

## Children's Individual Experiences in Kindergarten and Preschool Fadeout

### