



Longitudinal Evaluation of West Virginia's Universal Pre-K

Following a WV Pre-K Cohort into 1st Grade



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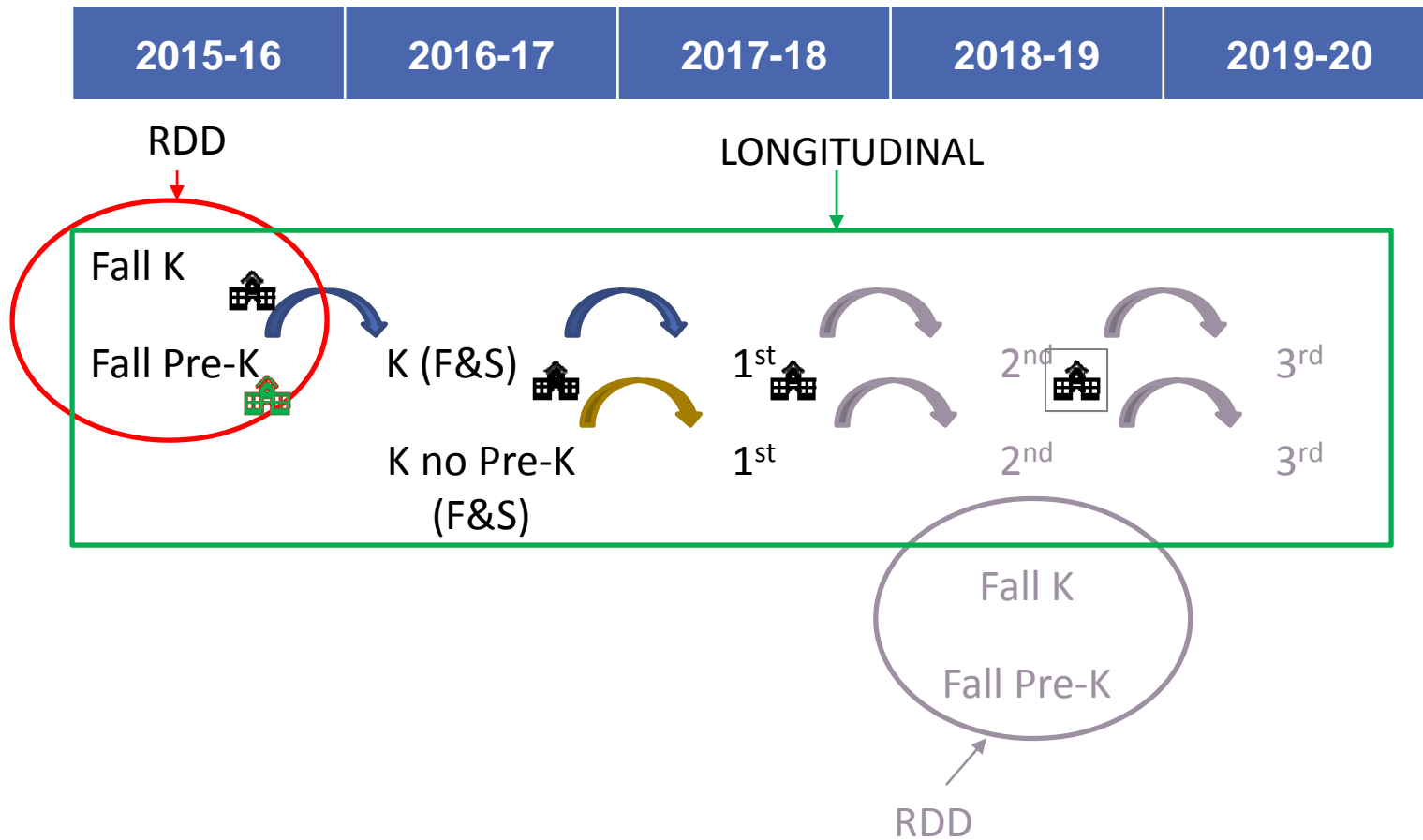
WV Universal Pre-K program

- Legislation in 2002 requiring expanded access to preschool available to all 4-year-olds by the 2012-2013.
- Program available in all 55 counties: Ranks 6th in Access (65%).
- ~75% of the programs in collaborative settings: private pre-Ks, child care centers, or Head Starts.
- Funding is on the State School Aid Funding Formula.
- Meets all 10 of NIEER's quality benchmarks, w/ Lead and assistant teachers in public centers at salary parity with K-3 public school teachers. (9 of new ones)
- Since 2016-2017 school year, all programs must operate full day (1,500 minutes p/week; 48,000 annually); min. 4 days.
- State spending p/child= \$6,524 (all spending \$9,501)
- Ranks 10th in State spending (6th in total spending)

Research Questions

- Do children who attend the prekindergarten program show greater progress on math, language, literacy, and executive function measures than children who do not attend the prekindergarten program at the end of first grade?
- How has the quality of preschool progressed over the three years we have observed as part of the study?
- How does it compare to what they experienced in pre-K and K?

