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ABSTRACT

The Educational Testing Service evaluated the Sesame Street educational television series to determine the extent to which it accomplished its stated objectives during its first year. Research results showed that Sesame Street benefited children from low-income inner-city areas and isolated rural areas as well as children from middle-class suburbs. Children who watched most frequently learned the most and this held true across age, sex, geographical location, socioeconomic status, mental age, and viewing location. It was also found that the skills given the most time and attention on the program were the skills learned best. Three-year-old children gained the most from watching the program, and disadvantaged children who watched a great deal surpassed middle-class children who watched only a little. Sesame Street was less successful in promoting some of its goals due to an initial underestimate or overestimate of children's prior knowledge. (CH)

A SUMMARY OF THE MAJOR FINDINGS IN " THE FIRST YEAR OF SESAME STREET: AN EVALUATION "

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BACKGROUND

In the summer of 1968, the Children's Television Workshop (CTW) began planning its Sesame Street program. All concerned recognized that the plans should provide for an independent evaluation of the program's impact. CTW asked Educational Testing Service (ETS) -- a nonprofit educational measurement and research organization in Princeton, New Jersey -- to conduct an evaluation to determine the extent to which Sesame Street accomplished its stated objectives during its first year on television.

Among the questions the research tried to answer are these:

What, overall, is the impact of Sesame Street?

What are the moderating effects of age, sex, prior achievement level, and socioeconomic status (SES), on the impact of Sesame Street?

Do children at home watching Sesame Street benefit in comparison with children at home who do not watch it?

Do children in preschool classrooms benefit from watching Sesame Street as part of their school curriculum?

Do children from Spanish-speaking homes benefit from Sesame Street?

What are the effects of home background conditions on the impact of Sesame Street?

The Children's Television Workshop's innovative educational program received substantial support from both public and private agencies. The original agencies included the Carnegie Corporation of New York, the Ford Foundation, the National Center for Educational Research and Development in the U.S. Office of Education, the U.S. Office of Economic Opportunity, and the National Institute of Child Health and Human Development. Other agencies that subsequently provided support included the Corporation for Public Broad-

casting, the National Foundation of Arts and Humanities, and the John & Mary R. Markle Foundation.

The results of ETS's research study are described in detail in the report entitled "THE FIRST YEAR OF SESAME STREET: AN EVALUATION." This Summary brings together a few of the major findings in the full report.

HIGHLIGHTS OF THE FINDINGS

In its first season of 26 weeks, Sesame Street showed that television can be an effective medium for teaching 3-to-5-year-old children important simple facts and skills, such as recognizing and labeling letters and numerals, and more complex higher cognitive skills, such as classifying and sorting by a variety of criteria. The ETS research results reveal that Sesame Street benefits children from disadvantaged inner-city communities, middle-class suburbs, and isolated rural areas -- all the groups studied in this evaluation.

The potential of educational television as a teaching medium is suggested by three primary findings of the research:

First, children who watched the most learned the most. The amount of learning that took place -- that is, the gains a child showed between being tested for certain skills before watching Sesame Street and being tested for the same skills after -- increased in relation to the amount of time the child watched the program.

Second, the skills that received the most time and attention on the program itself were, with rare exceptions, the skills that were best learned. An analysis of the content of the show revealed, for example, that more time (13.9 percent) was devoted to letter-related skills than to any other single subject; it was in the areas of letters and numbers that the children's gains were the most dramatic. In addition to acquiring skills that were directly and deliberately taught, it appears that there was some transfer of learning, that some children learned to do things -- such as recognize full words or write their own names -- which were not taught on the program.

Third, the program did not require formal adult supervision in order for children to learn in the areas the program covers. Children viewing Sesame Street at home showed gains as great as, and in some cases greater than, children who watched in school under the supervision of a teacher. This finding has special significance in light of the fact that more than four-fifths of all children 3 and 4 years of age do not attend any kind of school, and more than a quarter of all 5-year-olds do not.

The major finding -- that children learned more the more they watch -- holds true across age, sex, geographical location, socioeconomic status (SES), mental age (intelligence), and whether children watched at home or at school. In all eight goal areas in which the children were tested, gains in learning increased steadily with amount of viewing. Gains were greater on certain tests and subtests, however, and some groups of children showed greater gains than others.

The 3-year-old children gained the most; 5-year-olds gained the least. That is, 3-year-old children who viewed the show a great deal had higher attainments at posttest than those 4- and 5-year-olds who viewed the show less, even though the younger children scored lower at pretest than the older children. This finding has important implications for education in general, for it suggests that 3-year-old children are able to learn many skills that have traditionally been introduced at later ages.

A similar phenomenon appeared with advantaged and disadvantaged children. Although the disadvantaged children started out with considerably lower achievement scores on the skills being taught, those who watched a great deal surpassed the middle class children who watched only a little. It thus appears that such television programs can reduce the distinct

educational gap that usually separates advantaged and disadvantaged children even by the time they enter first grade.

An extremely provocative, although highly tentative, finding suggests that Sesame Street may be particularly effective for teaching some skills to children whose first language is not English and who do not test well or perform well in school. A very small sample of children from Spanish-speaking homes in the Southwest made more spectacular gains than any other subgroup of children.

Sesame Street was more successful in promoting certain of its educational goals than others. The research suggests why, and provides clues for improving the programming. It appears that in some cases the relative lack of success resulted from an initial underestimation of children's prior knowledge and skills, and in other cases from an initial overstatement of prior knowledge. It was also found that learning was greater when skills were presented in direct fashion (as letters were) rather than indirectly (as initial sounds were).

THE SAMPLE AND THE TESTS

Approximately 1,200 children were originally selected from five different locales: Boston, Massachusetts; Durham, North Carolina; Philadelphia, Pennsylvania; Phoenix, Arizona; and a rural area in the Northeastern part of California. The sample, which finally numbered 943, included disadvantaged children from the inner city, advantaged children from suburban areas, children from rural areas, and disadvantaged Spanish-speaking children. Overall, the research sample included more boys than girls and more lower class than middle class children. More of the disadvantaged were black than white; most

of the children were 4 years old, although some were 3 and some were 5; and more of the sample's children viewed Sesame Street at home than at school.

The producers of Sesame Street established specific educational goals for the program. Measurement instruments, all developed by ETS specifically for this evaluation, were used to assess progress toward those goals and "transfer of learning" effects. The eight major tests and their subtests were:

BODY PARTS TEST
- Pointing to Body Parts
- Naming Body Parts
- Function of Body Parts (Point)
- Function of Body Parts (Verbal)

LETTERS TEST
- Recognizing Letters
- Naming Capital Letters
- Naming Lower Case Letters
- Matching Letters in Words
- Recognizing Letters in Words
- Initial Sounds
- Reading Words

FORMS TEST
- Recognizing Forms
- Naming Forms

NUMBERS TEST
- Recognizing Numbers
- Naming Numbers
- Numerosity (See sample Item 2.)
- Counting
- Addition and Subtraction

(Matching Subtest for letters, numbers, and forms)

RELATIONAL TERMS TEST
- Amount Relationships
- Size Relationships
- Position Relationships (See sample Item 5.)

SORTING SKILLS TEST

CLASSIFICATION SKILLS TEST (See sample Item 6.)
- Classification by Size
- Classification by Form
- Classification by Number
- Classification by Function

PUZZLES TEST

All of the tests followed the same basic format. The test materials were simple and were administered to the children individually by a trained adult from the child's neighborhood. Information was also collected on each child's home background and on how much he watched Sesame Street during the season.

The group of 943 children was divided into quartiles according to how much they had watched Sesame Street during the course of the study. All subsequent analyses were based on these quartiles. They ranged from Q1, in which children watched Sesame Street rarely or never, through Q4, in which children watched the program an average of more than five times a week. (Sesame Street was so popular that there were few true nonviewers; many children in Q1 watched the program occasionally.)

OVERALL RESULTS

For the sample as a whole, children in the highest viewing quartiles performed better on all the tests than children in the lowest quartiles. Children who watched the most (Q4) had the highest pretest scores (that is, they started out ahead), had the highest posttest scores, and gained the most from pretest to posttest. The general tendency -- to gain more with more viewing -- was greater on some tests than on others, however. It was especially pronounced on the Letters, Numbers, and Classification tests; it was least marked on the Body Parts Test.

DISADVANTAGED CHILDREN

Of the total sample of 943 children, 731 were considered to be from disadvantaged backgrounds. For them as for the total group, gain scores increased in relation to the amount they viewed Sesame Street.

In terms of the grand total score for the 203 test items common to both pretest and posttest, Q1 children gained 19 points, Q2 children gained 29 points, Q3 children gained 38 points, and Q4 children gained 47 points. (See Table 11 and Figure 2a.) Some of the gains made by Q1 children are assumed to be largely a function of maturation, since many of them never watched the show. However, the greater gains of children in other quartiles are largely a function of their viewing frequency. The same sort of relationship was observed among the separate totals for all of the eight major tests. The greatest gains were in the Letters, Numbers, and Classification tests. (See Table 11 and Figures 2b, 2c, 2d, and 2e.)

Complex statistical analyses were conducted to determine whether the observed differences could have occurred by chance, were significantly affected by other factors, or were -- as they appeared to be -- largely a function of amount of viewing. (See full report for description of statistical techniques used.) Amount of viewing proved to be by far the most important variable -- that is, its effect was equally felt irrespective of sex and whether the children watched at home or at school.

In order to isolate sharply the effect of amount of viewing, two matched groups of children were the subjects of a special study (the Age Cohorts Study). Group 1 was 53 to 58 months of age at the time of pretesting; Group 2 was 53 to 58 months of age at the time of posttesting. In addition to being of the same chronological age at the point of comparison, they were of comparable mental age and they lived in the same communities. There were, in short, no observable differences between the two groups in important matters of previous attainments, IQ, and home background. There were more than 100 disadvantaged children, who were not attending school, in each group.

The pretest scores of Group 1 (before the children could have watched Sesame Street) were compared with the posttest scores of Group 2 after the Group 2 children had watched the program. The frequent viewers in Group 2 -- children in Q3 and Q4 -- scored about 40 points higher on the 203 common items than the comparable children in Group 1 who had never watched the show. (See Table 45 and Figure 10a.) Equally significant is the fact that infrequent viewers (Q1) in Group 2 differed by only about 12 points from comparable children in Group 1 who had not viewed Sesame Street at all. In short, holding maturational effects, IQ, previous attainments, and home background constant, the frequent viewers made large and important gains.

Although the amount of viewing did not vary markedly according to age of the children, test scores did. At the time of the pretest, as would be predicted, 3-year-olds did less well than 4-year-olds, and 4-year-olds did less well than 5-year-olds. In terms of gains, however, the results were reversed. Although the most-frequent-viewing 3-year-old group started out, at pretest, lower than any 5-year-old group, by the time of the posttest the 3-year-olds who viewed most frequently scored higher on the average than 4-year-olds in Q1, Q2, and Q3, and higher than 5-year-olds in Q1 and Q2. Even 3-year-olds who viewed only two or three times a week gained a great deal compared with other age groups. (See Tables 12a, 12b, 12c and Figure 3a.)

Some test results were clearly related to age. Among frequent viewers, the largest gains on the Body Parts Test were made by 3-year-olds; 3- and 4-year-olds gained more than 5-year-olds in Numbers; and 5-year-olds showed higher gains than the others in Reading Words (which indicates a transfer of learning) and in Initial Sounds (which was taught indirectly on Sesame

Street). In short, goals that were indirectly taught were better learned by older viewers, and transfer of learning was more apparent among them, as would be expected. Generally, where specific knowledge and skills were taught directly, young children gained more than the others.

ADVANTAGED CHILDREN

There were 169 children in the study who were considered to be advantaged. They scored higher on the pretest than other groups, and they watched more of the show, on the average, than any of the groups of disadvantaged children. Relatively small amounts of viewing produced relatively large gains among these children. (See Table 24 and Figure 7a.)

SPANISH-SPEAKING CHILDREN

There were only 43 Spanish-speaking children included in the study, and there was considerable variation among them in the extent to which they had been exposed to English before watching Sesame Street. Owing to this variability and the small size of the sample, conclusions must be drawn with great caution.

The largest concentration of Spanish-speaking children was in Q1, leaving only 18 in frequent-viewing groups. These frequent-viewing children gained almost incredible amounts; in fact, the gains among Q3 Spanish-speaking children were as high as those for Q4 children in the rest of the study. In the Letters Test, the Q4 Spanish-speaking children started lowest at pretest and scored highest at posttest. Other Letters subtests, and tests of Numbers, Forms, Sorting, Relational Terms, and Classification, showed the same phenomenon: a low start with subsequent very high gains for the children who viewed most.

RURAL CHILDREN

The rural children in the study scored relatively low on pretests and made great gains with viewing. Their parents tended to be better educated than those of the disadvantaged city children. The large gains they made suggest that Sesame Street holds great promise as an educational medium for children who live on remote farms or in small villages.

