

## EVALUATION OF A KINDERGARTEN PROGRAM AS COMPARED WITH SMALL FIRST GRADE CLASSES

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The kindergarten program is comparatively new in Volusia County, this being the third year. It is, in many respects, a partial program--only about half of the children who will enter the first grade the next year attend kindergarten. No transportation is furnished, and most kindergartens are operated on a split schedule, serving two groups of children each day. As with most new programs, even those partially implemented as our kindergarten program is, the question is frequently asked, "Is it worthwhile?" Even more specifically, some have asked, "Wouldn't it be more effective to provide additional first grade teachers so that first grade classes would be smaller?" This study was undertaken to provide answers to both these questions. In addition to the writer, the two elementary supervisors participated in planning the study.

Because of the newness of the program, the evaluation had to be limited to the first grade experience, although additional follow-up is planned for later years. Pupils enrolled in first grade classes in the 1961-62 school year served as the subjects of the study. A checklist, adapted from one prepared by the Primary Committee of the ACEI, was prepared for teachers to rate the children on "Social and Emotional Adjustment," and "Readiness for Learning." The ratings were "Blind," that is, all pupils were rated without teachers knowing anything of the purpose of the study. It was hoped in this way to prevent teachers' biases for or against kindergartens from affecting the ratings. The California Achievement Test was administered during the last month of school as a regular part of the County-wide Testing Program. In addition, scores on the Metropolitan Readiness Test, administered either at the end of kindergarten or at the beginning of the first grade (for non-kindergartners) were on file. The Total Readiness score, converted to a five-point scale, the total of the two reading scores, and the total checklist score were used in separate analyses. The study was done in two parts, each of which is reported separately in this paper.

## Overall Kindergarten versus Non-kindergarten Comparison

After all data were collected, the first grade pupils were sorted into two groups: "K," those who had attended kindergarten in Volusia County Schools; and "NK," those who had not attended kindergarten. Pupils for whom this information could not be obtained were discarded from the study. Since Volusia County is divided into several natural divisions, each with slightly different social and economic conditions, it was considered desirable to look at each community separately. In order to simplify calculations, random samples were drawn from "K" pupils from each community, with an "NK" pupil drawn from the same school, until fifty pairs from each community had been selected. One exception was Community D, with only 33 "K" pupils, which were matched with 33 "NK" pupils from the same schools. Since there were four additional communities the total N was 233 in each group. Matching was solely on the basis of community in order not to wash out the effect of other variables by matching on them.

### Findings

Means and standard deviations were computed for each of the three criteria by community and for the total group. These data are reported in Table 1.

When the data for the total samples are considered, the "K" group was higher than the "NK" group on all three measures although the differences were significant only for the Readiness and Achievement tests and not for the teachers' ratings on social and emotional adjustment.

However, there was one community for which the general findings did not hold, Community A. In this community, the Readiness and Teachers' ratings were about equal for the "K" and "NK" groups, but the Achievement scores were significantly higher for the "NK" group ( $p = .001$ ). This community is the highest in the county socio-economically and academically. Older children in this community score two to three grades higher than the actual placement on the Achievement tests, and the median I. Q. at the fifth grade is 118.

The Readiness and Achievement Test data were also analyzed by analysis of covariance, which indicated no significant difference in achievement when adjustment was made for the initial difference in Readiness scores.

Table 1

Comparison of "K" and "NK" Groups as to Means and Standard Deviations of the Three Evaluative Criteria

a. Metropolitan Readiness Test--Total Score, Converted to 5-point Scale							
Community	No.	Kindergarten		No Kindergarten		d (K-NK)	p
		M	SD	M	SD		
A	50	3.54	1.04	3.46	1.06	.08	NS
B	50	3.90	.85	3.14	.82	.76	<.001
C	50	3.68	.97	2.92	1.21	.76	.001
D	33	3.52	1.10	3.06	1.23	.46	.10
E	50	3.00	.94	2.34	.82	.66	.001
Total	233	3.53	1.02	2.98	1.10	.61	<.001

  

b. California Reading, Total of Vocabulary and Comprehension								
Community	Kindergarten			No Kindergarten			d (K-NK)	P
	M		SD	M		SD		
	Total	Avg.		Total	Avg.			
A	5.54	2.77	1.52	6.51	3.25	1.33	-.97	.001
B	5.74	2.87	1.62	5.17	2.58	1.54	.57	.05-.10
C	6.40	3.20	1.71	4.81	2.40	1.81	1.59	<.001
D	5.72	2.86	1.73	5.20	2.60	1.71	.52	NS
E	4.34	2.17	1.21	3.98	1.99	1.27	.36	NS
Total	5.53	2.77	1.71	5.13	2.57	1.75	.40	.05

