

Predicting Kindergarten Scores in Emergent Literacy: Pre-K Background Makes a Difference

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Statement of Problem

- Consistent patterns of lower achievement have been found in children from low income families (NRC, 2005)
- Without intervention, trajectories remain stable across time
- Quality of intervention, particularly the quality of intentional instruction, influences children's learning (Mashburn, et al, 2008), with specifically targeted interventions being most effective (Dunst, et al, 2007)
- Projects funded by Early Reading First to focus directly on emergent literacy would be expected to result in better outcomes in emergent literacy
- Few studies have followed children from Early Reading First into Kindergarten or compared their outcomes to children receiving other public preschool programs
- Additional studies are needed to address whether preschool programs make a difference for low income children in areas of emergent literacy, and whether more targeted experience (such as that provided through ERF) makes a difference in Kindergarten performance in areas of early literacy

Research Questions

- Is prior Pre-K experience related to emergent literacy scores in Kindergarten (at entry and across the year)? In what areas?
- What types of Pre-K experience predict higher performance on emergent literacy in Kindergarten?
- How do patterns of achievement differ across the year for children with different Pre-K experience?

Sample

Included all low-income Kindergarten children with parental permission (70%) in one mid-western city school district, excluding children with IEPs (8%).

Categorized as entering from:

- One of 16 DELL-D classrooms (ERF project), including classrooms in the district, in Head Start, and in subsidized child care (TROPHIES curriculum, professional development, resource-rich, extra support)
- One of 10 district sites (1-4 classrooms each, total of 16) funded through state Pre-K funds or one Head Start site (2 classrooms) (general early childhood curriculum, extra professional development for NAEYC accreditation), not participating in DELL-D
- No known preschool program (did not attend any of the above)

Demographic differences among groups:

- Gender** (Chi-square, $p=.01$) – 'No P-K' group has more boys
- Race** (Chi-square, $p=.01$) – 'No P-K' group has more Caucasian children, DELL-D more African-American children)
- Age** (ANOVA, $p=.00$) – 'No P-K' children are significantly older

Table 1—Sample Characteristics

Percent Characteristic by Group	DELL-D (n=52)	Other P-K (n=110)	No P-K (n=103)	Total Sample (total n=265)
Gender				
Male	.44	.43	.62	.51
Ethnicity				
Caucasian	.15	.34	.46	.35
African-American	.67	.53	.37	.49
Bi-Racial	.10	.06	.09	.08
Hispanic	.08	.07	.07	.07
Asian	.00	.00	.02	.01
Months Age at Entry				
Mean (standard deviation)	66.81 (3.58)	66.63 (3.76)	69.69 (6.01)	67.85 (4.94)

Data Collection

- Use of DIBELS data available from school district's Kindergarten assessments in Fall, Winter, and Spring
- Testing by district testing team (retired teachers, trained by district)

Results

Analyses

- 3-way ANOVA (SPSS) on raw scores, with LSD post-hoc
- Average percentile scores in fall, winter, and spring

Table 2—Mean Scores on DIBELS

DIBELS Measure by Group	DELL-D Pre-K n=52		District Pre-K n=110		No Pre-K n=102		ANOVA Results	
	Mean	s.d.	Mean	s.d.	Mean	s.d.	F	p value
Fall								
LNF	16.02	11.32	11.23	10.30	7.55	10.05	12.475	.000 (a, b)
ISF	11.53	7.52	8.51	7.52	10.32	7.93	2.285	.06
WUF	8.25	9.86	7.20	9.86	7.46	9.94	.20	.82
Winter								
LNF	34.18	13.02	30.80	15.39	27.16	15.39	6.029	.003 (a,b)
ISF	23.58	11.83	18.37	9.60	20.49	13.08	3.671	.03 (b)
PSF	28.54	16.82	23.94	15.71	26.02	17.29	1.170	.25
NWF	21.92	13.49	17.54	13.14	15.32	12.89	5.215	.01 (a, b)
WUF	23.81	19.03	18.19	17.80	19.39	16.21	1.864	.16
Spring								
LNF	46.67	13.16	39.71	15.69	34.92	14.69	10.183	.000 (a, b)
PSF	50.24	12.65	48.78	14.55	48.24	15.32	.314	.73
NWF	34.67	16.08	30.43	19.02	26.38	17.92	3.510	.03 (b)
WUF	37.73	16.92	34.49	17.34	31.42	17.14	2.247	.11

