ON READING SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year Data, 1974-1975

The effects of absence (attendance) on reading scores in the post-program grades (4-6) is examined here. The same three criteria apply, and supplementary consideration of Head Start and Non Head Start differences will be offered again.

For the TFT aggregate, an absence effect is observed at all three grades by all three criteria. The size of the effect is from 11 to 12 percentile points for the means comparison, from 11 to 18 percentage points for the below 16th comparison, and from 12 to 14 percentage points for the at or above 50th comparison.

Among the models, the most consistent effects are found in the Behavior Analysis Model (effects at all grades by all three criteria). The Bank Street, the Bilingual, the EDC, the Parent Implemented, and the Philadelphia Process Models show such an absence effect at all grades by at least two criteria. The Florida Parent Model shows the effect for about half the comparisons.

The strongest effects are found in the Behavior Analysis Model (ranging from 8 to 15 percentile points for the means comparison, from 9 to 22 percentage points for the below 16th comparison, and from 11 to 27 percentage points for the at or above 50th comparison).

When the results are dimensioned by prior Head Start experience, TFT shows equally robust absence effects for both Head Start groupings. In the Behavior Analysis, the Parent Implemented, and the Philadelphia Process Models, stronger absence effects appear in the Head Start groups, and in the Bank Street, the Bilingual, and the Florida Parent Models, stronger effects appear in the Non Head Start groups.

B. Patterns of Consistency, 1973-1975

Consistency of effects over the two-year period is examined here. In this context, "consistent" means the effect appeared in both years. For the TFT aggregate and in the Bank Street, the Behavior Analysis, the EDC, and the Philadelphia Process Models, the effect is consistent at both grades. The Bilingual, the Florida Parent, and the Parent Implemented Models show consistent effect at one grade.

When the data are dimensioned by prior Head Start, TFT and the Behavior Analysis and the EDC Models show consistent absence effects at both grades for both HS and NHS groups, and the Bilingual and the Florida Parent Models show consistency of absence effects at one grade for both HS and NHS groups. In the Bank Street Model the effect is consistent at one grade for HS and both grades for NHS. In the Parent Implemented and the Philadelphia Process Models, the effect is consistent at two grades for Head Start and at one and zero grades respectively for Non Head Start.

In sum: For TFT in 1974-1975, an absence effect is observed at all three grades by all three criteria. Figure 10 presents the results in terms of the percentile rank of mean scores. Strongest effects are found in the Behavior Analysis Model. Table 10 presents the full pattern of effects.

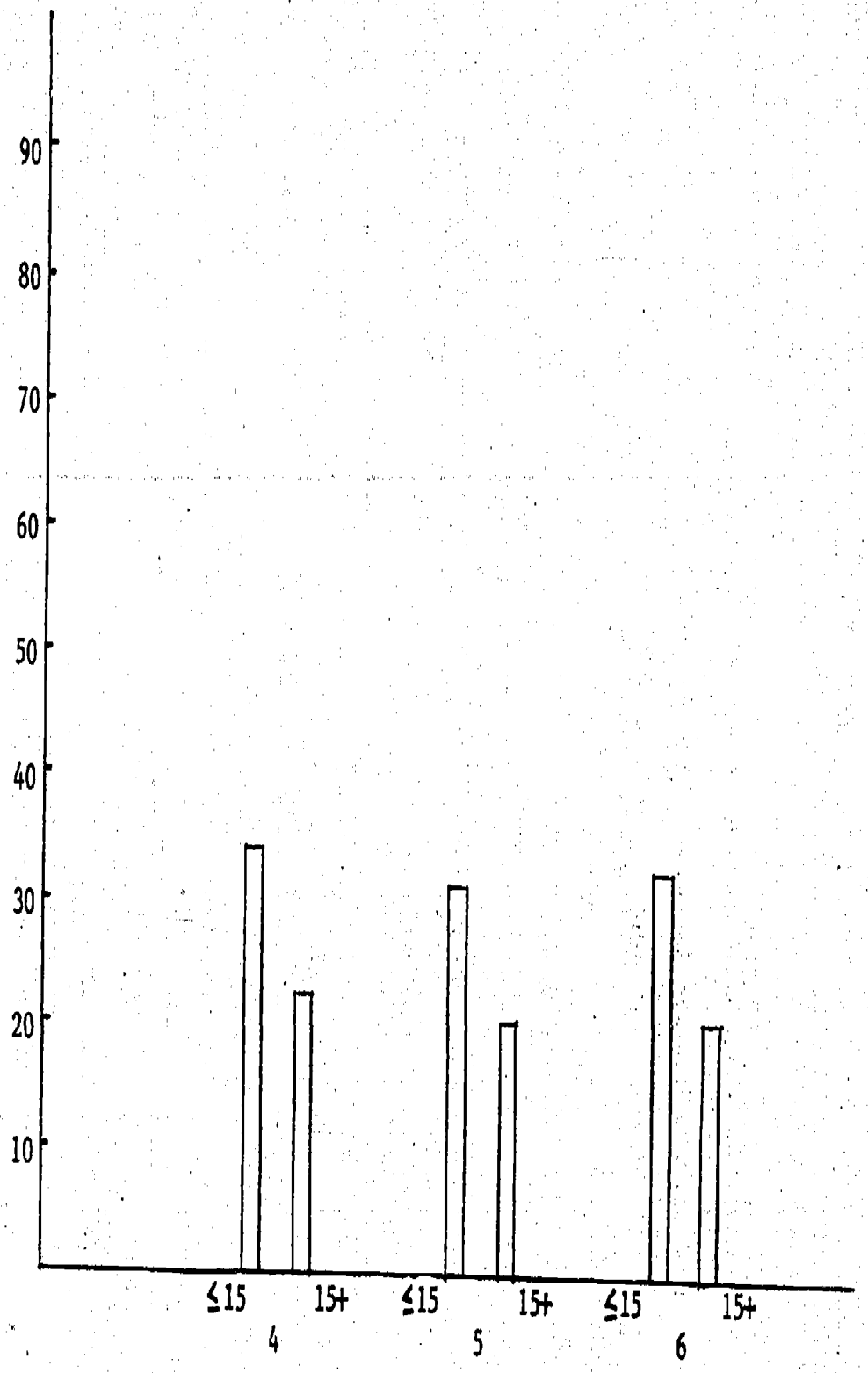

Figure 10. Percentile Rank of Mean Reading Scores for Maximum Exposure Pupils with Fifteen or Fewer Days' Absence (≤15) and with More than Fifteen Days' Absence (15+), by Grade, for Total Follow Through in 1974 - 1975.

Table 10. Patterns of Absence Effects on Reading Scores in the Post-Program Grades (4-6): for Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean	X	X	X
	16th		X	X
	50th	X	X	X
BA				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BT				
	Mean		X	X
	16th	X	X	X
	50th	X	X	X
EDC				
	Mean	X	X	X
	16th	X	X	
	50th	X	X	X
FP				
	Mean	X		X
	16th	X	X	X
	50th			X
PI				
	Mean	X	X	X
	16th	X	X	
	50th	X	X	X
PP				
	Mean	X	X	X
	16th	X	X	
	50th	X	X	X
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

Across the two years, 1973-1975, TFT and the Bank Street, the Behavior Analysis, the EDC, and the Philadelphia Process Models show consistent absence effects at both fourth and fifth grades, and the remaining models at one grade. When the data are dimensioned by Head Start experience, model-specific differences emerge.

11. WHAT EVIDENCE EXISTS FOR AN ABSENCE EFFECT ON MATHEMATICS SCORES IN THE PROGRAM GRADES (K-3)?

A. Present Year Data, 1974-1975

The effects of absence (attendance) on mathematics scores in the program grades is examined on the basis established earlier (question 9).

For the TFT aggregate, an absence effect is found at all grades by all criteria. The size of the effect is from 6 to 19 percentile points for the means comparison, from 4 to 18 percentage points for the below 16th comparison, and from 10 to 23 percentage points for the at or above 50th comparison. Among the models, the most consistent effect of absence is seen in the Bank Street Model (all grades by all criteria), and strong effects appear in the Behavior Analysis and the Philadelphia Process Models (all grades and criteria except the below 16th comparison in grade 2). The remaining models exhibit the effect by all criteria at three grades. The strongest effects occur in the Bank Street Model for the means (from 5 to 24 percentile points), in the Bilingual Model for the below 16th comparison (from 9 to 15 percentage points), and in the Behavior Analysis Model for the at or above 50th comparison (from 5 to 26 percentage points).

When the data are dimensioned by prior Head Start, TFT shows an absence

effect at all grades by all criteria in both HS and NHS groups, except the below 16th comparison in grade 2 NHS. The Bank Street, Behavior Analysis, Bilingual, Florida Parent, and Parent Implemented Models show somewhat greater absence effects among NHS pupils than among HS pupils.

B. Patterns of Consistency, 1973-1975

Consistency of absence effects is examined on the basis established above (question 9). For TFT and the Bank Street and the Behavior Analysis Models, the effect is consistent at all grades, K-3. In the Bilingual, the EDC, and the Philadelphia Process Models, it is consistent for three grades. The effect is consistent for two grades in the Florida Parent Model and for one grade in the Parent Implemented Model.

When the results are dimensioned by prior Head Start, the effect for TFT is seen as consistent at three grades for HS and all grades for NHS pupils. Greater consistency is observed among HS pupils in the EDC and the Philadelphia Process Models, and among NHS pupils in the Behavior Analysis and the Parent Implemented Models.

In sum: For TFT In 1974-1975, an absence effect is observed at all grades by all criteria. The results are presented in Figure 11, for the means. The strongest effects are found in the Bank Street Model. Table 11 presents the full pattern of effects. Across the years 1973-1975, TFT, and the Bank Street and the Behavior Analysis Models show a consistent effect for absence at all grades. When the results are dimensioned by Head Start experience, model-specific differences emerge.

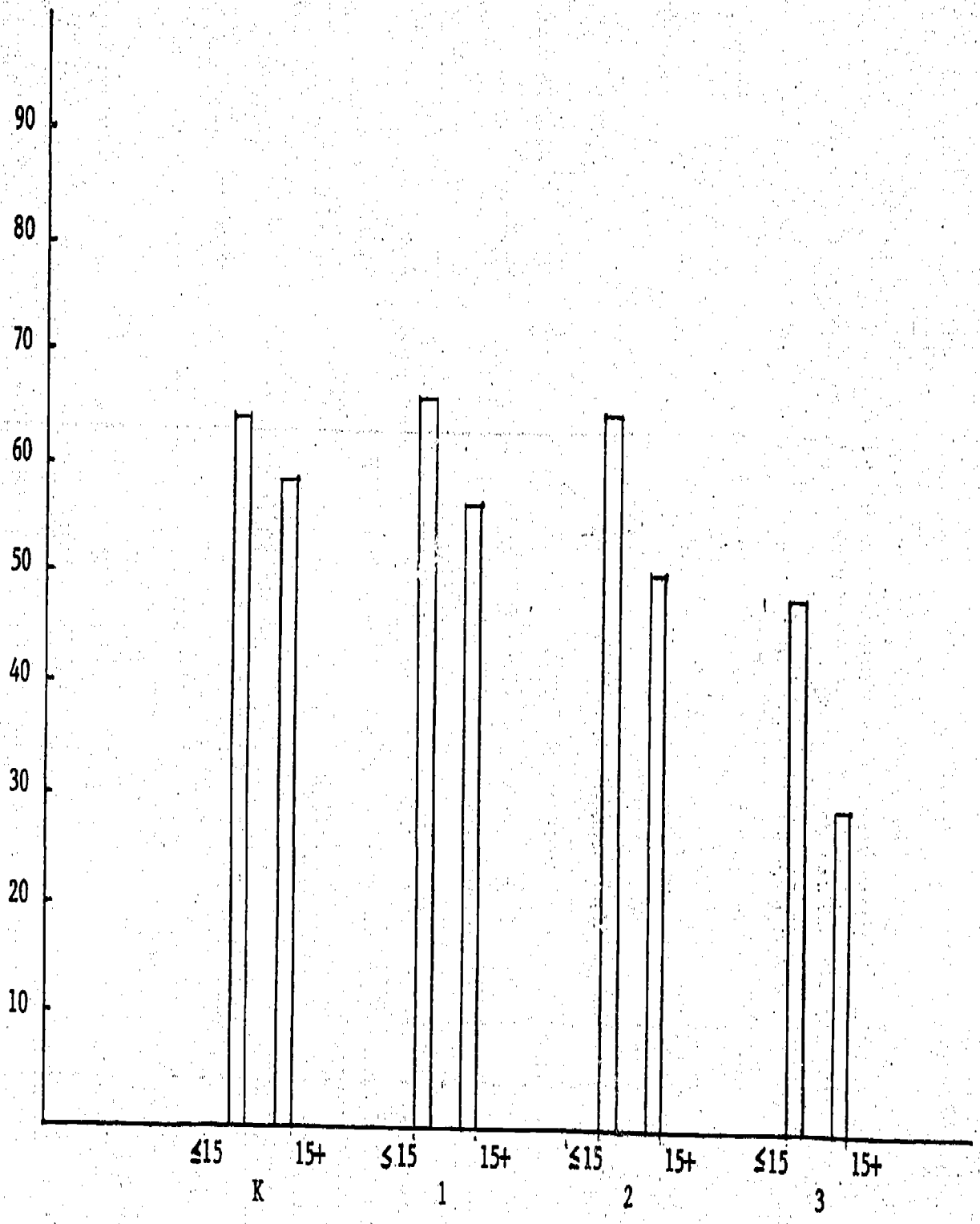

Figure 11. Percentile Rank of Mean Mathematics Scores for Maximum Exposure Pupils with Fifteen or Fewer Days' Absence (≤15) and with More than Fifteen Days' Absence (15+), by Grade, for Total Follow Through in 1974 - 1975.