SESAME STREET IN THE SCHOOLS

The teachers whose classes watched Sesame Street as a part of the study were asked to indicate their reactions to the program. Although they admired Sesame Street for its effectiveness as one means of teaching young children, they were divided in their opinions about the appropriateness of its use in the classroom. Some felt strongly that the show took up valuable time that could better be given to other activities; others felt that it was a worthwhile addition to the school day.

CHILDREN, PARENTS, AND SESAME STREET

Children who watched Sesame Street the most -- and hence learned the most -- tended to have mothers who often watched the show with them and often talked to them about it. In these same homes, the parents tended to have somewhat higher expectations for their children.

OVERALL CONCLUSION

In terms of its own stated goals; Sesame Street was in general highly successful. The ETS study shows that 3-to-5-year-old youngsters from a

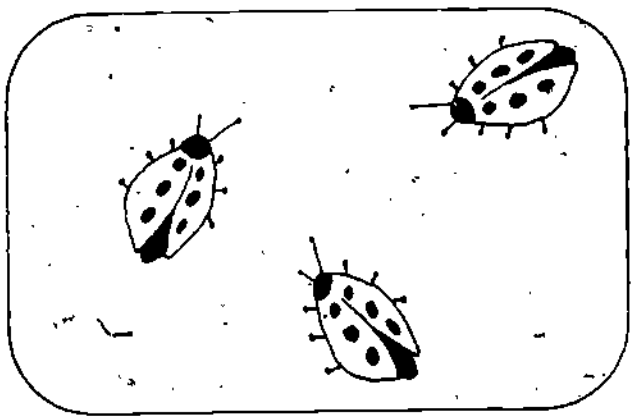
variety of backgrounds acquired important simple and complex cognitive skills as a result of watching the program. Those who watched the most gained the most.

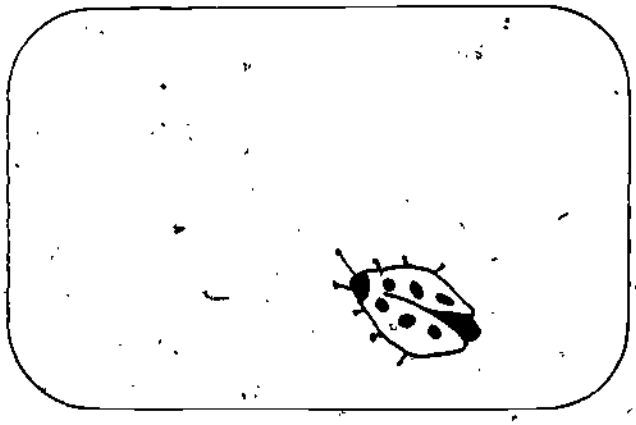
The overall conclusion is that the potential of educational television as an effective medium for teaching certain skills to very young children has been demonstrated by Sesame Street.

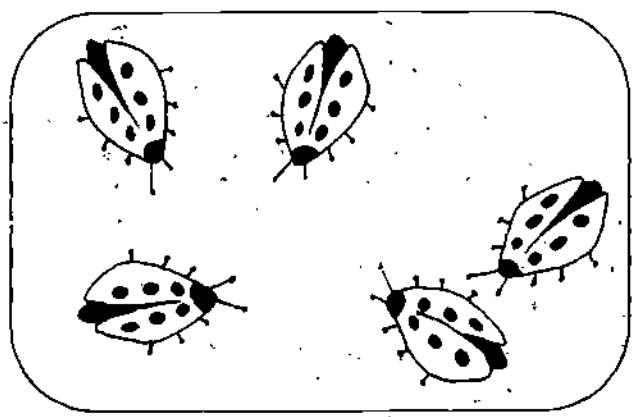
Note: The sample test items, tables, and figures referred to in this Summary appear on the following pages. They are also in the full report, which contains many more tables and figures.

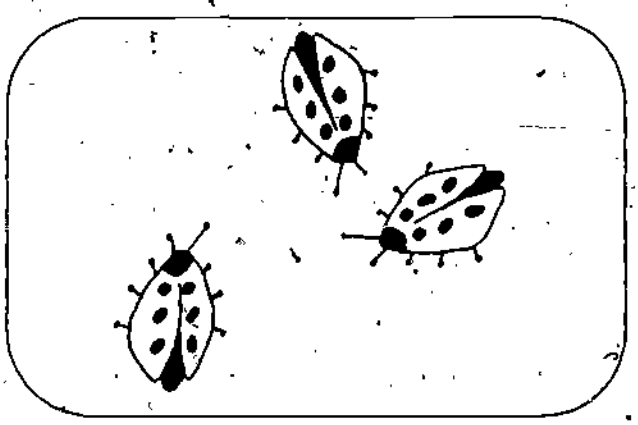
Item 2

Look at the ladybugs here, here, here, and here. Which box has five ladybugs?



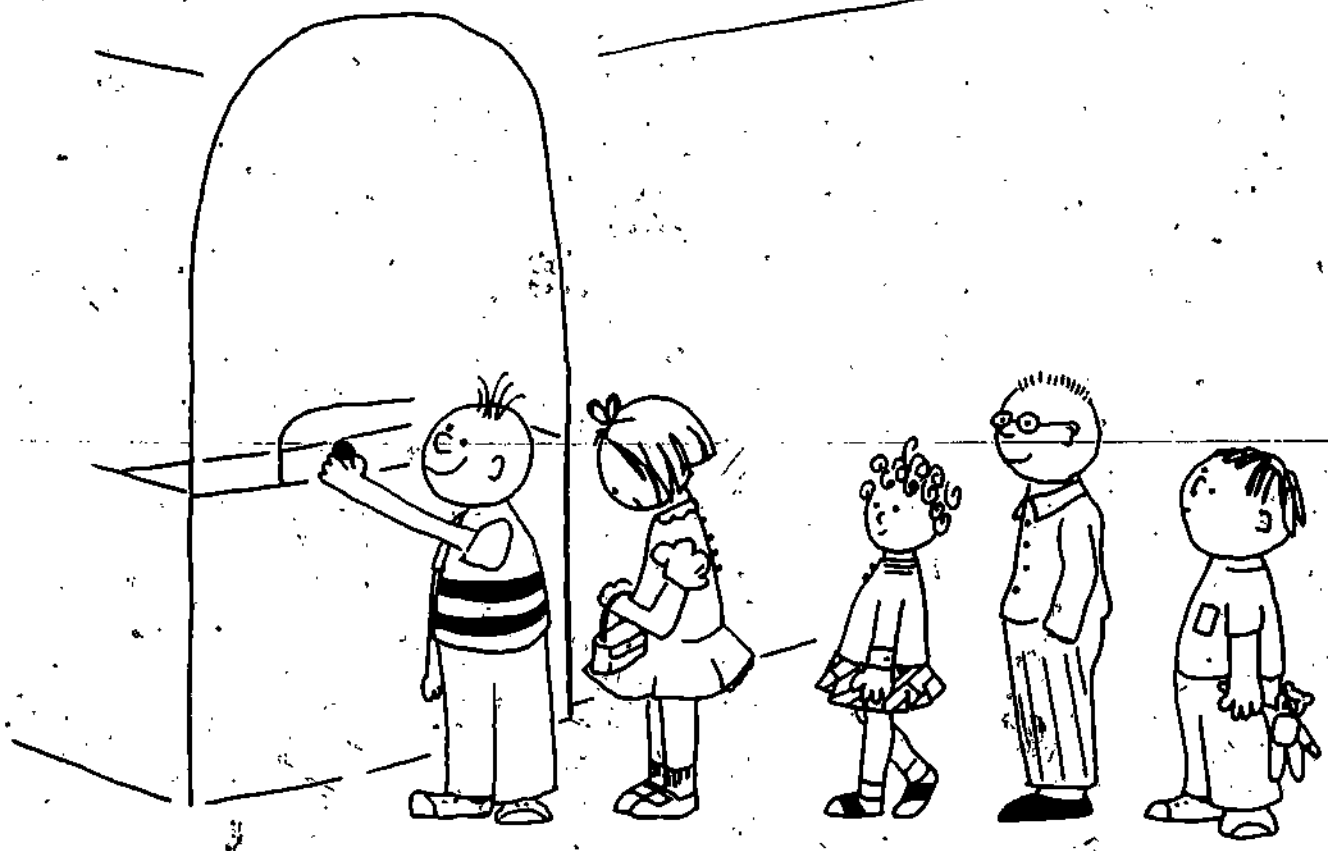






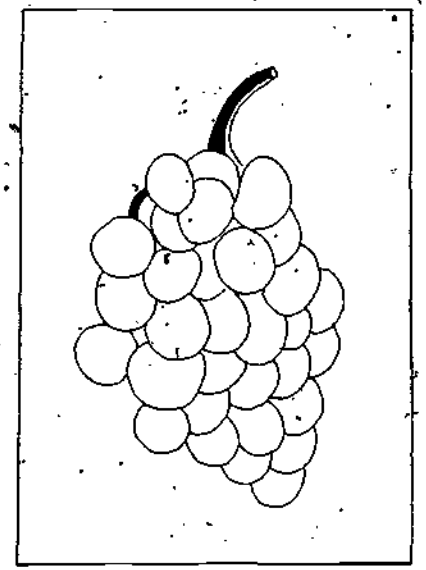
Item 5

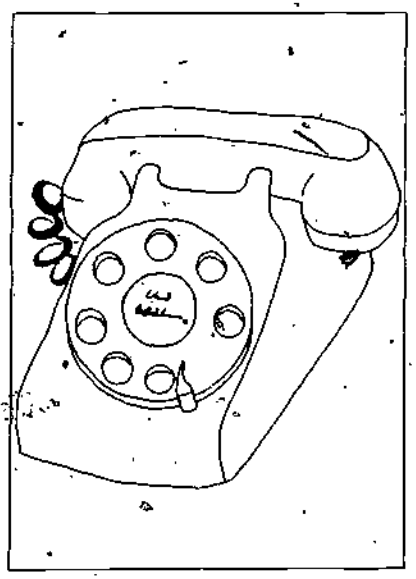
Here are children in line. They are waiting to go to a movie. Which one is last in line?

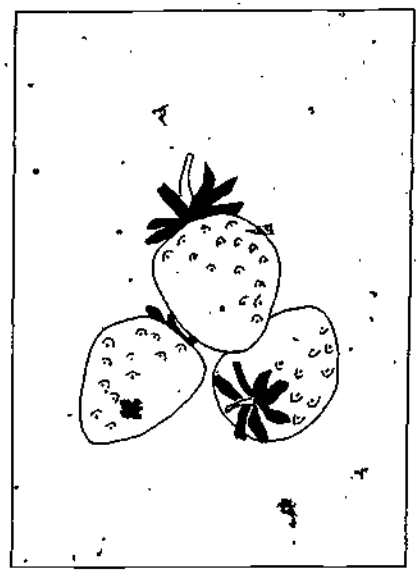


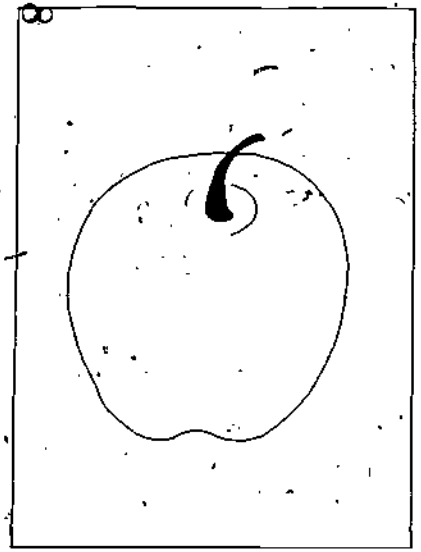
This is a picture of grapes, a banana, and an apple. One picture is missing. Let's find the one that goes here.

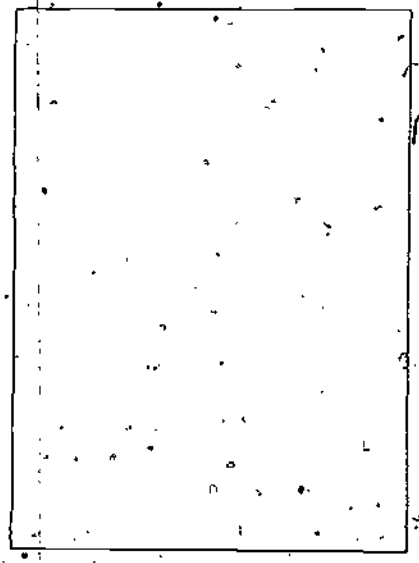
Here's a telephone, strawberries, pants, and a book. Which one belongs (goes) with the grapes, banana, and apple?