Measures:

LNF = letter naming fluency ISF = initial sound fluency WUF = word use fluency
 PSF = phoneme segmentation fluency NWF = nonsense word fluency
 Post-hoc: a = DELL-D vs. Other Pre-K b = DELL-D vs. None c = Other Pre-K vs. None

Results for Mean Scores

- DELL-D scores were higher for all subtests across all measurement periods, with significant differences on 6/12 measures
- Other Pre-K scores were higher for 7/12 measures than those of children with no Pre-K experience; no differences were significant
- There was wide variation within each group, with similar standard deviations across groups



Disclaimer

Assessment tools and other information and materials mentioned or shown by presenters or grantees are provided as resources and examples for the viewer's convenience. Their inclusion is not intended as an endorsement by the U.S. Department of Education.

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Results (continued)

Results for Average Percentile Scores

- DELL-D children achieve at higher percentiles on all assessments across the year
- Average percentiles in DELL-D were above 50% on all assessments (52-61%); District Pre-K and children with no Pre-K each had two of 12 areas at or slightly above 50%

Figure 1: Fall Percentile Scores

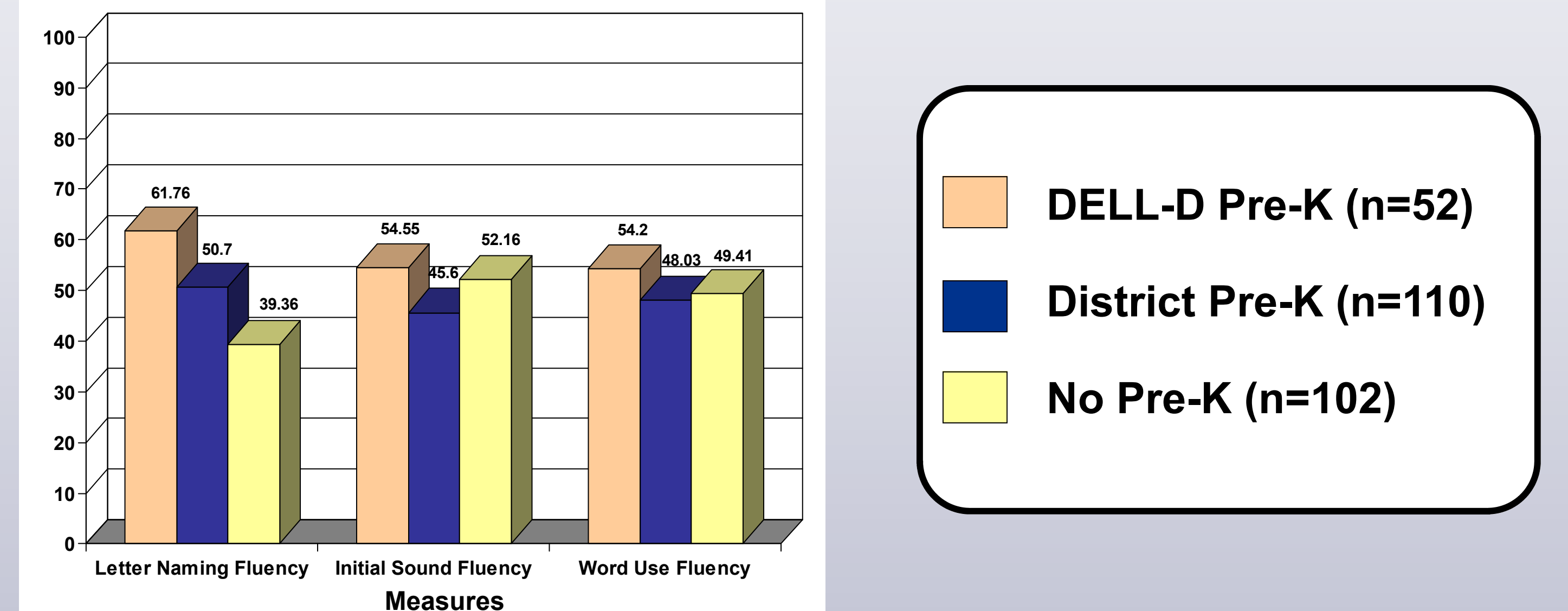


Figure 2: Winter Percentile Scores

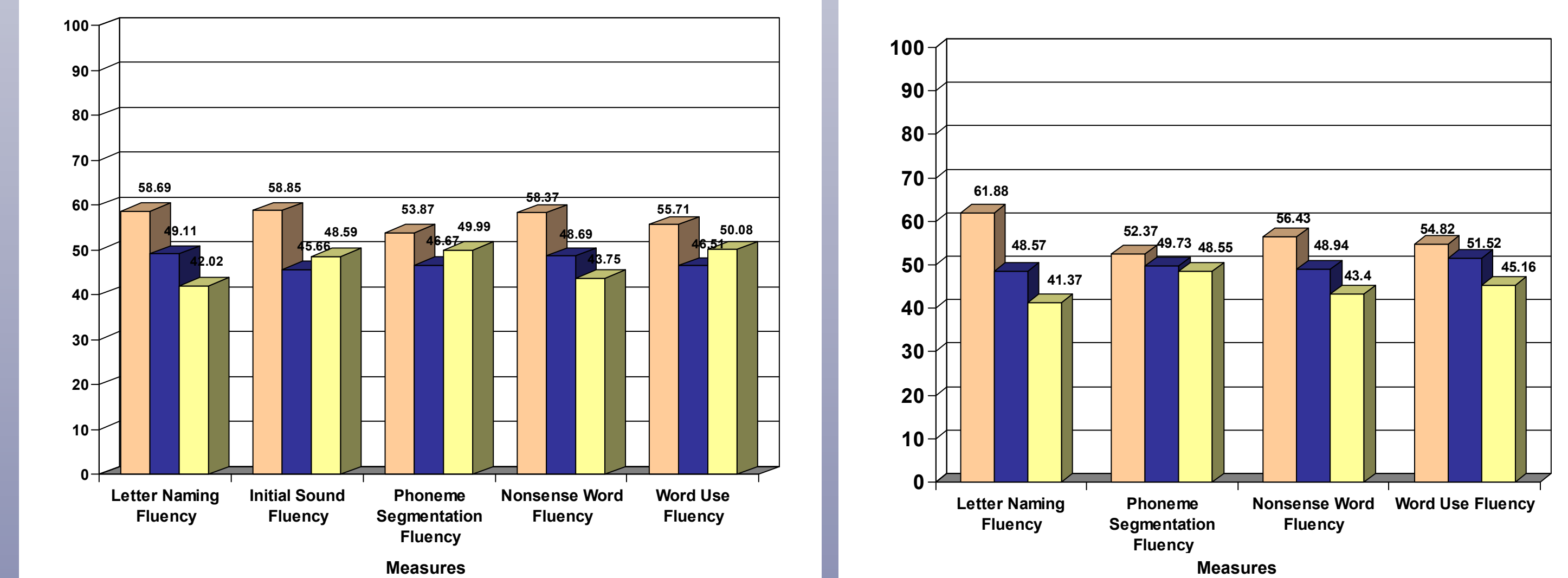
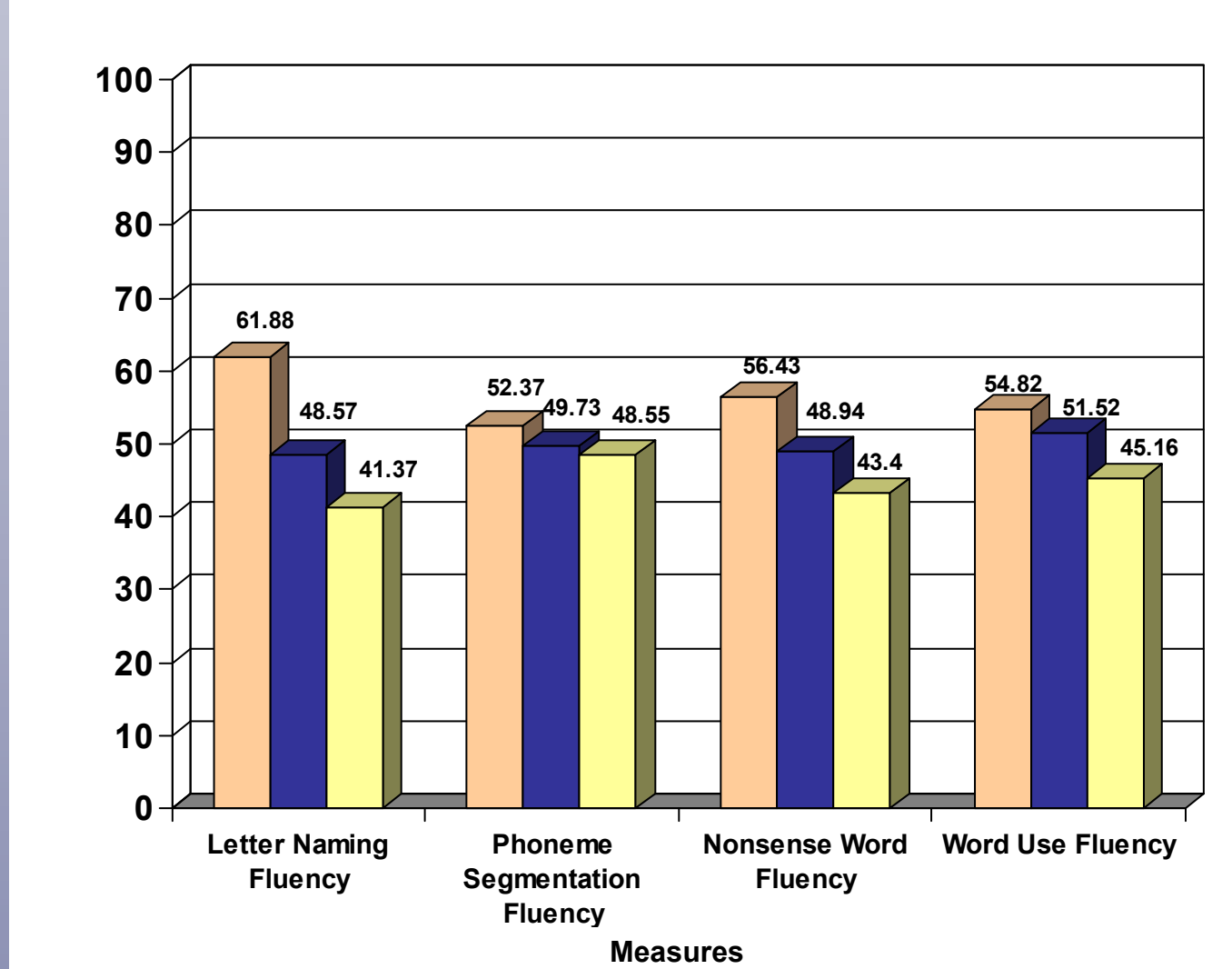


Figure 3: Spring Percentile Scores



Discussion

- At post-assessment, children in both intervention groups consistently scored higher than children with no intervention (significant for LNF and NWF)
- Children in targeted intervention (ERF) scored consistently higher than children with more general preschool experience and effects were evident throughout the year

Implications for Research, Policy and Practice

- Areas in which there was no difference should be explored further for (a) whether they were being adequately taught (WUF), and (b) whether they are good indicators of emergent literacy (PSF)
- For the school district, additional efforts are needed to determine who is being missed through child-find activities
- For policy-makers, results demonstrate that Pre-K experience makes a difference in children's skills as they enter and leave kindergarten
- For preschool programs and policy-makers, results indicate that a direct focus on emergent literacy in Pre-K makes a difference in how children enter and leave Kindergarten