Table 11. Patterns of Absence Effects on Mathematics Scores in the Program Grades (K-3): for Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade K	Grade 1	Grade 2	Grade 3
BS					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X
BA					
	Mean	X	X	X	X
	16th	X	X		X
	50th	X	X	X	X
BI					
	Mean	X		X	X
	16th	X	X	X	X
	50th	X		X	X
EDC					
	Mean	X		X	X
	16th	X		X	X
	50th	X		X	X
FP					
	Mean	X	X	X	
	16th	X	X	X	X
	50th	X	X	X	X
PI					
	Mean	X	X	X	
	16th	X	X	X	
	50th	X	X	X	
PP					
	Mean	X	X	X	X
	16th	X	X		X
	50th	X	X	X	X
TFT					
	Mean	X	X	X	X
	16th	X	X	X	X
	50th	X	X	X	X

12. WHAT EVIDENCE EXISTS FOR AN ABSENCE EFFECT ON MATHEMATICS SCORES IN THE POST-PROGRAM GRADES (4-6)?

A. Present Year Data, 1974-1975

The effect of absence (attendance) on mathematics scores during the post-program grades is examined on the basis established above (question 10). For the TFT aggregate, the effect appears at all grades, by all criteria. The size of the effect is from 9 to 15 percentile points for the comparison of means, from 13 to 22 percentage points for the below 16th comparison, and from 12 to 21 percentage points for the at or above 50th comparison.

The Bank Street and the Philadelphia Process Models show an absence effect at all grades by all criteria. The Behavior Analysis, the Bilingual, the EDC, and the Parent Implemented Models show the effect at all grades by at least two criteria. In the Florida Parent Model, the effect is present at fifth grade by all criteria.

The strongest effect by the means criterion appears in the Bank Street Model (from 7 to 46 percentile points), by the below 16th criterion in the Philadelphia Process Model (from 15 to 26 percentage points), and by the at or above 50th criterion in the Parent Implemented Model (from 19 to 35 percentage points).

When results are dimensioned by prior Head Start experience, for the TFT aggregate both HS and NHS pupils show an absence effect at all grades by all criteria. In the Florida Parent, the Parent Implemented, and the Philadelphia Process Models somewhat stronger absence effects appear in Head Start than in Non Head Start groups. In the Bank Street, the Behavior Analysis, and the EDC Models, stronger absence effects appear in Non Head Start than in Head Start groups.

B. Patterns of Consistency, 1973-1975

Patterns of consistency of absence effects are examined on the basis established above (question 10). For TFT and the Bank Street, the EDC, and the Philadelphia Process Models, the effect is consistent at both grades, and on the Behavior Analysis, the Florida Parent, and the Parent Implemented Models it is consistent at one grade.

When the results are dimensioned by prior Head Start experience, TFT, and the Bank Street, the EDC, and the Philadelphia Process Models show a consistent effect at both grades for both Head Start groups. The Behavior Analysis, the Bilingual, the Florida Parent, and the Parent Implemented Models show a consistent absence effect at one grade for Head Start and at two, one, one, and zero grades (respectively) for Non Head Start pupils.

In sum: For TFT in 1974-1975, an absence effect is found at all three grades by all three criteria. Figure 12 presents the results in terms of the percentile rank of means scores. Strongest effect are found in the Bank Street and the Philadelphia Process Models. The full pattern of effects is portrayed in Table 12. Across the two years, 1973-1975, a consistent absence effect is found at both grades for TFT and the Bank Street, the EDC, and the Philadelphia Process Models. When the results are dimensioned by prior Head Start experience, model specific differences emerge.

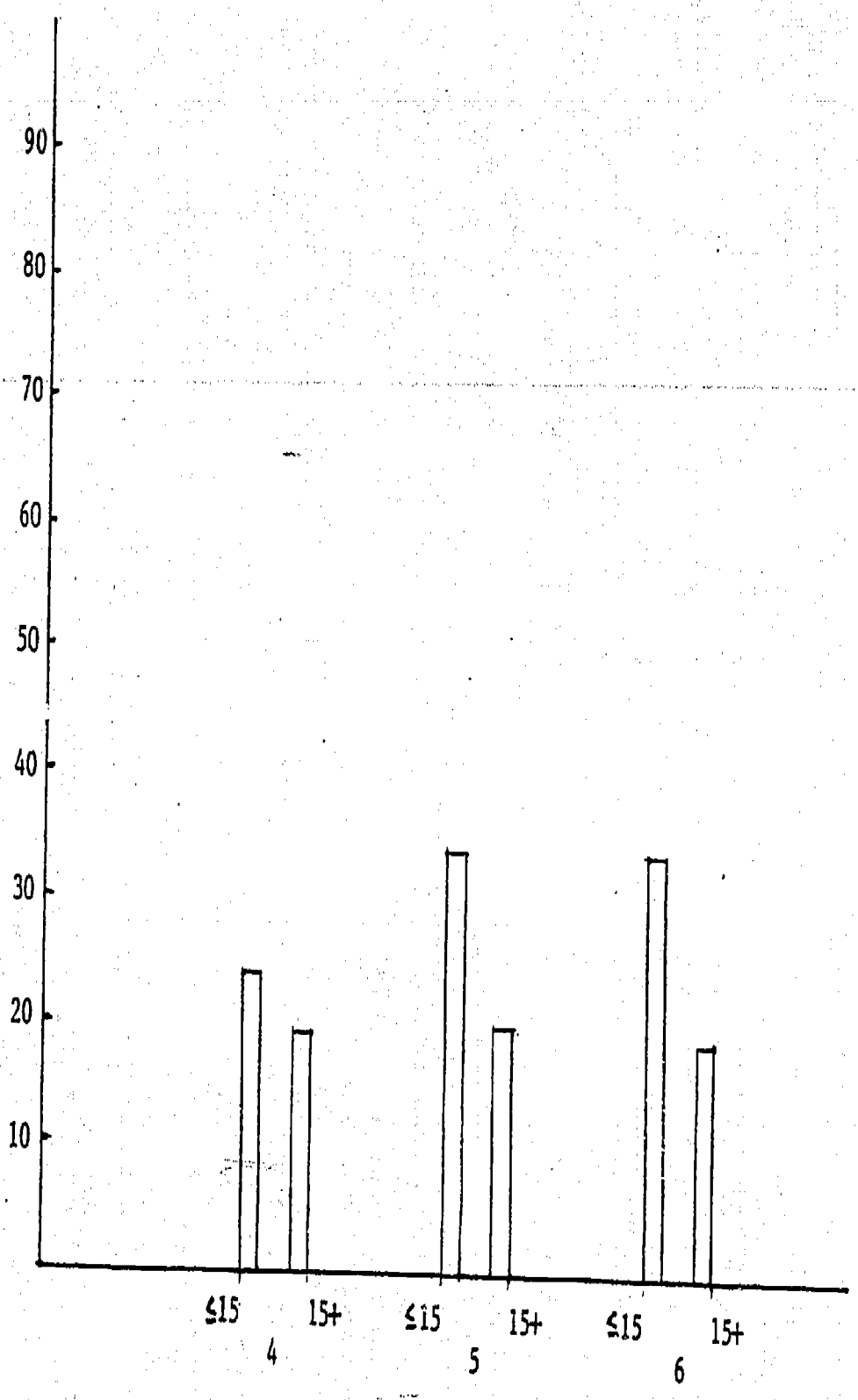

Figure 12. Percentile Rank of Mean Mathematics Scores for Maximum Exposure Pupils with Fifteen or Fewer Days' Absence (≤ 15) and with More than Fifteen Days' Absence (15+), by Grade, for Total Follow Through in 1974 - 1975.

Table 12. Patterns of Absence Effects on Mathematics Scores in the Post-Program Grades (4-6): for Means, Percent Below 16th Percentile, and Percent At or Above 50th Percentile. ("X" indicates effect is present.)

		Grade 4	Grade 5	Grade 6
BS				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
BA				
	Mean	X	X	X
	16th	X	X	X
	50th		X	X
BI				
	Mean	X		X
	16th			X
	50th	X	X	X
EDC				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	
FP				
	Mean	X	X	
	16th		X	X
	50th	X	X	X
PI				
	Mean	X	X	X
	16th	X	X	
	50th	X	X	X
PP				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X
TFT				
	Mean	X	X	X
	16th	X	X	X
	50th	X	X	X

PART II

Levels of Performance

In the preceding sections, evidence for specific effects has been presented. However, consideration of the size and consistency of such effects does not indicate differences across models or grades in terms of the actual level of performance for various quasi-longitudinal groupings. Thus, a particular model may exhibit the strongest effect for maximum exposure (in terms of the comparison with the total group), yet the actual level of performance for that model may be considerably lower than that of another model which showed no effect for exposure. Additionally, while there is a general decline of achievement across the grades, levels of performance for certain groupings or models depart from the general pattern.

As a final consideration of achievement from a quasi-longitudinal view, therefore, the actual levels of performance for different quasi-longitudinal groupings are portrayed in a series of figures included as Appendix B (Figures B1-B14). Each figure presents either reading or mathematics performance (as a percentile rank of mean score) for all models and the total program at a particular grade. Four quasi-longitudinal groupings are presented for each model: (1) the total cross-sectional group, designated "T"; (2) the maximum exposure group, designated "M"; (3) the maximum exposure group with prior Head Start experience, designated "H"; (4) the maximum exposure group with prior Head Start experience and fewer than sixteen days' absence, designated "A".

To illustrate the data conveyed in the Appendix B figures, note will be taken of levels of performance at three grades: kindergarten, grade three, and grade six. These three grades establish equal intervals of three grades between the points which correspond to the first program grade, the final program grade, and the highest grade achieved by program graduates to date. It should be recalled that these data involve different pupils at the same point in time. Inferences about changes in levels of performance as pupils progress through the grades must await resumption of strict longitudinal analysis. As an indication of grade-specific performance, however, the Appendix B figures have a general utility. To economize the treatment, the above designations for the four groupings (T,M,H,A) will be employed and the actual level of performance (in terms of the percentile rank of the mean) will be noted in parentheses adjacent to the designation.

A. Kindergarten Performance

Levels of reading performance for kindergarten pupils in 1974-1975 are portrayed in Figure B1. All groupings for all models score above the 60th percentile. The highest-performing T groups are the Florida Parent (86) and the Bank Street, the Behavior Analysis, and the Parent Implemented Models (all at 80). Results for the M groups show the same ordering (as expected, since the M and T groups at kindergarten are virtually identical), as do results for the H groups: Florida Parent (92), Bank Street (89), Behavior Analysis (89), and Parent Implemented (86). However, results for the restrictive A groups produce a different order: Bank Street (92),

Behavior Analysis (89), Florida Parent (89), Philadelphia Process (86) and Parent Implemented (86).

The groupings seem to make the least difference in the EDC Model (T, M, A = 77; H = 80), and the most difference in the Philadelphia Process Model (T, M = 68; H = 72; A = 86). For TFT, base performance (T) is at the 77th percentile, with H at the 80th, and the A group at the 86th percentile.

Mathematics performance in kindergarten is generally lower than reading. Data are presented in Figure B2. All groupings equal or exceed the 50th percentile, except the T and M groups in the Bilingual Model. The highest performing T groups are the Florida Parent (76), the Bank Street (64), and the Behavior Analysis (70) Models. The most restrictive A grouping produces a somewhat different ordering: Florida Parent (86), Bank Street (76), and EDC (72).

The groupings seem to make the least difference in the Parent Implemented Model (T, M = 58; H, A =64), and the most difference in the Bilingual Model (T, M = 44; H = 58; A = 64). For TFT, baseline performance (T) is at the 58th percentile, with the H group at the 64th percentile and the A group at the 72nd percentile.