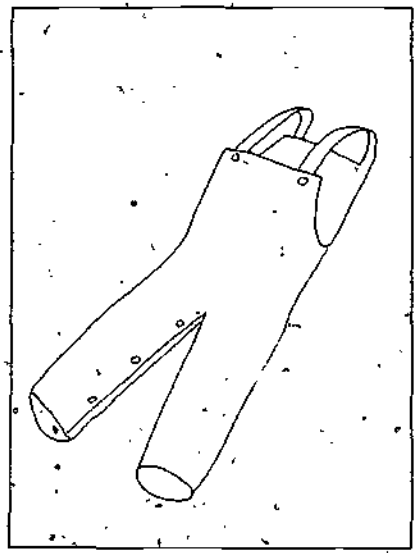












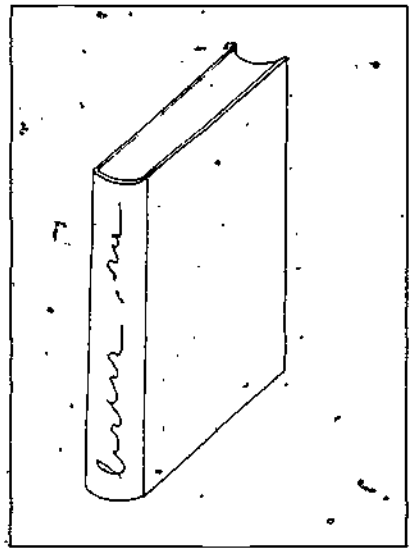


TABLE 11

Pretest and Gain Scores for All Disadvantaged Children

(by quartiles)

N = 731

Test & Subtest	Maximum Possible Score	Q1 N=198 Pretest Mean	Q1 Pretest SD	Q1 Gain Mean	Q1 Gain SD	Q2 N=197 Pretest Mean	Q2 Pretest SD	Q2 Gain Mean	Q2 Gain SD	Q3 N=172 Pretest Mean	Q3 Pretest SD	Q3 Gain Mean	Q3 Gain SD	Q4 N=164 Pretest Mean	Q4 Pretest SD	Q4 Gain Mean	Q4 Gain SD
Grand Total	203	75.62	24.73	18.63	20.04	84.42	27.60	29.11	22.51	87.74	27.63	37.97	25.29	97.54	32.16	47.36	26.15
Body Parts Total	32	18.11	6.51	3.88	5.71	20.00	6.35	4.38	5.50	21.09	6.04	4.74	5.31	22.47	6.05	5.24	4.88
Pointing to Body Parts	5	3.07	1.40	0.71	1.38	3.51	1.34	0.59	1.21	3.69	1.15	0.51	1.22	3.88	1.14	0.69	1.05
Naming Body Parts	15	8.24	2.92	1.36	2.67	9.28	2.95	1.40	2.69	9.70	2.53	1.68	2.49	10.37	2.44	1.79	2.27
Function of Body Parts (Point)	8	4.77	2.39	1.10	2.64	4.94	2.29	1.53	2.31	5.34	2.13	1.56	2.17	5.48	2.30	1.87	2.06
Function of Body Parts (Verbal)	4	2.03	1.55	0.72	1.72	2.27	1.43	0.85	1.53	2.35	1.54	0.99	1.53	2.74	1.48	0.89	1.35
Letters Total	58	13.07	5.95	4.30	7.43	14.42	7.37	8.22	9.25	14.95	7.00	11.89	11.00	17.98	10.12	15.97	11.19
Recognizing Letters	8	2.26	1.67	0.65	2.31	2.38	1.89	1.37	2.41	2.50	1.84	2.06	2.55	3.04	2.12	2.56	2.62
Naming Capital Letters	16	1.24	2.36	1.35	3.44	1.47	3.25	3.31	4.90	1.49	3.02	5.17	5.15	2.85	4.53	7.25	5.64
Naming Lower Case Letters	8	0.47	1.06	0.37	1.63	0.63	1.42	1.02	2.30	0.44	1.09	1.91	2.42	1.00	1.89	2.60	2.68
Matching Letters in Words	4	2.81	1.21	0.65	1.21	3.03	1.22	0.72	1.18	3.13	1.16	0.67	1.08	3.24	1.07	0.65	1.11
Recognizing Letters in Words	4	1.34	1.11	0.31	1.40	1.36	1.07	0.58	1.38	1.35	1.08	0.82	1.55	1.49	1.20	1.16	1.53
Initial Sounds	4	0.68	0.74	0.14	1.08	0.80	0.76	0.19	1.16	0.94	0.81	0.15	1.21	0.89	0.81	0.30	1.16
Reading Words	6	0.02	0.16	0.02	0.28	0.06	0.49	0.05	0.55	0.03	0.20	0.18	0.60	0.12	0.59	0.37	0.75
Forms Total	20	8.43	3.50	2.29	3.77	9.89	4.01	3.15	4.05	10.04	3.64	4.29	4.07	10.64	3.50	5.49	3.52
Recognizing Forms	4	1.96	1.20	0.41	1.64	2.16	1.20	0.38	1.62	2.12	1.26	0.69	1.72	2.13	1.15	1.10	1.52
Naming Forms	4	0.87	1.08	0.64	1.29	1.34	1.31	0.86	1.43	1.29	1.22	1.28	1.43	1.39	1.27	1.83	1.34
Numbers Total	54	16.18	8.20	5.43	7.05	18.56	9.38	8.52	8.23	19.64	10.10	10.88	9.51	23.69	11.15	13.01	9.52
Recognizing Numbers	6	1.64	1.40	0.60	1.71	1.76	1.52	1.26	1.91	1.77	1.52	1.67	2.10	2.38	1.87	1.78	2.11
Naming Numbers	15	1.12	2.58	1.13	2.96	1.57	2.95	2.43	3.96	1.56	3.07	3.74	4.81	3.09	4.04	5.15	4.44
Numerosity	6	2.93	1.50	0.92	1.68	3.47	1.72	0.92	1.69	3.59	1.72	0.97	1.79	4.05	1.72	1.11	1.56
Counting	9	4.35	2.51	1.24	2.34	4.74	2.62	1.81	2.38	5.22	2.56	1.79	2.53	5.72	2.50	1.74	2.41
Addition and Subtraction	7	1.30	1.29	0.64	1.56	1.64	1.61	0.72	1.53	1.93	1.78	0.76	1.84	2.13	1.82	1.04	1.79
Matching Subtest	11	7.83	2.76	1.26	2.87	8.38	2.55	1.50	2.50	8.90	2.19	1.12	2.09	9.32	1.77	1.02	1.82
Relational Terms Total	17	9.07	2.98	1.11	3.18	9.88	3.06	1.52	3.34	10.08	2.77	1.80	2.93	10.15	3.13	2.47	3.34
Amount Relationships	9	4.37	1.73	0.63	2.04	4.52	1.99	0.93	2.34	4.64	1.90	1.00	2.21	4.73	1.95	1.23	2.22
Size Relationships	2	1.64	0.58	0.09	0.70	1.75	0.46	0.13	0.54	1.73	0.49	0.19	0.51	1.73	0.46	0.18	0.51
Position Relationships	5	2.69	1.46	0.27	1.68	3.10	1.34	0.39	1.63	3.19	1.28	0.52	1.39	3.24	1.33	0.80	1.50
Sorting Total	6	2.30	1.33	0.47	1.85	2.54	1.44	0.81	1.82	2.52	1.50	1.38	1.76	2.73	1.39	1.64	1.71
Classification Total	24	10.57	4.15	1.67	4.41	11.98	4.63	2.96	4.78	12.06	4.68	4.56	4.97	12.88	4.60	5.32	4.67
Classification by Size	2	1.08	0.74	0.08	1.03	1.10	0.78	0.27	0.95	1.13	0.78	0.32	0.92	1.20	0.74	0.43	0.85
Classification by Form	6	1.98	1.26	0.51	1.53	2.45	1.48	0.87	1.70	2.53	1.44	1.22	1.84	2.69	1.45	1.48	1.58
Classification by Number	6	1.87	1.29	0.49	1.65	2.26	1.31	0.48	1.78	2.28	1.47	1.00	1.82	2.64	1.52	1.11	1.85
Classification by Function	9	5.19	1.95	0.75	2.27	5.65	2.04	1.34	2.20	5.63	1.94	1.90	2.17	5.88	1.91	2.02	1.95
Puzzles Total	5	1.88	1.40	0.43	1.86	2.04	1.37	0.80	1.64	2.15	1.28	0.83	1.58	2.41	1.45	0.98	1.57

Figure 2a
Pretest and Gain on Total Test Score for All Disadvantaged Children
(by viewing quartiles)
N=731

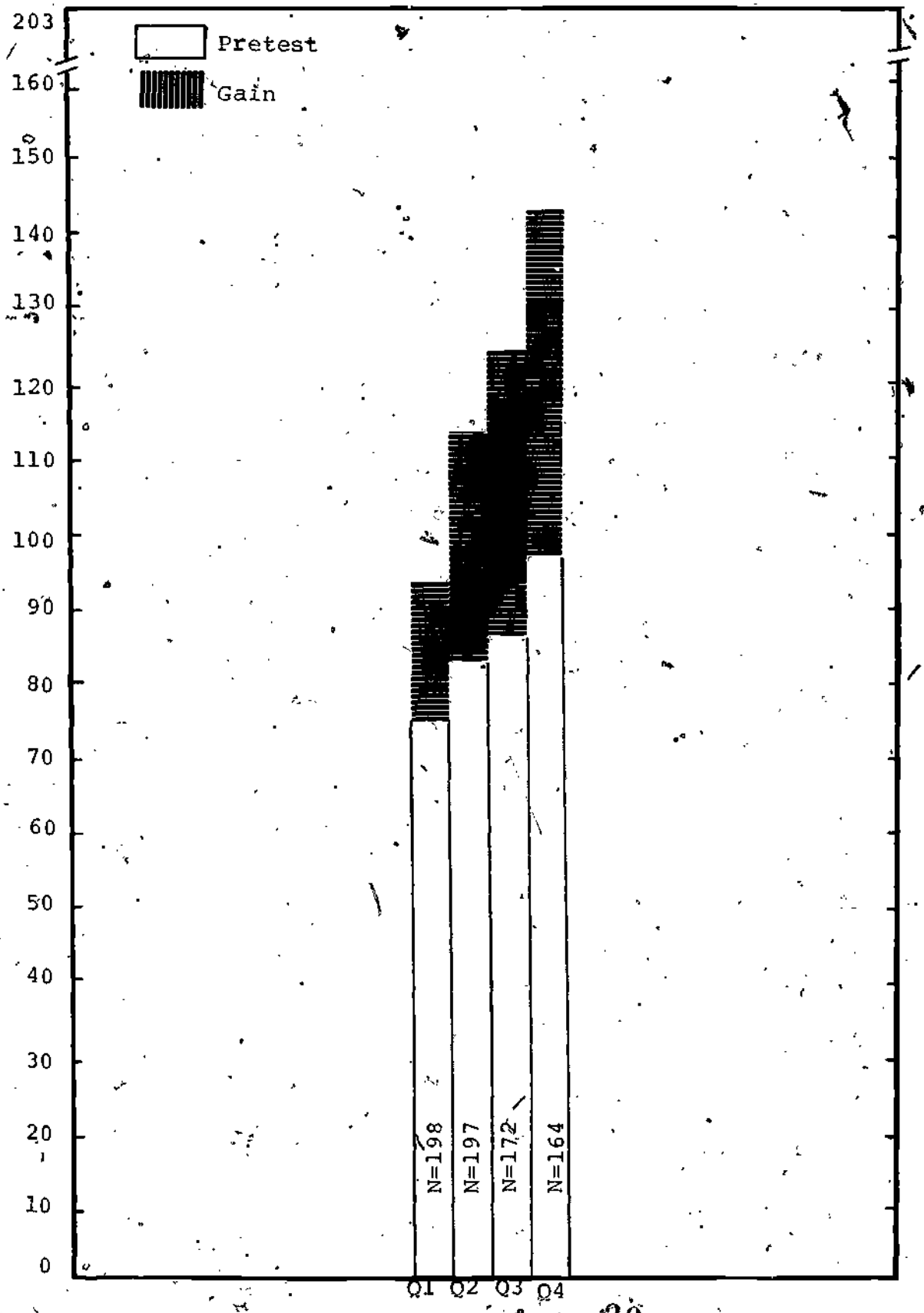


FIGURE 2b

Selected Pretest and Gain Scores for All Disadvantaged Children

(by viewing quartiles) Q1=198 Q2=197 Q3=172 Q4=164

Dashed lines beneath test titles indicate maximum possible scores.