5-year Design



Program Impact on Children

- **RDD at K/Pre-K entry:** Assesses the effects of participation in WV Pre-K on children's skills at kindergarten entry using age as a cut off
- **K and 1str grade Non-equivalent comparison (no randomization)**
- Assesses the effects of participation in the prekindergarten initiative on children's skills through the end of first grade
- We follow the pre-K sample and compare it to 5-year-olds who we captured when they entered kindergarten who did not attend
- Measures the effects of pre-K attendance in comparison to whatever else children experienced (counterfactual) through 1st grade
- We also assess classroom quality longitudinally

Measures

- Vocabulary: PPVT IV
- Literacy: WJ-III Letter-Word (Topel in the RDD) & Passage Comprehension
- Math: WJ-III Applied Problems
- Executive Functions: Dimensional Change Card Sort (memory, attention shifting), Peg Tapping (inhibitory control and attention)

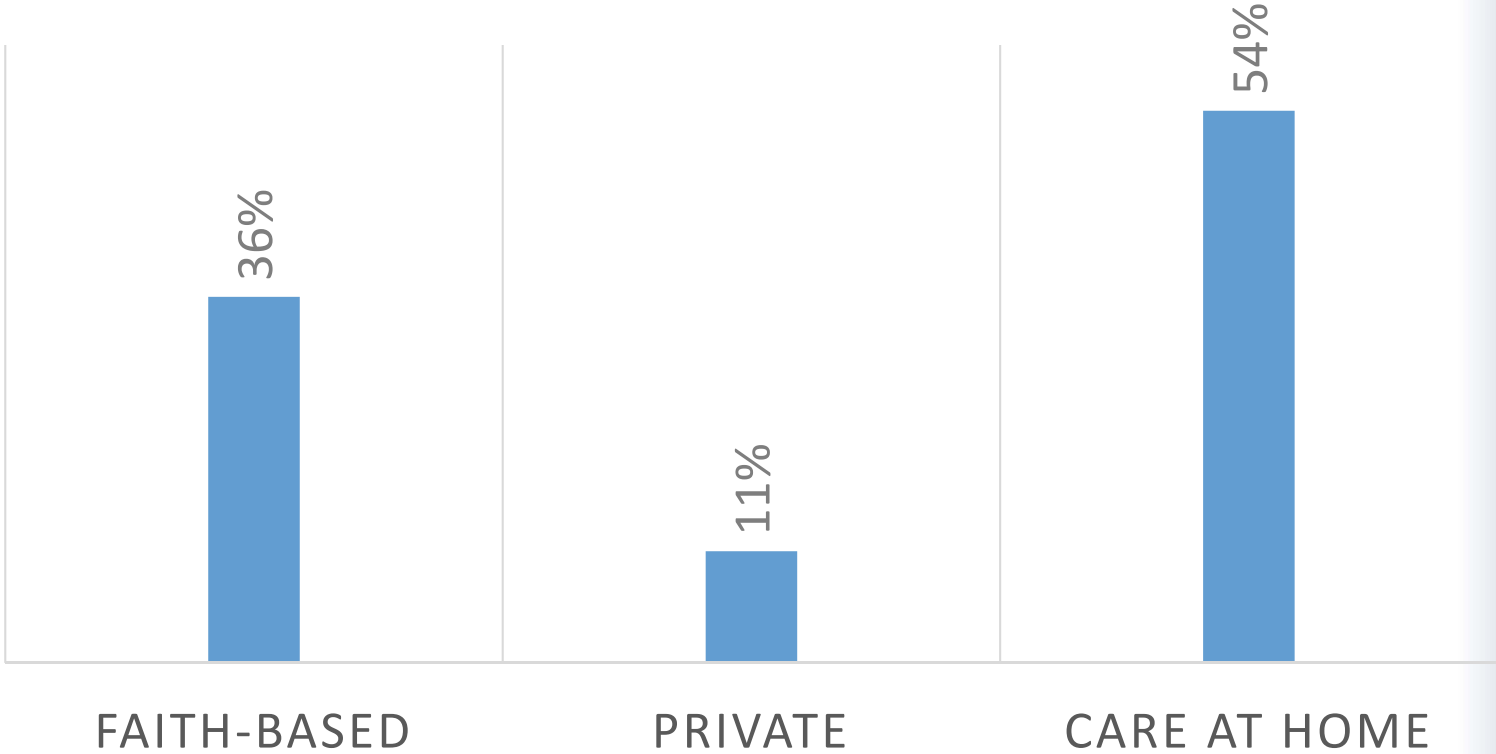
Longitudinal Sample

- “Comparison group” = Children that did not attend pre-k in 2015-16 that were identified at K entry
- “Treatment group” = Children that attended pre-k in 2015-16 followed since pre-K entry
- 7 counties: Fayette, Greenbrier, Kanawha, Nicholas, Putnam, Roane and Wood
 - PURPOSEFUL for longitudinal analyses
- N = 871
- Attrition = 5% by 1st grade

