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ABSTRACT

Two curricula, Englemann-Becker and New Nursery School, were analyzed for effectiveness with Head Start children over a period of eight months, using the Slosson and Merrill-Palmer tests, a socialization scale and classroom observations. In congnitive development, there are no significant differences between the two curricula as used by teachers who scored highest on classroom observations. There was significantly less failure in cognitive development in low-scoring teacher classes using the New Nursery School curriculum than those using the Englemann-Becker curriculum. The New Nursery School curriculum appears more functional than the Englemann-Becker curriculum in achieving the following results: (1) increased association of children with each other in play and work situations, (2) increased interaction of children with each other in groups of three or more, (3) more active participation by children in work and play situations, (4) Sharing with other children, (5) a minimum of crying behavior with other children, and (6) increase in intellectual maturity as defined by the teacher. It is concluded that since cognitive skills acquired by the child seem to be about equal in the two curricula, and since the corollary elements which the child needs in his educative process are probably better supplied by the New Nursery School curriculum, there appears to be little reason for recommending the Englemann-Becker curriculum as against the New Nursery School curriculum. (Author/CK)

TITLE PAGE

FINAL REPORT

Project No. 0-A-012

ANALYSIS OF TWO CURRICULA: ENGELMANN-BECKER AND NEW NURSERY SCHOOL

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SUMMARY - Project No. 0-A-012

TITLE OF PROJECT: Analysis of Two Curricula: Englemann-Becker and New Nursery School.

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Two curricula; Englemann-Becker and New Nursery School were analyzed for effectiveness with Head Start children over a period of eight months, using the Slosson and Merrill-Palmer tests, a socialization scale and classroom observations.

In cognitive development, there are no significant differences between the two curricula as used by teachers who scored highest on classroom observations. There was significantly less failure in cognitive development in low-scoring teacher classes using the New Nursery School curriculum than those using the Englemann-Becker curriculum.

The New Nursery School curriculum appears more functional than the Englemann-Becker curriculum in achieveing the following results:

a. Increased association of children with each other in work and play situations.
b. Increased interaction of children with each other in groups of three or more.
c. More active participation by children in work and play situations.
d. Sharing with other children.
e. A minimum of crying behavior with other children.
f. Increase in intellectual maturity as defined by the teacher.

Since cognitive skills acquired by the child seem to be about equal in the two curricula, and since the corollary elements which the child needs in his educative process are probably better supplied by the New Nursery School curriculum, there appears to be little reason for recommending the Englemann-Becker curriculum as against the New Nursery School curriculum.

PREFACE

Acknowledgement for special assistance in
research design and data analysis.

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Appreciation to the Providence Head Start staff.

I. INTRODUCTION

The research reported in this paper assesses the effectiveness of two different curricula in the Providence Head Start nursery school program. The two curricula are: 1) The Engelmann-Becker Curriculum and 2) The New Nursery School Curriculum. The former is a highly-structured model, designed to follow (essentially) the techniques of Skinnerian operant conditioning. The subjects of arithmetic, reading, and language are parceled out into small blocks of information; the children are divided into small groups and given information units; children are rewarded individually and tangibly (with raisins, typically) for correct responses and not rewarded when responses are incorrect. The New Nursery School curriculum, on the other hand, demands the availability of a large number of objects and media for the child to explore. The curriculum counts on a child's natural curiosity and the teacher's ability to pique interest to develop knowledge and skills. The interests and enthusiasm of the child are considered to be more important elements of the learning situation than structured learning itself.

There are approximately 420 children in the Providence Head Start program; they attend nursery school in twenty one different classrooms. In nine of the classrooms, the Englemann-Becker curriculum has been installed; in the remaining twelve, the teachers use the New Nursery School curriculum. The nine Engelmann-Becker classrooms are distributed through the system in such a manner that each of the important poverty areas of the city has one or more classrooms using this model.

The general objective of the research is to determine which of the two curricula produces the most effective preparation for formal schooling among culturally disadvantaged pre-school children. The growth of the children in the areas of cognitive and social behavior is assessed through (pre and post) psychological testing, classroom observation, and teacher-completed questionnaire. Data from each of these sources are used to compare the effectiveness of the two curricula. In addition, within-curricular comparisons are made with classrooms of highly-effective teachers being compared with classrooms of teachers whose effectiveness is rated below par.

In October and November of 1969, all 420 Head Start participant children were individually tested with the Slosson Intelligence Test for Children and Adults. This instrument was chosen because it requires only about twenty minutes for administration; it claims a high validity, and it was to be used within the Engelmann-Becker sub-group (as part of its assessment procedure) anyway. The Slosson yields an MA score (and an IQ score).

METHODS

In May and June of 1970, a sample of eight children from each classroom was taken and two sets of measurements were made on each child in this sample:

1) Post-test on the Slosson
2) Merrill-Palmer Scale on Mental Tests

The Merrill-Palmer Scale was chosen to augment the Slosson because this instrument measures specific abilities, such as mechanical skills and concept formation abilities, not specifically sampled by the Slosson. Also, the Slosson items intended for the later months of the age range under study seem to sample preponderantly verbal and numerical skills, which are the learnings being explicitly reinforced for in the Engelmann-Becker model, so that a fair test of the effectiveness of the two curricula would not result if the Slosson alone were used. The Merril-Palmer is a well known, standardized instrument; it samples more fully the behavior repertory of pre-school children than the Slosson. Considered by themselves, the Merrill-Palmer measurements constitute data from an after-only design. The two administrations of the Slosson constitute a conventional pre- and post-design. On these two sets of data will be based the comparisons of the two curricula in their affect on the change in the cognitive behavior of the participant children.

The results of the analysis of the Slosson data are reported in Section 2. The results of the analysis of the Merrill-Palmer data are reported in Section 3. The Merrill-Palmer results can be controlled for initial differences in cognitive functioning by analysis of covariance techniques, with the fall Slosson data used as a pre-measure. In this way, a kind of statistical reconstruction of a post-pre gain analysis can be done. The results of this analysis are reported in Section 3.

The effects of the two curricula on the social behavior of the children are assessed in two ways:

1) Teacher-completed questionnaire requesting subjective judgments of the quality of the child's social behavior with his classmates, and with adults;

2) Observations of the children's social behavior taken from video-tape records of a certain staged play situation.

The questionnaire of item (1) is appended as Attachment One. The teachers completed the questionnaire on three occasions during the course of the term: in December, in March, and in May. The data are analyzed in Section 4. The videotape data of item (2) are based on three short videotape sequences taken with each of two groups of four children in each classroom. Except that some substitutions were necessitated by absences, the within-class samples of size eight

consist of the same children as were selected for testing with the Merrill-Palmer. The data resulting from the videotaping consist of judges' ratings of the quality of the social behavior of the children in a structured play situation involving activity with large cardboard building blocks. The judges' rating schedule is appended as Attachment Two. The data resulting from the videotaping are analyzed in Section 5 of this paper.

Another source of data in the study is the use of a classroom observation schedule, a copy of which is appended as Attachment Three, against which experienced judges made observational assessments of a number of aspects of the classroom activities. From these check lists are derived orderings of the classrooms within each curricula in terms of the effectiveness of the curricular implementation. Within each curriculum, comparisons on the cognitive and social criterion measures (i.e. the Slosson pre-post, the Merrill-Palmer, and the social development questionnaire) are made between the subset of classrooms in which the curricular implementation is rated relatively effective and those in which the implementation has been ineffective. Across the two curricula, comparisons on the cognitive and social criterion measures are made among those classrooms in which the curricular implementation is noted as being relatively effective. These analyses are reported in Section 6.

In Section 7 of the paper, the results of the several preceding sections are brought together and related to one another. In the concluding section, Section 8, is found a summary, together with recommendations following from the research results.

RESULTS

II. SLOSSON INTELLIGENCE TEST

At the beginning of the Head Start term (October) the Slosson Intelligence Test was administered to nearly a complete sampling of the Head Start classrooms; 354 of the approximately 415 enrolled children were tested. The untested children were absent from the classroom because of illness or other reasons on the testing days. In the nine Engelmann-Becker classrooms, a total of 154 children were tested.

Table 2-1 gives descriptive statistics (means/variances) among the New Nursery School children.

Table 2-1: Fall Slosson New Nursery School Classrooms

		MA		CA		IQ	
Teacher	N	$\bar{X}$	S2	$\bar{X}$	S2	$\bar{X}$	S2
04	19	53.3	171.9	53.7	6.9	102.9	580.3
05	16	44.2	117.9	51.4	16.3	86.2	419.1
10	17	57.4	129.0	51.9	17.0	110.5	417.4
13	14	47.6	105.3	53.4	39.9	92.7	401.6
14	17	53.6	97.6	52.8	10.7	101.5	354.1
15	18	49.3	127.0	52.2	17.2	94.6	435.8
16	14	53.2	73.7	53.0	15.1	100.6	184.9
17	16	47.8	73.5	50.7	17.5	95.9	375.3
18	16	50.8	120.2	51.7	13.0	97.9	439.1
19	15	46.4	112.1	45.2	41.6	102.8	405.9
20	23	51.1	135.1	47.2	41.5	107.6	345.1
21	15	49.1	89.1	47.6	60.5	103.3	206.0
Total	200	51.3	115.10	51.3	24.58	100.11	385.24

Table 2-2 gives the same summary statistics among the Engelmann-Becker classroom.

Table 2-2: Fall Slosson Engelmann-Becker Classrooms

		MA		CA		IQ	
Teacher	N	$\bar{X}$	S2	$\bar{X}$	S2	$\bar{X}$	S2
01	20	50.8	125.6	52.2	15.2	96.3	283.5
02	19	50.6	49.8	52.6	12.0	96.4	165.7
03	14	50.7	90.8	51.5	10.1	98.5	312.3
06	16	53.7	107.3	53.2	10.2	100.6	252.5
07	17	53.0	92.0	51.6	9.9	104.8	290.9
08	16	51.4	30.1	52.0	19.3	101.1	103.7
09	16	54.4	73.7	52.3	5.8	103.4	215.9
11	20	53.8	95.6	52.3	17.6	103.6	317.9
12	16	51.1	97.0	51.0	31.7	96.4	323.7
Total	154	52.1	85.29	52.1	14.70	100.11	252.17

In Tables 2-1 and 2-2, the columnar headings MA, CA, IQ are, of course, abbreviations for mental age, chronological age, and intelligence quotient. The age unit for MA and CA is months, with CA taken as age in months at time of testing. MA's were derived from the norms provided with the Slosson test booklet.

The new Nursery School children were slightly younger (51.3 months) on the average, at time of testing, than the Engelmann-Becker children (52.1 months). The mental ages among the New Nursery School (NNS) children are correspondingly smaller. In both groups the average IQ's are surprisingly close to 100.

There is evidently a large amount of variability among these fall Slosson scores; there is even substantial variability among the classroom averages ($\bar{x}$ in Tables 2-1, 2-2). The variances (S2) in Table 2-1 among the Slosson IQ's correspond to standard deviations (S) ranging from about 13.5 (Teacher 16) to about 24 (Teacher 04). The variances among IQ's of Table 2-2 correspond to standard deviations (S) ranging in size from about 10 (Teacher 08) to about 18 (Teacher 12). These figures are not inconsistent with the fact that the expected value of the variance is about 15-16. The variances among the New Nursery School classrooms are somewhat larger, on the average, than those among the Engelmann-Becker classrooms.

In the Slosson testing yielding the data of Tables 2-1 and 2-2, five different test adminstrators were employed. In order to check inter-tester variability and to check test-retest reliability, the Slosson was re-administered to thirty children after a time log of 2½-3 weeks. With twelve of the retested children, the retester was the original tester; the retester for the remaining eighteen children was a tester different from the original tester. Three (of the original five) test administrators did the retesting. The test retest reliability results are reported in Table 2-3.