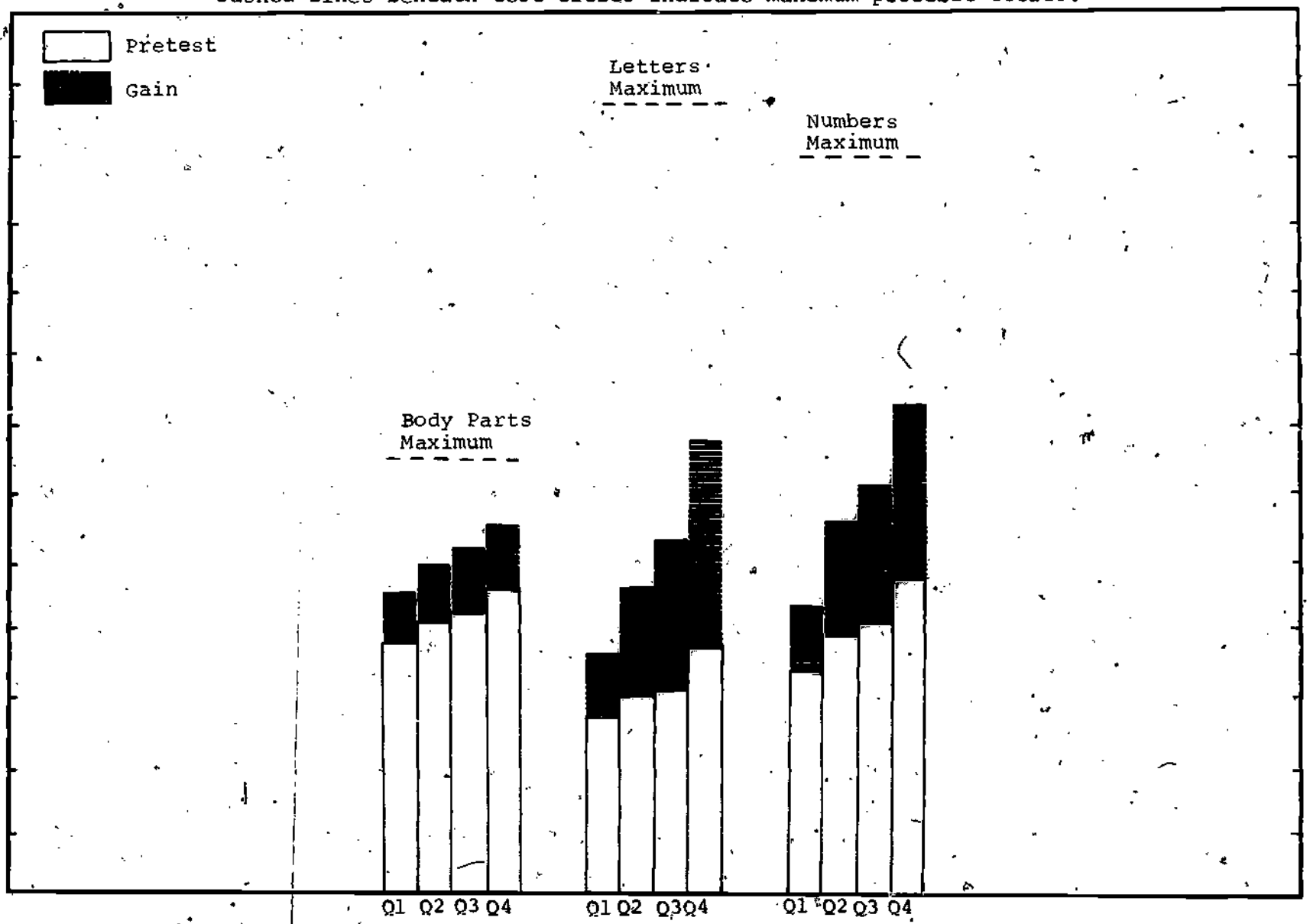


FIGURE 2c

Selected Pretest and Gain Scores for All Disadvantaged Children

(by viewing quartiles) Q1=198 Q2=197 Q3=172 Q4=164

Dashed lines beneath test titles indicate maximum possible scores.

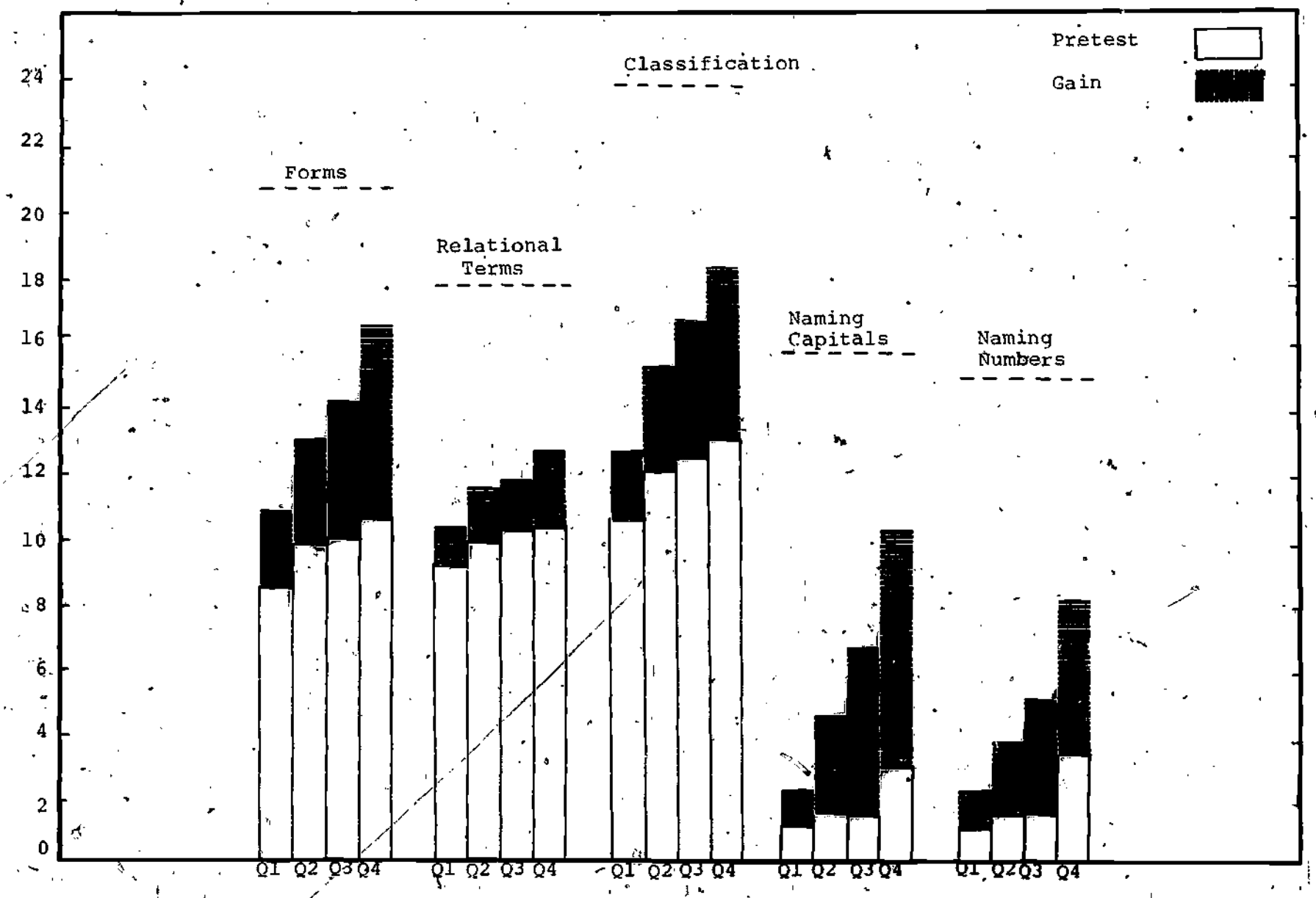


FIGURE 2d

Selected Pretest and Gain Scores for All Disadvantaged Children

(by viewing quartiles) Q1=198 Q2=197 Q3=172 Q4=164

Dashed lines beneath test titles indicate maximum possible scores.

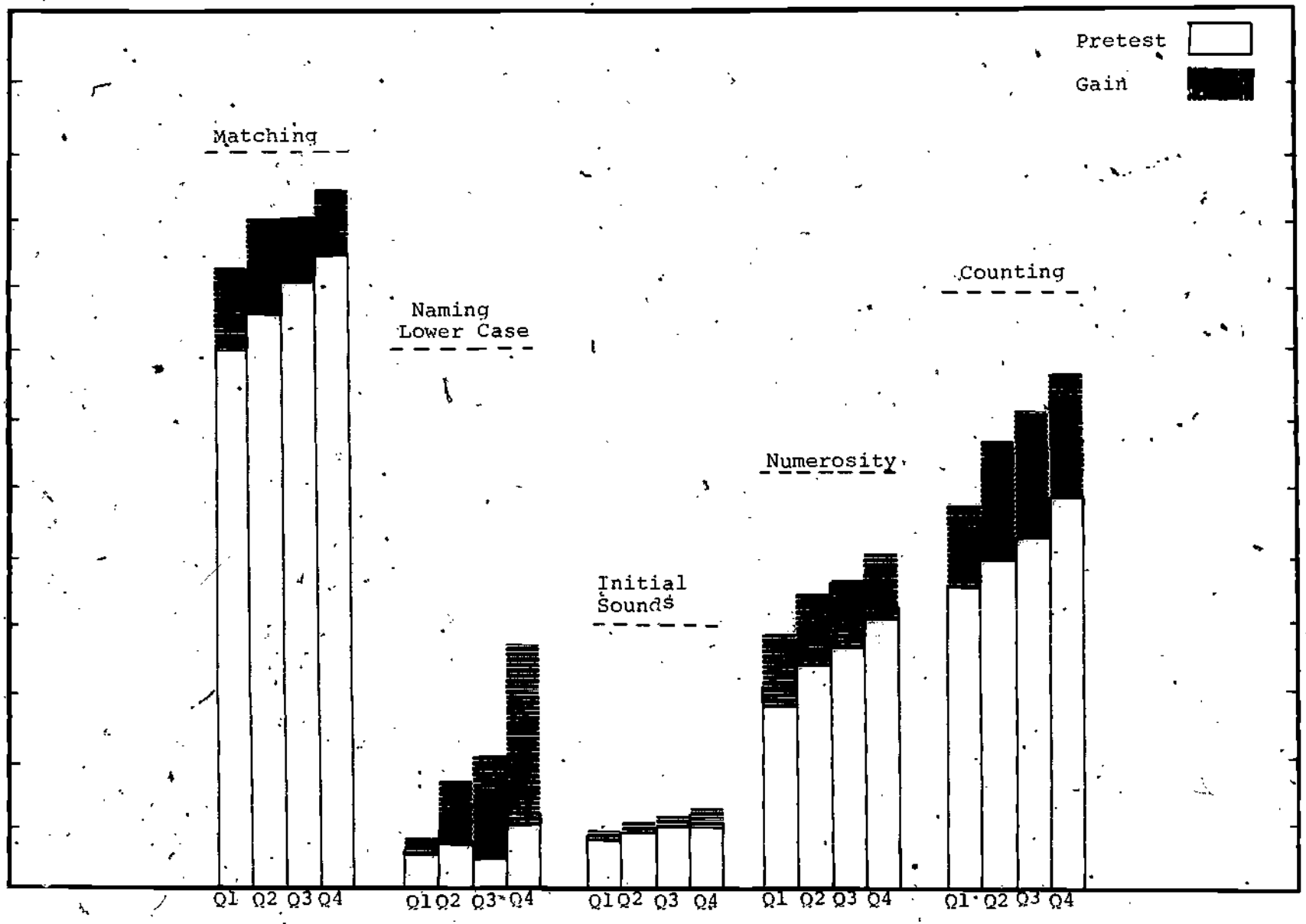


FIGURE 2e

Selected Pretest and Gain Scores for All Disadvantaged Children
(by viewing quartiles) Q1=198 Q2=197 Q3=172 Q4=164
Dashed lines beneath test titles indicate maximum possible scores.

