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STRENGTHENING SOCIAL AND
EMOTIONAL HEALTH

Kindergarten Follow-Up of 2017 Pre-K Summer Program Participants

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FEBRUARY, 2019

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Acknowledgements

Children's Institute is grateful to the Rochester City School District (RCSD) and the Greater Rochester Summer Learning Association (GRSLA) for providing the information and assistance required for the preparation of this report.

We appreciate the cooperation of RCSD's Aloma Cason, who compiled assessment information for RCSD kindergarten students.

Introduction

This report summarizes results from comparisons of 2017-2018 kindergarten assessment results from three groups of students. The first group attended Universal Pre-K (UPK) classes as 4 year-olds during 2016-2017 and additionally enrolled in summerLEAP, a 6-week summer program organized by the Greater Rochester Summer Learning Association (GRSLA), during June, July, and August of 2017. A second group was enrolled in UPK but not in the summer program, and a third group participated in neither UPK nor the summer classes.

The goal of GRSLA's educational programs is to maintain or enhance students' cognitive and non-cognitive school skills over the course of the summer when schools are not in session. Without such opportunities, low-income students have been shown to experience two months of summer learning loss (McCombs et al., 2011; Cooper & Harris, 2003).

This report contrasts outcomes from the Brigance 5-Year-Old Child/Kindergarten Screen and the Northwest Evaluation Association (NWEA) Measures of Academic Progress, to assess whether, and to what extent, pre-K summer learning efforts increment performance during the following academic calendar year.

Sample and Procedure Description

The overall sample of 2,770 included 240 children in the UPK+Summer group, 1,743 in the UPK-only group, and 787 in the Neither UPK nor Summer group. Group sizes could vary for specific analyses because of missing or incomplete assessments.

We examined the demographic characteristics of the three groups, presented in Table 1. Statistically significant ($p \leq .05$) disproportionalities were found for each of the demographic variables, with the exception of sex.

Table 1. Demographics for the three groups.

	UPK + Summer	UPK only	Neither
Female	54%	51%	47%
Male	46%	49%	53%
Black	64%	60%	43%
Hispanic	19%	26%	29%
White	13%	9%	22%
Other	4%	5%	6%
Limited English proficiency	6%	10%	21%
Poverty	61%	74%	71%
Homeless	6%	8%	22%
Disability	6%	12%	14%
Age, Sep. 1, 2017 (mean)	5.2	5.2	5.3
K attendance (mean)	91%	89%	87%

The UPK+Summer group tended to include proportionally more Blacks, fewer Hispanics, and more Whites than the UPK-only group; and had proportionally fewer instances of students with limited English proficiency, poverty, and disability. Because of these groupwise disparities, we statistically controlled for each of the demographic variables, with the exception of kindergarten attendance, for which the groups were not statistically significantly different, when conducting the outcome analyses reported below.

The Brigance 5-Year-Old Child/Kindergarten Screen is completed by kindergarten teachers early in the academic year. It is a criterion- and norm-referenced instrument which can be used to assess children's school readiness developmental delays and detect giftedness, indicating the need for additional testing or special services. The measure assesses the following skill areas:

- physical development, including gross motor (strength, control of large muscle groups) and fine motor (manipulation of hands and fingers)
- language development, including receptive (listening to and understanding spoken language) and expressive (speech and communication of ideas and feelings) language skills

- academic skills and cognitive development, including literacy (experience with books, visual discrimination, phonological awareness) and mathematics (quantities, numerals, sorting, counting) skills. (French, 2013)

An overall rating is also provided. Brigance results were available for 1,161 children in the overall sample.

The NWEA assessments are administered in the fall, winter, and spring. Kindergarten students often do not complete the fall assessment, so only winter and spring results are reported below. We examined reading and mathematics Rasch unit (RIT) scores. NWEA results were available for 1,612 (winter) and 1,669 (spring) students in the overall sample.

Results from the Brigance and the NWEA are presented in the sections below.