Table 2-3 Fall Slosson. Test-Retest Reliability

Sample Size	First Test Mean	First Test SD	Second Test Mean	Second Test SD	Correlation Coefficient
12	51.4	13.14	50.3	14.78	0.783

As voted in the table, the sample size was twelve. The criterion variable is Slosson mental age in months. Some

children tested in the first session by each of the five testers were included among the eighteen children retested. No observable pattern shows that any single tester tended to elicit high of low scores from the children. The data, aggregated over all three re-testers are reported in Table 2-4; again, the criterion variable is Slosson mental age in months.

Table 2-4 Fall Slosson, Inter-Tester Reliability

Sample Size	First Test		Second Test		Correlation Coefficient
	Mean	SD	Mean	SD	
18	48.6	16.43	49.3	15.34	0.712

In May and June of 1970, of eight children from each of the twenty-one classrooms with the Merrill-Palmer Intelligence Test. The Merrill-Palmer results are discussed in Section 3. Because of absentees among the sample on testing day, not all eight of each classroom's sample was tested; the smallest number retested was five.

The Slosson retest data are reported in Tables 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, and 2-12. In Tables 2-5 and 2-6, the fall Slosson means and variances for mental age (MA), chronological age(CA), and intelligence quotient (IQ) are reported. These statistics are directly comparable with those of Table 2-1. Notice that, classroom by classroom, the data of the two tables agree, in terms of averages (Means), fairly closely. In Table 2-6, the same statistics are reported for the Engelmann-Becker classromms; this table is comparable with Table 2-2. There is no reason to suspect, on the basis of these table comparisons, that the spring sample (in any given classroom) is unrepresentative of the classroom as a whole, particularly when the interest is in studying fall to spring differences (gains) on the Slosson.

In Tables 2-7 and 2-8 are reported the spring Slosson summary statistics. The samples are the same as those of Tables 2-5 and 2-6, that in several instances, the data of an additional child is included or excluded. This is

7.

Table 2-5 Fall Slosson. Study Sample. New Nursery School Classrooms.

		MA		CA		IQ	
Teacher	N	$\bar{X}$	S2	$\bar{X}$	S2	$\bar{X}$	S2
04	7	52.9	35.1	52.6	5.6	100.4	121.2
05	8	44.9	132.0	54.0	10.1	83.5	281.2
10	8	57.2	98.6	55.1	7.2	105.1	403.4
13	8	48.0	97.5	51.5	16.6	92.9	241.1
14	7	53.0	34.8	52.1	16.8	102.3	202.7
15	5	48.8	143.2	53.4	11.7	87.8	322.9
16	6	57.5	34.8	54.7	9.6	105.5	161.3
17	5	49.0	61.0	51.2	6.2	95.4	182.0
18	7	55.9	94.3	51.4	9.5	108.0	246.1
19	6	52.3	101.2	53.7	14.4	97.5	316.1
20	6	61.8	19.4	52.5	3.8	117.8	112.2
21	6	50.5	67.9	51.7	10.3	97.8	264.8

Table 2-6 Fall Slosson Study Sample. Englemann-Becker Classrooms

		MA		CA		IQ	
Teacher	N	$\bar{X}$	S2	$\bar{X}$	S2	$\bar{X}$	S2
01	8	55.0	173.2	52.9	9.7	102.1	306.5
02	7	49.4	93.4	51.1	12.8	96.8	366.4
03	8	47.9	29.6	50.4	13.1	95.4	167.6
06	8	55.1	92.7	52.3	18.6	104.8	128.7
07	5	57.8	89.7	51.0	6.3	113.0	214.2
08	8	48.2	30.4	50.5	11.9	96.2	216.0
09	8	55.2	82.0	52.4	3.9	105.2	313.1
11	8	55.7	116.1	54.8	14.1	101.9	371.8
12	6	58.7	40.2	52.3	20.2	112.7	78.6

occasioned by the inclusion within the "fall sample" children for whom Merrill-Palmer data. Considerably more information is included in these tables than in the previous two. Spicifically, the tables report the range (maximum, minimum), median, mean and standard deviation for each of MA, CA, and IQ. In Table 2-7 are reported these data for the New Nursery School classrooms.

Table 2-7 Spring Slosson. New Nursery School Classrooms.

Teacher	N	MA					CA					IQ				
		Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD
04	6	71	58	67.5	66.2	4.7	63	57	61.5	60.8	2.1	121	95	108	108.8	9.6
05	8	74	39	57	57.2	9.2	65	53	62	60.7	4.3	114	63	94	94.5	14.3
10	8	80	56	67	67	7.8	65	57	64	63	2.7	130	90	103.5	106.5	13.9
13	7	66	45	54	54.7	7.8	65	54	58	59.4	4.3	122	68	91	92.1	17.1
14	8	71	56	66.5	65.0	5.7	65	55	58	59.6	4.3	129	91	107	109.5	13.0
15	8	76	57	64	64.6	5.6	65	57	62.5	61.5	2.9	121	87	105	105.1	9.5
16	7	74	60	67	66.7	4.8	65	58	64	62.7	2.7	114	102	105	106.0	4.2
17	7	68	55	62	61.8	4.4	63	57	57	58.4	2.2	120	93	105	106.1	8.7
18	8	78	58	64	65.1	6.4	64	52	60	58.9	3.7	127	96	107	110.7	11.7
19	7	75	54	62	62.7	6.2	66	54	64	61.4	4.5	117	83	105	102.0	12.3
20	5	78	60	67	66.8	7.2	64	58	60	60.6	2.4	135	98	106	110.6	14.6
21	8	70	51	63	62.6	5.7	66	57	63.5	61.7	3.7	123	88	101.5	102.1	11.1
Total	87	80	39	64	63.1	7.5	66	52	61	60.5	3.6	135	63	104	104.3	12.9

There is evidently a great amount of variability in these Slosson scores. The median MA (within a classroom) ranges from 54 (Teacher 13) to 67.5 (Teacher 04); the within-classroom ranges are also large--one (Teacher 05) being even as large as 35 with the smallest score being 39 and the largest, 74. In Table 2-8 are reported the data for the

Engelmann-Becker classrooms. Again there is large variability among the classrooms, with the Median MA ranging from 60 to 68.5 and the range as large as 35 (Teacher 02).

Table 2-8 Spring Slosson. Engelmann-Becker Classrooms.

		MA					CA					IQ				
eacher	N	Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD
01	8	80	50	61	63.5	9.8	65	56	60.5	60.5	3.4	125	80	101	104.8	14.8
02	7	76	41	64	60.8	11.2	63	55	58	59	3.6	121	66	111	103.4	19.4
03	8	76	49	61.5	61	7.7	64	55	57.5	58.4	3.1	136	84	103	104.6	14.8
06	8	81	51	64	64.4	8.2	66	54	60	60	4.1	123	89	106	107.2	10.0
07	6	81	62	68.5	69.8	7.1	65	57	59.5	60.2	3.2	129	105	115.5	116	9.9
08	5	70	54	60	62	5.5	64	55	57	57.7	2.9	121	84	107	107.4	12.3
09	8	83	56	65.5	66.8	9.2	64	58	60	60.2	2.1	136	96	107	110.8	15.6
11	7	79	57	64	66.7	8.3	66	54	65	62.8	4.2	120	95	106	106.1	9.3
12	8	76	56	67.5	67.1	7.5	65	54	61	60.5	3.6	119	92	116	111	9.6
tal	65	83	41	64	64.6	8.5	66	54	60	60.0	3.5	136	66	107	107.7	12.9

The last row of Tables 2-7 and 2-8 give a comparison between the Engelmann-Becker classrooms and the New Nursery School classrooms. The average (mean) MA score among the Engelmann-Becker children is 64.6, according to Table 2-8; while this mean among the New Nursery School children is 63.1. This difference is not a statistically significant one. The average (mean) IQ score among the New Nursery School children is 104.3, while the mean IQ among the Engelmann-Becker children is 107.7. Again, this is not a statistically significant difference. These data ignore initial (Fall) standing on the Slosson; this is to say that these are after-only comparisons. It is interesting to note that there is substantially more variability within each of the two curricula than between the curricula.

Table 2-9 Slosson Gains; MA Scores All Classrooms

TEACHER	N	MAX	MIN	MEDIAN	MEAN	SD
01	8	22	- 7	11	8.5	9.7
02	7	14	5	13	11.5	3.4
03	7	20	7	14	14.8	4.7
04	6	17	6	14	13.2	3.7
05	8	25	1	13	12.8	7.1
06	8	18	1	8	9.3	5.5
07	5	16	10	12	12.2	2.3
08	7	18	8	13	13.1	3.1
09	8	19	2	11.5	11.6	5.7
10	8	18	3	8	9.8	5.9
11	7	23	5	13	13.4	5.6
12	6	14	7	10.5	10.7	2.9
13	7	24	-12	12	7.3	13.2
14	7	19	0	16	13.3	6.5
15	5	22	0	21	14.8	9.9
16	6	16	-2	9	8.0	7.3
17	4	11	6	8.5	8.5	2.1
18	7	19	- 6	12	10.4	9.1
19	6	18	4	10	10.5	4.7
20	4	10	- 5	8	5.2	6.9
21	6	19	2	11	10.3	6.2
Total	137	25	- 12	11.5	10.9	6.6

Table 2-10 Slosson Gains; IQ's. All Classrooms

Teacher	N	MAX	MIN	MEDIAN	MEAN	SD
01	8	23	-26	7	2.7	17.4
02	7	12	- 6	9	6.6	6.3
03	7	24	0	13	13.4	7.9
04	6	16	-4	10.5	9.0	7.0
05	8	35	-10	10	10.1	13.9
06	8	19	-11	- 1	2.4	9.9
07	5	15	1	3	5.0	5.7
08	7	13	1	11	8.7	4.7
09	8	18	-13	7	5.6	11.6
10	8	21	-10	- 2.5	1.4	10.1
11	7	28	- 7	7	8.3	10.9
12	6	9	- 5	3	2.2	5.8
13	7	34	-32	9	0.6	23.9
14	7	21	-14	12	8.6	11.5
15	5	26	- 1	23	14.6	13.4
16	6	13	-19	2	- 0.8	13.5
17	4	4	- 1	1	1.2	2.2
18	7	18	-26	7	3.1	16.7
19	6	9	-10	3	2.7	6.7
20	4	- 1	-24	- 2	- 7.2	11.2
21	6	25	-14	5.5	3.5	15.4
Total	137	35	-32	5.3	5.0	12.1

The most interesting comparisons between the two curricula, based on the Slosson data, are the comparisons of gains (spring test score minus fall test score). Tables 2-9 and 2-10 report summary statistics for the fall-to- spring Slosson gains on mental age score (MA) and intelligence quotient (IQ). The gains in the New Nursery School classrooms are reported in Table 2-11.

Table 2-11 Slosson gains. New Nursery School Classrooms.

		MA					IQ				
Teacher	N	Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD
04	6	17	6	14	13.2	3.7	16	- 4	10.5	9.0	7.0
05	8	25	1	13	12.8	7.1	35	-10	10	10.1	13.9
10	8	18	3	8	9.8	5.9	21	-10	-2.5	1.4	10.1
13	7	24	-12	12	7.3	13.2	34	-32	9	0.6	23.9
14	7	19	0	16	13.3	6.5	21	-14	12	8.6	11.5
15	5	22	0	21	14.8	9.9	26	- 1	23	14.6	13.4
16	6	16	-2	9	8.0	7.3	13	-19	2	-0.8	13.5
17	4	11	6	8.5	8.5	2.1	4	- 1	1	1.2	2.2
18	7	19	-6	12	10.4	9.1	18	-26	7	3.1	16.7
19	6	18	4	10	10.5	4.7	9	-10	3	2.7	6.7
20	4	10	-5	8	5.2	6.9	-1	-24	-2	-7.2	11.2
21	6	19	2	11	10.3	6.2	25	-14	5.5	3.5	15.4
Total	74	25	-12	11	10.5	7.5	35	-32	4	4.2	13.7

It is note-worthy that the typical child exposed to the New Nursery School curriculum did score higher on the Slosson at the spring testing than at the fall testing; the average (median) gain in MA was, according to the last line of Table 2-11, eleven months. Since the two testings were not separated by eleven calendar months, the IQ's, on the average, showed a rise from fall to spring. According to Table 2-11, this average (median) gain was four, which is indeed substantial. It is true, and obvious in Table 2-11, that not all children showed gains; a notable characteristic of the data is the

large variability. Comparable statistics for the Engelmann-Becker classrooms are given in Table 2-12. The Engelmann-Becker children also show a large gain on the Slosson. As indicated in the last row of Table 2-12, the average gain in MA in months was 12, in terms of the median, and 11.5 in terms of the mean.