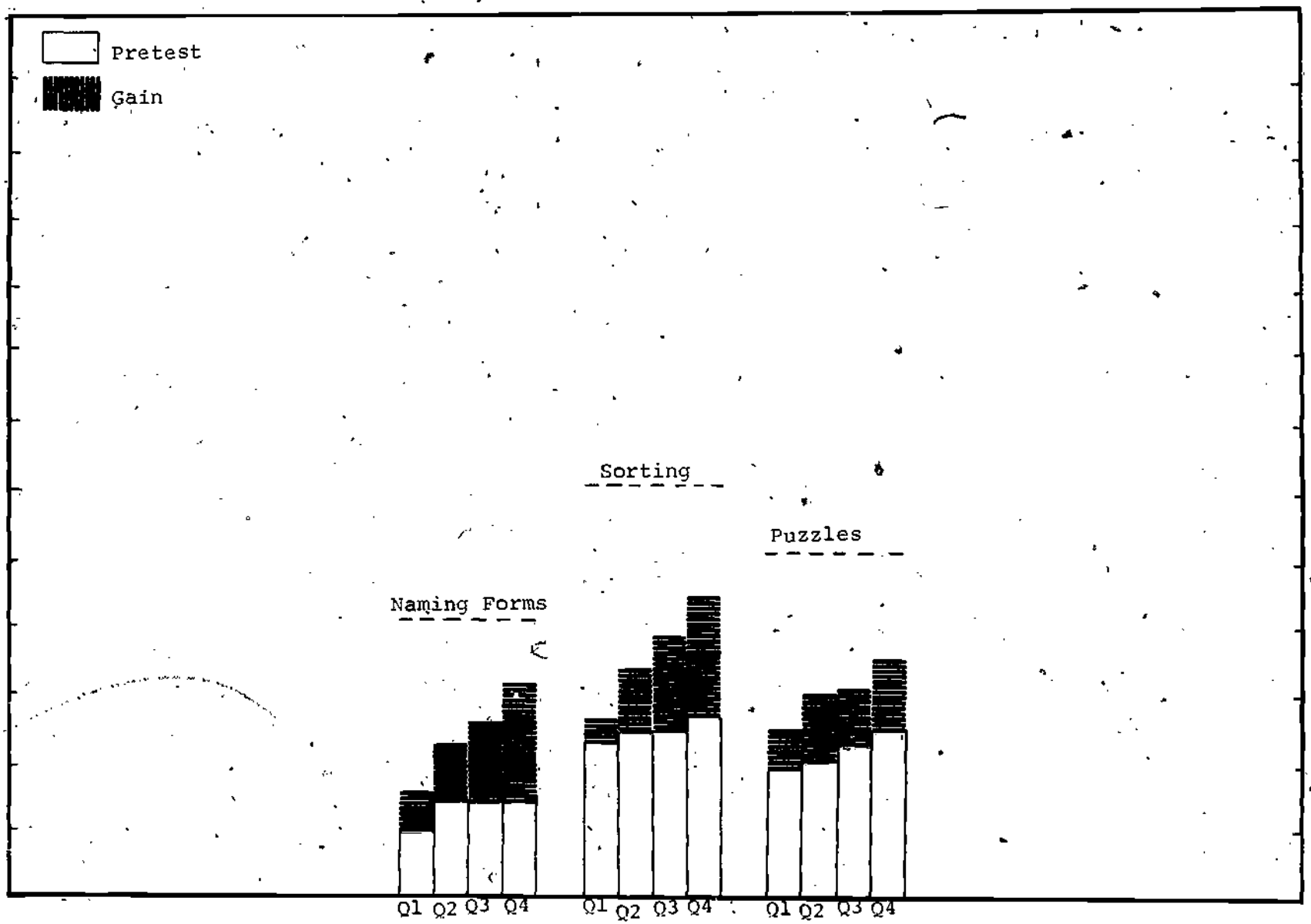


TABLE 45

Pretest and Posttest Scores for Disadvantaged, At-Home Children (by view.ar quartiles)

Group 1 = children who were 53-58 months old at time of pretest
Group 2 = children who were 53-58 months old at time of posttest
(Age cohorts)

Test & Subtest	Maximum Possible Score	Q1 Group 1 N=31 Pretest Mean	Q1 Group 1 N=31 Pretest SD	Q1 Group 2 N=26 Posttest Mean	Q1 Group 2 N=26 Posttest SD	Q2 Group 1 N=33 Pretest Mean	Q2 Group 1 N=33 Pretest SD	Q2 Group 2 N=33 Posttest Mean	Q2 Group 2 N=33 Posttest SD	Q3 Group 1 N=27 Pretest Mean	Q3 Group 1 N=27 Pretest SD	Q3 Group 2 N=18 Posttest Mean	Q3 Group 2 N=18 Posttest SD	Q4 Group 1 N=23 Pretest Mean	Q4 Group 1 N=23 Pretest SD	Q4 Group 2 N=24 Posttest Mean	Q4 Group 2 N=24 Posttest SD
Grand Total	203	76.37	22.27	88.42*	21.83	81.97	18.90	101.70	24.78	90.37	25.21	130.33	29.59	99.04	36.42	139.33	35.49
Body Parts Total	32	17.87	6.49	21.04	6.01	20.24	5.74	22.91	5.84	21.93	5.57	26.83	3.73	22.87	5.51	26.75	4.55
Pointing to Body Parts	5	3.13	1.50	3.31	1.46	3.91	1.04	3.88	1.08	3.78	0.97	4.39	0.78	4.17	1.15	4.42	0.93
Naming Body Parts	15	8.58	2.85	9.15	2.69	9.39	3.29	9.97	2.58	10.3	2.41	11.67	2.14	10.43	2.37	11.50	2.36
Function of Body Parts (Point)	8	4.03	2.37	5.77	2.16	4.55	2.12	6.15	2.05	5.52	1.83	7.17	1.15	5.48	2.31	7.29	1.20
Function of Body Parts (Verbal)	4	2.13	1.48	2.81	1.41	2.39	1.22	2.91	1.42	2.41	1.55	3.61	0.61	2.78	1.35	3.54	0.93
Letters Total	58	14.06	6.45	14.65	3.91	13.09	5.65	18.24	6.82	14.81	9.90	26.83	11.89	18.52	11.33	31.92	14.18
Recognizing Letters	8	2.00	1.46	2.31	1.52	2.42	1.64	3.21	1.76	2.37	1.62	4.72	2.59	2.91	2.09	4.96	2.65
Naming Capital Letters	16	1.32	2.99	0.85	1.88	0.67	1.34	2.24	3.36	0.96	2.16	6.22	5.16	3.17	5.37	9.29	5.80
Naming Lower Case Letters	8	0.77	1.50	0.54	0.76	0.27	0.45	0.64	1.11	0.44	1.09	2.33	2.45	0.96	2.18	3.17	2.90
Matching Letters in Words	4	2.97	1.17	3.38	1.02	2.88	1.17	3.82	0.39	3.48	0.89	4.00	0.00	3.52	0.79	3.83	0.64
Recognizing Letters in Words	4	1.74	1.18	1.77	0.99	1.33	0.99	1.52	1.06	1.56	1.12	2.17	1.38	1.57	1.20	2.54	1.38
Initial Sounds	4	0.90	0.87	0.81	0.75	0.73	0.63	1.00	0.90	0.89	0.64	1.00	1.14	1.00	0.67	1.25	0.74
Reading Words	6	0.00	0.00	0.00	0.00	0.03	0.17	0.00	0.00	0.00	0.00	0.11	0.32	0.17	0.83	0.54	1.38
Forms Total	20	7.45	3.36	11.04	3.43	9.09	3.21	11.21	3.27	9.93	4.08	14.22	3.61	10.35	4.21	15.46	3.91
Recognizing Forms	4	1.68	1.30	2.77	1.21	2.27	1.28	2.06	1.27	2.00	1.11	2.72	1.45	1.83	1.30	3.25	1.15
Naming Forms	4	0.42	0.50	1.46	1.14	0.88	0.89	1.48	1.25	1.04	1.13	2.44	1.42	1.26	1.39	3.04	1.04
Numbers Total	54	16.77	7.06	19.00	7.64	17.97	7.10	23.76	9.63	20.37	9.42	32.67	10.67	23.96	12.42	35.54	11.77
Recognizing Numbers	6	1.71	1.37	2.00	1.33	2.03	1.49	2.33	1.74	1.96	1.51	2.83	1.69	2.57	1.88	4.13	1.75
Naming Numbers	15	1.06	2.86	1.04	2.65	1.00	1.84	2.58	3.40	1.26	2.92	5.72	4.57	3.91	4.35	7.58	5.06
Numerosity	6	3.39	1.20	3.46	1.58	3.58	1.58	4.06	1.60	3.74	1.83	5.11	0.90	4.04	1.77	4.96	1.30
Counting	9	4.32	2.40	5.19	2.04	4.85	2.25	5.97	2.26	5.63	2.54	7.00	1.97	5.43	2.83	7.38	1.79
Addition and Subtraction	7	1.29	1.24	1.62	1.47	1.52	1.33	2.30	1.69	1.89	1.22	2.94	1.55	2.04	1.89	3.17	1.69
Matching Subtest	11	7.97	2.93	9.31	1.85	8.45	1.99	9.97	1.16	8.78	2.28	10.33	0.59	9.17	1.67	10.00	1.50
Relational Terms Total	17	9.61	2.35	10.65	2.78	10.33	2.98	11.30	2.27	10.81	2.32	12.39	2.48	10.26	3.77	18.00	2.52
Amount Relationships	9	4.65	1.64	5.27	1.54	5.09	1.74	5.61	1.58	5.37	1.39	6.11	1.41	5.17	2.10	5.58	1.67
Size Relationships	2	1.65	0.55	1.81	0.40	1.67	0.54	1.79	0.42	1.85	0.46	2.00	0.00	1.52	0.51	1.83	0.38
Position Relationships	5	3.00	1.39	3.12	1.37	3.09	1.33	3.39	1.14	2.96	1.34	3.61	1.29	3.09	1.50	3.92	1.21
Sorting Total	6	2.13	1.38	2.69	1.41	1.67	1.29	3.33	1.49	2.81	1.55	4.28	1.32	2.30	1.22	4.54	1.25
Classification Total	24	10.71	3.84	11.96	4.25	11.03	2.91	13.79	4.25	12.89	4.50	17.78	4.10	13.04	5.06	17.75	5.14
Classification by Size	2	1.19	0.79	0.96	0.77	0.97	0.73	1.27	0.57	1.26	0.71	1.44	0.70	1.17	0.65	1.46	0.83
Classification by Form	6	1.77	1.38	2.50	1.27	2.06	1.12	2.88	1.22	2.70	1.61	3.61	1.42	2.78	1.81	4.08	1.50
Classification by Number	6	2.06	1.09	2.35	1.29	2.18	0.92	2.96	1.37	2.44	1.45	4.22	1.48	2.65	1.27	3.67	1.76
Classification by Function	9	5.29	1.47	5.81	1.81	5.45	1.50	6.76	1.97	5.93	1.73	7.78	1.44	5.91	2.21	7.79	1.82
Puzzles Total	5	2.03	1.56	2.31	0.93	2.65	1.37	2.55	1.39	2.26	1.02	3.44	1.38	2.52	1.44	2.92	1.35
Peabody IQ*	--	75.97	26.63	81.08	20.17	80.03	21.94	85.09	15.82	82.67	19.28	88.33	19.94	86.61	28.72	88.08	20.06

*Differences in IQ between Group 1 and Group 2 within each quartile are not significant.

FIGURE 10a

The Age Cohorts Study

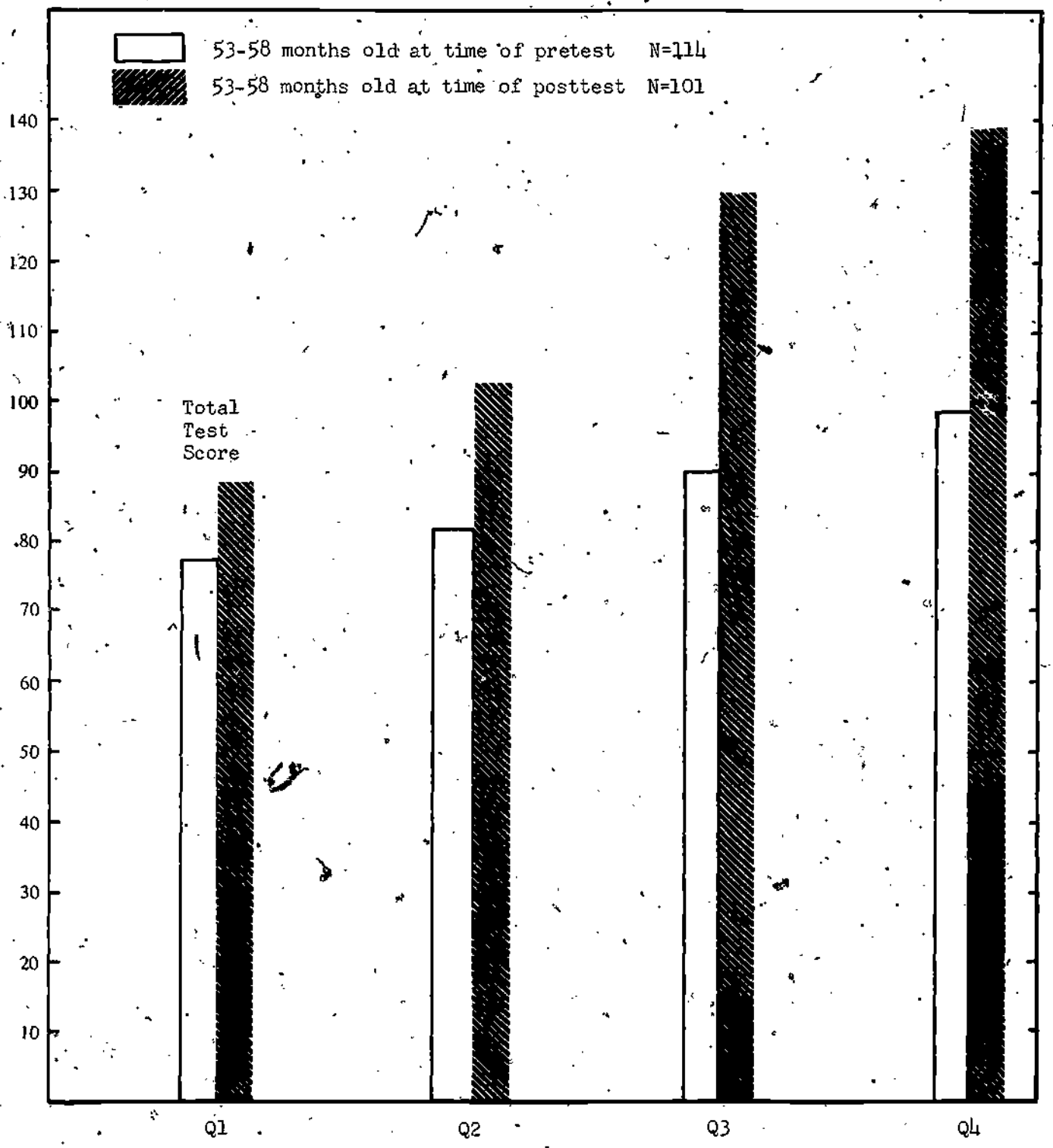


TABLE 17a

Pretest and Gain Scores for All Disadvantaged 5-Year-Old Children

(by quartiles)