  

c. Total Checklist Score, Converted to a 7-point Scale (3-9)						
Community	Kindergarten		No Kindergarten		d	p
	M	SD	M	SD		
A	6.52	.78	6.62	.72	.10	NS
B	6.54	.78	6.08	.83	.46	.01
C	5.84	1.03	5.56	1.24	.28	NS
D	5.94	1.15	5.64	1.25	.30	NS
E	6.10	1.01	5.76	1.07	.34	NS
Total	6.21	.99	5.95	1.10	.26	NS

## Conclusions

These data indicate that, in general, children who attend kindergarten make higher Readiness scores at the beginning of first grade and higher Achievement scores at the end of the year. This leaves unanswered the question of cause. The "K" group's higher scores on both Readiness and Achievement tests could simply be due to selectivity as to which children attend kindergarten. This is a reasonable hypothesis, since the kindergarten program is voluntary, and participation requires that parents provide transportation for the child, a problem for many parents. A study is now being planned to compare children who enroll in kindergarten with children of the same age from the same community who do not enroll, administering Readiness tests in the fall of the kindergarten year, and again in the spring, followed by Achievement tests in the spring of the first grade.

The findings for Community A have caused much speculation and an examination of the kindergarten program in those schools. The present tentative conclusion is that many children in these schools are "ready" for reading at the beginning of kindergarten, but are discouraged from this activity, and thus lose their enthusiasm for reading.

One additional, though peripheral conclusion: Although there are good reasons to attempt to measure "intangibles" such as "Social and Emotional Adjustment," ratings by untrained teachers do not seem to be very profitable. An inspection of the checklists indicated that most teachers discriminated very little between children, and would need training before this device could be used effectively.

### Kindergarten versus Small Classes

For this study all children who had not attended kindergarten and who were in small first grade classes (less than 24 pupils) were selected. For comparison, children from the same communities, who had attended kindergarten and were in larger first grade classes (30 or more) were used. A random sample was drawn from this group equal in number to the "small class" sample. The first group was designated as the "KL" group, and the second as the "NKS." The "KL" group was compared with the "NKS" group on Metropolitan Readiness scores at the beginning of the first grade and California Achievement Reading scores at the end of the year. In view of the lack of discrimination on the teacher ratings, those data were omitted from this study.

## Findings

The data are reported in Table 2. There were significant differences between the groups on both the initial Readiness Test and the Achievement Test, indicating that kindergarten children are superior to non-kindergarten children both in readiness at the beginning of the first grade and in achievement at the end of the year. The analysis of covariance indicated that the achievement differences were not significant when adjustments were made for the readiness differences.

Table 2

Comparison of "KL" and "NKS" Groups as to Metropolitan Readiness and California Achievement Scores

Test	K-L (N = 67)		NK-S (N = 67)		d	p
	M	SD	M	SD		
Metropolitan Readiness (beginning first grade)	3.76	1.04	3.04	1.16	.72	.001
California Readiness Total (end of first grade)	5.30	1.60	4.70	1.56	.60	<.05

## Conclusions

Because of the unknown degree of selectivity as to which children will attend kindergarten under a voluntary program, it is impossible to evaluate the effectiveness of a kindergarten program without securing more information about the children prior to kindergarten attendance.

It is clear from this and many other published studies that children who have attended kindergarten are higher in readiness at the beginning of the first grade and in achievement at the end of the year, even when NK children have the advantage of small classes. This may simply be because children who attend kindergarten are those from better homes, who could be expected to achieve better in school in any case. There is some indication from this study that many of these children might profit from going into first grade experiences earlier, rather than spending a full year in kindergarten.

## Summary

First grade children who had attended kindergarten (K) were compared with those who had not (NK) as to Metropolitan Readiness scores (at the beginning of the year), California Reading Achievement scores (at the end of the year), and teachers' ratings of Social and Emotional Adjustment. Kindergarten children were significantly higher on both Readiness and Achievement scores, though not on the Social and Emotional Adjustment ratings, except in one community. An additional study compared the "K" children enrolled in large first grade classes with "NK" children in small classes. In this study both Readiness and Achievement scores were significantly higher for the "K" group, despite the small class advantage of the "NK" group.

Analysis of covariance indicated that differences in end-of-the-year achievement were not significant when adjustment was made for beginning readiness.