Table 2-12 Slosson Gains. Engelmann -Becker Classrooms.

		MA					IQ				
Teacher	N	Max	Min	Median	Mean	SD	Max	Min	Median	Mean	SD
01	8	22	- 7	11	8.5	9.7	23	-26	7	2.7	17.4
02	7	14	5	13	11.4	3.4	12	- 6	9	6.6	6.3
03	7	20	7	14	14.8	4.7	24	0	13	13.4	7.9
06	8	18	1	8	9.3	5.5	19	-11	-1	2.4	9.9
07	5	16	10	12	12.2	2.3	15	1	3	5.0	5.7
08	7	18	8	13	13.1	3.1	13	1	11	8.7	4.7
09	8	19	2	11.5	11.6	5.7	18	-13	7	5.6	11.6
11	7	23	5	13	13.4	5.6	28	- 7	7	8.3	10.9
12	6	14	7	10.5	10.7	2.9	9	-5	3	2.2	5.8
Total	63	23	- 7	12	11.5	5.6	28	-26	7	5.9	10.2

The comparable statistics for the New Nursery School children are (CF. Table 2-11) 11 and 10.5. This difference (in means) is not statistically significant according to t-test. The difference in average IQ gain is larger. The Engelmann-Becker children showed, according to the last row of Table 2-12, a median IQ gain of 7 and a mean gain of 5.9; the comparable statistics from Table 2-11 are 4 and 4.2. The difference in means is not statistically significant by t-test (t=1.62); without doubt, a median test would show that the median difference also to be not significant statistically. The data of Table 2-12 are similar to those of Table 2-11 in showing a large variability among the classrooms and in showing that at least some children showed negative Slosson gains.

Another way of looking at the post (spring) minus pre (fall) Slosson gains is to do a one-way analysis of covariance with the post score (MA) as the criterion variable and the pre score (MA) as the covariate; the two treatments in this design are, of course, the curricula: New Nursery School and Engelmann-Becker. Table 2-13 gives the within treatment (curricula) means, first unadjusted and then adjusted for initial difference on the fall Slosson MA score. The small differences in sample size from previous tables (Tables 2-11 and 2-12, for example) are occasioned by the necessity to have

Table 2-13. Spring Slosson MA averages, each curricula. Unadjusted and adjusted for fall MA score.

Curriculum	N	Fall Slosson	Unadjusted Spring Slosson	Adjusted Spring Slosson	Standard Error Adjusted
-		MA Mean	MA Mean	MA Mean	MA Mean
New Nursery	65	52.2	62.9	63.4	0.75
Engelmann-Bec	57	53.3	64.9	64.5	0.70

complete data (including Merrill-Palmer score)in order to use the computer analysis of covariance algorithm. The standard error in the final column of Table 2-13 can be treated as an ordinary standard deaviation. The small difference in adjusted Spring Slosson MA average seen in column four of Table 2-13 is not satistically significant; the analysis of covariance table is given as Table 2-14. The small F-statistic reported in Table 2-14 indicates that the adjusted Slosson MA's in the two curricula are not statistically significantly different from each other. There is a substantial regression coefficient between the covariate -- fall Slosson Ma -- and the criterion variable -- Spring Slosson MA. The statistics are reported in Table 2-15. The fact that the regression coefficient is positive means that the coefficient between fall and spring Slosson MA scores is positive, as one would expect. The large t-statistic (11.1) indicates that the coefficient is highly stable (different from zero) statistically.

Table 2-14 Analysis of covariance Table. New Nursery School against Engelmann-Becker. Criterion variable Spring Slosson MA. Covariate Fall Slosson MA.

Source	df	Sum Squares	Mean Squares	F-Statistic
Curriculum	1	43	43	1.37
Error	119	3809	32	
Total	120	3852		

The fact that the regression coefficient of Table 2-15 is positive indicates that the correlation coefficient between fall Slosson Mental Age (MA) and spring Slosson Mental Agency is positive,

Table 2-15 Regression coefficient. Fall Slosson MA Regressed against spring Slosson MA.

Coefficient	Standard Error	T-Value
0.60	0.055	11.1

(as one would expect). Table 7.16 is the six-variable correlation matrix for the fall and spring Slosson data; the six variables are: (1) Fall Slosson MA, (2) Fall Slosson CA, (3) Fall Slosson IQ, (4) Spring Slosson MA, (5) Spring Slosson CA, and (6) Spring Slosson IQ. The correlation matrix is computed from data taken from a sample of size N=137; the sample includes 74 New Nursery School children and 63 Engelmann-Becker children. Note that the correlation coefficient between Fall Slosson MA and Spring Slosson MA is positive and moderately large (r=0.557), as is the correlation coefficient between the Fall Slosson IQ and Spring Slosson IQ (r=0.432). The fact that these two

Table 2-16. Correlation Matrix. Fall and Spring Slosson Data. Both Curricula. N=137.

Variable	1 FSMA	2 FSCA	3 FSIQ	4 SSMA	5 SSCA	6 SSIQ
1. Fall Slosson MA	1.000					
2. Fall Slosson CA	0.331	1.000				
3. Fall Slosson IQ	0.741	-0.055	1.000			
4. Spring Slosson MA	0.557	0.201	0.448	1.000		
5. Spring Slosson CA	0.299	0.976	0.021	0.377	1.000	
6. Spring Slosson IQ	0.327	-0.390	0.432	0.710	-0.313	1.000

statistics are appreciably different from one indicates that there has differential learning to an improtant extent during the school term.

The conclusions following from the analysis of the Slosson data are: (1) There seem to be no substantial differences between the two curricula in ability to affect change in the behaviors measured by the Slosson Intelligence Test, (2) There seem to be rather large differences among the classrooms within each curriculum in affecting growth as measured by the Slosson, (3) There are some children in almost every one of the classrooms who show very little gain in their fall-to-spring Slosson measurements.

III. MERRILL - PALMER

In May and June of 1970, a sample of size eight was taken (randomly) in each of the twenty-one classrooms. This group of children was administered the Merrill-Palmer Intelligence Test, as well as (a post-test), the Slosson Intelligence Test. Because of absences on scheduled testing dates, in some classrooms, not all eight children were tested--the number actually tested ranges from five to eight, with eight being the mode.

The testers reported their subjective assessment of the children's reaction to the measurement situation: the children typically responded quite favorably to the Merrill-Palmer instrument because, evidently, many of its items are manipulative in nature. The child's response to the Slosson test was, typically, much less positive. The Slosson is much more verbal than the Merrill-Palmer; it requires vocabulary and verbal associative skills which are evidently quite demanding or threatening of the child. The two tests were administered in random order to each child, with a day or two separating test administrations. How much effect the frequently observed negative reaction to the Slosson testing had on the results of the measurement process (with either test) is undertermined. Because no appreciable differences in scores obtained under the two orders (Merrill-Palmer, then Slosson or Slosson, then Merrill-Palmer) were found, it may perhaps be assumed that the observed tester resistance to the Slosson testing situation had little effect on performance.

These test administrators did the May - June Slosson/Merrill-Palmer testing. Twelve of the children were tested twice with the Merrill-Palmer instrument; in each instance, the second administration was done by a different tester from the first. The time log between testing was about ten days. The test-retest reliability coefficient (correlation coefficient) based on the twelve double administrations is reported in Table 3-1. The correlation coefficient of 0.673 is acceptably large, but the less than desirable reliability it represents should be kept in mind in interpreting the results reported in the remaining parts of this section.

Table 3-1. Test-Retest Reliability Coefficient. Spring Merrill-Palmer

Number	Reliability Coefficient
12	0.673

The Merrill-Palmer has ninety-three items, each administered against a time constraint, most of which are active; i.e, for most items, not all children are able to complete the activity before time is up. The score yielded by the instrument is simply the number of correct items. The Merrill-Palmer manual provides a conversion table giving Mental Age (MA) equivalents of raw scores. However, the data on which the table was based are evidently very dated, for all but a small proportion of the two scores gained by the Head Start sample converted to MA's larger that the corresponding chronological ages (CA's), many of them substantially so (i.e., almost all IQ's were above 100, many very much above 100). For this reason it was decided to work with raw scores instead of MA's or IQ's. In Table 3-2 are reported the Merrill-Palmer data for the New Nursery School classrooms. Note that in five of the classrooms the maximum of ninety-three is attained. The fact that the median is larger than the mean in most classrooms, and in the aggregate, indicates that the range is restricted at the high end and that the distribution is negatively skewed.

In Table 3-3 are reported the Merrill-Palmer data for the Engelmann-Becker classrooms. Notice in Table 3-3, that the maximum is achieved in all but two of the Engelmann-Becker classrooms. Again, as in Table 3-2, the distribution is negatively skewed. Comparing the statistics of Tables 3-2 and 3-3, one sees that the children in the New Nursery School classrooms obtained about the same distribution of Merrill-Palmer scores as did the children in the Engelmann-Becker classrooms. The averages are only slightly different; Median: New Nursery School (NNS) 85, Engelmann-Becker (EB) 86; Mean: NNS 83.7, EB 84.8. The small difference in favor of the Engelmann-Becker classrooms is not a statistically significant (by t-test) one.

In order to control for initial differences in mental ability so that a more pure measure of growth in cognitive functioning is obtained, an analysis of covariance was done on the Merrill-Palmer data with fall Slosson MA as covariate. This procedure statistically equalizes the difference among the children on the Slosson-- in so far as it is correlated with the Merrill-Palmer-- and compares the two curricula in terms of the adjusted Merrill-Palmer scores. The Merrill-Palmer means and the means of the Merrill-Palmer scores adjusted for Slosson MA differences are reported in Table 3-4. The sample sizes differ from those of Tables 3-2 and 3-3 because of the requirement for having complete data on all variables in the use of the computer algorithm for the analysis of covariance. The analysis of covariance table is reported as Table 3-5. The F-statistic reported in Table 3-5 is, of course, not statistically significant.

Table 3-2. Merrill-Palmer Data. New Nursery School Classrooms.

Classroom	N	Maximum	Minimum	Median	Mean	Std. Dev.
[illegible]	7	92	65	86	82.1	10.0
[illegible]	8	88	65	77	77.1	7.9
[illegible]	8	93	82	85.5	86.1	3.4
[illegible]	8	93	68	86	83.6	9.1
[illegible]	8	92	69	86.5	83.8	7.3
[illegible]	8	91	77	84	83.4	5.2
[illegible]	7	92	65	89	85.1	9.3
[illegible]	8	93	71	83.5	82.1	6.9
[illegible]	8	93	76	88.5	87.2	5.7
[illegible]	7	91	81	83	84.8	3.9
[illegible]	7	87	78	86	84.4	3.2
[illegible]	8	91	79	84.5	85.1	4.8
Total	92	93	65	85	83.7	6.8

Table 3-3. Merrill-Palmer Data. Engelmann-Becker.

Classroom	N	Maximum	Minimum	Median	Mean	Std. Dev.
01	8	90	75	85	82.3	5.8
02	7	93	80	89	87.6	4.9
03	8	90	59	82	77.6	11.9
06	8	93	67	85	83.3	7.5
07	6	93	83	90.5	88.7	4.5
08	8	93	81	83.5	85	4.2
09	8	93	79	89	88	5.6
11	8	93	74	87	85.8	6.8
12	6	93	82	89.5	88.2	4.4
Total	69	93	59	86	84.8	9.3

Table 3-4. Analysis of Covariance Means and Adjusted Means. New Nursery School Classrooms compared with Engelmann-Becker classrooms.

