

A Quick Investigation of Potential Mode Effects in PARCC Growth Analyses.

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1 Mode Effects

Differences in achievement and growth based on test format/administration (paper vs on-line) have been noted in previous years. The following provides descriptive statistics for the Spring 2016 and Spring 2017 test scores and growth analysis results.

1.1 Spring 2017 Results

The following tables show the results by content area and grade, including both “standard” cohort referenced SGP and the Ranked SIMEX (measurement error corrected) SGPs

Table 1: Spring 2017 PARCC ELA Results by Grade.

Grade	Test Mode	Standard SGP		Ranked SIMEX		N
		Median	Mean	Median Ranked	Mean Ranked	
4	Online	51	50.72	51	50.73	352,574
	Paper	42	44.42	42	44.47	46,306
5	Online	50	50.08	50	50.11	377,457
	Paper	48	49.13	49	49.49	13,938
6	Online	50	50.03	50	50.07	366,579
	Paper	50	49.51	50	49.52	16,116
7	Online	50	50.13	50	50.18	367,915
	Paper	42	44.23	42	44.19	14,466
8	Online	50	50.03	50	50.07	362,146
	Paper	46	47.47	47	47.78	13,160
9	Online	50	49.93	50	49.99	158,436
	Paper	52	50.42	52	51.01	2,156
10	Online	49	49.56	50	49.68	102,906
	Paper	58	54.85	60	55.91	546
11	Online	49	49.39	49	49.53	94,547
	Paper	63	59.94	64	60.57	689

Table 2: Spring 2017 PARCC Mathematics Results by Grade.

Content Area	Grade	Test Mode	Standard SGP		Ranked SIMEX		N
			Median	Mean	Median Ranked	Mean Ranked	
Mathematics	4	Online	52	51.19	52	51.18	355,547
		Paper	37	40.96	37	41.17	47,198
	5	Online	50	50.20	50	50.22	378,957
		Paper	44	45.71	45	46.26	14,888
	6	Online	50	49.76	50	49.79	367,581
		Paper	58	55.59	58	55.89	16,303
	7	Online	50	50.03	50	50.07	356,687
		Paper	49	48.68	49	49.00	13,156
	8	Online	50	49.80	50	49.87	279,338
		Paper	57	54.14	57	54.35	11,317
Algebra I		Online	50	50.06	50	50.09	207,020
		Paper	50	49.58	51	50.11	4,746
Geometry		Online	51	51.03	51	50.59	119,557
		Paper	48	48.10	48	48.19	1,127
Algebra II		Online	49	49.38	49	49.52	92,194
		Paper	61	57.52	60	57.16	1,055

1.2 Comparison of 2016 and 2017

A side-by-side comparison of the two spring results mainly show consistent results between them with a few large differences (usually grade/subjects with small N size). There is also an interesting pattern of lower typical growth for paper test in the elementary grade subjects, mostly neutral or small positive and negative relationships in middle school grades and higher typical growth associated with paper tests in high school grades/subjects. Its an interesting generational trend. . .

Spring 2016 analyses used only one prior, whereas 2017 used up to two priors for most configurations. Mean current and prior year scores (Theta estimates) are also provided for additional context.

Table 3: Spring 2016 and Spring 2017 PARC

Standard SGP - 2016						
Grade	Test Mode	Median SGP 16	Mean SGP 16	Mean Score 16	Mean Score Prior 16	N 16
4	Online	51	50.88	0.07	-0.02	351,438
	Paper	44	45.42	0.02	0.08	67,426
5	Online	49	49.65	0.08	-0.02	378,582
	Paper	55	53.62	0.39	0.22	36,891
6	Online	49	49.24	0.08	-0.02	373,124
	Paper	60	57.07	0.42	0.16	39,908
7	Online	50	50.04	0.00	-0.03	364,943
	Paper	50	49.66	0.23	0.22	41,218
8	Online	50	50.16	-0.01	-0.03	357,419
	Paper	47	48.48	0.21	0.24	38,438
9	Online	50	49.95	0.01	-0.01	220,822
	Paper	51	50.82	0.22	0.20	12,093
10	Online	50	50.08	0.02	0.00	102,968
	Paper	43	45.11	-0.25	-0.14	1,725
11	Online	50	49.72	0.05	0.00	83,982
	Paper	64	59.98	0.47	0.16	2,276

Table 4: Spring 2016 and Spring 2017 PA

Standard SGP - 2016						
Content Area	Grade	Test Mode	Median SGP 16	Mean SGP 16	Mean Score 16	Mean Score Pr
Mathematics	4	Online	51	50.79	-0.10	
		Paper	44	45.90	-0.19	
	5	Online	51	50.47	-0.11	
		Paper	43	45.22	-0.03	
	6	Online	50	49.84	-0.11	
		Paper	52	51.47	0.06	
	7	Online	50	50.10	-0.07	
		Paper	49	49.04	0.16	
	8	Online	49	49.44	-0.09	
		Paper	57	54.76	0.36	
Algebra I		Online	49	49.52	-0.01	
		Paper	61	57.56	0.30	
Geometry		Online	50	49.93	0.01	
		Paper	57	54.50	0.24	
Algebra II		Online	50	49.91	0.06	
		Paper	58	55.88	0.95	