In both reading and mathematics at kindergarten, the increasingly restrictive groupings produce correspondingly higher scores.

B. Third-Grade Performance

Levels of reading performance in third grade are presented in Figure B7. It will be noted that the mean performance of the M, H, and A groups in the Behavior Analysis and the Parent Implemented Models and the A group in the Philadelphia Process Model exceed the 50th percentile. Only the M group in the Bilingual Model fails to exceed the 16th percentile. The highest performing T groups are the Behavior Analysis (49), Parent Implemented (45), and Philadelphia Process (37) Models; the highest-performing M groups are the Parent Implemented (62), Behavior Analysis (53), and Philadelphia Process (41) Models. For the H groups, Parent Implemented (70) is highest, followed by Behavior Analysis (59) and Philadelphia Process (47), and the same order (with values of 70, 59, and 53, respectively) holds for the A groups.

The groupings make the least difference in the Bilingual Model (M = 15; T, A = 17; H = 18) and the greatest difference in the Parent Implemented Model (T = 45; M = 62; H, A = 70). For TFT baseline performance (T) is at the 33rd percentile, with the M group at the 35th, the H group at the 37th, and the A group at the 42nd percentiles.

Third-grade mathematics scores, Figure B8, are generally higher than reading scores. All groupings in the Behavior Analysis and the Parent Implemented Models and the H and A groups in the Philadelphia Process Model exceed the 50th percentile. Only the M and A groups in the Bilingual Model fail to exceed the 16th percentile. The highest-performing T groups are the Behavior Analysis and the Parent Implemented Models (56) and the Philadelphia

Process Model (42). The same ordering applies to the other groups. For the M groups, the values are 67, 61, and 48, respectively; for the H groups they are 75, 61, and 53 respectively; and for the A groups they are 75, 67, and 56 respectively.

The groupings produce the least difference in the Bank Street Model (T = 37; M, H, A = 38), and the greatest difference in the Parent Implemented Model (T = 56; M = 67; H, A =75). For TFT, baseline performance is at the 40th percentile, with the M, H, AND A groups at the 42nd, 44th, and 48th percentiles, respectively.

In third grade the increasingly restrictive groupings produce clearly increasing levels of performance for the Behavior Analysis, the Parent Implemented, and the Philadelphia Process Models and for TFT, and somewhat better performance for the Florida Parent Model.

C. Sixth-Grade Performance

Levels of reading performance in sixth grade are presented in Figure B13. All groups in all models fall between the 50th and the 16th percentiles. The highest-performing T groups in sixth grade reading are in the Bank Street (35), EDC (31), and Behavior Analysis (29) Models; and for the M groups the order is Bank Street (36), Behavior Analysis (33), and EDC (30). For the pupils comprising the H groups, the order of performance is Bank Street and Parent Implemented Models (38), Bilingual (36), and Behavior Analysis (35). The A groups show Bank Street (48) followed by EDC (40), Parent Implemented (38), and Behavior Analysis (36).

The groupings make the least difference in the Behavior Analysis Model (T =29; M =33; H = 35; A = 36) and the Philadelphia Process Model (T =27; M = 29; H = 31; A = 36), and the most difference in the Bilingual Model (T = 16, M = 22; H = 36, A = 30). For TFT, baseline performance (T) is at the 27th percentile, the M group at the 29th, and H group at the 31st, and the A group at the 36th percentile.

Mathematics performance in sixth grade is similar to reading. Figure 314 presents the results. The M, H, and A groups in the Bank Street Model exceed the 50th percentile and all other groups exceed the 20th percentile. The highest performing models in each grouping are Bank Street, Parent Implemented, and Philadelphia Process. For the T groups the levels are the 42nd, and 31st, and the 28th percentiles respectively; for the M groups they are the 51st, the 42nd, and the 31st percentiles respectively; for the H groups they are the 55th, the 44th, and the 38th percentiles respectively; and for the A groups they are the 63rd, the 42nd, and the 40th percentiles respectively.

The groupings make the least difference in the EDC Model (T = 24; M, A = 23; A = 22) and the Behavior Analysis Model (T = 42; M = 51; H = 55; A = 23), and the greatest difference in the Bank Street Model (T = 42; M = 51; H = 55; A = 63). For TFT, baseline performance (T) is at the 25th percentile, the M group is at the 30th percentile, the H group at the 33rd percentile, and the A group at the 34th percentile.

In sixth grade, the increasingly restrictive groups are associated with increasingly higher performance, although the size of the differences varies by model.

Summary and Conclusions

The present report examines results of the 1974-1975 City-Wide Testing Program for Follow Through participants and former participants ("graduates") in light of prior Head Start or equivalent experience, number of years of program exposure, and rates of absence (attendance). Evidence is presented for three effects: an effect for Head Start, an effect for maximum program exposure, and an effect for low absence. Patterns of continuity of these effects over the years are also presented.

The Total Follow Through aggregate (TFT) shows a Head Start effect (higher performance by maximum exposure pupils with prior Head Start than by maximum exposure pupils without prior Head Start) for both reading and mathematics at all grades K-6. The strongest Head Start effects on reading occur in the Bank Street and the Philadelphia Process Models for the program grades (K-3) and in the Parent Implemented and the Philadelphia Process Models for the post-program grades (4-6). The strongest Head Start effects on mathematics occur in the Parent Implemented and Philadelphia Process Models (for program grades) and in the Bank Street and Behavior Analysis Models (for post-program grades).

Over the past four years, the Head Start effect is partially consistent for TFT at grades K-1 in reading and at grade 3 in mathematics. Over the past two years, the effect is fully consistent for both reading and mathematics at both fourth and fifth grades for TFT. Best consistency of effects over the four years is found in the Parent Implemented and the Bilingual Models for both reading and mathematics in the program years.

In the post-program grades, the Philadelphia Process, EDC, and Behavior Analysis Models show best consistency of Head Start effects on reading and the Bank Street and Behavior Analysis Models show best consistency of Head Start effects on mathematics.

The TFT aggregate shows an exposure effect (higher performance by the pupils with maximum program exposure than by the total group of pupils) for both reading and mathematics at all grades 1-6. Strongest exposure effects on reading occur in the Behavior Analysis and the Parent Implemented Models for both the program and the post-program grades. The strongest exposure effects on mathematics occur in the Parent Implemented, Behavior Analysis and the Bank Street Models for the program grades and in the Parent Implemented and the Philadelphia Process Models for the post-program grades.

Over the years, TFT shows general consistency of exposure effects at all grades (K-6) for all tests except second-grade reading. For the program grades, greatest consistency of exposure effects is found in the Behavior Analysis Model for both test areas; and for the post-program grades; in the Behavior Analysis, Bilingual, and Parent Implemented Models for both test areas, and in the Bank Street Model for mathematics scores.

For the TFT aggregate, an absence effect (higher performance by pupils with fewer than sixteen days absence) is found for both reading and mathematics at all grades K-6. The strongest absence effects on reading are found in the EDC Model for the program years and in the Behavior Analysis Model for the post-program grades. For mathematics the strongest absence

effects are found in the Bank Street Model for the program years and in the Bank Street and the Philadelphia Process Models for the post-program years.

Across the past two years, TFT shows full consistency of an absence effect at all grades for both test areas. The greatest consistency of an absence effect on reading is found in the EDC Model for the program years and in the EDC, Bank Street, Behavior Analysis, and Philadelphia Process Models for the post-program grades. In mathematics, the greatest consistency of an absence effect is found in the Bank Street and Behavior Analysis Models for the program grades and in the Bank Street, EDC, and Philadelphia Process Models for the post-program grades.

Levels of performance were examined for four groupings of pupils: the total group tested (T), pupils with maximum program exposure (M), pupils with maximum exposure and prior Head Start (H), and pupils with maximum exposure, Head Start and low absence (A). Attention was focused on three grades: first program year (K), last program year (3), and most advanced year of "graduates" (6). It was found that the rankings of the models varies somewhat depending on the particular grouping examined. Thus, particular models show selective effects for Head Start, exposure, or absence, enhancing the baseline performance associated with the model (the T group). Instances of such differential effects were confirmed by noting which models show relatively little differences among the groupings and which

show greater differentiation across the groupings. The specific models vary with the different grades, as noted in the text.

From the data available in 1974-1975, and the accumulated data from the four-year period 1971-1975, it is concluded that the Total Program aggregate (TFT) shows consistent effects for Head Start, exposure, and absence rates, as expected. In particular models (notably Behavior Analysis, Parent Implemented and EDC, but also Philadelphia Process and Bilingual), the effects are more frequent, stronger, or more consistent than in other models. However, grade-specific variation is a considerable factor in the interpretation of model-specific variation. The reinstatement of a strict longitudinal analysis design in 1975-1976 reporting (made possible by the stabilization of the City-Wide Testing Program at mid-year administration) will provide much more precise estimates of these effects. In particular, model comparisons will be greatly facilitated by regression analyses incorporating many other sources of test-score variation which affect the group comparisons reported here. For example, it is important to assess the relative weightingof Head Start, exposure, and absence effects (severally and jointly) when previous years' test scores are used to control variation in overall levels of performance.

APPENDIX A

Table A1. Numbers of Pupils with Maximum Program Exposure in Each Head Start Designation (Head Start and Non Head Start), by Grade and by Model.

	BS	BA	BI	EDC	FP	PI	PP	TFT
Kindergarten								
HS	73	88	43	79	30	21	60	394
NHS	70	134	67	105	48	27	57	508
Grade One								
HS	28	66	39	64	15	24	92	328
NHS	81	121	63	79	56	18	63	481
Grade Two								
HS	77	63	41	94	30	26	63	394
NHS	37	94	59	46	28	18	54	336
Grade Three								
HS	75	96	33	101	26	6	38	379
NHS	59	84	42	46	37	6	55	329
Grade Four								
HS	43	69	51	96	38	17	31	345
NHS	71	45	62	58	38	19	75	438
Grade Five								
HS	57	89	48	66	22	24	54	360
NHS	55	93	56	65	26	20	65	380
Grade Six								
HS	29	44	22	77	17	16	46	251
NHS	21	55	33	47	20	15	50	241

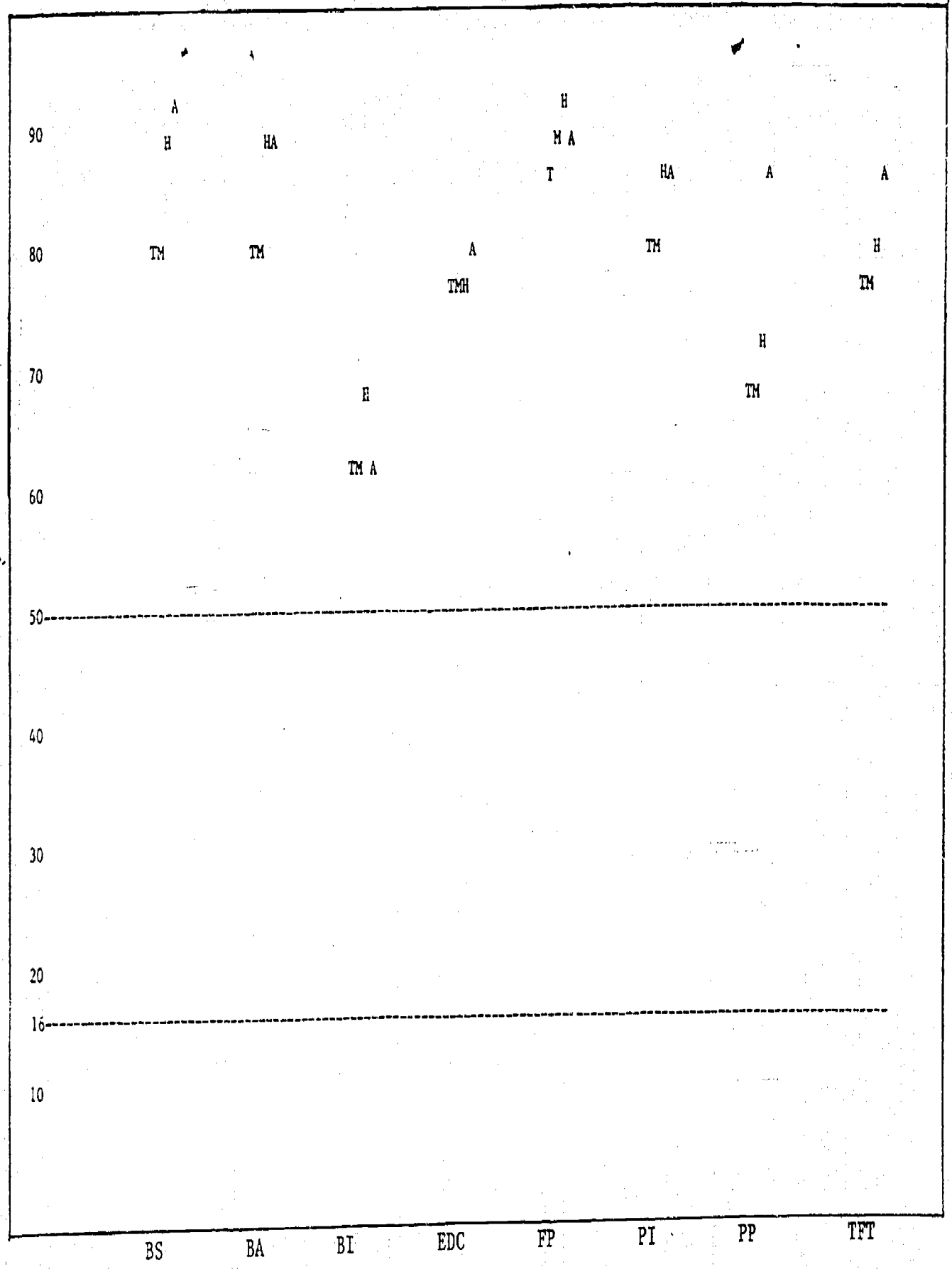

Figure B: National Pupil Percentile Ranks Corresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Kindergarten.