New Nursery School			Engelmann-Becker		
N	Merrill-Palmer	Adjusted Merrill-Palmer	N	Merrill-Palmer	Adjusted Merrill-Palmer
87	84.1	84.7	65	85.3	85.0

Table 3-5. Analysis of Covariance Table. New Nursery School against Engelmann-Becker. Criterion Variable= Merrill-Palmer; Covariate= Fall Slosson MA Scores.

Source	df	Sum Squares	Mean Square	F-Statistic
Curriculum	1	53	53.0	0.987
Error	150	8040	53.6	
Total	151	8093		

Table 3-6. Regression Coefficient. Merrill-Palmer Regressed against fall Slosson MA.

Regression coefficient	Standard Error	T-Value
0.487	0.096	5.09

The regression coefficient associated with the analysis of covariance is reported in Table 3-6. The coefficient (of Table 3-6) is positive and statistically significantly different from zero, as indicated by the large (t=5.09) t-statistic.

The positive regression coefficient of Table 3-6 indicates a positive correlation between Merrill-Palmer scores and fall Slosson MA scores. The correlation matrix among the five variables of (1) Fall Slosson MA, (2) Fall Slosson IQ, (3) Merrill-Palmer, (4) Spring Slosson MA, and (5) Spring Slosson IQ is given as Table 3-7. Note that the Merrill-Palmer more strongly correlated with spring Slosson MA (r=0.331); one would expect this since the Merrill-Palmer was administered within a day or two of the spring Slosson. The correlation matrix of Table 3-7 is based on data taken from 137 subjects--

74 New Nursery School children and 63 Engelmann-Becker children--the same data as that used to compute the correlation matrix of Table 2-16. In fact, some of the statistics of Table 3-7 are repeated from Table 2-16.

IV. SOCIALIZATION RATING SCALE

The instrument of the title, a copy of which is appended as Attachment 1, was completed for each child by the classroom teacher three times in the school year: in December, in March, and in May. The scale consists of three parts: (1) Social Interaction , (2) Emotionality, and (3) General characteristics. Part one has seventeen items, part two has seven items, part three has five items. The items of part one are typified by Item 1a: "Does the child play with other children?". The teacher is requested to respond with a choice from among the alternatives: Almost never, Not very often, Frequently, Most of the time. The thrust of the questions of part two is illustrated by Item 2a: "Does the child cry?"-- to the teacher or aid, --- to other children, --- by himself." The questions of part three are more general in nature; for example, Item 3c asks "How mature is the child? --- socially, --- intellectually, --- emotionally." The items of each part are clearly face valid. No attempt was made to establish a stronger form of validity for the instrument.

The items of the Socialization Rating Scale form (at most) an ordinal scale; accordingly, the responses to each were coded one to four (one to two or three for a few items) thus permitting the formation of ordered distributions. In order to obtain an understanding of the inter-relationships among the items of the scale--even though questionnable from a measurement theory point of view--a correlation matrix was constructed from the coded responses of the first (December) administration. In this same operation, the item means and variances were (of course) determined as well. The means and variances are reported in Table 4-1. These statistics are based on a total sample size of 371; the sample includes children from both curricula. Note that for all but one of the items of Table 4-1, the count (column 3) is somewhat smaller than 371. This is occasioned by the lack of independence within each of several subsets of the scale (cf. Attachment 1) or by the teachers' refusals to complete the item for a child. The data of Table 4-1 should be interpreted in the following manner: on the average, the teachers see the children playing with, or working with, other children frequently (as over against almost never, not very often,or most of the time). Slightly more frequently joint pay is seen, however, than is joint work--see variables 1 and 2 of Table 4-1. These data are more usefully considered in terms of frequency distributions, admittedly; this is done for the second and third administrations in the latter parts of this section.

Table 4-1. Means and Variances. First Administration, Socialization Rating Scale. N=371. Both Curricula.

1	2	3	4	5	6
VAR	VAR NAME	COUNT	MEAN	VARIANCE	STD. DEV.
1	1A	370	3.07	0.74	0.86
2	1B	369	2.93	0.82	0.91
3	1C1	326	2.73	0.66	0.81
4	1C2	343	2.79	0.77	0.88
5	1C3	328	2.25	1.05	1.02
6	1D1	323	2.74	0.89	0.94
7	1D2	359	3.15	0.75	0.86
8	1E1	319	2.76	0.86	0.93
9	1E2	362	3.07	0.73	0.85
10	1F1	363	2.82	0.93	0.96
11	1F2	354	2.51	0.86	0.93
12	1F3	370	3.22	0.79	0.89
13	1G	370	2.52	0.84	0.91
14	1H	368	2.74	0.81	0.90
15	1I	370	2.38	0.83	0.91
16	1J1	365	3.12	0.62	0.79
17	1J2	366	3.30	0.61	0.78
18	2A1	368	1.59	0.59	0.76
19	2A2	365	1.30	0.33	0.57
20	2A3	368	1.45	0.50	0.71
21	2B1	369	1.34	0.48	0.69
22	2B2	366	1.83	0.90	0.94
23	2C1	369	1.49	0.73	0.85

Table 4-1. (continued)

1	2	3	4	5	6
VAR	VAR NAME	COUNT	MEAN	VARIANCE	STD. DEV.
24	2C2	365	1.81	0.86	0.92
25	3A1	367	1.93	0.06	0.24
26	3B1	366	1.03	0.03	0.19
27	3C1	369	1.89	0.43	0.66
28	3C2	369	2.12	0.39	0.63
29	3C3	371	1.81	0.38	0.61

More interesting, perhaps, than the individual item averages are the inter-relationships among the items, which can be expressed, conviently, by means of the ordinary correlation matrix.

Table 4-2 is the correlation matrix for the items of Part One of the Socialization Rating Scale. There is a great amount of interesting information summarized in Table 4-2. For example, the high positive correlation (r=o.61 of row 15, column 07 indicates that the teacher sees an active participant in play activities (Item 1d2, column 07) as also to be an initiator (Item 1i, row 15).

Table 4-3 is the correlation matrix for the seven items of Part Two of the Socialization Rating Scale.

Table 4-4 is the correlation matrix for the five items of Part Three of the Socialization Rating Scale.

In each of Tables 4-2, 4-3 and 4-4 -- because of the large sample size of N=371 -- all correlation coefficients larger than about 0.10 (in absolute value) are statistically significant at the 0.05 level.

Table 4-2. Correlation Matrix. Part One, Socialization Rating Scale--First Administration. N=371 Both curricula.

Variables	01. 1a	02. 1b	03. 1c1	04. 1c2	05. 1c3	06. 1d1	07. 1d2	08. 1e1	09. 1e2	10. 1f1	11. 1f2	12. 1f3	13. 1g	14. 1h	15. 1i	16. 1j1	17. 1j2
01. Item 1a	1.00																
02. Item 1b	0.73	1.00															
03. Item 1c1	0.20	0.14	1.00														
04. Item 1c2	0.63	0.56	0.17	1.00													
05. Item 1c3	0.52	0.58	0.14	0.51	1.00												
06. Item 1d1	0.52	0.41	0.04	0.40	0.32	1.00											
07. Item 1d2	0.69	0.61	0.11	0.57	0.50	0.67	1.00										
08. Item 1e1	0.30	0.38	0.01	0.22	0.17	0.60	0.37	1.00									
09. Item 1e2	0.42	0.53	0.03	0.37	0.35	0.40	0.56	0.63	1.00								
10. Item 1f1	0.41	0.40	0.20	0.34	0.31	0.30	0.44	0.24	0.30	1.00							
11. Item 1f2	0.40	0.41	0.08	0.36	0.25	0.31	0.39	0.36	0.42	0.65	1.00						
12. Item 1f3	0.32	0.42	0.04	0.29	0.20	0.16	0.28	0.33	0.45	0.31	0.48	1.00					
13. Item 1g	0.37	0.41	0.03	0.34	0.28	0.28	0.38	0.21	0.35	0.48	0.67	0.46	1.00				
14. Item 1h	0.36	0.41	0.08	0.36	0.34	0.17	0.37	0.17	0.36	0.22	0.28	0.50	0.38	1.00			
15. Item 1i	0.48	0.50	0.09	0.41	0.36	0.58	0.61	0.46	0.46	0.49	0.56	0.36	0.40	0.33	1.00		
16. Item 1j1	0.44	0.49	0.16	0.48	0.35	0.31	0.38	0.31	0.33	0.38	0.43	0.46	0.40	0.50	0.49	1.00	
17. Item 1j2	0.31	0.40	0.15	0.30	0.24	0.16	0.24	0.30	0.34	0.28	0.29	0.45	0.30	0.43	0.28	0.62	1.00

Tabel 4-3. Correlation Matrix. Part Two, Socialization Rating Scale. First Administration. N=371. Both curricula.

Variables	01. Item 2a1	02. Item 2a2	03. Item 2a3	04. Item 2b1	05. Item 2b2	06. Item 2c1	07. Item 2c2
01. Item 2a1	1.00						
02. Item 2a2	0.66	1.00					
03. Item 2a3	0.71	0.63	1.00				
04. Item 2b1	0.17	0.04	0.13	1.00			
05. Item 2b2	0.22	0.19	0.19	0.58	1.00		
06. Item 2c1	0.16	0.09	0.18	0.58	0.42	1.00	
07. Item 2c2	0.19	0.15	0.20	0.56	0.69	0.72	1.00

Table 4-4. Correlation Matrix. Part Three, Socialization Rating Scale. First Administration. N=371. Both curricula.

Variables	01. Item 3a	02. Item 3b	03. Item 3c1	04. Item 3c2	05. Item 3c3
01. Item 3a	1.00				
02. Item 3b	-0.31	1.00			
03. Item 3c1	0.07	-0.18	1.00		
04. Item 3c2	0.00	-0.24	0.51	1.00	
05. Item 3c3	0.06	-0.15	0.61	0.42	1.00

A more informative way to look at the Socialization Rating Scale is to consider the frequency distributions of item responses. Each of the thirty-one items of the scale has four or three or two possible responses; it is an easy job, for a given item, to count the number of times each response was recorded. In order to work with a sample on which the Merrill-Palmer and pre-post Slosson data are available, and in order to work with a manageable sample size, in the frequency distribution analysis of this section only the data of the study sample consisting of about eight children from each classroom are tabulated.

Table 4-5. Within-Classroom Sample Size. Socialization Rating Scale. May Administration.

Classroom	Count	Classroom	Count	Classroom	Count
01	8	08	6	15	8
02	7	09	7	16	8
03	8	10	6	17	6
04	7	11	8	18	8
05	0	12	5	19	7
06	0	13	7	20	6
07	6	14	8	21	4

Table 4-6. Frequency Distributions, Items 1a and 1b, Socialization Rating Scale. By Curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very often	-3- Frequently	-4- Most of the time	-5- Total
1a. Does the child play with other children?	Engelmann-Becker	1	8	31	15	55
	New Nursery	1	3	23	42	69
	Total	2	11	54	57	124
1b. Does the child work with other children?	Engelmann-Becker	6	9	25	15	55
	New Nursery	3	8	33	25	69
	Total	9	17	58	40	124

The data of the first (December) administration of the Socialization Rating Scale were analyzed in the earlier paragraphs of this section; in the remaining parts of Section Four, the data of the third (May) administration are treated. Because the agreement between the second (March) and third (May) administrations was almost complete (i.e., for a given item for a given child, the teacher's response choice in the third administration was the same as in the second administration well over ninety percent of the time), it was

decided to work only with the May administration data--which were collected at about the same time as the Merrill-Palmer and post Slosson data--and to drop from consideration the second (March) administration data.

There were 124 children among the study sample for whom there existed complete (or nearly so) May administration Socialization Rating Scale data. The distribution of counts among the twenty-one classrooms is given as Table 4-5. Notice in Table 4-5, that three teachers, in classrooms 05, 06, and 17, declined to complete (as they had also done at the March administration of the scale) the Socialization Rating Scale on the children in thier classrooms. The Engelmann-Becker classrooms are 01, 02, 03, 06, 07, 08, 09, 11, and 12; this means that among the total sample of size 124, there are 55 children from Engelmann-Becker classrooms and 69 children from New Nursery School classrooms.