Children in the sample (n=827)

		All	Comparison	Treatment
Female	N	400	162	138
	%	48.4%	47.6%	46.0%
White	N	760	287	473
	%	91.9%	92.9%	91.3%
IEP	N	120	39	81
	%	14.5%	12.6%	15.6%
Low Income	N	513	163	350
	%	62.0%	52.8%	67.6%
Retained	N	41	16	25
	%	4.9%	5.2%	4.7%

Comparison Children: Where were they?



Response rate = 45%

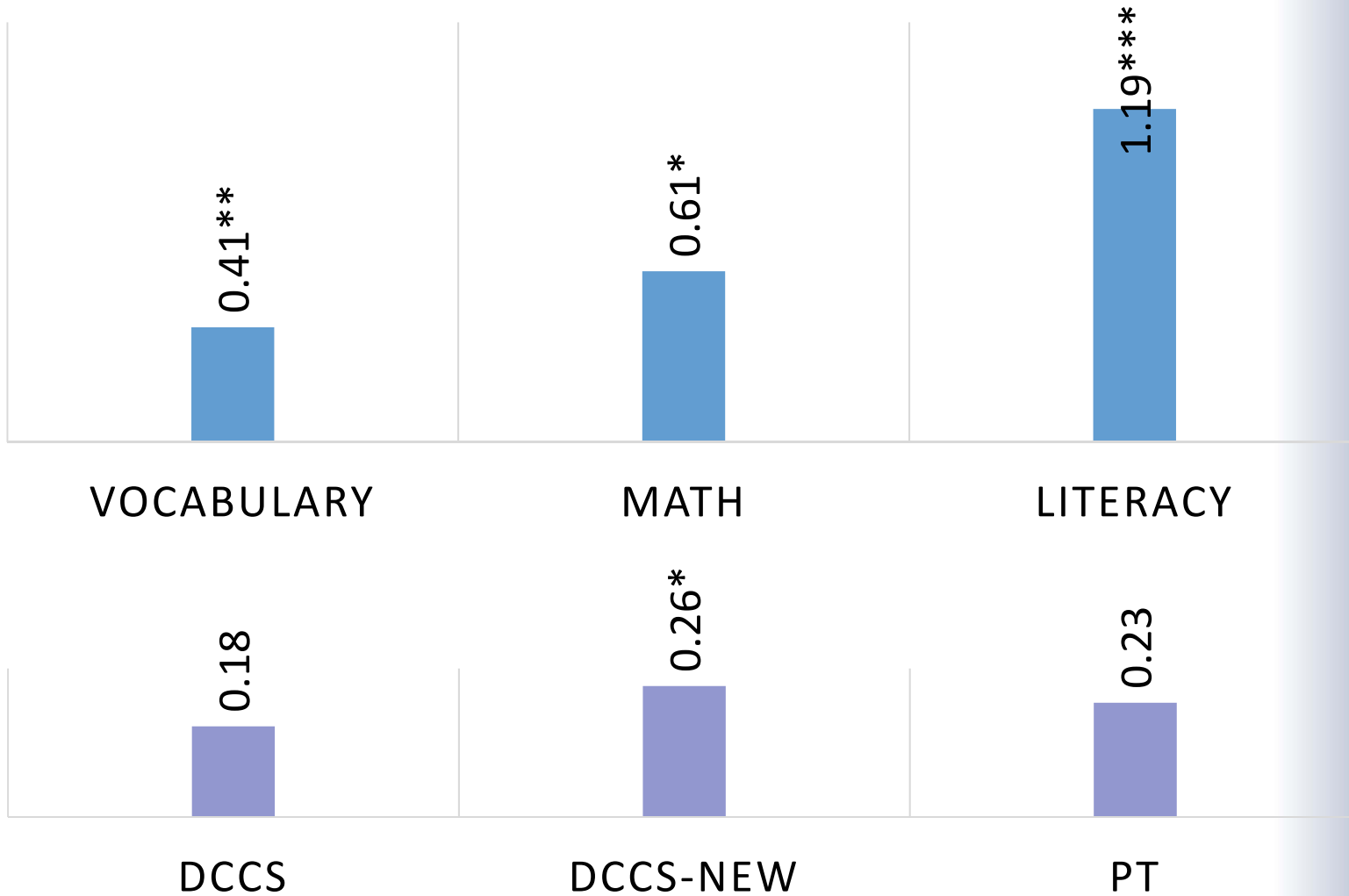


Overview of Child Outcomes

Outcome	Comparison			Treatment		
	K Fall 2016	K Spring 2017	1 st Spring 2018	K Fall 2016	K Spring 2017	1 st Spring 2018
PPVT*	104.4	107.0	105.67	105.4	105.9	104.89
WJ-LW*	96.3	107.2	105.41	97.3	108.3	106.20
WJ-PC*	94.7	98.4	95.59	95.9	99.2	96.28
WJ-AP*	96.3	107.2	102.87	97.3	108.3	103.14
DCCS	16.7	18.1	19.55	16.9	18.1	19.58
Peg Tapping	13.5	14.6	--	13.0	14.2	--