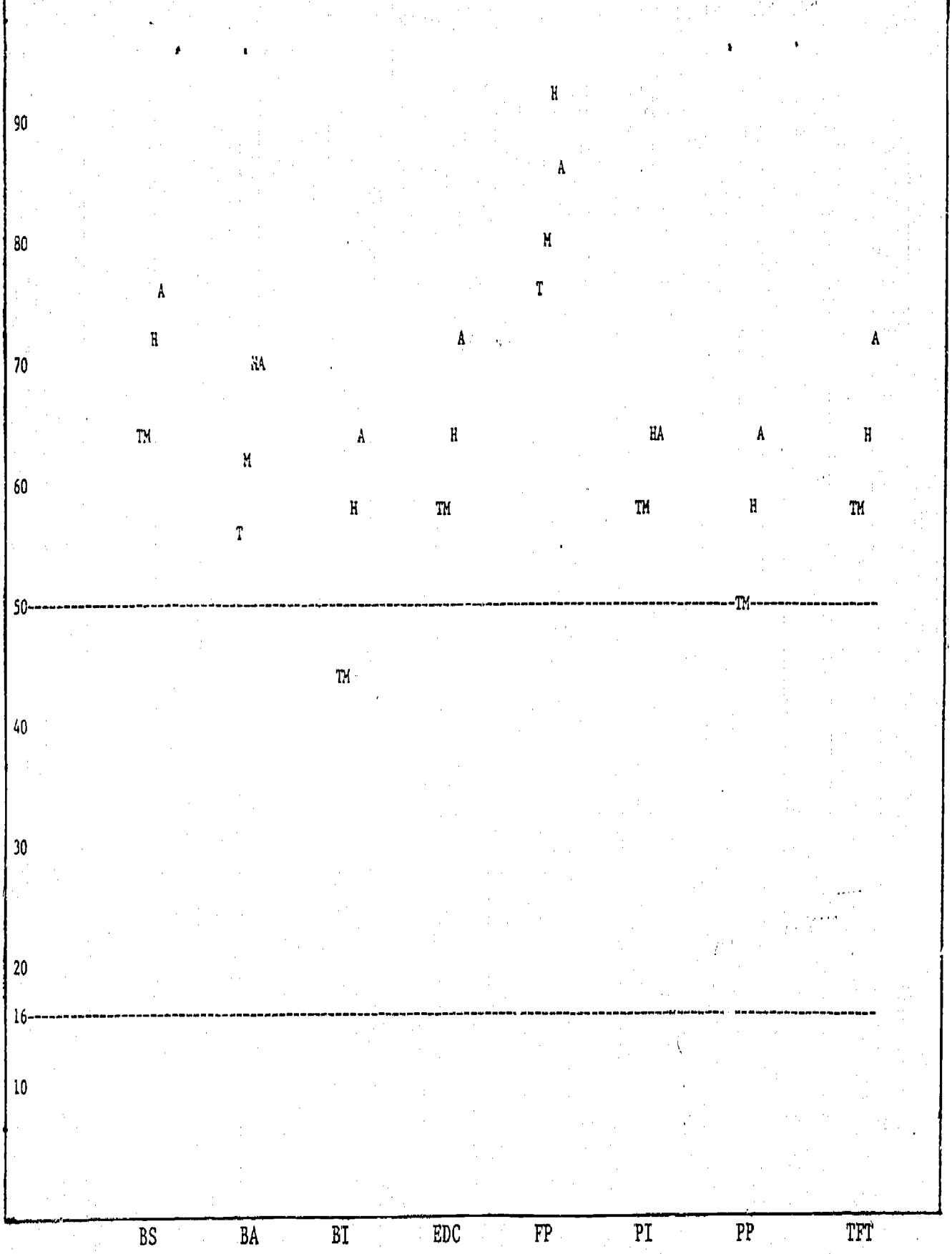

Figure B2: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Kindergarten.

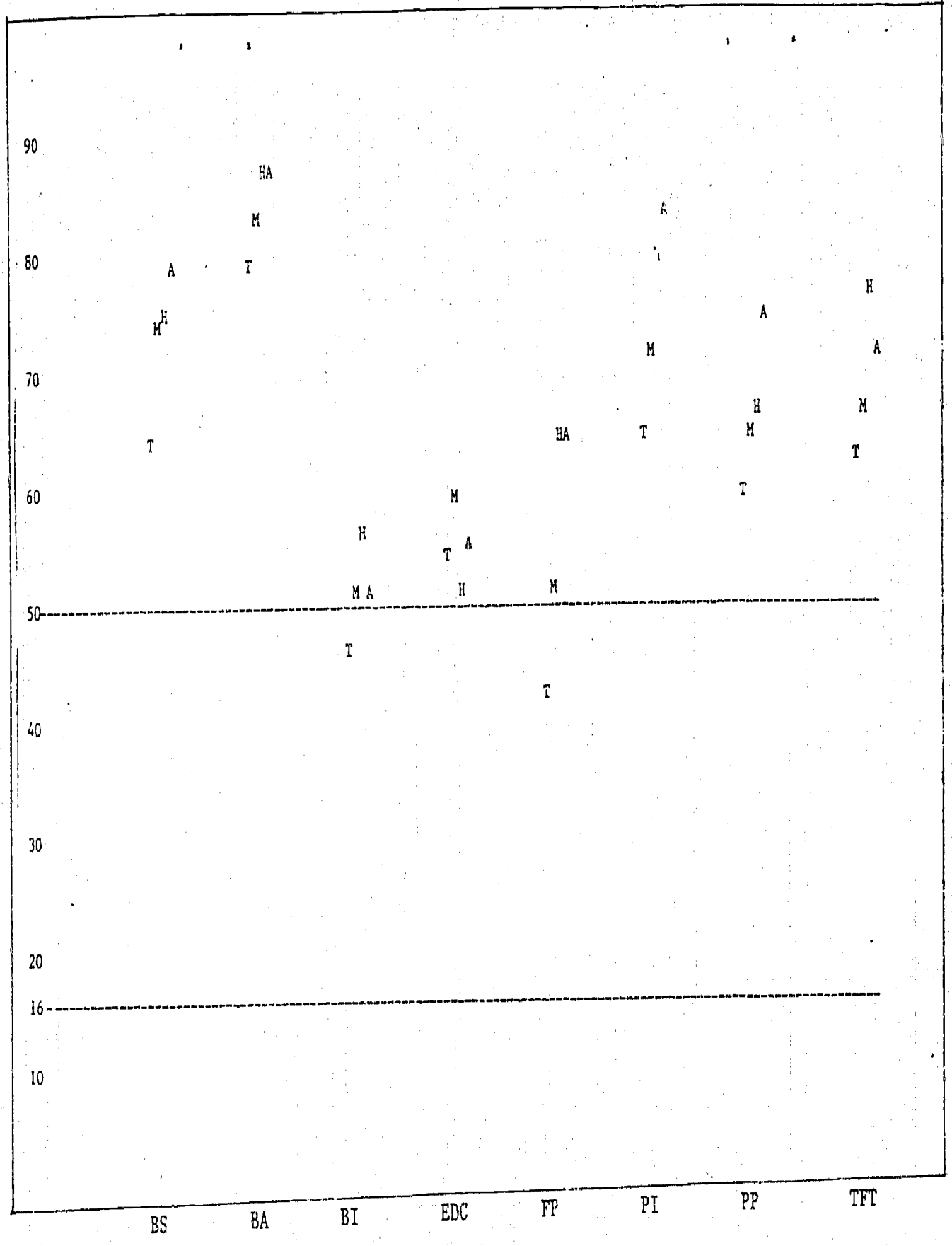

Figure B3 National Pupil Percentile Ranks Cooresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade One.

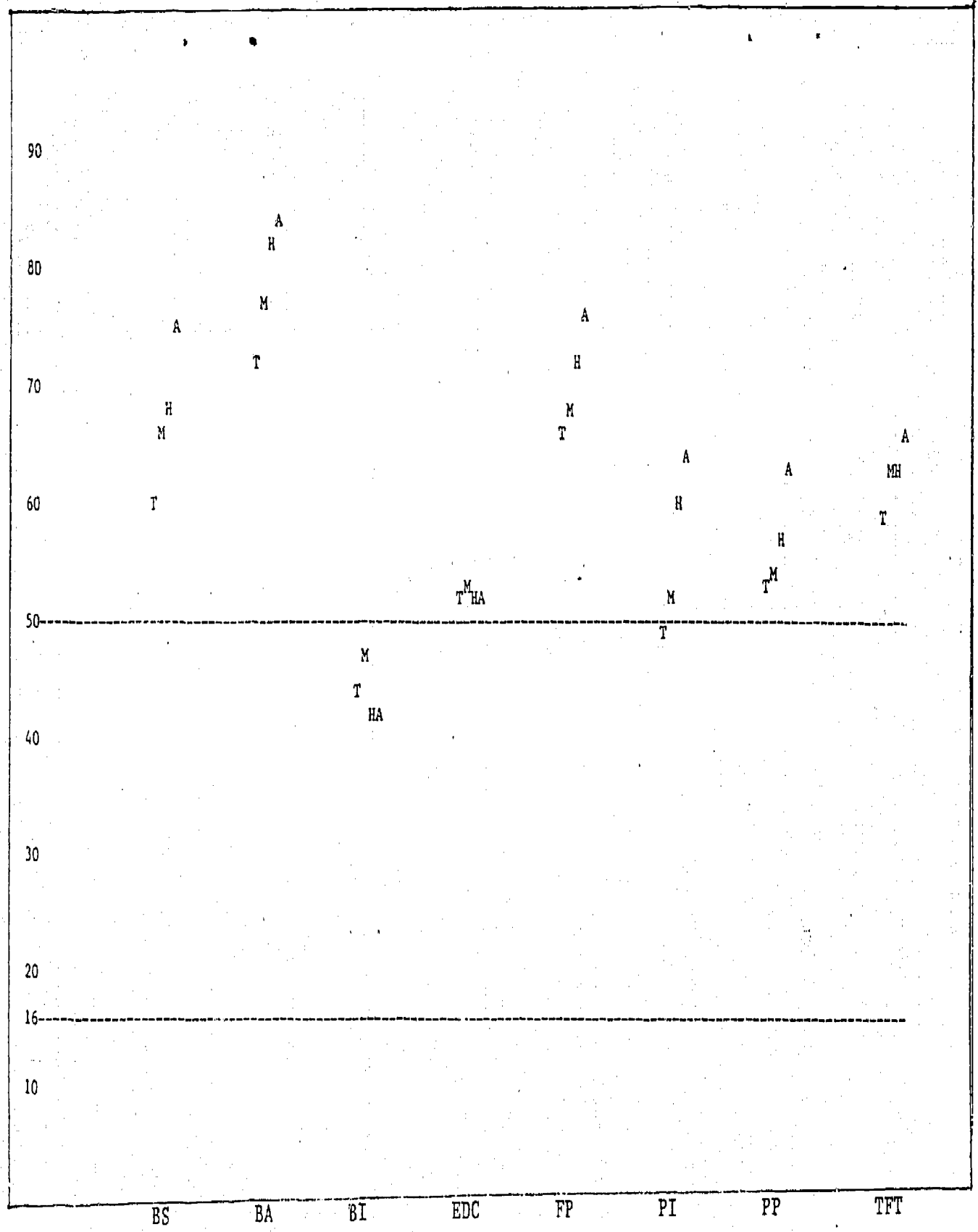

Figure B4 :National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade One.