In Table 4-6 are reported the frequency distribution statistics for items 1a and 1b--which ask whether the child plays and works with other children--of the Socialization Rating Scale. For both items 1a and 1b, but particularly for the former, a larger proportion of the responses fell in the "Most of the Time" class for the New Nursery School cirriculum than for the Engelmann-Becker. In fact, the distribution for item 1a of Table4-6 is statistically significant, by chi-square test, when the first two response categoires (1 and 2) are collapsed; the chi-square statistic falls well beyond the 99th percentile of the chi-square two degrees of freedom table. The skewness of the distribution of item 1b of Table 4-6 is not a statistically significant one.

Table 4-7. Frequency Distributions, Items 1c1, 1c2, and 1c3, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very often	-3- Frequently	-4- Most of the time	-5- Total
1c1. What is the size of the group in which the child interacts: one other child.	Engelmann-Becker	2	9	31	6	48
	New Nursery	2	15	41	11	69
	Total	4	24	72	17	117
1c2. Two to three children?	Engelmann-Becker	2	9	35	9	55
	New Nursery	1	10	35	23	69
	Total	3	19	70	32	124
1c3. greater than three children?	Engelmann-Becker	10	21	16	1	48
	New Nursery	12	21	21	14	68
	Total	22	42	37	15	116

Table 4-8. Frequency Distributions, Items 1d1 and 1d2, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the Time	-5- Total
1d1. Is the child an onlooker in play interactions?	Engelmann-Becker	9	26	11	2	48
	New Nursery	17	33	13	6	69
	Total	26	59	24	8	117
1d2. Is the child an active participant in play interactions?	Engelmann-Becker	1	6	30	18	55
	New Nursery	0	4	26	39	69
	Total	1	10	56	57	124

In table 4-7 are reported the frequency distributions for items 1c1,1c2, and 1c3 (cf. Attachment 3) of the Socialization Rating Scale. These items ask the size of the group in which the child typically interacts. The distributions of items 1c2 and 1c3 in Table 4-7 show a greater proportion of New Nursery School children seen as interacting in large (2-3 or more than three) groups than the Englemann-Becker children. Thus, in the second from the right-most column of Table 4-7, it is seen that 14 of 68 New Nursery School children, but only 1 of 48 Englemann-Becker children,are seen as interacting in groups larger than three most of the time. The chi-square statistic associated with the distribution of item 1c2 of Table 4-7 is not statistically significant (although nearly so) while that associated with item 1c3 is significant. In the computation of these chi-square statistics, the two left-most response categories (Almost Never and Not Very Often) have been collapsed. The varying numbers in the total (-5-) column of Table 4-7(e.g., N=117, 124,. 116,) are occasioned by one or more teachers ommiting the items.

In Table 4-8 are recorded the frequency distributions for items 1d1 and 1d2 of the Socialization Rating Scale; these items ask whether the child is (1d1)an onlooker, (1d2) an active participant in play situation interactions. There is no difference between the two curricula in the onlooker (item 1d1) distribution. The active participant distribution, however, shows that a far larger proportion of the New Nursery children than Englemann-Becker children is seen as "Most of the Time" being active participants in play interactions. The chi-square statistic of the distribution (again, with columns -1- and -2- collapsed) is, in fact, statistically significant ($p<05$).

The frequency distributions for items 1e1 and 1e2 are recorded in Table 4-9. These items ask whether the child is an onlooker(1e1), an active participant in work situation interactions (1e2). There is no difference between the two curricula in the onlooker (item 1e1) distribution. A larger proportion of the New Nursery children than of the Englemann-Becker children is seen as as being active participants "Most of the Time" in work situations, but the skewness of the distribution is not large enough to be statistically significant (although it is nearly so). The differing N's for items 1e1 and 1e2 in column -5- are due to ommitted items.

Table 4-9. Frequency Distributions. Items 1e1 and 1e2, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
1e1. Is the child an onlooker in work situations?	Engelmann-Becker	9	25	12	3	49
	New Nursery	15	29	19	6	69
	Total	24	54	31	9	118
1e2. Is the child an active participant in work situations?	Engelmann-Becker	2	7	29	17	55
	New Nursery	0	11	27	30	68
	Total	2	18	56	47	123

In Table 4-10 are recorded the frequency distributions for items 1f1, 1f2, and 1f3 of the Socialization Rating Scale; these items ask whether the child talks with the teacher about school work or asks questions about (1f2) school work, or whether the child talks to the teacher but not about school work (item 1f1), and responds to the teacher's direct questions or instructions (item 1f3). None of the three chi-square statistics based on the frequency data of Table 4-10 is statistically significant.

The distribution of responses to item 1g of the Socialization Rating Scale is given in Table 4-11. This item asks whether the child asks for help with school work or problems. The chi-square statistic associated with the two-way table of Table 4-11 is not statistically significant.

In Table 4-12 are recorded the distribution of responses to item 1h of the Socialization Rating Scale. This item asks whether the child shares with other children. According to Table 4-12, New Nursery School child is seen by the teacher as sharing with other children "Most of the Time" much more frequently than is the Englemann-Becker child. The chi-square statistic associated with the two-way table of Table 4-12 (with, again, the first two columns collapsed) is statistically significant ($p < .05$).

In Table 4-13 are reported the data for item 1i of the Socialization Rating Scale . This item asks whether the child initiates play or work activities. The distributions of the two curricula do not differ; the associated chi-square statistic is not statistically significant.

The frequency distributions of items 1j1 and 1j2, which as the reaction to the child by other children, and by teachers/aides, are given in Table 4-14. For Item 1j2 (the lower half of the table, Table4-14) the two curricular distributions do not differ; the associated (collapsed table) chi-square statistic is not significant. The upper half of Table 4-14 which shows the reaction to the child by other children does show a different distribution within the New Nursery curriculum from that within the Englemann-Becker curriculum: the proportion of responses in column -4- (Very Positive) is larger in the New Nursery row than in the Englemann-Becker row. The two-way table (ommitting column one) has not, however, a significant chi-square statistic (although the statistic is close to significant).

Table 4-10. Frequency Distributions. Items 1f1, 1f2, and 1f3, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
1f1. Child talks with teacher but not about school work.	Engelmann-Becker	3	7	33	12	55
	New Nursery	0	12	38	19	69
	Total	3	19	71	31	124
1f2. Child talks with teacher about school work.	Engelman -Becker	9	17	23	6	55
	New Nursery	5	24	29	11	69
	Total	14	41	52	17	124
1f3. Child responds to direct questions from teacher.	Engelmann-Becker	0	8	19	28	55
	New Nursery	2	9	26	31	68
	Total	2	17	45	59	123

Table 4-11. Frequency Distribution. Item 1g of Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
1g. Does child ask for help about school work?	Engelmann-Becker	6	22	20	7	55
	New Nursery	7	23	28	11	69
	Total	13	45	48	18	124

Table 4-12. Frequency Distribution. Item 1h of Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
1h. Does child share with other children?	Engelmann-Becker	1	17	31	6	55
	New Nursery	3	16	28	22	69
	Total	4	33	59	28	124

Table 4-13. Frequency Distribution. Item 1i, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
1i. Does child initiate play or work activities?	Engelmann-Becker	4	19	27	5	55
	New Nursery	7	20	29	13	69
	Total	11	39	56	18	124

Table 4-14. Frequency Distribution. Items 1j1 and 1j2, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Very Negative	-2- Slightly Negative	-3- Slightly Positive	-4- Very Positive	-5- Total
1j1. Reaction to child by the other children.	Engelmann-Becker	0	8	33	14	55
	New Nursery	0	6	33	29	68
	Total	0	14	66	43	123
1j2. Reaction to child by teacher and aide.	Engelmann-Becker	1	3	19	32	55
	New Nursery	0	7	27	35	69
	Total	1	10	46	67	124

The teachers' assessments of the frequency of crying behavior are recorded in Table 4-15. The items numbers and contents are Item 2a1--Does the child cry to the teacher or aide?; Item 2a2--Does the child cry to other children?; and Item 2a3-- Does the child cry by himself? Notice that the teachers indicate that there is relatively little crying behavior in absolute terms; only about one-ninth of the observations of Table 4-15 fall in the "Frequently" and "Most of the Time" columns.. There is no difference between the two curricula on either Item 2c1(cry to teacher) or Item 2c3(cry by himself). Thereis, however, an important difference between the distributions of the two curricula for item 2c2 (cry to other children). A larger proportion of the New Nursery children is reported as crying to other children "Almost Never". The associated chi-square statistic--with column four ignored--is statistically significant ($p<.05$).

The next item (2b) asks whether the child is physically aggressive to the teacher or aide (2c1) and to the other children (2c2). The data are reported inTable 4-16. Also reported in Table 4-16 are data on the child's verbal aggression to the teacher or aide (Item 2c1) and to the other children (Item 2c2). All four of the two-way tables in

31.

Table 4-15. Frequency Distribution. Items 2a1, 2a2, and 2a3, Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the time	-5- Total
2c1. Does the child cry to the teacher or aide?	Engelmann-Becker	26	21	6	1	54
	New Nursery	37	19	11	2	69
	Total	63	40	17	3	123
2c2. Does the child cry to other children?	Engelmann-Becker	35	18	1	0	54
	New Nursery	56	8	5	0	69
	Total	91	26	6	0	123
2c3. Does the child cry by himself?	Engelmann-Becker	37	12	6	0	55
	New Nursery	46	12	10	1	69
	Total	83	24	16	1	124

Table 4-16. Frequency Distributions, Items 2b1 and 2b2; 2c1 and 2c2. Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Almost Never	-2- Not Very Often	-3- Frequently	-4- Most of the Time	-5- Total
2b1. Is the child physically aggressive to the teacher or aide?	Engelmann-Becker	44	10	1	0	55
	New Nursery	49	11	5	4	69
	Total	93	21	6	4	124
2b2. Is the child physically aggressive to other children?	Engelmann-Becker	23	22	10	0	55
	New Nursery	26	20	18	5	69
	Total	49	42	28	5	124
2c1. Is the child verbally agressive to the teacher or aide?	Engelmann-Becker	35	17	3	0	55
	New Nursery	41	15	8	5	69
	Total	76	32	11	5	124
2c2. Is the child verbally agressive to the other children?	Engelmann-Becker	22	20	12	0	54
	New Nursery	25	17	19	8	69
	Total	47	37	31	8	123

Table 4-17. Frequency Distributions. Items 3a and 3b of Socialization Rating Scale. By curriculum.

Item	Curriculum	Response Class -1- YES	-2- NO	-3- TOTAL
3a. Are there any physical disabilities?	Engelmann-Becker	2	53	55
	New Nursery	1	67	68
	Total	3	120	123
3b. Is the child physically coordinated?	Engelmann-Becker	55	0	55
	New Nursery	66	3	69
	Total	121	3	124

Table 4-18. Frequency Distributions. Items 3c1, 3c2, 3c3 of the Socialization Rating Scale. By curriculum.

Item	Curriculum	-1- Less than Average	-2- Average	-3- Greater than Average	-4- Total
3c1. How mature is the child socially?	Engelmann-Becker	14	29	12	55
	New Nursery	11	45	13	69
	Total	25	74	25	124
3c2. How mature is the child intellectually?	Engelmann-Becker	10	30	15	55
	New Nursery	3	51	15	69
	Total	13	81	30	124
3c3. How mature is the child emotionally?	Engelmann-Becker	12	38	5	55
	New Nursery	18	42	9	69
	Total	30	80	14	124

Table 4-16 show a large proportion of New Nursery School children being recorded as aggressive "Frequently" (column 3) or "Most of the Time" (column 4). The chi-square statistics associated with items 2b1, 2b2, and 2c1 are large but not statistically significant (columns 3 and 4 collapsed); the statistics for item 2c2, however, is significant ($p<05$). Evidently the children in New Nursery School curriculum are more likely, than the Englemann-Becker children, to frequently be verbally aggressive to the other children inthe classroom.