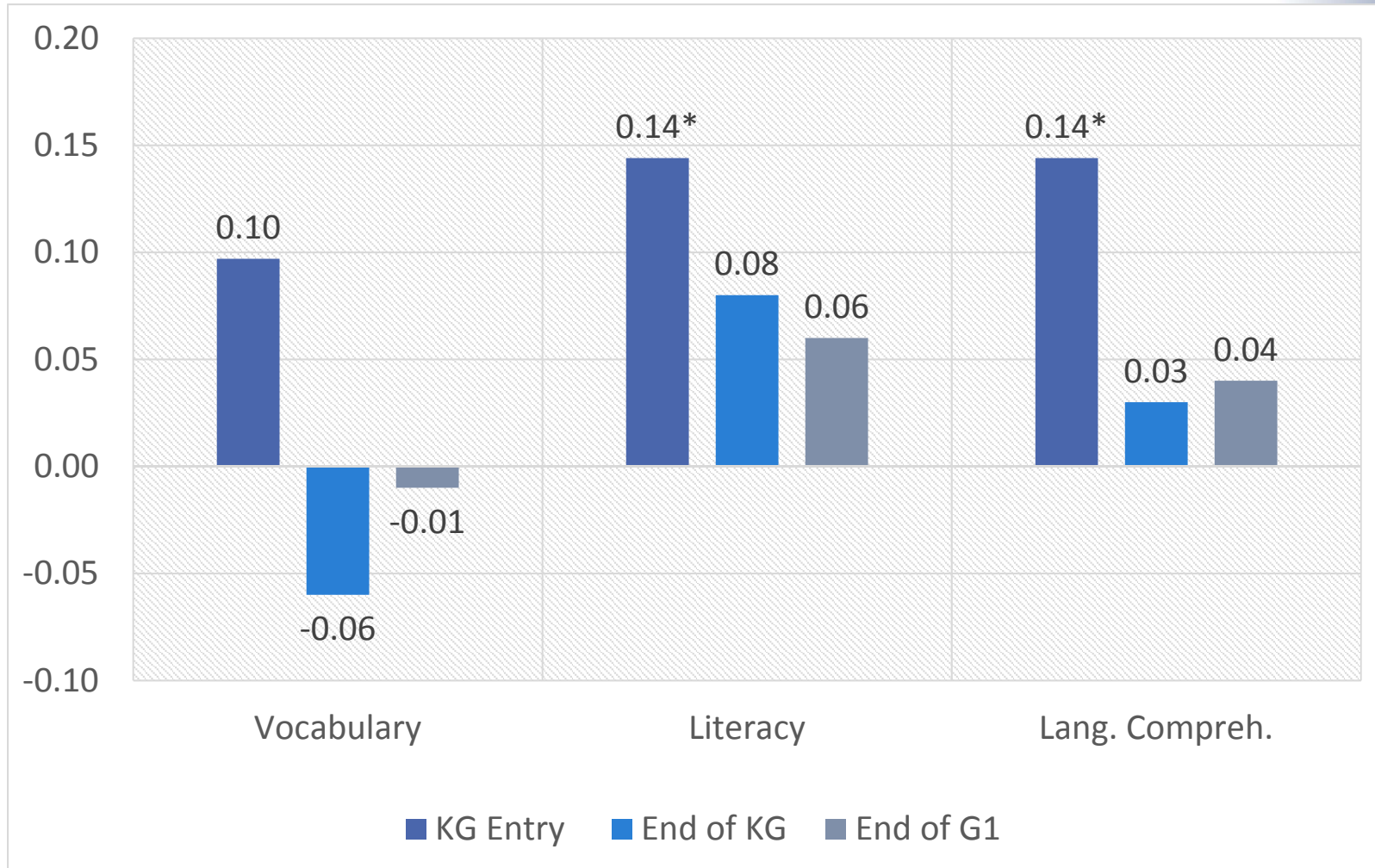
*Standard Scores

Summary RDD results



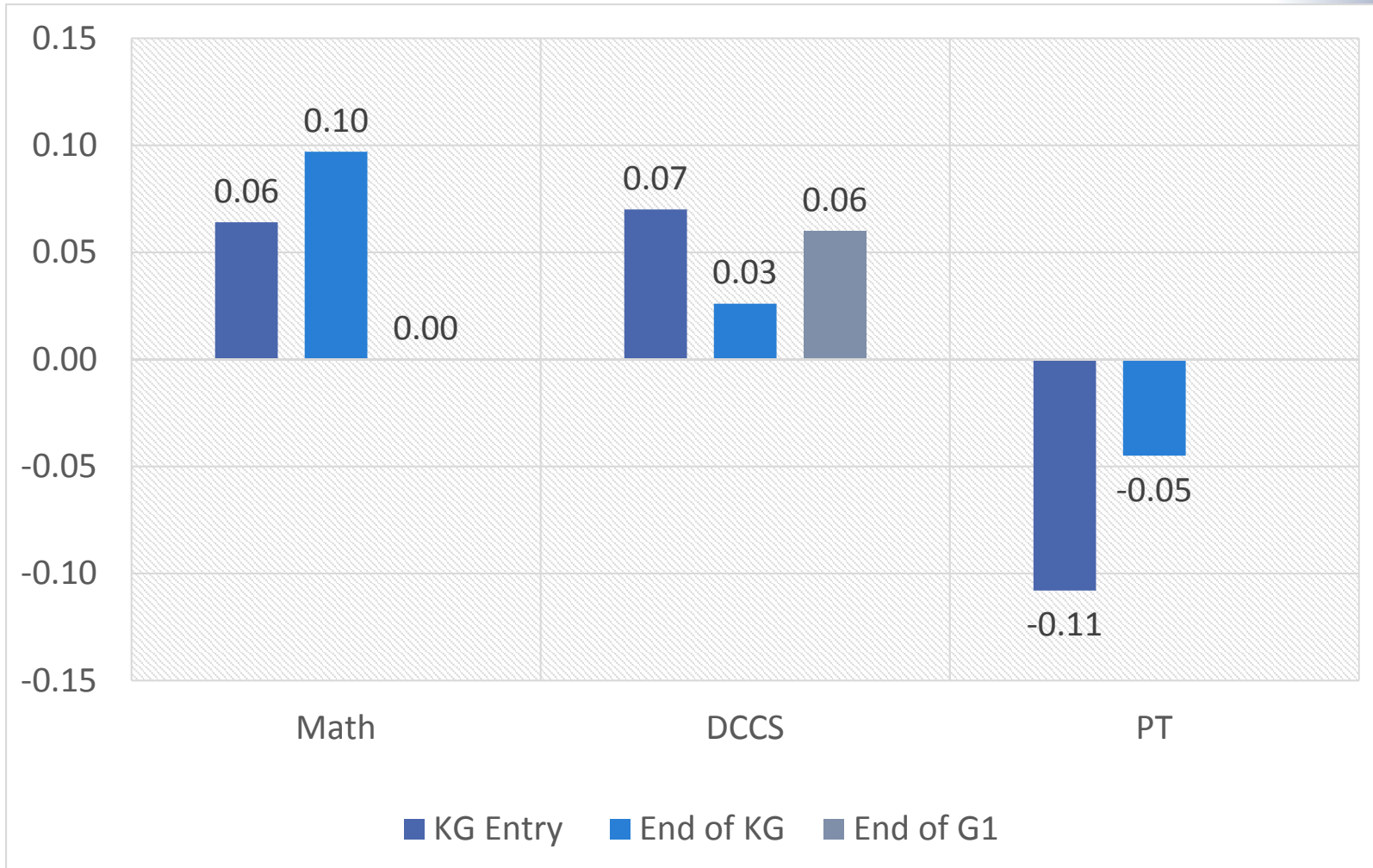
Effect sizes.

Results: Vocabulary, Literacy, Language



Effect sizes.

Results: Math & Executive Functions



Effect sizes.

Child Outcomes Summary

- Children experience large gains in the Pre-K year (large & statistically significantly positive for all measures)
- Children that experienced the WV Pre-K enter KG with some advantages.
- These are significant in literacy (letter-word) and language (Passage comprehension).
- Children that experienced WV Pre-K experience loss or minimal gains relative to a comparison group of children in KG who did not experience the program.
- At the end of KG, WV Pre-K attenders appear to have lost their advantages in receptive vocabulary, retain some advantages in math (though non-significant).
- At the end of 1st, Pre-K attenders appear to have lost their advantages in receptive vocabulary & math; maintain some advantages in Literacy, Language, and Executive functioning skills (non-significant).