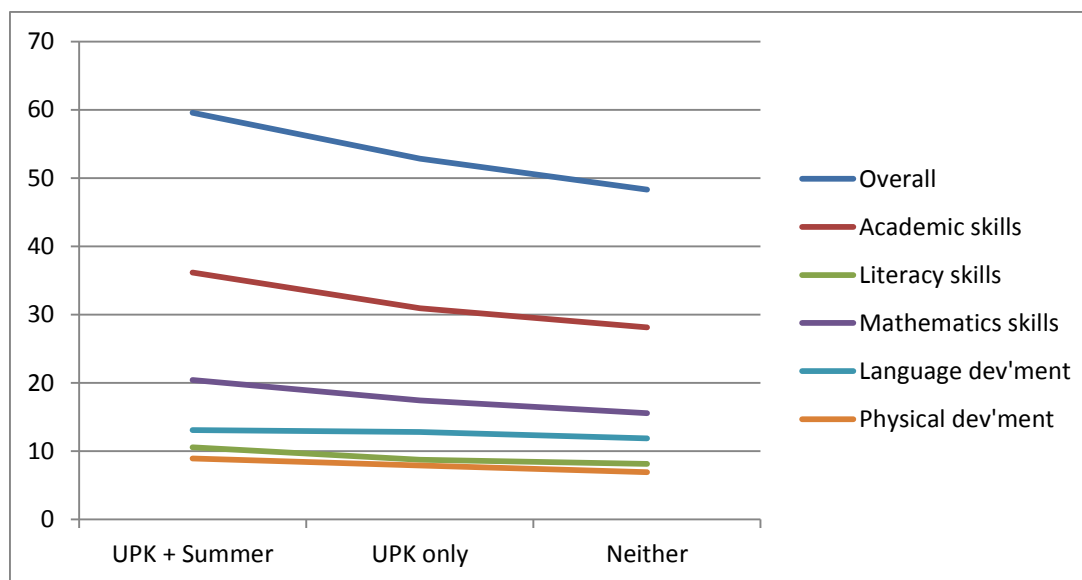
Outcome Analyses

Brigance results from analyses of covariance (ANCOVAs) comparing the three groups of students are presented in Table 2 and Figure 1. The adjusted means are estimated marginal means, controlling for disproportionalities associated with the demographics reported above. Specifically, the covariates included these variables: male, black, hispanic, white, lep, poverty, homeless, disability, and age.

Table 2. Analysis of covariance results from the Brigance.

	UPK + Summer				UPK only				Neither				F	p	Contrast vs. UPK + Summer group
	n	Mean	Std. Dev.	Adj. Mean	n	Mean	Std. Dev.	Adj. Mean	n	Mean	Std. Dev.	Adj. Mean			
Brigance 5															
Overall	97	61.40	19.49	59.54	784	52.93	21.05	52.85	280	47.30	21.69	48.30	13.42	< .001	UPK Only ↓; Neither ↓
Academic skills	97	37.35	14.64	36.18	783	30.96	15.82	30.91	280	27.58	16.34	28.12	11.30	< .001	UPK Only ↓; Neither ↓
Literacy skills	97	10.96	6.88	10.59	782	8.78	6.54	8.75	280	7.91	6.67	8.13	5.79	< .01	UPK Only ↓; Neither ↓
Mathematics skills	97	21.08	8.51	20.40	782	17.39	9.60	17.42	280	15.39	10.00	15.55	10.93	< .001	UPK Only ↓; Neither ↓
Language dev'tment	97	13.55	2.75	13.08	782	12.81	3.71	12.79	280	11.64	4.33	11.86	8.87	< .001	Neither ↓
Physical dev'tment	97	9.19	4.66	8.94	783	7.91	4.28	7.90	280	6.81	4.29	6.93	9.79	< .001	UPK Only ↓; Neither ↓

Figure 1. Brigance adjusted means for three groups.