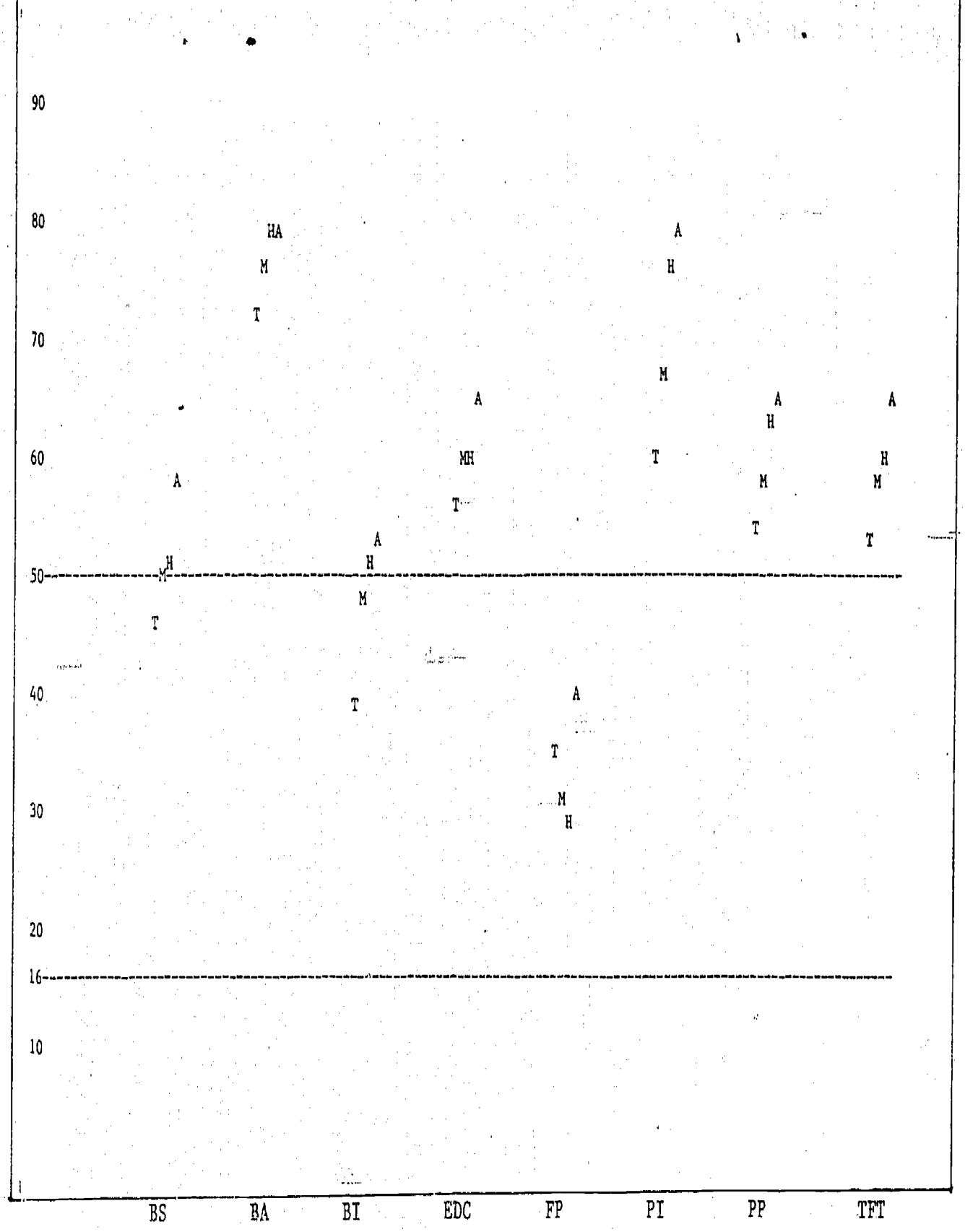

Figure B5: National Pupil Percentile Ranks Corresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Two.

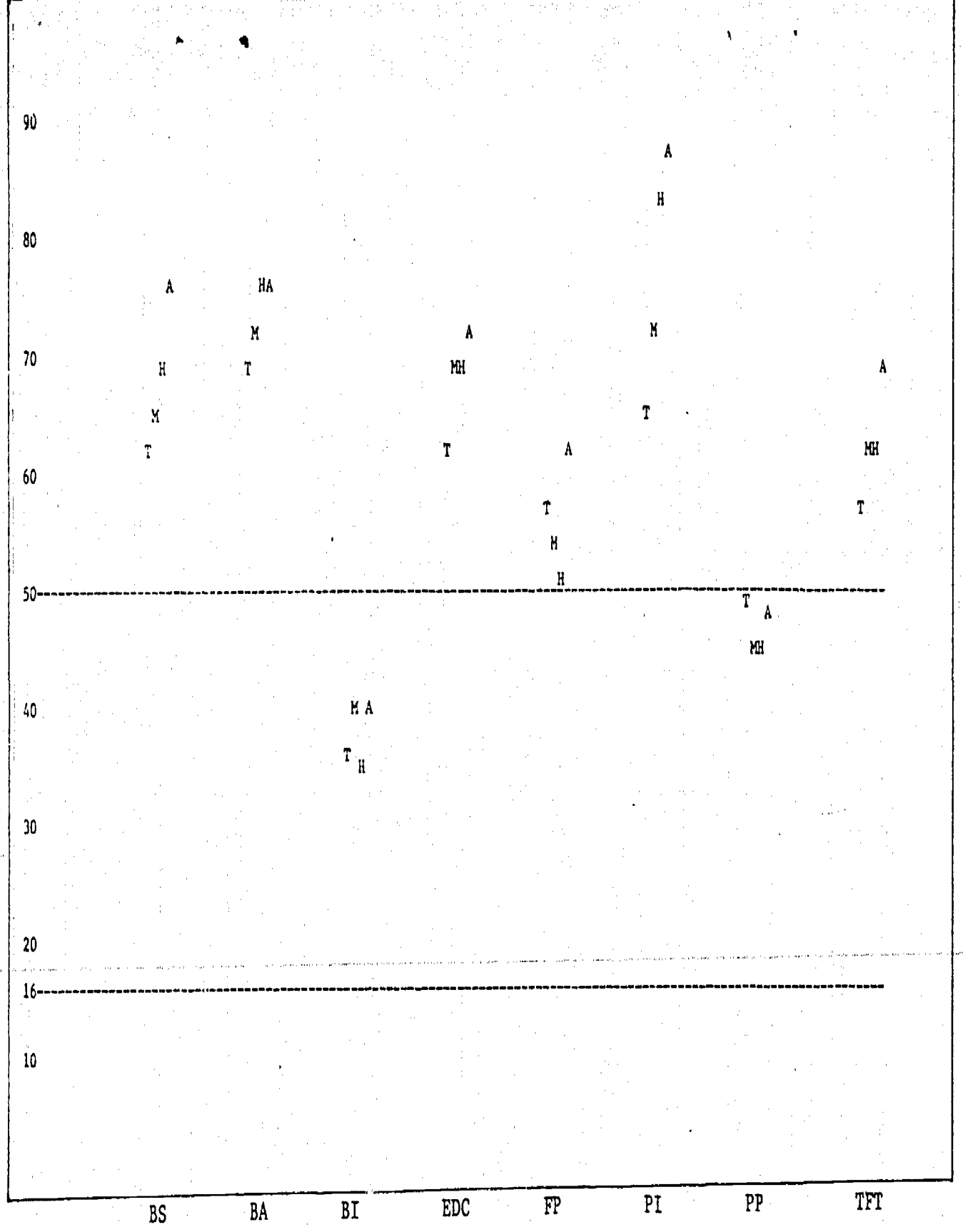

Figure B6: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groups (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Two.

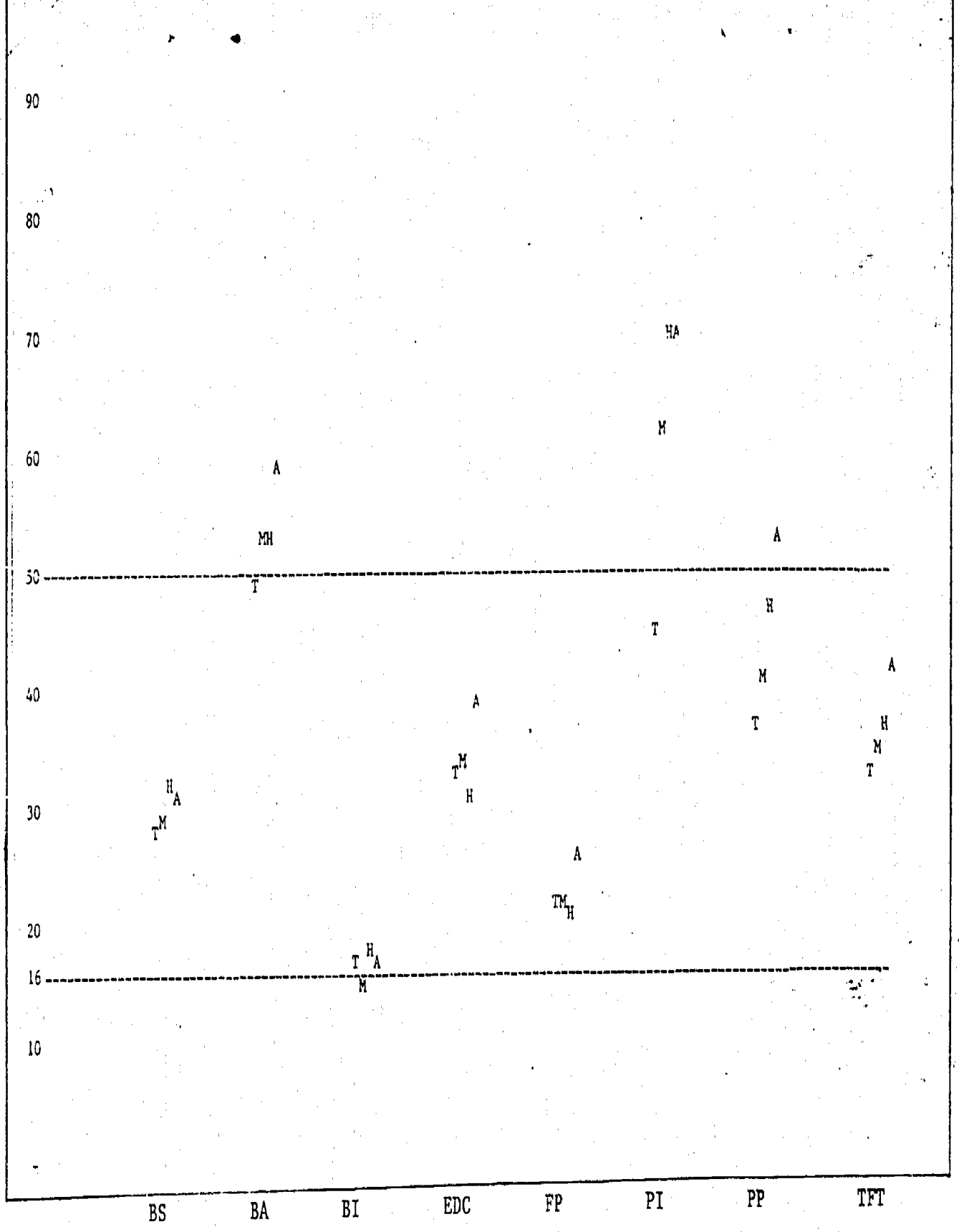

Figure B7: National Pupil Percentile Ranks Coresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Three.