A look at quality

Measures

Pre-K

- Early Childhood Environment Rating Scale - Third Ed. (ECERS-3; Harms, Clifford & Cryer, 2014): Space, Personal Care Routines, Language & Literacy, Learning Activities, Interactions, Program Structure
- Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008): Emotional Support, Classroom Organization, Instructional Support*

First Grade

- CLASS (K)
- Assessment of Practices in Early Elementary Classrooms (APEEC; Hemmeter, Maxwell, Ault & Schuster, 2001): Physical Environment, Instructional Context, Social Context.*

1st grades

Lead:

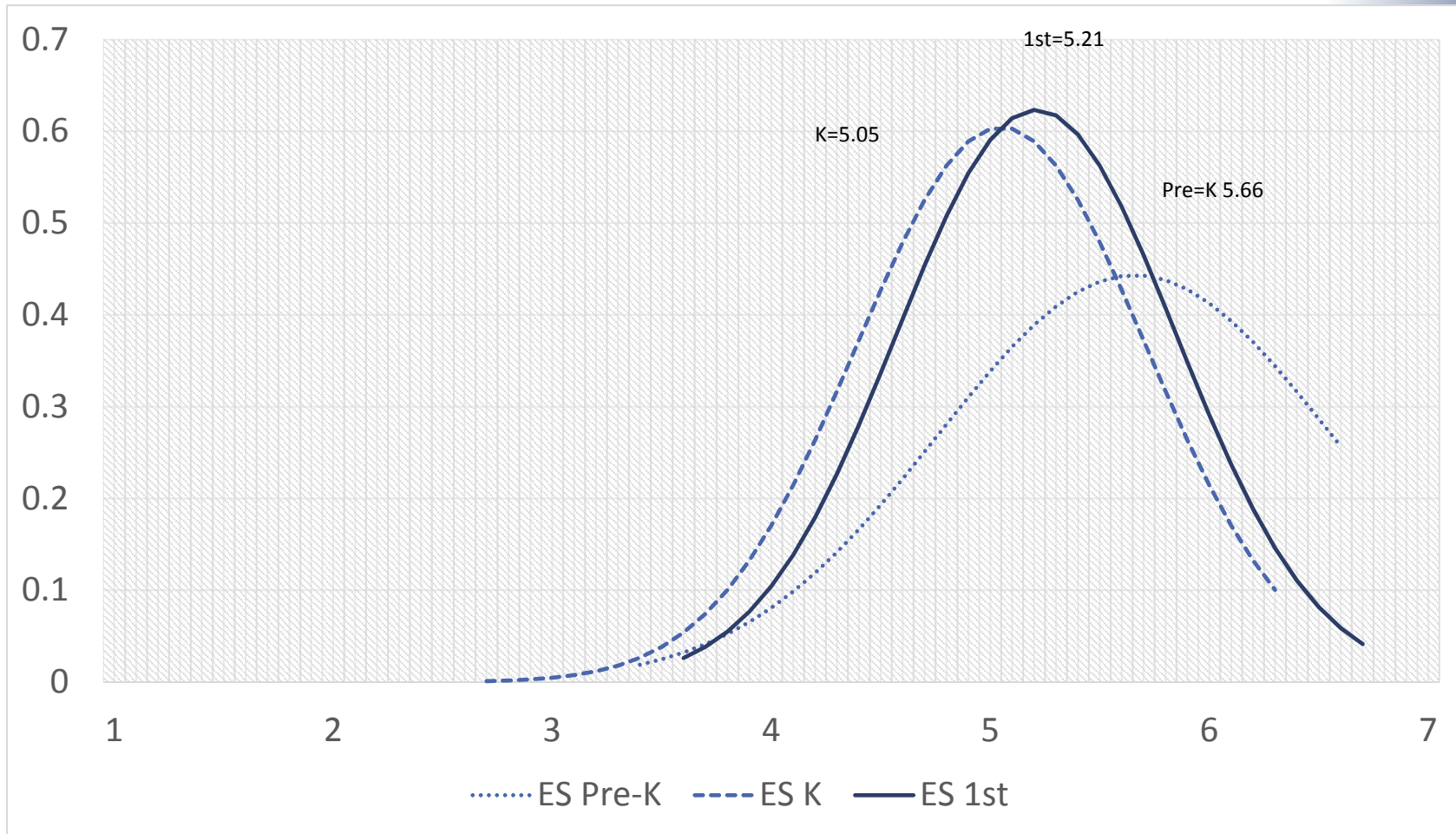
- 52% with a B.A., 49% with an M.A. or higher
- Experience: 0 - 5 years, 37%; 6-10 years, 23%; 10+ years, 36%
- 88% Certified
- Only 5% salaries of under \$30,000
- 42% salaries between \$30-\$40,000
- 36% between \$40 and \$50,000 & 14% > \$50,000
- Average age 41 years of age (range 23-67)