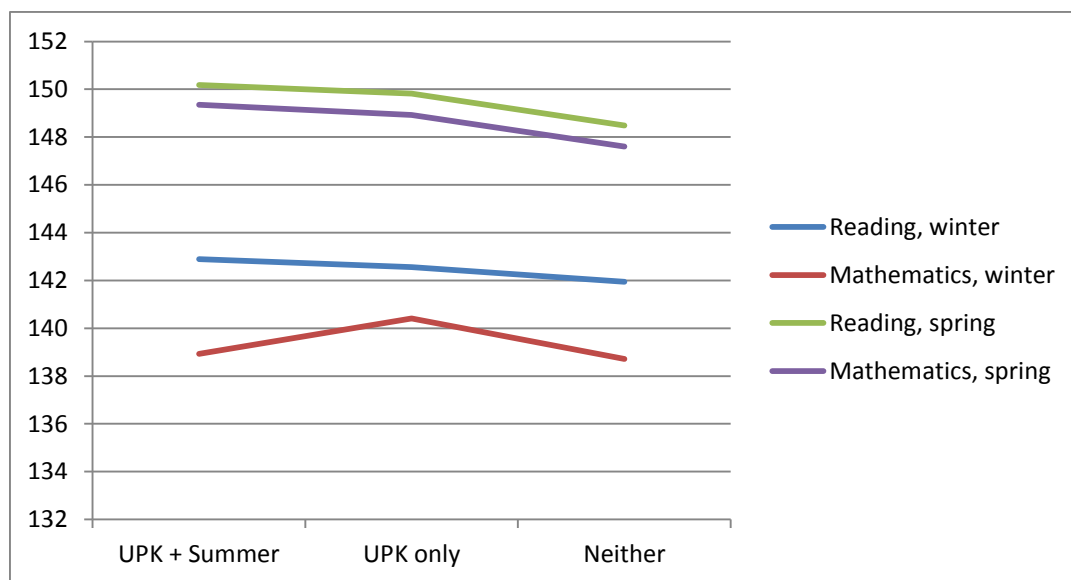
Statistically significant differences were found among the groups for each Brigance subscale and for the overall score. The UPK+Summer group outperformed the UPK-only group on each score except Language development, and scored higher than the Neither group on all scores.

Similarly structured analyses were performed with winter and spring NWEA scores. Results are shown in Table 3 and Figure 2.

Table 3. Analysis of covariance results from the NWEA.

	UPK + Summer				UPK only				Neither				F	p
	n	Mean	Std. Dev.	Adj. Mean	n	Mean	Std. Dev.	Adj. Mean	n	Mean	Std. Dev.	Adj. Mean		
NWEA														
Reading, winter	119	144.50	9.57	142.89	1057	142.87	10.39	142.56	434	140.74	11.26	141.94	< 1	ns
Mathematics, winter	120	140.46	11.66	138.93	1052	140.62	12.16	140.41	429	137.78	12.64	138.71	3.62	.03
Reading, spring	122	151.85	11.08	150.18	1078	150.17	11.63	149.82	467	147.25	12.97	148.49	2.31	ns
Mathematics, spring	121	150.94	12.21	149.35	1074	149.23	13.61	148.93	460	146.65	15.04	147.60	1.35	ns

Figure 2. NWEA adjusted means for three groups.



With the exception of the winter mathematics score (the UPK-only group's score was greater than the Neither group's), we did not find any statistically significant result with the NWEA.

Summary

We compared kindergarten Brigance and NWEA scores of three groups: children who participated in both UPK classes in 2016-2017 and summer classes in 2017; children who were in the UPK program but not the summer program; and children who participated in neither program. Analysis of covariance was used to control for demographic disproportionalities among the groups. The UPK+Summer group was found to have outperformed the UPK-only group on each Brigance subscale except language development, and to have outperformed the neither-program group on all subscales. No statistically significant differences were found between the UPK+Summer group and either of the other groups with the NWEA winter and spring reading and mathematics assessments. The Brigance and the NWEA differ in several important ways. Teachers completed the Brigance, whereas the NWEA was completed by children using computer software. The Brigance assesses children's development within a variety of domains, and is intended primarily as a screen to identify potential learning difficulties. The NWEA as used in kindergarten specifically measures reading and mathematics performance, and, with repeated testing, growth.

The superior performance of the UPK+Summer children on the Brigance, relative to the UPK-only group as well as the neither-program group, indicates that GRSLA summer learning programs effects can persist beyond the immediate post-program timeframe – an important finding. However, this evaluation involves a short-term follow-up of only several months. It

will be possible to examine outcomes for this and other cohorts over longer periods, and also to examine incremental effects of repeated participation in summer learning as students mature, to assess the full impact of these programs.

Limitations

These results are based upon groups that were not the product of random selection. Even though certain demographic variables were used as covariates in the major analyses, it is possible that the groups differed in other, unmeasured ways, and that these differences might have influenced the outcomes.

References

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