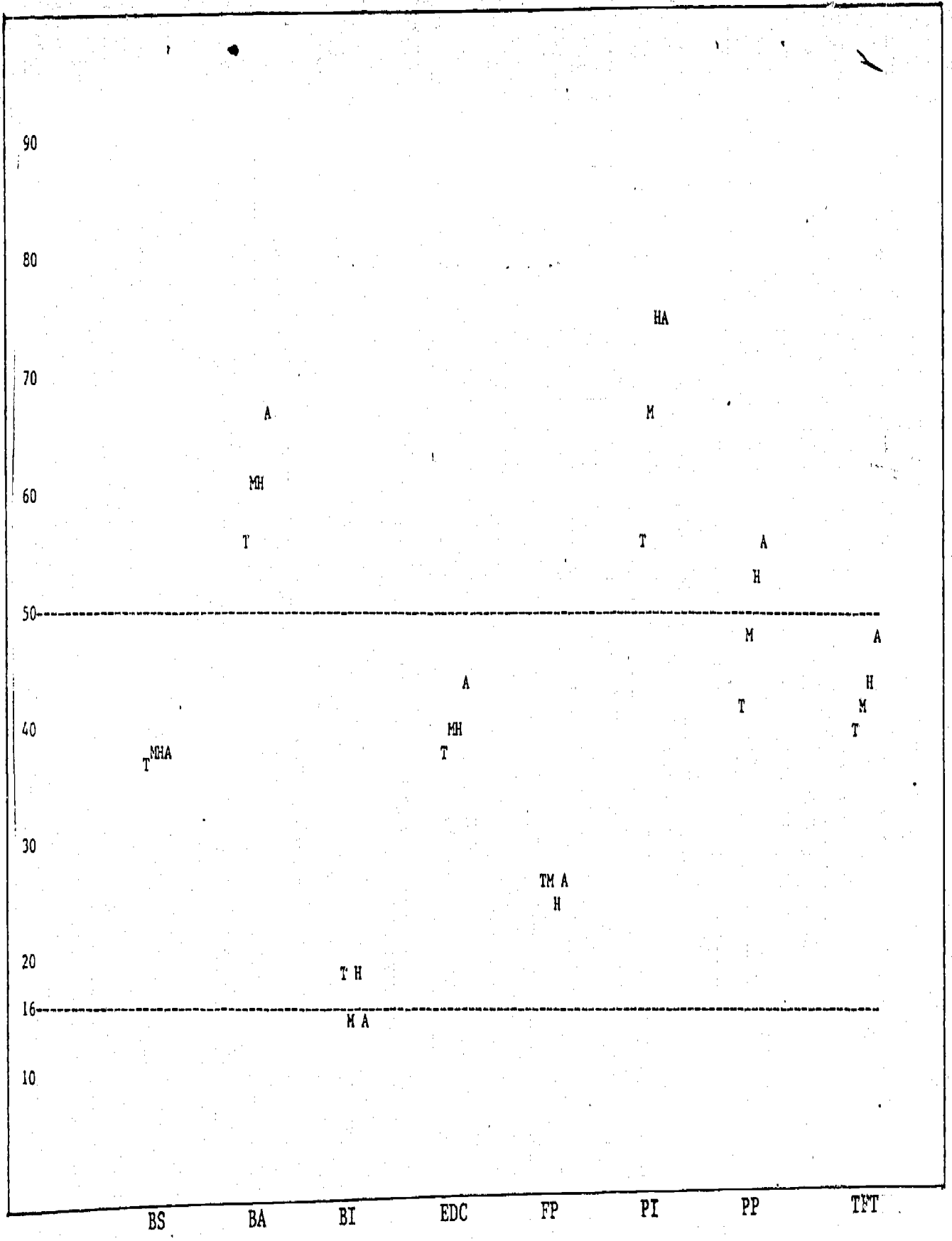

Figure B8: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Three.

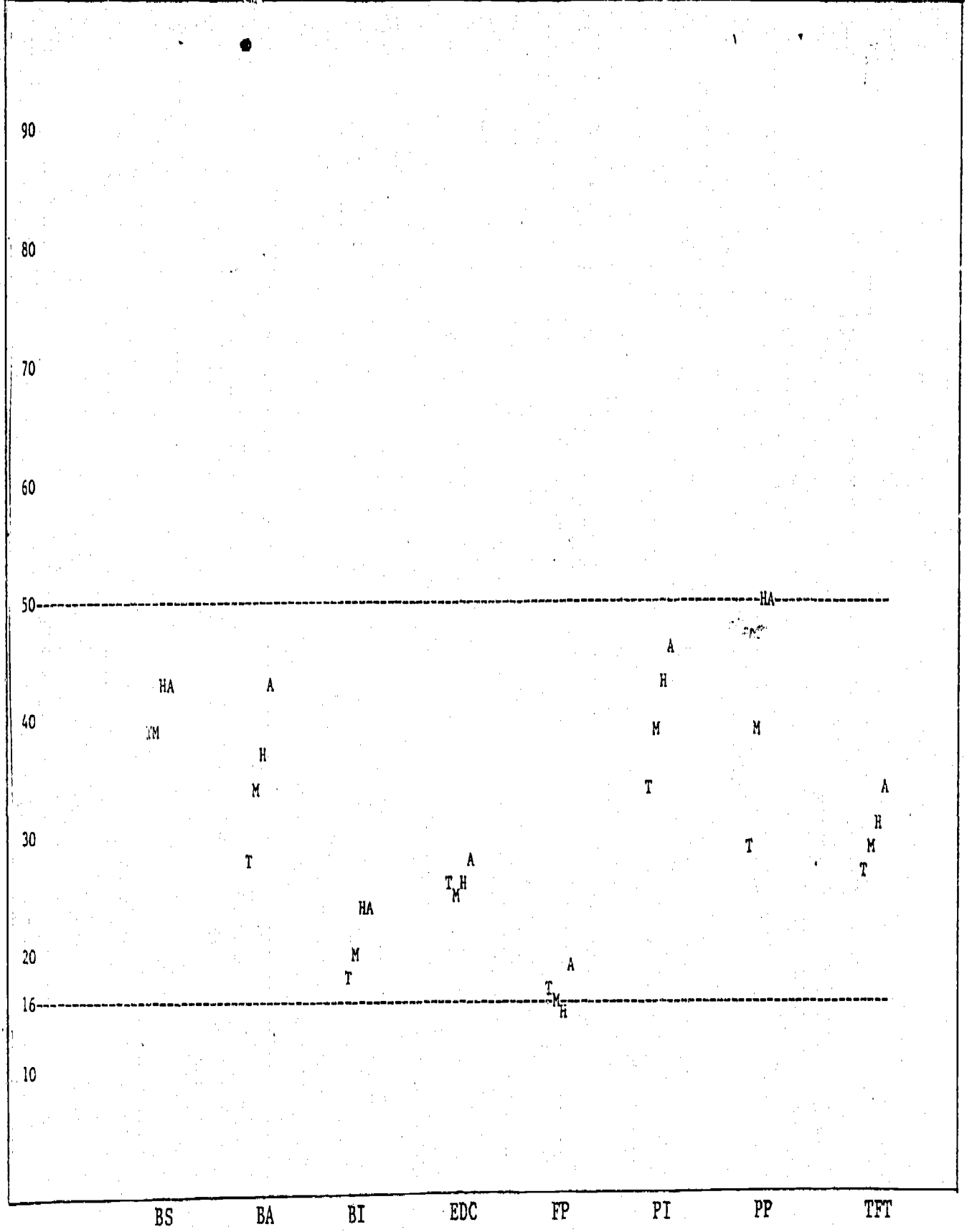

Figure B9: National Pupil Percentile Ranks Corresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Four.

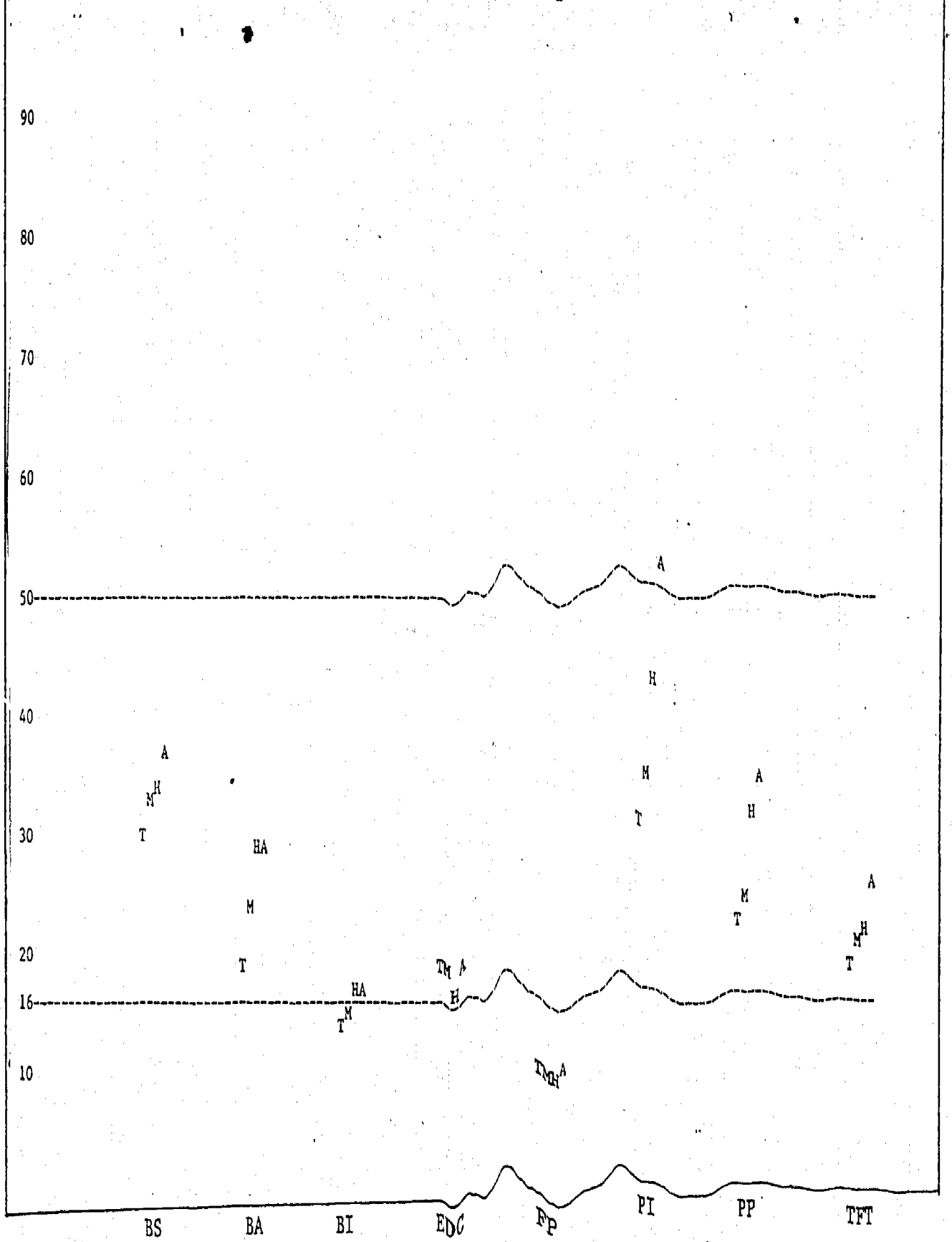

Figure B10: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Four.

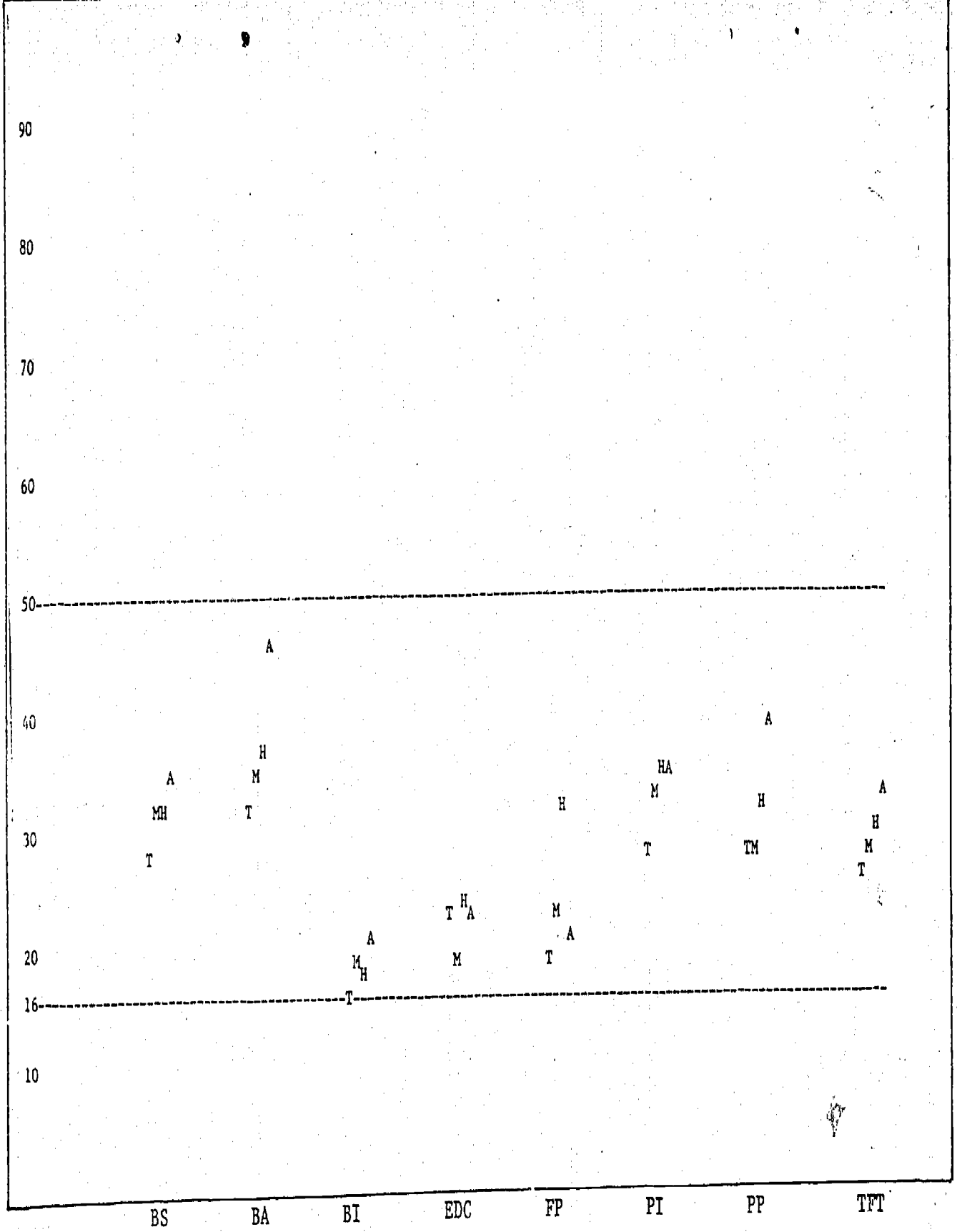

Figure B11: National Pupil Percentile Ranks Corresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Five.