Classrooms

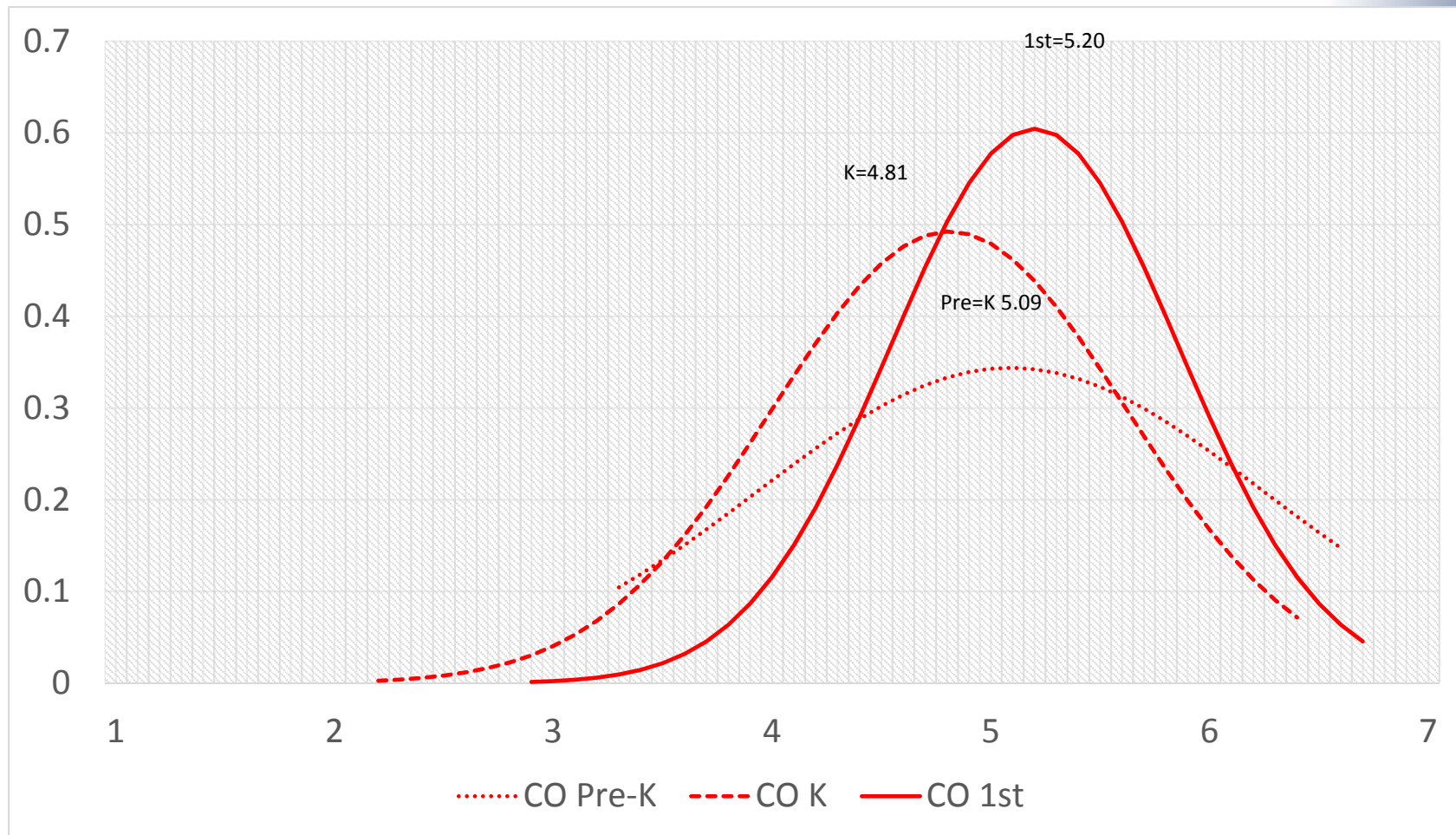
- 1.2 staff per classroom (SD 0.49; range 1-4)
- 18.2 children (SD 4.6; range 9-50)
- 3.5 IEPs (SD 2.5; range 1-13).

