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Children's Institute was asked to examine Rochester Early Childhood Assessment Partnership (RECAP) prekindergarten data pertaining to students participating in the Strong Start program in two Rochester City School District schools, #9 and #12, to explore relationships between their 2007-08 outcomes in kindergarten and their status the prior year. We received information identifying the Strong Start children, including their ID numbers, pre-test Bracken results, and a classification indicating the extent of their developmental delay (average, delayed, or very delayed). This information was available for a total of 97 students, with 55 students from #9 School and 42 students from #12 School.

Question 1: What proportion of the Strong Start kindergarten students participated in RECAP?

Of the 97 Strong Start students, 47 (48.5%) participated in RECAP programs in 2006-07. None were in RECAP in 2005-06. In School #9, 25 out of 55 (45.5%) had been in RECAP; in School #12, 22 out of 42 (52.4%) had been in RECAP.

Question 2: For the Strong Start students, were there observed differences on the Bracken or the Child Observation Record (COR), administered in fall 2007 between those children who had been in RECAP the prior year and those who had not?

We first examined whether there were sex disproportionalities between the RECAP and non-RECAP groups. The groups were similar in this regard: 52% female and 48% male, for both groups.

We next examined the proportions of developmental delay categories for the two groups. These results are shown in the table below.

Table 1.

Category	RECAP	Non-RECAP	Total
Average	16	14	30
Delayed	26	23	49
Very delayed	5	13	18
Total	47	50	97

Of the “Very Delayed” children, 27.8% had participated in RECAP programs, and 72.2% had either been enrolled in other programs or had no pre-K participation. These results were not statistically significant ($\chi^2 = 3.78, p=.15$).

Comparing the Bracken standard scores for the two groups revealed that the RECAP group scored statistically significantly higher, as shown in the table below.

Table 2.

RECAP			Non-RECAP			<i>t</i>	<i>p</i>
N	Mean	S.D.	N	Mean	S.D.		
47	80.36	7.67	50	76.88	9.54	1.97	.05

The groups did not differ significantly on any of the fall kindergarten COR subscales, nor the COR total score.

Question 3: Were the pre-K results for the Strong Start children who participated in RECAP programs different, at the beginning and again at the end of kindergarten, than those for a matched group of other RECAP children on the COR and T-CRS?

We randomly matched the Strong Start children who participated in RECAP with an equal number of prior-year RECAP children, by age, sex, and ethnicity. Complete matching information was unavailable for two of the Strong Start students, so group size was reduced to 45 per group. Perfect matches were achieved for sex and ethnicity. The groups were matched to be within a 12-day age difference on average.

The groups were compared on the bases of fall pre-K COR, spring pre-K COR, and COR growth from fall to spring, as well as on the fall kindergarten COR. COR data were unavailable for some students, as reflected in the group sizes reported in the results, shown in Table 3. (Note that the version of the COR used in kindergarten is different than the one used in prekindergarten.)

Table 3.

	Strong Start			RECAP Matched comparison			<i>t</i>	<i>p</i>
	N	Mean	S.D.	N	Mean	S.D.		
Fall PK-COR								
Motor	40	2.88	0.89	35	2.78	0.83	< 1	
Literacy	39	1.96	0.62	34	2.01	0.76	< 1	
Social	40	2.76	0.81	35	2.70	0.88	< 1	
Math	39	1.88	0.85	34	2.07	0.93	< 1	
Spring PK-COR								
Motor	26	4.03	0.70	31	3.88	1.05	< 1	
Literacy	26	2.83	0.86	31	3.31	0.99	1.93	.06
Social	26	3.49	0.77	31	3.78	0.89	1.30	.20
Math	26	3.25	1.04	31	3.45	1.08	< 1	
PK-COR growth								
Motor	25	1.15	0.76	28	1.13	0.65	< 1	
Literacy	24	1.01	0.62	27	1.37	0.80	1.76	.08
Social	25	0.65	0.79	28	1.11	0.62	2.35	.02
Math	24	1.34	0.99	27	1.46	0.79	< 1	
Fall K-COR								
Initiative	32	3.24	0.79	34	3.09	0.73	< 1	
Language, literacy	32	2.93	0.73	34	3.01	0.91	< 1	
Movement, music	32	3.40	0.88	34	3.31	0.79	< 1	
Science	31	2.86	0.67	34	2.77	0.96	< 1	

Although the RECAP matched comparison group displayed significantly greater growth during pre-K on the Social subscale, there are no overall differences between the groups on the pre-K COR scores, nor were there differences between the groups at the beginning of kindergarten during the full assessment.

The Teacher-Child Rating Scale (T-CRS) is completed by classroom teachers. It assesses children's school problem behaviors and competencies. We compared the Strong Start and comparison group children on pre-K T-CRS scores from the fall and the spring, and on growth from fall to spring. These results appear in the table below.

Table 4.

	Strong Start			Matched comparison			<i>t</i>	<i>p</i>
	N	Mean	S.D.	N	Mean	S.D.		
Fall T-CRS								
Task orientation	43	27.37	6.64	41	26.98	6.93	< 1	
Behavior control	43	28.54	6.51	41	27.78	7.39	< 1	
Assertiveness	43	28.21	5.72	41	27.27	8.34	< 1	
Peer social	43	30.54	4.94	41	30.12	7.08	< 1	
Spring T-CRS								
Task orientation	29	25.00	8.71	34	31.53	7.62	3.17	.002
Behavior control	29	25.76	8.28	34	29.82	8.91	1.87	.07
Assertiveness	29	28.10	6.48	34	31.32	7.30	1.84	.07
Peer social	29	30.41	6.71	34	33.56	7.43	1.75	.09
T-CRS growth								
Task orientation	29	-1.07	7.34	31	4.48	5.89	3.24	.002
Behavior control	29	-2.07	6.22	31	2.10	6.94	2.44	.02
Assertiveness	29	1.00	5.20	31	3.81	5.72	1.98	.05
Peer social	29	0.86	6.62	31	3.35	7.10	1.40	.17

By spring of their pre-K year, the RECAP matched comparison group was rated significantly higher than the Strong Start group, showing more growth on the Task orientation, Behavior control, and Assertive social subscales.

Summary and limitations

First, almost 50% of the children who attended Strong Start had not participated in the quality pre-K programs represented by RECAP classrooms. This, by itself, is an important finding.

Second, the analyses described in this report fall into two general models. In the first set of analyses, Strong Start students who participated in RECAP as prekindergarteners were compared with other Strong Start students who were not included in RECAP. The RECAP students had, on average, higher Bracken scores than Strong Start students who had not been involved with RECAP programs.

In the second set of analyses, Strong Start students who were RECAP participants the prior year were compared with a matched group of randomly selected RECAP students.

The students who would, in the following year, be in Strong Start displayed less teacher-rated social-emotional growth from the fall to the spring of prekindergarten. In essence, those students who entered Strong Start in kindergarten were, on average, lower functioning than average students from RECAP programs.

There are a number of important limitations to this study to consider before drawing conclusions from these results. The design for this experiment was determined after the data were collected, so the groups could not be randomly selected in advance. It is possible that other factors, which these analyses did not take into account, are responsible to some extent for the reported results. For example, children with more serious developmental delays might be less likely to be in RECAP. The matching for the second model included only three characteristics (sex, ethnicity, and age), and other salient aspects of the children's developmental and demographic backgrounds were not considered.