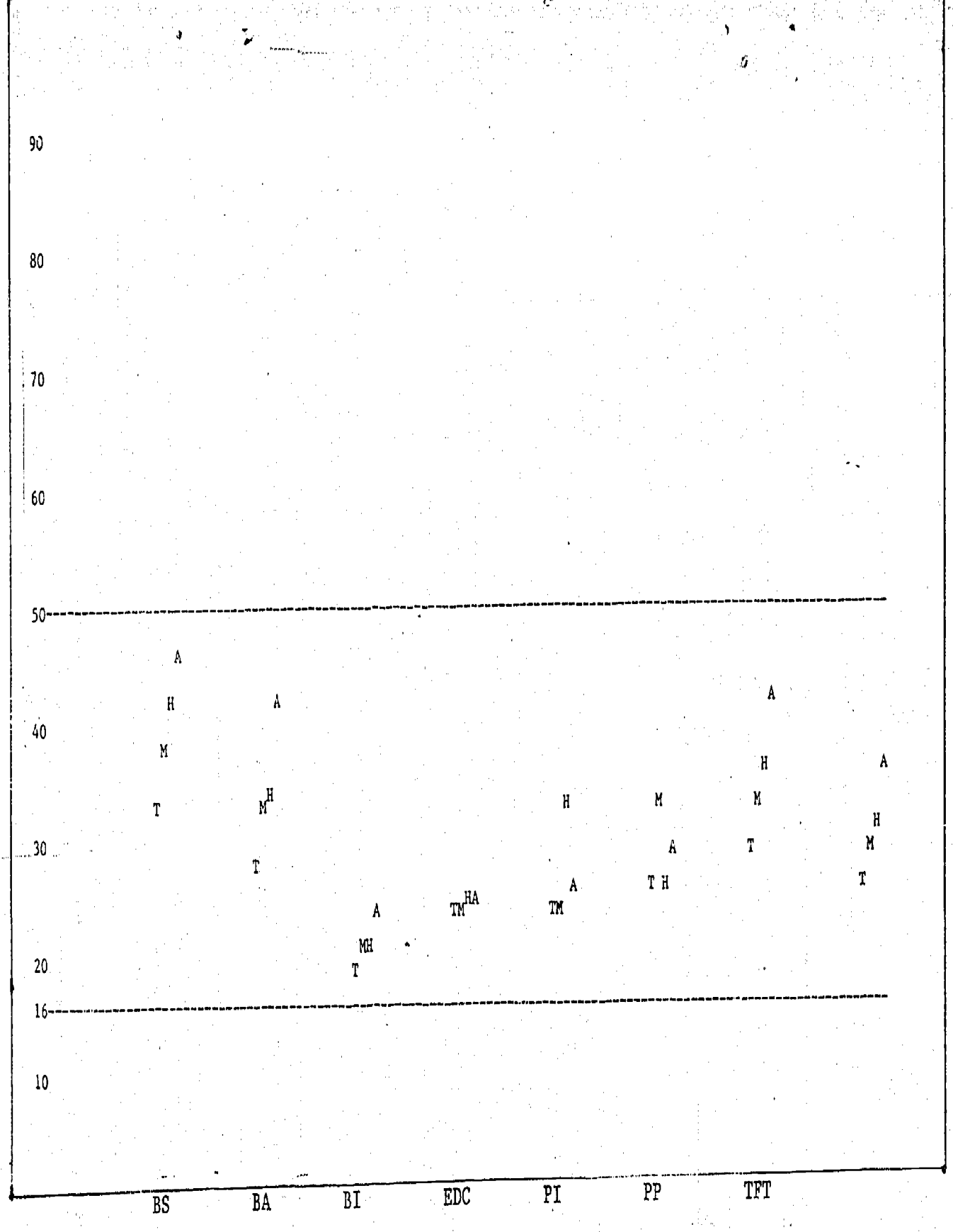

Figure B12: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selecetd Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Five.

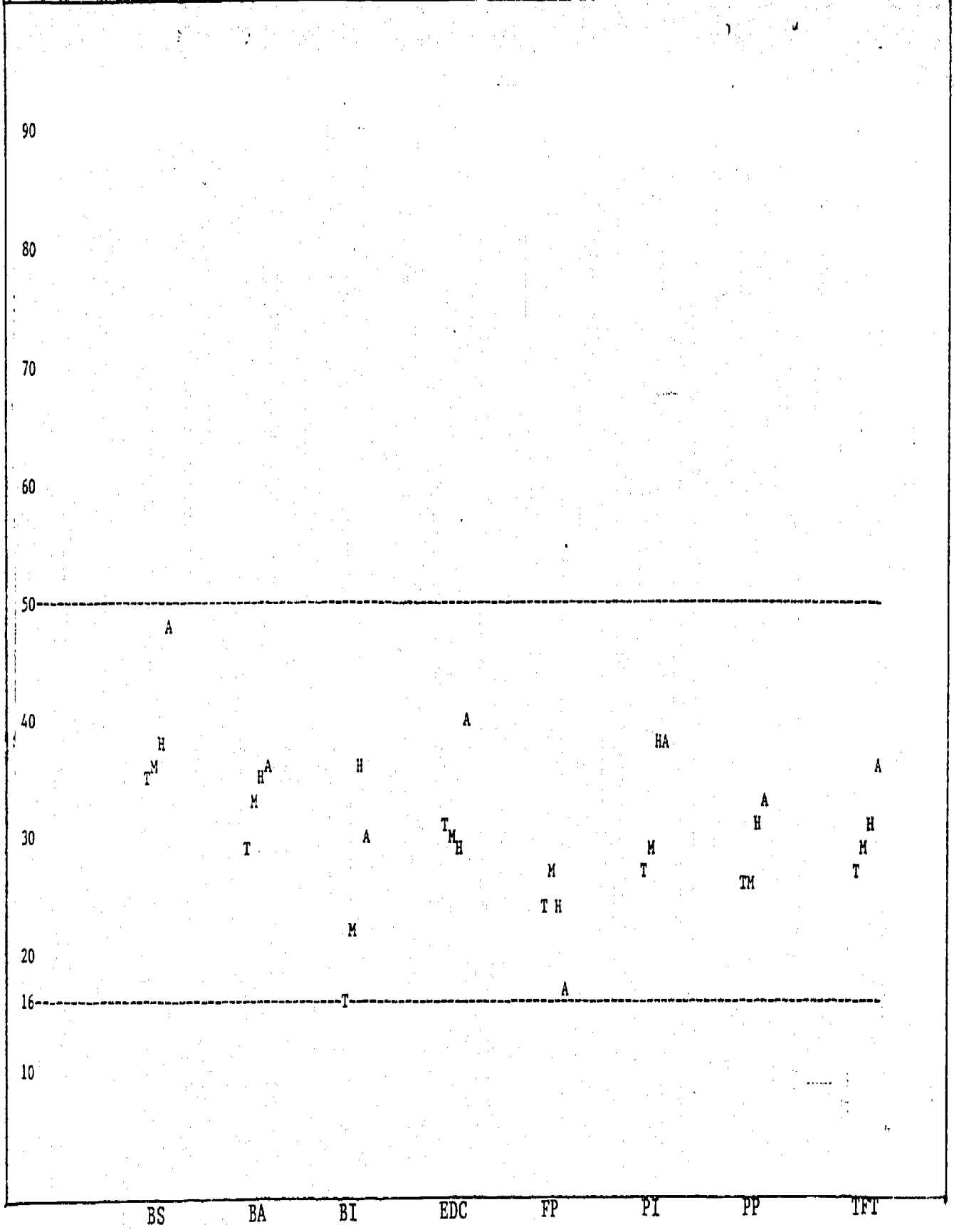

Figure B13: National Pupil Percentile Ranks Corresponding to Mean Reading Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days Absence), for Follow Through Models amd Total Program in Grade Six.

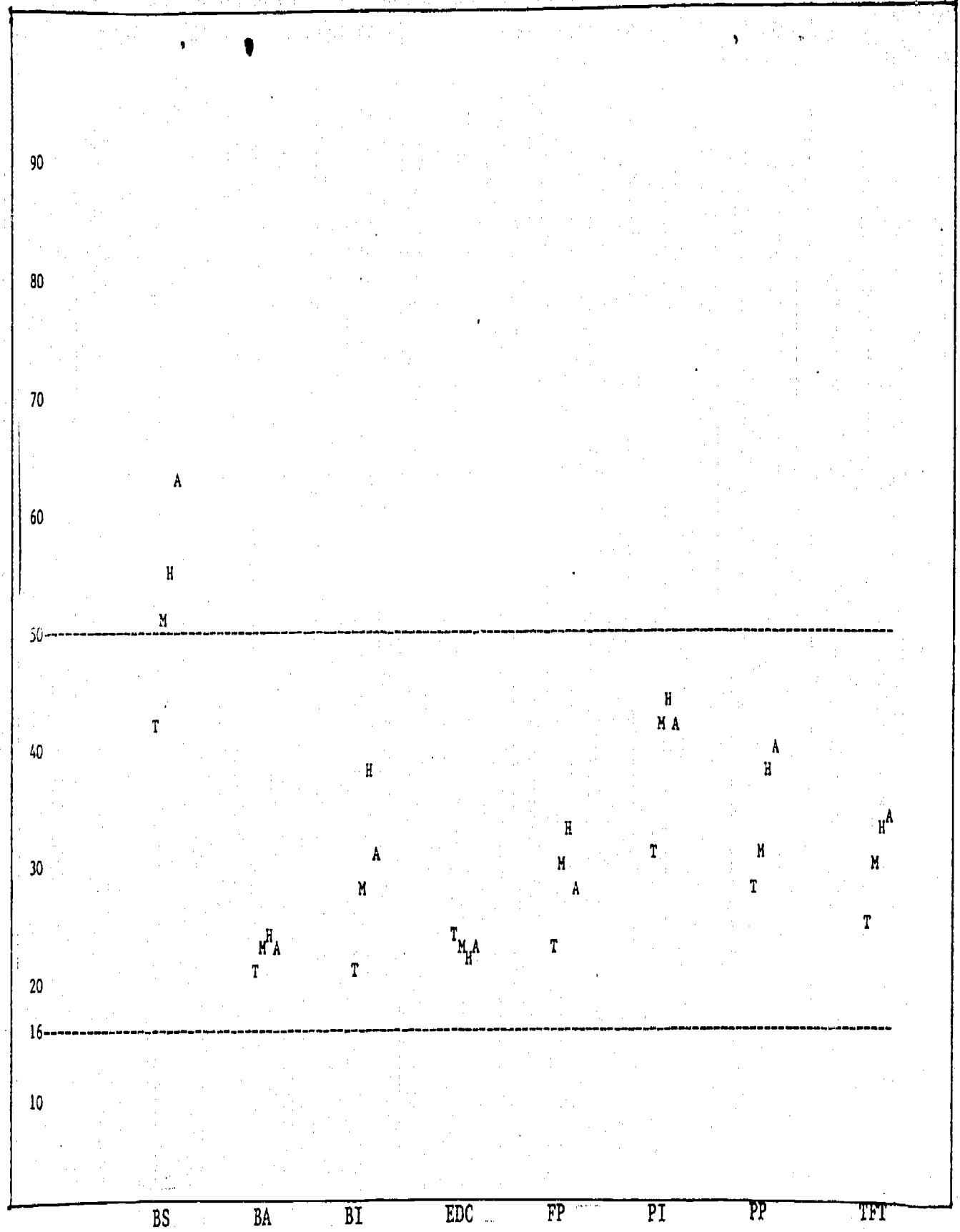

Figure B14: National Pupil Percentile Ranks Corresponding to Mean Mathematics Scores for Selected Quasi-Longitudinal Groupings (T = Total Group; M = Maximum Exposure Group; H = Maximum Exposure Group with Prior Head Start; A = Maximum Exposure Group with Prior Head Start and Fewer Than Sixteen Days' Absence), for Follow Through Models and Total Program in Grade Six.