Response rate = 94%

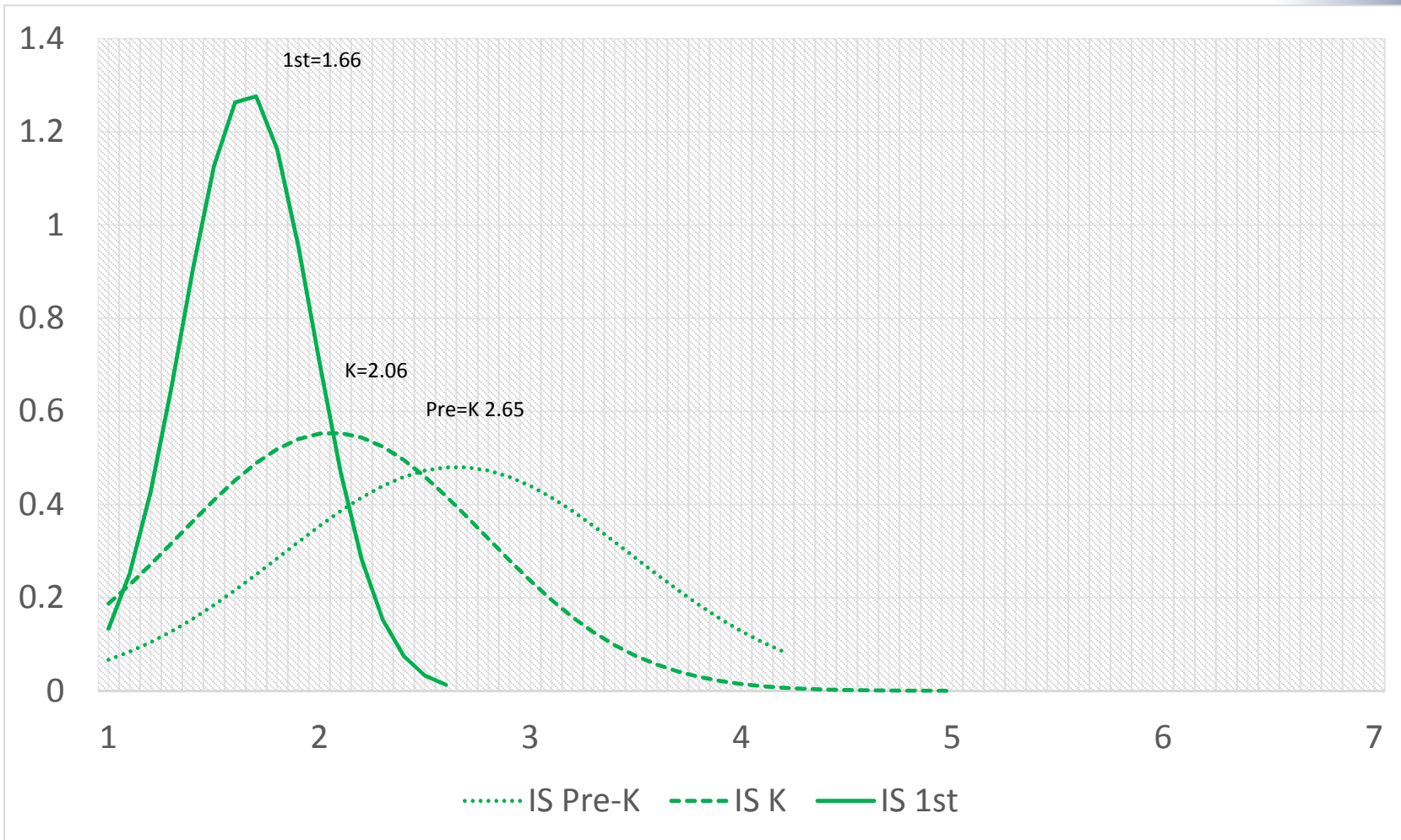
Quality Observed for the Longitudinal Cohort CLASS ES



Quality Observed for the Longitudinal Cohort CLASS CO



Quality Observed for the Longitudinal Cohort CLASS IS



Overall conclusions

- These areas are lower than those observed in pre-K and K classrooms.
- No classrooms are reaching good or high levels of quality
- Initial strong effects are positive but not sufficient, although Pace, et al. (2019) showed the connection between language and literacy and later gains across domains
- Convergence of scores pre-K and non pre-K could be due to the low quality observed in elementary together with teaching to the lowest performing children (lack of differentiation)
- It is possible that a “critical mass” is needed to change the K-3 system
- In line with the literature on the importance of quality in the elementary years & Preschool to 3 approaches (Ansari & Pianta, 2018; Meloy, Gardner, & Darling-Hammond, 2019; Reynolds & Temple, 2018)