N = 137

Test & Subtest	Maximum Possible Score	Q1 N=33 Pretest Mean	Q1 N=33 Pretest SD	Q1 N=33 Gain Mean	Q1 N=33 Gain SD	Q2 N=38 Pretest Mean	Q2 N=38 Pretest SD	Q2 N=38 Gain Mean	Q2 N=38 Gain SD	Q3 N=35 Pretest Mean	Q3 N=35 Pretest SD	Q3 N=35 Gain Mean	Q3 N=35 Gain SD	Q4 N=31 Pretest Mean	Q4 N=31 Pretest SD	Q4 N=31 Gain Mean	Q4 N=31 Gain SD
Grand Total	203	60.76	20.34	12.42	25.67	62.42	20.82	30.71	21.14	65.48	15.76	37.20	28.28	75.81	25.14	57.23	25.66
Body Parts Total	32	13.88	5.21	3.03	6.26	15.76	5.77	4.79	5.91	16.72	5.44	6.64	6.94	18.84	6.26	8.00	5.52
Pointing to Body Parts	5	2.55	1.39	0.39	1.30	2.58	1.35	0.82	1.54	2.88	1.30	0.92	1.32	3.44	1.27	1.00	1.15
Naming Body Parts	15	6.85	2.50	1.18	2.72	7.87	3.03	1.13	2.88	8.52	2.38	1.68	3.59	9.53	2.49	2.52	2.63
Function of Body Parts (Point)	8	3.27	2.36	1.00	3.46	3.92	2.28	1.66	2.58	3.72	2.01	2.64	2.20	4.09	2.36	3.00	2.24
Function of Body Parts (Verbal)	4	1.21	1.47	0.45	2.11	1.39	1.41	1.18	1.86	1.60	1.55	1.40	1.71	1.78	1.60	1.68	1.66
Letters Total	58	10.73	5.99	3.79	9.20	10.18	4.95	7.53	8.99	11.32	3.99	10.52	9.71	11.91	6.65	20.13	12.14
Recognizing Letters	8	2.06	1.95	0.82	2.69	1.47	1.66	1.45	2.23	2.28	1.59	1.32	2.53	1.65	1.58	3.74	2.65
Naming Capital Letters	16	1.03	2.51	0.55	4.04	0.58	2.61	2.03	5.06	0.40	1.00	4.36	4.39	1.00	2.78	8.90	6.38
Naming Lower Case Letters	8	0.33	1.41	0.18	1.94	0.37	1.38	0.45	2.30	0.12	0.33	1.36	2.08	0.44	1.46	2.77	2.80
Matching Letters in Words	4	2.12	1.22	1.00	1.27	2.45	1.50	0.92	1.60	2.32	1.55	1.12	1.56	2.59	1.36	1.23	1.52
Recognizing Letters in Words	4	1.03	0.98	0.36	1.27	1.05	1.01	0.79	1.21	1.08	1.08	0.84	1.72	1.00	1.02	1.55	1.46
Initial Sounds	4	0.48	0.62	0.21	0.99	0.68	0.70	0.16	1.13	1.04	1.02	-0.16	1.21	0.81	0.82	0.03	1.14
Reading Words	6	0.06	0.35	-0.06	0.35	0.00	0.00	0.03	0.16	0.00	0.00	0.08	0.40	0.00	0.00	0.19	0.40
Forms Total	20	7.70	3.16	1.03	3.83	7.84	3.90	3.39	3.96	7.36	2.81	5.00	4.25	9.13	3.50	6.29	3.59
Recognizing Forms	4	2.24	1.09	-0.18	1.57	1.84	1.26	0.47	1.81	1.80	1.41	0.60	1.50	1.97	1.12	1.23	1.54
Naming Forms	4	0.52	1.00	0.30	1.55	0.84	1.05	1.03	1.37	0.52	0.82	1.76	1.13	1.22	1.43	2.26	1.55
Numbers Total	54	11.21	6.40	2.94	9.34	11.37	6.08	9.34	7.53	13.00	5.39	8.08	10.02	16.38	8.39	14.13	9.79
Recognizing Numbers	6	0.91	1.04	0.76	1.94	1.03	1.24	1.58	2.18	1.08	1.12	1.12	2.03	1.47	1.44	2.03	2.26
Naming Numbers	15	0.42	1.92	0.21	2.64	0.45	1.50	1.63	3.36	0.16	0.37	2.64	3.04	1.25	2.46	5.16	5.41
Numerosity	6	2.24	1.30	0.45	1.82	2.53	1.69	0.74	1.91	3.20	1.76	0.44	2.06	5.28	1.82	1.26	1.53
Counting	9	3.09	2.23	0.82	2.88	3.13	2.56	2.32	2.70	3.32	1.93	2.32	3.24	4.16	2.45	1.81	2.43
Addition and Subtraction	7	0.85	1.20	0.09	1.53	0.71	0.98	0.61	1.31	0.88	0.93	0.60	1.38	0.94	1.24	1.10	1.14
Matching Subtest	11	6.94	2.70	0.94	3.43	6.53	3.33	3.05	3.04	7.00	2.68	2.40	2.72	8.25	2.53	2.03	2.74
Relational Terms Total	17	7.42	2.46	1.39	3.55	8.45	3.13	1.79	3.46	8.24	2.62	1.76	3.44	8.72	2.39	3.23	2.70
Amount Relationships	9	3.70	1.72	0.88	2.23	3.81	2.40	1.32	2.80	3.52	1.56	1.04	2.32	3.75	1.46	1.42	1.67
Size Relationships	2	1.42	0.56	0.03	0.88	1.74	0.45	0.16	0.49	1.64	0.49	0.24	0.52	1.72	0.52	0.23	0.62
Position Relationships	5	2.03	1.42	0.24	1.90	2.76	1.50	0.13	1.79	2.80	1.35	0.24	1.59	2.88	1.31	1.23	1.54
Sorting Total	6	2.33	1.29	-0.12	1.73	2.21	1.36	0.42	1.73	2.44	1.26	0.92	1.85	2.41	1.10	1.52	1.59
Classification Total	24	8.67	3.53	1.27	3.59	8.50	4.43	4.53	4.69	9.12	3.48	4.44	4.81	10.56	4.66	5.71	5.68
Classification by Size	2	0.94	0.61	-0.18	0.81	0.50	0.60	0.68	0.96	0.68	0.75	0.44	0.92	0.97	0.78	0.39	0.88
Classification by Form	6	1.67	1.22	0.33	1.41	1.84	1.64	0.84	1.81	2.08	1.22	0.80	1.76	2.00	1.37	1.48	1.31
Classification by Number	6	1.18	1.07	0.61	1.78	1.45	0.95	0.87	1.28	1.84	1.11	0.44	1.71	2.16	1.42	1.19	1.94
Classification by Function	9	4.36	1.95	0.76	2.21	4.24	2.48	2.18	2.82	4.20	1.55	2.60	1.98	5.03	1.99	2.35	1.43
Puzzles Total	5	1.76	1.28	0.21	1.85	1.63	1.10	0.45	1.43	1.28	1.02	1.24	1.48	2.03	1.49	1.19	1.60
Peabody Raw Score (Pretest only)	80	21.09	7.53			22.42	7.77			24.68	9.38			31.84	11.14		
Peabody Mental Age (Months)	--	31.12	5.53			31.39	7.22			33.92	7.88			40.31	12.61		
Hidden Triangles Total (Posttest)	10	3.36	1.69			4.11	1.66			4.15	1.46			4.77	1.52		
Which Comes First Total (Posttest)	12	4.36	2.16			4.46	2.01			5.15	2.17			5.94	2.39		

TABLE 17b

Pretest and Gain Scores for All Disadvantaged 4-Year-Old Children
(by quartiles)
N = 433

Test & Subtest	Maximum Possible Score	Q1 N=127 Pretest Mean	Q1 Pretest SD	Q1 Gain Mean	Q1 Gain SD	Q2 N=119 Pretest Mean	Q2 Pretest SD	Q2 Gain Mean	Q2 Gain SD	Q3 N=105 Pretest Mean	Q3 Pretest SD	Q3 Gain Mean	Q3 Gain SD	Q4 N=82 Pretest Mean	Q4 Pretest SD	Q4 Gain Mean	Q4 Gain SD
Grand Total	203	75.13	22.21	18.24	18.40	84.09	23.25	30.60	24.35	86.63	23.64	38.50	25.44	93.79	29.50	49.01	24.62
Body Parts Total	32	18.35	6.22	4.09	5.31	20.08	6.22	4.92	5.47	21.14	5.85	4.64	5.19	22.27	5.75	5.10	4.50
Pointing to Body Parts	5	3.13	1.37	0.75	1.37	3.56	1.30	0.66	1.25	3.74	1.11	0.52	1.23	3.89	1.12	0.65	1.02
Naming Body Parts	15	8.18	2.86	1.51	2.52	9.33	2.97	1.68	2.82	9.74	2.52	1.70	2.43	10.13	2.32	1.79	2.09
Function of Body Parts (Point)	8	4.89	2.29	1.09	2.52	4.88	2.18	1.74	2.13	5.42	1.95	1.40	1.99	5.48	2.21	1.85	1.97
Function of Body Parts (Verbal)	4	2.15	1.52	0.74	1.66	2.32	1.36	0.83	1.47	2.25	1.54	1.02	1.63	2.77	1.47	0.83	1.24
Letters Total	58	13.20	5.92	3.45	6.37	13.94	6.08	8.46	9.17	14.56	5.67	12.02	11.17	17.33	8.84	15.37	10.45
Recognizing Letters	8	2.26	1.62	0.48	2.26	2.25	1.76	1.40	2.32	2.33	1.67	2 28	2.52	2.94	1.87	2.43	2.33
Naming Capital Letters	16	1.17	2.32	1.09	2.90	1.25	2.63	3.40	4.76	1 34	2.64	5.17	5.34	2.58	4.39	7 07	5.58
Naming Lower Case Letters	8	0.50	1.01	0.16	1.20	0.52	1.08	1.11	2.18	0.41	0.89	1.90	2.46	0.76	1.63	2.40	2.54
Matching Letters in Words	4	2.91	1.15	0.56	1.18	3.04	1.16	0.82	1.07	3.19	1.02	0.65	1.01	3.30	0.98	0.65	0.96
Recognizing Letters in Words	4	1.35	1.14	0.29	1.41	1.43	1.04	0.44	1.45	1.42	1.09	0.76	1.41	1.46	1.13	1.13	1.46
Initial Sounds	4	0.70	0.78	0.09	1.11	0.73	0.70	0.29	1.15	0.81	0.72	0.24	1.23	0.87	0.74	0.30	1.09
Reading Words	6	0.0	0.0	0.04	0.29	0.08	0.57	-0.02	0.61	0.03	0.17	0.07	0.37	0.07	0.56	0.30	0.78
Forms Total	20	8.21	3.42	2.55	3.82	9.87	3.67	3.31	4.40	9.94	3.59	4.32	4.13	10.38	3.39	5.63	3.72
Recognizing Forms	4	1.83	1.22	0.58	1.61	2.12	1.14	0.50	1.67	2.13	1.23	0.64	1.77	2.23	1.20	0.95	1.57
Naming Forms	4	0.88	1.05	0.77	1.24	1.36	1.30	0.86	1.60	1.35	1.24	1.17	1.42	1.24	1.23	1.94	1.30
Numbers Total	54	15.82	6.89	5.69	6.32	18.72	7.96	8.84	8.83	19.08	8.85	11.37	9.81	21.95	10.43	14.65	8.65
Recognizing Numbers	6	1.66	1.38	0.53	1.68	1.82	1.44	1.29	1.93	1.76	1.42	1.57	2.07	2.20	1.76	1.88	1.91
Naming Numbers	15	1.06	2.35	0.98	2.85	1.60	2.91	2.49	4.33	1.29	2.51	3.85	4.15	2.70	3.80	5.33	4.01
Numerosity	6	2.88	1.38	0.98	1.65	3.43	1.53	1.11	1.64	3.56	1.72	1.12	1.92	3.79	1.76	1.33	1.59
Counting	9	4.21	2.38	1.51	2.18	4.79	2.42	1.85	2.37	5.16	2.55	1.86	2.63	5.37	2.52	2.28	2.28
Addition and Subtraction	7	1.18	1.07	0.86	1.44	1.69	1.46	0.71	1.72	1.85	1.70	0.70	1.94	1.89	1.58	1.44	1.94
Matching Subtest	11	7.81	2.77	1.35	2.76	8.41	2.28	1.49	2.40	8.98	2.05	1.05	1.94	9.46	1.31	0.77	1.33
Relational Terms Total	17	8.99	2.79	1.02	3.11	9.78	2.70	1.65	3.33	9.99	2.62	1.95	3.11	9.70	3.22	2.80	3.50
Amount Relationships	9	4.26	1.62	0.59	2.06	4.48	1.68	1.03	2.25	4.65	1.82	1.09	2.26	4.39	2.01	1.52	2.47
Size Relationships	2	1.67	0.60	0.10	0.69	1.74	0.46	0.13	0.56	1.70	0.52	0.24	0.55	1.68	0.47	0.18	0.55
Position Relationships	5	2.68	1.39	0.24	1.61	3.06	1.30	0.45	1.59	3.08	1.32	0.62	1.46	3.13	1.40	0.90	1.54
Sorting Total	6	2.05	1.28	0.62	1.91	2.48	1.40	0.95	1.84	2.47	1.46	1.36	1.81	2.52	1.28	1.87	1.59
Classification Total	24	10.52	3.84	1.17	4.60	12.01	3.98	2.91	4.66	11.83	4.33	4.86	5.02	12.33	4.38	5.77	5.07
Classification by Size	2	1.06	0.77	-0.13	1.13	1.16	0.77	0.24	0.92	1.12	0.75	0.31	0.95	1.23	0.70	0.38	0.84
Classification by Form	6	1.98	1.20	0.43	1.58	2.37	1.28	0.94	1.66	2.39	1.38	1.42	1.77	2.55	1.48	1.65	1.66
Classification by Number	6	1.84	1.10	0.35	1.62	2.24	1.22	0.46	1.84	2.12	1.34	1.26	1.95	2.36	1.41	1.32	1.88
Classification by Function	9	5.18	1.90	0.55	2.34	5.72	1.81	1.29	2.04	5.75	1.81	1.75	2.16	5.73	1.99	2.18	2.20
Puzzles Total	5	1.86	1.44	0.32	1.84	2.10	1.37	0.78	1.69	2.17	1.24	0.79	1.58	2.19	1.33	1.01	1.58
Peabody Raw Score (Pretest only)	80	32.40	10.45			35.37	9.99			32.26	10.92			36.25	11.51		
Peabody Mental Age (Months)	--	40.65	11.30			43.48	11.50			40.88	12.11			45.15	13.95		
Hidden Triangles Total (Posttest)	10	4.26	1.27			4.66	1.57			4.84	1.42			4.68	1.32		
Which Comes First Total (Posttest)	12	4.45	1.98			4.92	2.42			5.87	2.74			6.80	2.54		