In Table 4-17 are given the data for Items 3a and 3b of the Socialization Rating Scale. These items ask whether (3a) there are any physical disabilities, and whether (3b) the child is physically coordinated. Table 4-17 shows that the incidence of physical disability is very low, that the number of physically uncoordinated children is small, and that (of course) there is no difference by curriculum in either of these regards.

In Table 4-18 are given the frequency distributions for items 3c1, 3c2, and 3c3 of the Socialization Rating Scale. These items ask how mature is the child (3c1) socially, (3c2) intellectually, (3c3) and emotionally. Three response alternatives are provided: less than average, average, and greater than average. There are no differences between curriculum distributions for items 3c1 (social maturity) and 3c3 (emotional maturity). For the two-way table of item 3c2 (intellectual maturity), however, there is a statistically significant (chi-square, p 05.) difference between the two curricula: the Englemann-Becker children are more freuqently seen as having less than average intellectual maturity than the New Nursery children.

It is perhaps useful to review the results of the analyses of the distribution of the individual item of the Socialization Rating Scale which have been detailed in Tables 4-6, 4-7,---4-18. The items for which the difference between the frequency distribution fo the two curricula are so large as to be statistically significant as these:

1. Item 1a. Does the child play with other children?
2. Item 1c3. How frequently is the size of the group in which the child interacts greater than three?
3. Item 1d2. Is the child an active participant in play interactions?
4. Item 1h. How frequently does the child share with other children?
5. Item 2a2. Does the child cry to other children?
6. Item 2c2. Is the child verbally aggressive to other children?

In item 1a the teacher sees the New Nursery School child as more likely to play with other children "Most of the time" than the Englemann-Becker child. In item 1c3, the New Nursery School child is seen as more likely to "Most of the time" play in a group of the size of three or more than the Englemann-Becker child. In item 1d2, the Englemann-Becker child is seen as less likely than the New Nursery School child to be an active participant "Most of the time" in play interactions. In item 1h, the New Nursery School child is seen as more likely to share "Most of the time" with other children than the Englemann-Becker child. In item 2a2, a greater proportion of the New Nursery School children is seen to cry to other children "Almost never" than is the case among the Englemann-Becker children. In item 2c2, the teacher sees the New Nursery School child as more likely to be"Frequently" or "Most of the time" verbally aggressive to other children. The pattern sketched by these several items is that the New Nursery School child is more likely to be an active participant, with more sharing, and less emotional (crying) resistance. Along with these behaviors goes a lessened inhibition, of the New Nursery School child, against verbal aggression toward the other children in the nursery school room.

The relationships among the individual items of the Socialization Rating Scale and the cognitive measurements was studied by correlational statistical methods. The items on which significant (important) differences were found in the distributions within the two curricula were correlated with the Merrill-Palmer measurements and the spring Slosson MA scores. Table 4-19 is the correlation matrix. The sample size on which the correlation matrix of Table 4-19 is based is 124. This sample size implies that each correlation coefficient in Table 4-19 larger than about 0.18 (in absolute value) is statistically significantly different from zero. The items of the Socialization Rating Scale included in Table 4-19 are:

01. SRC Item 1a. Does the child play with other children?
02. SRC Item 1b. Does the child work with other children?
03. SRC Item 1d2. Is the child an active participant in play interactions?
04. SRC Item 1e2. Is the child an active participant in work interactions?
05. SRC Item 1h. Does the child share with other children?
06. SRC Item 2a2. Does the child cry to other children?
07. SRC Item 2b2. Is the child physically aggressive to other children?
08. SRC Item 2c2. Is the child verbally aggressive to other children?
09. SRC Item 3c1. How mature is the child socially?
10. SRC Item 3c2. How mature is the child intellectually?
11. SRC Item 3c3. How mature is the child emotionally?

In general, all but items 06, 07, and 08, of the above list are positively and significantly correlated with the Merrill-Palmer and Slosson measurements; three items are negatively correlated with the cognitive measures. This is to say that children receiving high Merrill-Palmer and Slosson MA scores tend to be rated as (for example) playing more frequently with other children and tend, also, to be rated as being less verbally aggressive.

The conclusions of this section on the Socialization Rating Scale were stated in the short review following the analyses of Tables 4-6, 4-7, ---, 4-18. They are repeated here for easy reference. The New Nursery School child is more likely than the Englemann-Becker child to be seen by the teacher as an active participant, with more sharing, and less emotional (crying) resistance. However, the New Nursery School child has smaller inhibitions against aggressive behavior toward other children in the schoolroom.

Table 4-19. Correlation Matrix. Selected Items of the Socialization Rating Scale, Spring Slosson MA. Merrill-Palmer. Both curricula.

Variable	01. SRC Item 1a	02. SRC Item 1b	03. SRC Item 1d2	04. SRC Item 1e2	05. SRC Item 1h	06. SRC Item 2a2	07. SRC Item 2b2	08. SRC Item 2c2	09. SRC Item 3c1	10. SRC Item 3c2	11. SRC Item 3c3	12. Spr. Slosson MA	13. Merrill-Palmer
01. SRC Item 1a	1.000												
02. SRC Item 1b	0.595	1.000											
03. SRC Item 1d2	0.577	0.517	1.000										
04. SRC Item 1e2.	0.412	0.635	0.582	1.000									
05. SRC Item 1h	0.320	0.380	0.121	0.270	1.000								
06. SRC Item 2a2	0.057	0.029	-0.074	-0.036	-0.237	1.000							
07. SRC Item 2b2	0.082	0.035	0.202	0.001	-0.191	0.267	1.000						
08. SRC Item 2c2	0.121	0.000	0.194	0.025	0.210	0.123	0.703	1.000					
09. SRC Item 3c1	0.505	0.457	0.422	0.489	0.327	-0.007	-0.029	0.054	1.000				
10. SRC Item 3c2	0.347	0.400	0.530	0.513	0.162	-0.127	-0.106	-0.060	0.576	1.000			
11. SRC Item 3c3	0.262	0.217	0.182	0.230	0.379	-0.285	-0.210	-0.222	0.589	0.441	1.000		
12. Spr. Slosson MA	0.298	0.228	0.366	0.635	0.002	-0.203	-0.185	-0.150	0.303	0.495	0.348	1.000	
13. Merrill-Palmer	0.320	0.176	0.221	0.582	0.236	-0.117	-0.146	-0.152	0.218	0.278	0.256	0.428	1.000

. CLASSROOM OBSERVATIONS.

In mid-term of the Head Start Program year, each of the twenty-one classrooms was visited by a team of three experienced observers, each of whom made observational ratings using an instrument called the Classroom Evaluation Schedule. A copy of this schedule is appended as Attachment 3. Within the general area of teacher behavior, several dimensions were separately rated, each on a scale of 1 (very good) to 5 (very poor). Thirteen dimensions of teacher behavior were assessed, with the ratings on each dimensioned anchored by a pair of bi-polar adjectives. The thirteen sets of adjectives are: (1) Stimulating-Dull, (2) Optimistic-Pessimistic, (3) Understqnding-Intolerant, (4) Confident-Uncertain, (5) Responsible-Evading, (6) Strict-Lax, (7) Enthusiastic-Apathetic, (8) Imaginative-Unimaginative, (9) Approving-Critical, (10) Friendly-Unfriendly, (11) Tactful-Humiliating, (12) Works with all children-Works with only a few children, (13) Patient-Impatient.

The complete Classroom Evaluation Scale, together with a list of definitions specifying what is meant by the title of each rated dimension is appended as Attachment 3.

Table 5-1 gives the summary ranks on each dimension (cf,Attachment3) within the teacher behavior scale of the Classroom Observation Schedule. Ranks are given for nineteen of the twenty-one teachers; teachers in two classrooms are not included inTable 5-1 because of teacher changes (replacement) in these two classrooms in the course of the year. Column two of Table 5-1 gives an indication of the curriculum used in the classrooms; EB is an abbreviation for Englemann-Becker, of course, and NNS means New Nursery School. The right-most column of Table 5-1 gives a sum of the ratings in the thirteen columns to its left. For each of the twelve individual scales(cf, Attachment 3) and also, then, for the sum scale low scores indicate favorable ratings, while high (4 or 5) indicate unfavorable ratings.

The reader will note, in Table 5-1, that there is a great amount of consistency in the rankings in each row; this is to say that a given teacher is rated consistently favorably (or unfavorably) rated on each of the twelve individual scales. The effect of this consistency in teacher ratings is seen in the scale column. This summary shows a great range: the teacher rated most favorably, Teacher 10, received a summary rating of 19, while the teacher rated most unfavorably, Teacher 14, received a rating of 46.5 . The consistency of within-teacher ratings is best seen in a correlation matrix in which the variables are thirteen individual scales together with a fourteenth variable--the rank of each teacher on the summary scale. These ranks are given in Table 5-2, together with curricular identification. Correlating the ranks of Table 5-2 with the ratings on the individual scales gives an indication of which scales are closely associated with favorable ratings. The correlation matrix is given as Table 5-3; in this table variables 1-13 are individual scales 1-13 (cf. Attachment 3) of the Teacher Behavior Scale, while variable 14 is the ranking given in Table 5-2.

Table 5-1. Summary Ranks, Teacher Behavior Scale, Classroom Observation Schedule. Nineteen classrooms.

Class-room	Curri-culum	01	02	03	04	05	06	07	08	09	10	11	12	13	Sum
01	EB	2	2	2	2	2	2.5	2	1	1.5	2	3	2	3	27
02	EB	1	1	1.5	1.5	1.5	1.5	2	1.5	1	1	3	1.5	1.5	19.5
03	EB	3	3	3	2.5	2	2.5	3	3	2	2	3	3	3	35
04	NNS	2	2	1	2	1	2	1	1	1	1	4	1	1	20
05	NNS	3	3	2	4.5	4.5	5	3	4	3	3	2	3	3	43
07	EB	3	3	3	3	3	3.5	3	3	4	3.5	2.5	3	3	40.5
08	EB	2	2.5	2	2.5	3	3	1.5	2.5	2	2	3.5	2	2	30.5
09	EB	1	1	2	1	2	2	2	1	2	2	2	1	2	21
10	NNS	1.5	1	1	1.5	2	1	2	1	1.5	1.5	3	1	1	19
11	EB	3	2	2	2.5	2.5	2.5	3	2.5	3	2	2.5	2	4	33.5
12	EB	2	2.5	2.5	2.5	2	1.5	2	2.5	2.5	2.5	3	2	2	29.5
13	NNS	2.5	3	4	3	3	3	3	4	3.5	3	2	3	4.5	41.5
14	NNS	3.5	4.5	2.5	4	4	4	3	4	3.5	3.5	4	2.5	3.5	46.5
15	NNS	2	2	3	3	3	3	3	4	2	2	2	3	3	35
16	NNS	2.5	4	2	3	2	3	1	3	1.5	1.5	4	1	2	30.5
17	NNS	3	4	2.5	3.5	3	3.5	3	4	2	3	4	2.5	3	41
18	NNS	2	3	1	2.5	3	2.5	1.5	3.5	1.5	2	4	2	2	30.5
19	NNS	2	2	2	2	2	1.5	2	3	1	2	3	2	2	26.5
20	NNS	2	2	1.5	2	2	1.5	2	2	1	2	4	1	1	24

Table 5-2. Ranks of Teachers on Summary Scales Based on Schedule. Thirteen Scales of Teacher Behavior Scale of Classroom Observation.

Teacher	01	02	03	04	05	07	08	09	10	11	12	13	14	15	16	17	18	19	20
Curriculum	EB	EB	EB	NNS	NNS	EB	EB	EB	NNS	EB	EB	NNS	NNS	NNS	NNS	NNS	NNS	NNS	NNS
Rank	07	02	13	03	18	15	11	04	01	12	08	17	19	14	10	16	09	06	05

Table 5-3. Correlation Matrix. Individual Scales of Teacher Behavior Scale of Classroom Observation Schedule.