Table C-1: Basic Comparison Data for Bank Street Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX, HS	89	0	92	75	4	71	51	10	53	32	35	28	43	12	37	32	18	28	38	21	31
MAX, NHS	77	9	84	71	6	70	46	14	49	25	39	27	39	21	37	33	18	25	35	33	38
MAX	80	4	88	74	6	71	50	11	52	29	37	28	39	18	37	32	18	27	36	26	34
TOT	80	4	83	64	10	58	46	17	48	28	35	26	39	20	37	28	25	23	35	25	32
MAX,≤15 ABS	89	2	91	83	0	82	54	9	57	28	37	21	43	16	40	37	10	32	52	30	45
MAX,15+ ABS	80	5	87	56	13	55	39	17	41	34	33	33	32	15	25	24	30	17	16	57	14

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	72	12	73	68	7	61	69	8	62	38	27	36	34	21	40	42	14	40	55	10	52
MAX,NHS	58	13	61	66	5	70	62	8	62	38	26	43	30	22	28	34	29	32	42	29	43
MAX	64	13	67	66	5	67	65	8	62	38	26	39	33	22	33	38	21	36	51	18	48
TOT	64	10	70	60	8	59	62	10	54	37	27	38	30	28	32	33	29	33	42	22	43
MAX,≤15 ABS	72	9	74	76	0	82	72	6	66	40	25	41	34	19	33	44	16	41	65	3	61
MAX,15+ ABS	58	14	64	52	13	45	54	10	59	35	30	35	27	22	28	31	22	35	19	43	0

Table C-2: Basic Comparison Data for Behavior Analysis Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	89	1	93	87	0	82	79	5	76	53	14	48	37	19	38	37	22	38	35	27	39
MAX,NHS	77	5	81	79	3	72	76	3	79	56	14	51	34	20	35	35	24	33	31	25	25
MAX	80	4	86	83	2	75	76	4	78	53	14	39	34	20	36	35	23	36	33	26	31
TOT	80	4	81	79	4	71	72	7	75	49	18	43	28	28	28	32	27	32	29	32	26
MAX,≤15ABS	86	3	92	87	0	79	79	4	80	59	9	55	39	15	41	41	20	45	36	22	33
MAX,15+ABS	80	4	83	79	4	72	73	4	74	34	32	35	31	24	27	26	33	18	22	44	22

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	72	4	76	84	2	82	76	2	83	61	14	67	29	25	31	34	27	28	24	35	19
MAX,NHS	50	15	57	76	4	74	65	5	70	61	12	64	21	41	21	31	33	26	22	36	15
MAX	64	10	65	79	3	77	72	4	75	61	13	66	24	35	25	33	30	27	23	36	16
TOT	58	12	64	74	8	71	69	6	69	56	16	59	19	43	19	28	37	25	21	41	15
MAX,≤15ABS	64	4	72	83	2	87	72	4	77	67	7	73	26	32	25	38	29	35	24	31	19
MAX,15+ABS	58	13	61	74	5	65	69	4	72	41	31	47	23	39	25	25	32	13	15	50	6

Table C-3:Basic Comparison Data for Bilingual Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparion Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	68	7	77	56	21	64	51	5	51	18	58	15	24	43	20	18	52	17	36	23	32
MAX,NHS	54	15	55	49	10	44	46	20	53	11	57	7	18	47	18	19	50	16	16	48	15
MAX	62	12	64	51	14	52	48	14	52	15	57	11	20	45	19	19	51	16	22	38	22
TOT	62	12	59	46	20	42	39	23	39	17	53	7	18	48	17	16	56	13	16	50	11
MAX,≤15 ABS	68	6	77	49	16	52	51	10	58	17	51	14	17	48	16	24	49	22	30	21	25
MAX,15+ ABS	54	14	56	54	12	52	40	21	43	14	58	9	18	50	15	15	53	15	14	71	12

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	58	12	49	42	22	44	35	28	35	19	45	18	17	50	19	21	40	11	38	18	27
MAX,NHS	44	25	43	49	16	47	41	29	52	13	48	7	14	47	15	21	38	19	23	42	29
MAX	44	20	45	47	18	46	40	28	45	15	47	12	15	48	17	21	39	15	28	32	28
TOT	44	20	46	44	20	42	36	27	36	19	44	16	14	52	14	19	47	14	21	44	18
MAX,≤15 ABS	58	11	54	43	14	45	43	24	49	19	38	16	14	52	12	25	31	28	36	17	38
MAX,15+ ABS	44	28	41	47	23	46	30	39	35	14	52	9	13	52	10	14	49	2	16	67	13

Table C-4: Basic Comparison Data for EDC Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	77	5	82	51	8	39	60	12	67	31	34	30	26	39	23	24	41	21	29	34	30
MAX,NHS	80	6	89	64	5	62	58	9	67	39	26	35	22	50	19	15	57	11	33	30	26
MAX	77	5	86	59	6	52	60	11	67	34	32	32	25	43	21	19	49	16	30	32	28
TOT	77	5	81	54	12	50	56	11	56	33	33	29	26	38	27	23	44	20	31	28	28
MAX,≤15 ABS	86	4	92	59	5	56	67	6	73	42	22	37	27	41	25	19	49	17	35	29	43
MAX,15+ ABS	72	6	82	54	9	43	46	18	55	15	59	15	14	64	11	14	63	4	31	24	29

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	64	9	65	52	16	50	69	7	68	40	27	39	17	48	22	25	38	17	22	36	15
MAX,NHS	58	11	59	54	12	54	69	4	74	44	24	43	22	43	28	22	46	15	27	40	21
MAX	58	10	61	53	14	52	69	6	70	40	26	40	19	46	24	24	42	16	23	37	17
TOT	58	11	60	52	13	48	62	10	59	38	26	37	19	45	26	24	39	19	24	40	19
MAX,≤15 ABS	64	8	71	52	14	52	72	4	71	47	21	46	31	24	34	25	41	19	38	33	9
MAX,15+ ABS	58	10	56	54	13	56	62	8	69	27	39	24	12	50	11	15	56	0	19	45	15

Table C-5:Basic Comparison Data for Florida Parent Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	92	0	97	64	13	73	29	23	23	21	31	4	15	47	21	32	41	27	24	35	6
MAX,NHS	86	4	94	46	16	45	35	29	32	24	38	22	18	42	11	16	46	12	30	35	20
MAX	89	3	95	51	15	51	31	26	28	22	35	14	16	45	16	23	44	19	27	35	14
TOT	86	4	87	42	21	38	35	21	29	22	36	13	17	48	17	19	45	15	24	37	13
MAX,≤15 ABS	86	0	100	49	9	52	39	15	33	28	32	15	18	42	14	15	48	5	24	38	13
MAX,15+ ABS	86	2	94	51	24	47	21	40	20	17	40	16	14	44	15	24	53	24	21	46	8

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	92	0	87	72	7	67	51	10	45	25	37	15	10	64	13	33	19	33	33	24	35
MAX,NHS	72	6	75	68	9	69	54	11	48	30	30	22	10	68	8	17	42	15	27	43	19
MAX	80	4	79	68	9	67	54	11	46	27	33	19	10	66	11	24	32	23	30	34	26
TOT	76	5	76	66	11	60	57	10	51	27	34	21	10	65	12	24	42	22	23	44	18
MAX,≤15 ABS	80	0	82	71	6	72	57	9	52	31	32	24	10	67	11	21	30	20	28	38	25
MAX,15+ ABS	76	6	76	68	12	64	43	11	33	34	35	15	8	67	7	16	47	6	28	31	23

Table C-6: Basic Comparison Data for Parent Implemented Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below 16th National Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	86	5	86	79	4	79	76	0	77	70	0	50	43	18	47	35	17	25	38	13	38
MAX,NHS	77	0	85	62	6	44	56	11	50	56	17	50	37	26	37	32	30	35	20	27	7
MAX	80	2	85	71	5	64	67	5	66	62	8	50	39	22	42	33	23	30	29	19	23
TOT	80	2	83	64	10	53	60	9	55	45	19	32	34	27	33	28	33	24	27	29	23
MAX,≤15 ABS	77	0	86	75	7	71	79	0	77	62	0	44	43	19	50	35	19	30	26	27	18
MAX,15+ ABS	80	3	85	64	0	50	36	17	42	62	33	67	31	33	22	30	25	25	22	0	0

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	64	0	71	60	0	65	83	4	77	75	0	83	42	18	35	26	22	9	44	13	44
MAX,NHS	50	18	64	42	11	33	54	17	39	56	0	50	29	37	16	41	10	25	33	13	27
MAX	58	10	67	52	5	52	72	9	61	67	0	67	34	28	25	33	16	16	42	13	35
TOT	58	11	66	49	8	47	65	9	57	56	10	60	30	33	28	26	27	14	31	27	30
MAX,≤15 ABS	64	0	71	59	0	62	83	3	77	65	0	67	42	19	35	33	15	19	34	18	32
MAX,15+ ABS	58	12	66	39	13	33	33	25	25	70	0	67	19	44	0	24	17	0	25	0	0

Table C-7: Basic Comparison Data for Philadelphia Process Model (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	72	5	83	66	3	75	63	5	73	47	18	55	50	19	45	32	28	31	31	26	26
MAX,NHS	62	11	63	59	6	67	53	11	56	37	29	42	34	24	39	26	29	12	21	30	12
MAX	68	8	74	64	5	72	58	8	65	41	25	47	39	20	41	28	29	21	26	28	19
TOT	68	6	69	59	6	62	54	13	61	37	29	38	29	26	28	28	31	21	26	28	20
MAX,≤15 ABS	68	9	74	66	4	78	62	8	64	47	18	56	43	18	44	32	24	26	29	26	17
MAX,15+ ABS	68	6	74	59	6	59	53	9	69	21	42	21	28	30	33	23	31	12	22	22	17

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	58	10	68	57	5	62	45	16	44	53	13	55	31	27	37	36	30	38	38	24	30
MAX,NHS	44	25	42	47	21	44	43	26	45	44	23	45	22	33	23	31	25	31	25	30	22
MAX	50	18	55	54	12	54	45	21	45	48	19	49	24	31	27	33	27	34	31	27	26
TOT	50	17	53	53	15	52	49	22	43	42	24	44	22	35	21	29	31	28	28	28	24
MAX,≤15 ABS	58	9	57	54	12	59	48	20	49	53	16	56	31	24	34	38	22	40	36	24	33
MAX,15+ ABS	50	18	55	49	13	47	38	19	35	31	32	26	12	50	11	22	42	25	22	39	11

Table C-8: Basic Comparison Data for Total Follow Through (1974 - 1975): Percentile Rank Corresponding to Mean (PR), Percent Below National 16th Percentile (16), Percent At or Above National 50th Percentile (50); for Reading and Mathematics, by Grade and by Comparison Grouping.

A. Reading

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	80	3	87	76	6	68	60	9	62	37	29	34	31	29	30	30	31	28	31	27	30
MAX,NHS	72	7	79	66	7	62	57	12	60	34	31	34	29	31	29	26	35	21	26	32	21
MAX	77	5	83	66	7	64	58	10	61	35	30	34	29	30	30	28	33	24	29	30	25
TOT	77	5	78	62	10	56	53	14	55	33	32	29	27	33	27	26	36	22	27	32	22
MAX,≤15 ABS	80	4	88	71	4	70	65	7	66	42	24	39	34	26	34	32	28	29	33	23	30
MAX,15+ ABS	77	6	80	62	9	57	50	15	64	21	45	22	23	37	22	21	43	15	21	41	18

B. Mathematics

	Grade K			Grade 1			Grade 2			Grade 3			Grade 4			Grade 5			Grade 6		
	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50	PR	16	50
MAX,HS	64	8	70	63	8	62	62	10	61	44	24	44	22	39	27	31	28	26	33	27	27
MAX,NHS	50	16	57	63	10	60	57	14	59	41	24	42	20	40	21	28	33	24	25	35	23
MAX	58	12	62	63	9	61	62	12	60	42	24	43	21	39	23	29	31	25	30	31	25
TOT	58	12	62	59	12	56	57	14	53	40	26	40	19	43	21	26	36	23	25	36	22
MAX,≤15 ABS	64	7	69	66	7	67	65	10	64	48	19	50	24	35	27	32	27	32	34	24	30
MAX,15+ ABS	58	14	59	57	13	53	51	14	54	29	37	27	15	50	15	20	40	11	19	46	12