TABLE 12c

Pretest and Gain Scores for All Disadvantaged 5-Year-Old Children

(by quartiles)

N = 159

Test & Subtest	Maximum Possible Score	Q1 N=37				Q2 N=40				Q3 N=38				Q4 N=44			
		Pretest		Gain		Pretest		Gain		Pretest		Gain		Pretest		Gain	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Grand Total	203	88.68	29.20	23.08	19.14	101.23	30.69	26.75	17.30	104.13	30.82	38.97	25.73	120.91	29.78	37.32	26.37
Body Parts Total	32	20.38	7.15	3.92	6.68	23.35	4.34	2.93	4.98	23.18	6.02	4.08	5.34	25.73	4.40	3.41	3.55
Pointing to Body Parts	5	3.27	1.41	0.76	1.48	4.23	0.95	0.20	0.72	4.00	1.01	0.32	1.07	4.20	0.99	0.55	0.98
Naming Body Parts	15	9.24	3.09	1.19	3.07	10.45	1.84	0.95	2.10	10.16	2.70	1.76	2.27	11.69	1.90	1.27	1.96
Function of Body Parts (Point)	8	5.57	2.38	1.14	2.25	5.85	2.14	1.05	2.58	6.05	2.31	1.26	2.55	6.53	1.90	1.14	1.81
Function of Body Parts (Verbal)	4	2.30	1.61	0.84	1.69	2.83	1.30	0.73	1.28	2.97	1.26	0.74	1.18	3.31	1.16	0.45	0.95
Letters Total	58	14.97	5.59	6.35	8.45	18.40	10.05	8.70	9.70	18.79	8.98	13.66	11.64	24.16	12.71	14.32	11.71
Recognizing Letters	8	2.46	1.63	0.95	2.34	3.20	2.05	1.28	2.61	3.32	2.04	2.24	2.76	4.36	2.50	1.93	2.94
Naming Capital Letters	16	1.65	2.37	2.57	3.86	2.68	4.72	4.03	4.99	2.58	4.18	6.34	5.19	5.04	5.66	6.55	5.32
Naming Lower Case Letters	8	0.54	0.84	1.05	2.21	1.10	2.05	1.28	2.53	0.84	1.72	2.61	2.64	1.89	2.52	2.82	2.93
Matching Letters in Words	4	3.05	1.20	0.73	1.15	3.28	1.20	0.50	1.20	3.64	0.57	0.21	0.58	3.58	0.75	0.32	0.77
Recognizing Letters in Words	4	1.59	1.01	0.16	1.48	1.43	1.17	0.80	1.36	1.42	1.13	1.03	1.68	1.82	1.39	1.07	1.70
Initial Sounds	4	0.78	0.67	0.24	1.09	1.08	0.89	-0.03	1.21	1.08	0.78	0.21	1.04	1.09	0.93	0.45	1.37
Reading Words	6	0.00	0.00	0.00	0.00	0.08	0.47	0.28	0.55	0.05	0.32	0.55	0.98	0.31	0.82	0.61	0.87
Forms Total	20	9.35	3.74	2.81	3.06	11.08	4.15	3.30	3.04	11.97	3.15	3.39	3.58	12.20	3.15	4.64	3.25
Recognizing Forms	4	2.08	1.14	0.27	1.56	2.38	1.25	0.20	1.42	2.42	1.15	0.68	1.69	2.11	1.09	1.18	1.44
Naming Forms	4	1.00	1.18	0.68	1.08	1.50	1.30	1.13	1.02	1.55	1.22	1.18	1.56	1.84	1.15	1.30	1.17
Numbers Total	54	21.00	10.71	5.95	6.87	23.53	11.37	7.58	6.54	25.89	11.87	11.18	9.41	31.89	10.12	9.66	9.93
Recognizing Numbers	6	2.11	1.54	0.70	1.68	2.10	1.69	1.08	1.70	2.45	1.83	1.95	2.22	3.42	2.02	1.45	2.26
Naming Numbers	15	1.92	3.59	2.19	3.00	2.35	3.62	2.73	2.94	3.26	4.41	4.66	4.19	5.31	4.82	4.89	4.71
Numerosity	6	3.65	1.64	0.92	1.38	4.23	1.91	0.75	1.72	4.11	1.56	0.84	1.39	4.93	1.29	0.68	1.20
Counting	9	5.65	2.66	0.54	2.18	5.93	2.47	1.45	2.16	6.66	1.91	1.11	1.67	7.20	1.83	0.73	2.31
Addition and Subtraction	7	1.84	1.72	0.51	1.82	2.45	2.04	0.68	1.31	2.63	1.88	1.11	1.83	3.29	1.80	0.39	1.71
Matching Subtest	11	8.84	2.61	1.05	2.84	9.48	1.72	0.70	1.64	9.97	1.05	0.32	1.49	9.96	1.19	0.66	1.27
Relational Terms Total	17	10.81	3.28	0.97	2.85	11.28	3.44	1.18	3.56	11.11	2.66	1.58	2.34	12.02	2.62	1.25	3.05
Amount Relationships	9	5.32	1.76	0.41	1.71	5.35	2.17	0.53	2.36	5.24	1.87	0.76	2.01	5.87	1.70	0.61	1.90
Size Relationships	2	1.76	0.44	0.03	0.50	1.78	0.48	0.13	0.56	1.82	0.46	0.08	0.43	1.87	0.34	0.14	0.35
Position Relationships	5	3.35	1.55	0.35	1.67	3.48	1.30	0.45	1.68	3.53	1.06	0.50	1.08	3.82	1.01	0.25	1.28
Sorting Total	6	2.89	1.33	0.62	1.74	2.83	1.50	0.95	1.85	2.74	1.67	1.71	1.63	3.27	1.57	1.36	1.87
Classification Total	24	12.05	5.07	3.19	4.08	14.28	4.74	2.45	5.08	14.05	4.98	4.13	4.64	15.49	4.24	4.18	4.66
Classification by Size	2	1.24	0.76	0.19	0.88	1.35	0.74	0.18	0.90	1.37	0.79	0.24	0.85	1.36	0.71	0.48	0.88
Classification by Form	6	2.22	1.49	0.78	1.34	3.05	1.69	0.88	1.91	3.18	1.37	0.89	1.72	3.31	1.24	1.30	1.61
Classification by Number	6	2.49	1.71	0.70	1.54	2.88	1.47	0.25	1.89	2.89	1.64	0.84	1.52	3.47	1.52	0.70	1.76
Classification by Function	9	5.73	1.91	1.27	2.01	6.50	1.77	1.00	2.18	6.03	2.02	1.95	1.92	6.87	1.47	1.36	1.73
Puzzles Total	5	2.05	1.39	1.00	1.83	2.33	1.46	1.08	1.65	2.45	1.37	0.92	1.62	3.02	1.45	0.73	1.60
Peabody Raw Score (Pretest only)	80	37.81	9.87			39.10	11.54			43.68	10.44			45.82	9.29		
Peabody Mental Age (Months)	--	46.08	12.29			48.63	16.15			53.87	15.00			56.62	13.51		
Hidden Triangles Total (Posttest)	10	4.65	1.55			4.61	1.60			5.05	1.45			5.09	1.58		
Which Comes First Total (Posttest)	12	5.16	2.93			6.17	2.88			6.63	2.89			7.62	3.20		

FIGURE 3a

Pretest and Gain on Total Test Score for All Disadvantaged 3, 4, and 5-Year-Old Children

(by viewing quartiles)