Variables	Scale One	Scale Two	Scale Three	Scale Four	Scale Five	Scale Six	Scale Seven	Scale Eight	Scale Nine	Scale Ten	Scale Eleven	Scale Twelve	Scale Thirteen	Summary Ranking
Scale One	1	.820	.472	.832	.612	.726	.580	.687	.653	.693	.115	.634	.662	.846
Scale Two		1	.410	.820	.572	.706	.253	.749	.462	.627	.398	.468	.473	.780
Scale Three			1	.443	.378	.430	.683	.590	.674	.638	-.482	.756	.777	.710
Scale Four				1	.832	.892	.516	.843	.615	.710	.014	.684	.583	.902
Scale Five					1	.847	.595	.766	.684	.783	-.213	.677	.589	.836
Scale Six						1	.492	.698	.646	.680	-.135	.660	.628	.880
Scale Seven							1	.565	.697	.700	-.521	.792	.760	.705
Scale Eight								1	.528	.669	-.063	.758	.623	.873
Scale Nine									1	.834	-.436	.672	.766	.779
Scale Ten										1	-.201	.705	.661	.818
Scale Eleven											1	-.425	-.447	-.180
Scale Twelve												1	.776	.837
Scale Thirteen													1	.776
Summary Rank														1

A large proportion of the entries inTable 5-3 are large and positive indicating that teachers rated favorably on one dimension tend to be rated so on other dimensions. Thus, scale four (stimulating) is very highly correlated with scale six (imaginative), r=0.892; and scale five (enthusiastic) is also highly correlated with scale six, r=0.847. The exception to this general rule is seen in the column of Table 5-3 labeled scale eleven. This scale (strictness) has only a small association with the other scales; in nine of twelve cases, the correlation is negative and small (in absolute value).

The most interesting data in Table 5-3 are contained in the rightmost volumn of the matrix; in this column are reported the correlation coefficient of each of the thirteen individual scales with the summary rankings. A large coefficient in this column indicates that the scale is closely associated with overall ranking. The three largest coefficients are for scale four (stimulating), scale six (imaginative), and scale eight (works with children); these coeffieients are 0.902, 0.880, and 0.873. These data should probably be interpreted as indicating the focus of the observer's interest in their assessment of the teachers' behavior; i.e., a "stimulating" teacher would also be seen as favorable on other dimensions.

It is interesting to note that scale eleven (strictness) is essentially independent of overall effectiveness rating (r=0.180). This means that teachers with high overall ratings were as likely to be seen as strict as to be seen as lenient, with a similar statement holding for teachers with unfavorable overall ratings.

If the ratings of Table 5-2 are ordered from one to nineteen and associated with curricular identification, an indication of whether or not one curriculum tends to foster positively-valued teacher behavior is obtained. Table 5-4 presents such an ordering. There is no obvious association of high rank with curricular indication inTable 5-4; and, infact, by median test, there is no statistically significant association. This is to say that it is as likely that an Englemann-Becker teacher received a favorable (unfavorable) ranking as that a New Nursery School teacher.

It is interesting to compare the Slosson and Merrill-Palmer results of children in Englemann-Becker classrooms in which the teacher has received a relatively favorable rating from the classroom observation team with these results among children in comparable New Nursery School classrooms. Neither of the two curricula can be given a fair trial except in those classrooms in which the teacher is an effective one. Thus, comparisons between the two curricula are most validly carried out when the classrooms within which thedata are gathered have been favored with effectiv teachers. The first eight ranks of Table 5-4 include four Englemann-Becker teachers and four New Nursery School teachers. The four Englemann-Becker teachers are in classrooms 02, 09, 01, and 12; the four New Nursery School teachers are in classrooms 10, 04, 20, and 19.

Table 5-4. Ordered Ranks of Teachers on Summary Scales Based on Thirteen Scales of Teacher Behavior Scale of Classroom Observation Schedule.

Rank	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Teacher	10	02	04	09	20	19	01	12	18	16	08	11	03	15	07	17	13	05	14
Curriculum	NNS	EB	NNS	EB	NNS	NNS	EB	EB	NNS	NNS	EB	EB	EB	NNS	EB	NNS	NNS	NNS	EB

Table 5-5. Spring Slosson MA Scores. Eight Teachers Rated Most Effective. Both curricula.

Curriculum/ classroom	N	Maximum	Minimum	Median	Mean	Standard Deviation
EB 02	7	76	41	64	60.8	11.2
EB 09	8	83	56	65.5	66.8	9.2
EB 01	8	80	50	61	63.6	9.8
EB 12	8	76	56	67.5	67.1	7.5
EB Total	31	83	41	64.5	64.7	9.4
NNS 10	8	80	56	67	67.0	7.8
NNS 04	6	71	58	67.5	66.2	4.7
NNS 20	5	78	60	67	66.8	7.2
NNS 19	7	75	54	62	62.7	6.3
NNS Total	26	80	54	65	65.6	6.4

Table 5-6. Slosson MA gain scores. Eight Teachers Rated Most Effective. Both Curricula.

Curriculum/ classroom	N	Maximum	Minimum	Median	Mean	Standard Deviation
EB 02	7	14	5	13	11.4	3.4
EB 09	8	19	2	11.5	11.6	5.7
EB 01	8	22	-7	11	8.6	9.7
EB 12	6	14	7	10.5	10.7	2.9
EB Total	29	22	-7	11.5	10.5	5.6
NNS 10	8	18	3	8	9.7	5.9
NNS 04	6	17	6	14	13.2	3.8
NNS 20	4	10	05	8	5.2	6.9
NNS 19	6	18	4	10	10.5	4.7
NNS Total	24	18	-5	10	10.0	5.5

Table 5-7. Merrill-Palmer Scores. Eight Teachers Rated Most Effective. Both curricula.

Curriculum/ classroom	N	Maximum	Minimum	Median	Mean	Standard Deviation
EB 02	7	93	80	89	87.6	4.9
EB 09	8	93	79	89	88.0	5.5
EB 01	8	90	75	85	82.3	5.8
EB 12	8	93	82	89.5	88.2	4.4
EB Total	31	93	75	88.5	86.4	5.1
NNS 10	8	93	82	85.5	86.1	3.4
NNS 04	7	92	65	86	82.1	10.0
NNS 20	7	87	78	86	84.4	3.2
NNS 19	7	91	81	83	84.8	3.9
NNS Total	29	93	65	85.5	84.4	5.8

In Table 5-5 are reported the Spring Slosson data for these eight classrooms. These data are MA scores. The slightly larger averages in the New Nursery School half of the table-- Median: NNS,65: EB, 64.5; Mean: NNS, 65.6; EB,64.7--are not statistically significant (t-test, median test). The greater variability among the Englemann-Becker classrooms--Standard Deviation: EB, 9.4; NNS, 6.4;--is also not statistically significant (F-test).

Table 5-6 replicates Table 5-5 except that MA gain scores (Spring Slosson MA minus FallSlosson MA) are reported. The differences in the sample size (N) column of Table 5-6 from Table 5-5 are due to missing observations. The slightly larger averages are found in the Englemann-Becker half of the table; again, as in Table 5-5, these small differences are not statistically significant. Comparing the average MA gain of Table 5-6 with this average among all Englemann-Becker (Table 2-12) and all New Nursery School (Table2-11), it is seen that the eight classrooms of Table 5-6 are not different from the remaining classrooms.

Table 5-7 replicates Table 5-5 except that Merrill-Palmer scores are reported. The averages in the Englemann-Becker half of the Table 6-7 are larger than those in the New Nursery School half. The median difference is (EB, 88.5) minus (NNS, 85,5) equals three; the mean difference is 86.4 - 84.4 =2. This difference is large enough to be statistically significant by t-test; t=2.81 on 58 degrees of freedom. In comparing these data with the caomparable statistics among all classrooms (cf. Tables 3-2 and 3-3), it is seen that the four effective New Nursery School classrooms are not different from the remaining New Nursery School classrooms; the four Englemann-Becker classrooms represented inTable 5-7, however, have children with Merrill-Palmer scores sustantially larger, on the average, than are found in the remaining Englemann-Becker classrooms.

The conclusions following from the analysis of the classroom observation data are these: (1) There is a large range in the rated effectiveness of the teachers; some teachers, in both curricula, are rated as more effective than others, and these ratings are consistent across several dimensions of teacher behavior; (2) The effectiveness ratings are independent of curricular identification; i.e., it is no more likely that a teacher judged to be highly effective would be working within the Englemann-Becker curriculum; (3) Children exposed to teachers receiving high effectiveness ratings did not perform differently from children in other classrooms on the Slosson instrument; (4) Children working with effective teachers within the Englemann-Becker curriculum obtained higher Merrill-Palmer scores than either other Englemann-Becker children or children in New Nursery School classrooms.

Attachment 1

Name_____
Teacher_____
Date_____

Project Head Start
Socialization Rating Scale

Circle Choice

1. Social Interaction

a. Does the child play with other children	Almost never	Not very often	Frequently	Most of the Time
b. Does the child work with other children	Almost never	Not very often	Frequently	Most of the time
c. What is the size of the group in which the child typically interacts?				
_____ one other child	Almost never	Not very ofter	Frequently	Most of the Time
_____ two to three children	Almost never	Not very often	Frequently	Most of the Time
_____ gre ater than three children	Almost never	Not very often	Frequently	Most of the Time
d. What is the type of interaction observed in the child's play? Is he/she an:				
____onlooker	Almost never	Not very often	Frequently	Most of the Time
____active participant	Almost never	Not very often	Frequently	Most of the Time
e. Wht is the type of interaction observed in the child's work? Is he/she an:				
____onlooker	Almost never	Not very often	Frequently	Most of the Time
____active participant	Almost never	Not very often	Frequently	Most of the Time
f. How does the child interact with teacher and /or aide?				
____talks(but not about school work)	Almost never	Not very often	Frequently	Most of the Time
____talks or asks questions about school work	Almost never	Not very often	Frequently	Most of theTime
____responds to direct questions and instructions	AlmostNever	Not very often	Frequently	Most of the Time
g. Does the child ask for help about school work or problems?	Almost Never	Not very often	Frequently	Most of the Time
h. Does the child share with other children?	Almost never	Not very often	Frequently	Most of the Time
i. Does the child ever initiate play or work activities?	Almost never	Not very often	Frequently	Most of the Time
j. What is the reaction to the child by:				
____the other children	very negative	slightly negative	slightly positive	very positive
____teacher and aide	very negative	slightly negative	slightly positive	very positive

2. Emotionality

a. Does the child cry?

____to the teacher or aide	Almost never	Not very often	Frequently	Most of the time
____ to other children	Almost never	Not very often	Frequently	Most of the time
____by himself	Almost never	Not very often	Frequently	Most of the time

b. Is the child physically aggressive?

____to the teacher or aide	Almost never	Not very often	Frequently	Most of the time
____to other children	Almost never	Not very often	Frequemtly	Most of the time

c. Is the child verbally aggressive?

____to the teacher or aide	Almost never	Not very often	Frequently	Most of the time
____to other children	Almost never	Not very often	Frequently	Most of the time

3. General Characteristics

a. Are there any physical disabilities Yes No

If yes what are they?_____

b. Is the child physically coordinated? Yes No

c. How mature is the child?