N=127 3-Year-Olds
N=433 4-Year-Olds
N=159 5-Year-Olds

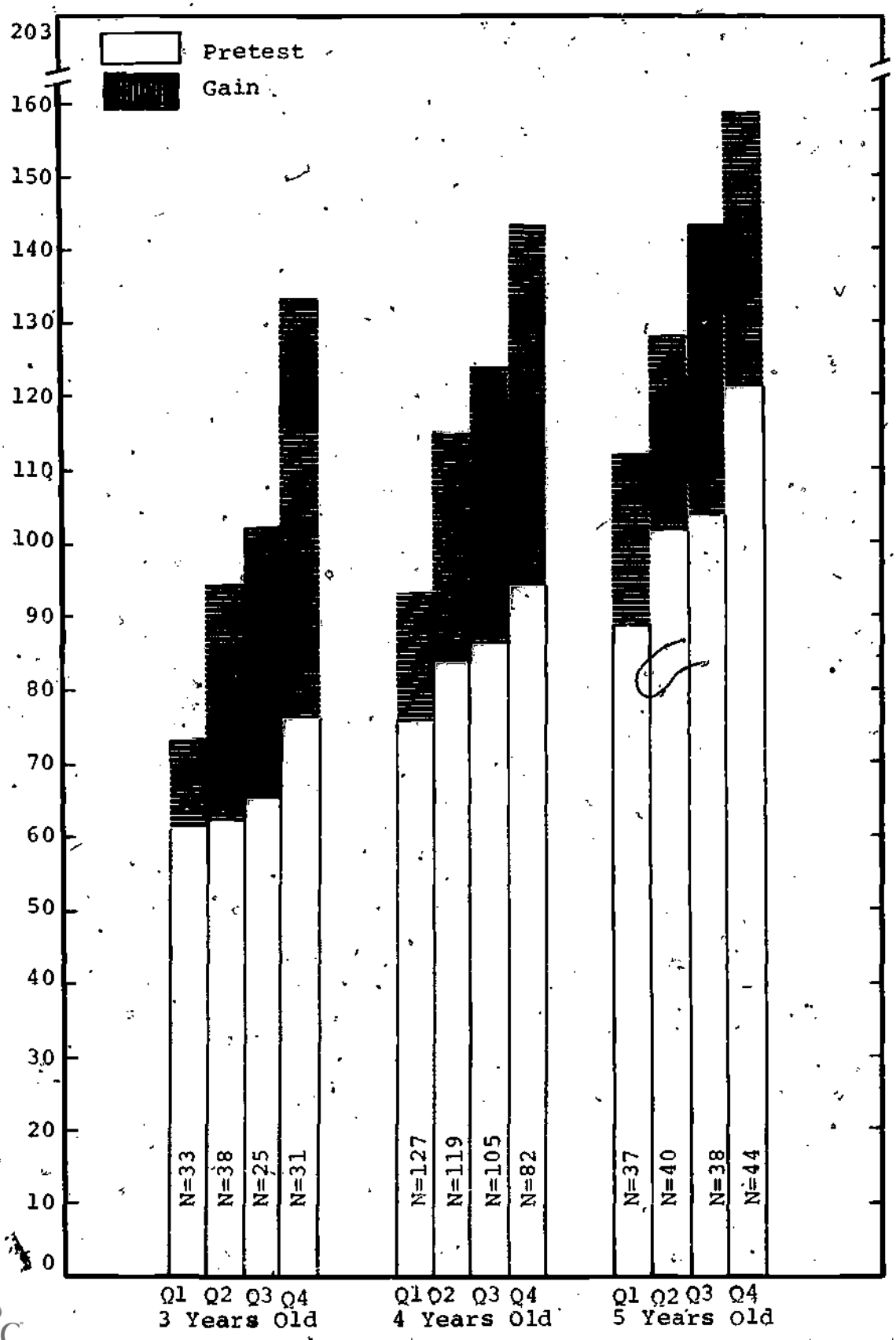


TABLE 24

Pretest and Gain Scores for All Advantaged Children

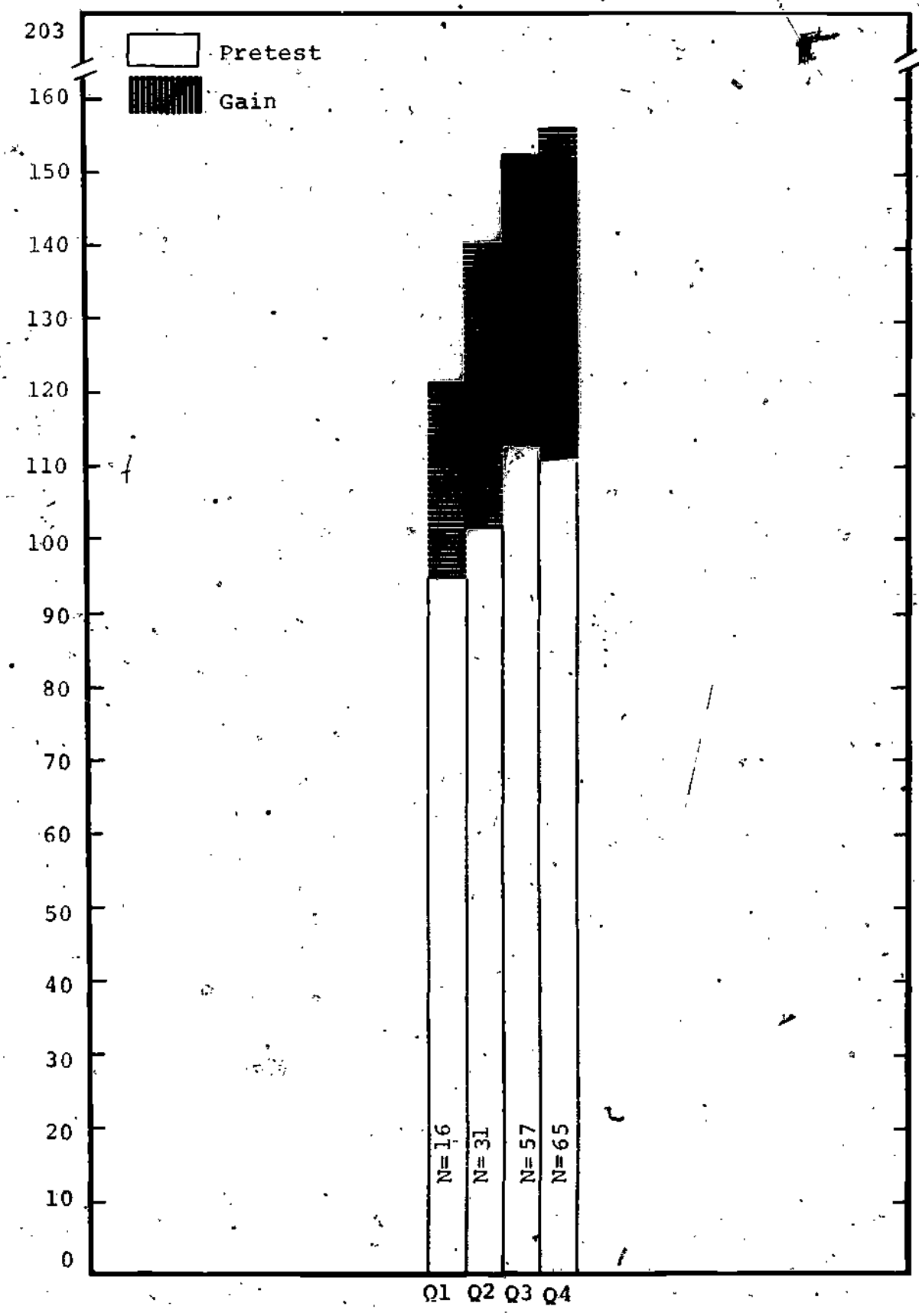
(by quartiles)

N = 164

Test & Subtest	Maximum Possible Score	Q1 N=16 Pretest Mean	Q1 N=16 Pretest SD	Q1 N=16 Gain Mean	Q1 N=16 Gain SD	Q2 N=31 Pretest Mean	Q2 N=31 Pretest SD	Q2 N=31 Gain Mean	Q2 N=31 Gain SD	Q3 N=57 Pretest Mean	Q3 N=57 Pretest SD	Q3 N=57 Gain Mean	Q3 N=57 Gain SD	Q4 N=65 Pretest Mean	Q4 N=65 Pretest SD	Q4 N=65 Gain Mean	Q4 N=65 Gain SD
Grand Total	203	95.44	23.90	26.69	16.04	102.13	21.65	38.65	17.02	112.77	24.36	40.46	18.83	110.83	25.63	45.25	22.87
Body Parts Total	32	24.13	5.77	3.19	4.97	25.74	4.90	2.52	4.31	26.37	5.64	2.35	4.28	25.71	4.79	3.14	4.5[illegible]
Pointing to Body Parts	5	4.13	1.15	0.25	0.93	4.35	0.75	0.29	0.86	4.30	1.10	0.30	0.98	4.49	0.77	0.09	1.03
Naming Body Parts	15	11.06	2.65	1.25	3.02	11.39	2.75	0.87	2.51	11.86	3.20	0.89	2.66	11.38	3.13	1.32	3.15
Function of Body Parts (Point)	8	5.94	2.11	1.13	2.22	6.71	1.44	0.81	1.54	6.77	1.66	0.79	1.59	6.40	1.63	1.25	1.63
Function of Body Parts (Verbal)	4	3.00	1.26	0.56	0.96	3.29	1.01	0.55	0.99	3.44	1.07	0.37	1.11	3.46	1.07	0.49	1.09
Letters Total	58	15.19	8.79	8.06	9.26	16.81	7.03	12.48	10.10	19.25	10.21	17.09	9.99	18.62	8.86	19.63	11.46
Recognizing Letters	8	2.25	2.08	1.19	2.14	2.48	1.69	2.52	2.57	3.07	2.10	2.81	2.10	3.34	2.05	2.78	2.51
Naming Capital Letters	16	1.75	3.77	3.75	4.39	2.55	3.91	5.87	4.89	3.77	4.92	7.65	5.24	3.69	4.26	8.72	4.80
Naming Lower Case Letters	8	0.56	2.00	1.13	1.54	0.52	0.81	1.97	2.23	1.02	1.55	3.37	2.51	0.78	1.24	3.66	2.68
Matching Letters in Words	4	3.56	0.81	0.31	0.87	3.45	0.72	0.55	0.72	3.47	0.87	0.37	0.96	3.26	1.08	0.58	1.27
Recognizing Letters in Words	4	1.44	1.21	0.38	1.20	1.35	0.95	0.55	1.18	1.42	1.18	1.09	1.26	1.42	1.21	1.20	1.50
Initial Sounds	4	0.63	0.96	0.19	1.33	0.68	0.70	0.52	1.18	0.95	0.87	0.39	1.35	0.77	0.80	0.89	1.06
Reading Words	6	0.0	0.0	0.06	0.25	0.0	0.0	0.10	0.30	0.04	0.26	0.30	0.65	0.03	0.17	0.35	0.69
Forms Total	20	10.63	3.48	3.00	4.23	11.35	3.20	4.32	2.74	12.37	3.05	3.88	3.59	12.31	3.15	4.62	3.39
Recognizing Forms	4	2.44	1.36	0.25	1.69	2.10	1.19	0.94	1.44	2.47	1.10	0.54	1.76	2.54	1.25	1.08	1.41
Naming Forms	4	1.31	1.01	0.88	1.82	1.32	1.14	1.29	1.22	1.81	1.17	1.10	1.23	1.68	1.00	1.46	1.20
Numbers Total	54	22.13	10.37	8.69	5.38	24.13	8.65	12.06	6.79	28.07	9.80	12.16	8.17	27.50	10.83	12.40	7.68
Recognizing Numbers	6	2.88	2.09	0.63	1.50	2.23	1.75	2.16	1.64	2.81	1.98	2.05	2.14	2.98	1.80	1.85	1.93
Naming Numbers	15	3.06	4.25	2.94	3.00	2.77	3.82	4.81	4.10	4.09	4.43	5.91	4.15	4.18	4.50	5.71	4.33
Numerosity	6	3.56	1.75	1.50	1.55	4.58	1.46	0.68	1.17	4.89	1.16	0.37	0.94	4.85	1.31	0.48	1.20
Counting	9	5.19	2.88	1.56	1.90	6.23	1.94	1.19	1.42	6.86	1.85	0.84	1.49	6.46	2.39	1.18	2.11
Addition and Subtraction	7	1.94	1.61	0.50	1.51	2.06	1.59	1.16	1.37	2.51	1.30	0.82	1.30	2.55	1.70	0.74	1.53
Matching Subtest	11	9.31	1.45	0.81	1.17	9.90	1.01	0.39	1.20	9.67	1.09	0.65	1.11	9.32	1.60	1.05	1.74
Relational Terms Total	17	10.63	2.58	1.56	2.85	10.48	2.34	2.10	2.69	11.58	1.96	1.19	2.19	11.71	2.57	1.38	2.64
Amount Relationships	9	4.75	1.39	1.13	1.15	4.68	1.54	1.52	1.67	5.61	1.46	0.40	1.72	5.52	1.52	0.80	1.61
Size Relationships	2	1.75	0.58	0.25	0.58	1.90	0.30	0.10	0.30	1.84	0.41	0.11	0.41	1.89	0.31	0.05	0.37
Position Relationships	5	3.50	1.46	0.13	1.82	3.19	1.25	0.48	1.29	3.47	1.10	0.60	1.33	3.58	1.09	0.48	1.38
Sorting Total	6	2.75	1.34	0.50	1.41	2.81	1.22	1.52	1.29	2.98	1.41	1.65	1.83	2.86	1.41	1.75	1.54
Classification Total	24	11.50	3.12	3.69	5.33	14.03	3.56	4.97	4.01	15.19	4.21	4.58	4.95	15.11	4.23	4.55	4.27
Classification by Size	2	1.00	0.73	0.50	1.10	1.45	0.68	0.29	0.64	1.47	0.68	0.37	0.84	1.55	0.66	0.26	0.78
Classification by Form	6	2.38	1.41	0.88	2.22	3.06	1.36	1.39	1.50	3.16	1.52	1.54	1.74	3.26	1.43	1.37	1.59
Classification by Number	6	2.19	1.05	1.06	1.61	2.55	1.18	1.16	2.02	3.05	1.51	1.14	2.17	2.91	1.49	1.12	1.76
Classification by Function	9	5.56	1.36	1.06	1.48	6.32	1.60	2.06	1.86	6.89	1.47	1.49	1.78	6.74	1.73	1.68	1.78
Puzzles Total	5	2.75	1.18	0.13	0.96	2.26	1.15	1.23	1.41	2.93	1.42	0.79	1.59	3.15	1.21	0.48	1.60
Peabody Raw Score (Pretest only)	80	42.31	9.48			49.45	8.18			49.19	9.93			48.12	9.39		
Peabody Mental Age (Months)	--	51.56	11.97			62.03	13.34			62.49	15.55			60.29	15.51		
Hidden Triangles Total (Posttest)	10	4.38	1.20			4.71	1.13			4.35	1.46			4.45	1.31		
Which Comes First Total	12	6.00	2.88			7.06	2.93			7.79	2.49			8.40	2.85		

FIGURE 7a

Pretest and Gain on Total Test Score for All Advantaged Children
(by viewing quartiles)
N=169



SESAME STREET: FIRST YEAR REPORT CARD