____social	Less than average	Average	Greater than average
____intellectual	Less than average	Average	Greater than average
____emotional	Less than average	Average	Greater than average

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Attachment 2

Film Rater Schedule

School_____ Date of filming_____

Class_____ Date of rating_____

Date_____ Rater_____

Child's Name_____

The rater will count frequencies of the following behaviors, for a specific individual child, in five-minute scoring sequences:

A. Displays act of physical affection toward others
   1. Hugs or kisses another child _____
   2. Hugs or kisses adult in room _____
   3. Climbs upon lap of an adult _____
   4. Displays affection to doll or other inanimate object _____

B. Displays acts of helpfulness to others:
   1. Consoles another child with words or pats or hugs _____
   2. Picks things up or puts things away for teacher or other pupil (clean up type work) _____
   3. Shows or tells another child how to do a certain kind of work or perform some act _____

C. Number of verbal interactions:
   1. With other children _____
   2. With adults _____

D. Number of task-oriented behaviors _____

E. Physical act of hostility toward others
   1. Verbal attack on another _____
   2. Physical attack- hits or kicks another child _____
   3. Throws object at another child _____

F. Physical act of destruction against property
   1. Throws an object down in anger _____
   2. Rips up or cuts property that belongs to someone else _____
   3. Stomps or kicks floor or object in anger _____

Attachment 3

Schedule for Classroom Observation

School:_____ Curriculum:_____

Teacher:_____ Observer:_____

Date:_____

Classroom Evaluation

Scale	1 very good/	2 good/	3 fair/	4 poor/	5 very poor/	N no response/	Underline number most closely approximating the situation.
Teacher Behavior							
1. Stimulating	1	2	3	4	5	N	Dull
2. Optimistic	1	2	3	4	5	N	Pessimistic
3. Understanding (of personalities)	1	2	3	4	5	N	Intolerant (of personalities)
4. Confident	1	2	3	4	5	N	Uncertain
5. Responsible	1	2	3	4	5	N	Evading
6. Strict	1	2	3	4	5	N	Lax
7. Enthusiastic	1	2	3	4	5	N	Apathetic
8. Imaginative	1	2	3	4	5	N	Unimaginative
9. Approving(of work)	1	2	3	4	5	N	Critical (of work)
10. Friendly	1	2	3	4	5	N	Unfriendly
11. Tactful	1	2	3	4	5	N	Humiliating
12. Works with all children	1	2	3	4	5	N	Works with only a few children
13. Patient	1	2	3	4	5	N	Impatient
Pupil Behavior							
1. Alert	1	2	3	4	5	N	Apathetic
2. Responsible	1	2	3	4	5	N	Obstructive
3. Independent	1	2	3	4	5	N	Dependent
4. Secure	1	2	3	4	5	N	Fearful
5. Courteous	1	2	3	4	5	N	Rude
6. Happy	1	2	3	4	5	N	Unhappy
7. Attentive to teacher	1	2	3	4	5	N	Inattentive to teacher
8. Communicate with each other	1	2	3	4	5	N	Communicate through teacher
9. Interested in work	1	2	3	4	5	N	Not interested in work
10. Children freely turn to teacher for help	1	2	3	4	5	N	Children no free to turn to teacher for help
Classroom Activity							
1. Relevant	1	2	3	4	5	N	Meaningless
2. Interesting	1	2	3	4	5	N	Dull
3. Kept within attention span of all pupils	1	2	3	4	5	N	Beyond attention span of all pupils
4. Use of concrete materials	1	2	3	4	5	N	Use of abstract materials
5. Work with alphabet and/or letter sounds	1	2	3	4	5	N	No work with this
6. Work with numerical concepts	1	2	3	4	5	N	No work with this
7. Work with color	1	2	3	4	5	N	No work with this

8. Work with spatial concepts	1	2	3	4	5	N	No work with this
9. Work building vocabulary	1	2	3	4	5	N	No work with this
10. Work with socialization	1	2	3	4	5	N	No work with this
11. Use of Englemann-Becker materials	1	2	3	4	5	N	No work with this
12. Use of Montessori materials	1	2	3	4	5	N	No work with this
13. Work with problem solving	1	2	3	4	5	N	No work with this
14. Drill in isolated facts	1	2	3	4	5	N	No work with this
Classroom Atmosphere							
1. Genial	1	2	3	4	5	N	Intense
2. Permissive	1	2	3	4	5	N	Restrictive
3. Pupil oriented (concerned with each pupil)	1	2	3	4	5	N	Not pupil oriented
4. Group oriented (concerned with children in groups)	1	2	3	4	5	N	Not group oriented
5. Task oriented	1	2	3	4	5	N	Activity ill defined
6. Adequate space	1	2	3	4	5	N	Inadequate space
7. Well equipped	1	2	3	4	5	N	Poorly equipped
8. Serious	1	2	3	4	5	N	Light hearted
9. Cheerful quarters	1	2	3	4	5	N	Depressing quarters
10. Well lighted	1	2	3	4	5	N	Poorly lighted
11. Room used fuctionally	1	2	3	4	5	N	Room used inefficiently
12. Room decorated with pupil work	1	2	3	4	5	N	Room teacher decorated
13. Pupils move about freely (in room)	1	2	3	4	5	N	Movement rare, and only with teacher approval
14. Orderly bahavior	1	2	3	4	5	N	Random bahavior

Definitions
for Schedule for Classroom Observation

I. Teacher Behavior

1.	Stimulating alert, responsive, enthusiastic provokes thought, takes advantage of pupil interest	Dull passive, routine, presents material with no enthusiasm
2.	Optimistic cheerful, positive, calls attention to good points	Pessimistic skeptical, cynical, negative fault finding
3.	Understanding (of personalities) tolerant, flexible, shows concern for pupil's problems	Intolerant restrictive, impatient, scolds a great deal, prejudiced against race, creed, poverty, or come other grouping of people
4.	Confident calm, controlled, poised, seems to be at ease	Uncertain hesitant, embarrassed, unsure of self
5.	Responsible conscientious, punctual, careful, thorough	Evading inattentive to pupils, disinclined to make decisions
6.	Strict formal, rigid, stern, uncompromising, harsh	Lax vague, negligent, careless
7.	Enthusiastic bubbly, full of life	Apathetic actions are half-hearted, listless, unconcerned with classroom
8.	Imaginative creative, innovative	Unimaginative not creative, plodding
9.	Approving (of work) accepting, reacting favorably	Critical (of work) reacting unfavorably, censorous, fault finding, carping,
10.	Friendly warm, sociable, approachable, amicable	Unfriendly cold, unsociable, unapproachable hostile
11.	Tactful considerate, appreciative of feelings of others, unobtrusively sympathetic and perceptive	Humiliating disrespectful, mortifying, humbling nasty
12.	Works with all children concerns self with whole class, at the same time or in small sections	Works with only a few children shows real interest in only a minority of the class
13.	Patient forebearing, calm in expectation	Impatient restless or short of temper, intolerant of delay

II. Pupil Behavior

1.	Alert aware attentive to teacher, eager to respond and take part in activity	Apathetic listless, restless, actions are half-hearted
2.	Responsible courteous, controlled, orderly without specific instructions from teacher	Obstructive rude, interrupting, demanding of attention
3.	Independent initiating, self sustained, willing to define tasks and goals for themselves	Dependent relies on teacher for direction, unitiating

4.	Secure feel safe,relaxed, calm emotionally happy, acts comfortable in school environment	Fearful timid, or overly aggressive, anxious, worried, agitated, apprehensive, uneasy
5.	Courteous respect and consideration for others, well-mannered	Rude offensive in manner or action, lacking in gentleness and manners
6.	Happy glad, pleased, feeling of well being	Unhappy miserable, cheerless, dispirited
7.	Attentive to teacher listens to and watches teacher, tries to follow directions given	Inattentive to teacher does not listen to or pay attention to teacher
8.	Communicate with each other children relate to each other freely and openly, find ways of reaching understandings, verbal and non-verbal with each other	Communicate through teacher children address selves to teacher alone and are not allowed to , or able to verbally and non-verbally reach undrestandings with each other
9.	Interested in work enthusiastic and happy about organized classroom activities, pay attention to work, have curiousity or sympathy for classroom work	Not interested in work not enthusiastic, happy, curious or sympathetic toward classroom's organized activities
10.	Children turn freely to teacher for help the children feel comfortable with the teacher and approach her for help spontaneously but in an ordered fashion	Children not free to turn to teacher for help children are either not allowed to approach teacher or seek her help or are afraid to do so

III. Classroom Activity

1.	Relevant constructive, pertinent, meaningful tasks or work	Meaningless pointless, busy work or tasks of dubious meaning
2.	Interesting tasks hold interest of pupils and excite thought	Dull monotonous or tiresome tasks
3.	Kept within attention span of all pupils all activities geared to length of time each-or every- pupil can concentrate	Beyond attention span of pupils activities too prolonged, difficult for pupils
4.	Use of concrete materials materials which can be observed by the senses and manipulated. Teaching is done with materials a child can see and manipulate	Use of abstract materials teaching done by explanation without the use of audio-visual aids and manipulative materials
5-8.	Work with alphabet, numerical, color and spatial concepts formal and informal concern with letters, numbers, color, shapes, and sizes	No work with these no concern shown for teaching new words or expanding the meaning of old ones
9.	Work building vocabulary formal or informal concern with the teaching of new words or expanding the meanings of those the children already know	No work with this no concern shown for teaching new words or expanding the meaning of old ones

10. Work with socialization formal or informal concern with teaching children to relate with one another and adults in a meaningful and comfortable fashion	No work with this no concern with interpersonal relationships among children or between child and adult
11. Use of Englemann-Becker materials use of particular materials and techniques which were developed for the Englemann-Becker curriculum	No work with this no use of these materials and techniques
12. Use of Montessori materials use of particular materials, such as counting beads sandpapered numbers which relate abstract concepts to kinesthetic, tactity and visual stimuli	No work with this no,use of these techniques and materials
13. Work with problem solving use of situations and concepts which cause the children to be faced with putting together parts into a whole thing or idea. Teather encourages process and provides techniques for problem solving	No work with this no use of these materials and techniques
14. Drill in isolated facts rote repetition of pieces of information or knowledge	No work with these no use of this technique
IV. Classroom Atmosphere	
1. Genial gay, cheerful, animated, fulfilling pupils seem relaxed and at ease	Intense severe, trying, tension between pupils and teachers
2. Permissive very little correction of pupils for moving and talking, pupils choose activities with considerable freedom.	Restrictive pupils expected to be quiet and move about only with permission and in an orderly fashion, students assigned activities
3. Pupil Oriented concerned with each individual pupil; work or activity geared toward needs and wants of the individual pupils	Not pupil oriented no concern with the needs and wants of each individual pupil
4. Group oriented groups work and have activities together; Teacher directs her attention to showing pupils how to work and get along with one another in groups or as an entire class	Not group oriented no group work. Teacher does not work with or emphasize work in groups
5. Task oriented activity or work is the main concern of teacher and pupils	Activity ill-defined activity expected of pupils is not clear to them or there is no specific work or activity expected from each child.(It does not matter whether the activity is decided upon by the child or teacher.)
6. Adequate space room enough for the various activities expected in such a class and to give children a feeling of sufficient space	Inadequate space insufficient room for the expected activities; no feeling of space and/or privacy for the children

7. Well equipped sufficient books, toys, paints, paper, learning materials available in the classroom to carry on a well coordinated curriculum	Poorly equipped not enough equipment to run a well organized and integrated meeting
8. Serious solemn, weighty	Light-hearted sanguine, amusing, effortless
9. Cheerful quarters despite any physical inadequacies the place is well decorated to make it cheerful for children eg. their art work hung, books exhibited, pretty drapes or furniture, etc.	Depressing quarters quarters, however adequate physically, that are not decorated with children with children in mind, not cheerful
10. Well lighted lighting sufficient and shadowless; little glare	Poorly lighted room dark or full of glare and shadows
11. Room used functionally room used so that program may be effectively carried out and so that optimum use is made of the size and shape of the room	Room used inefficiently room not used in such a way as to facilitate good use of space and implementation of the program
12. Room decorated with pupil work work by the children prominently displayed around the room	Room teacher decorated decoration's of the teacher's making or from printed sources None made by the pupils
13. Pupils move about the room freely pupils are avle to move about without asking permission and do so in a free and purposeful way	Movement rare and only with teacher approval children stay in one place most of the time and when they do move must ask permission
14. Orderly behavior the classroom, however active and noisy, gives the feeling of organized purposeful behavior	Random behavior the classroom, however quiet, shows no evidence of behavior related to specific organized and understood goals.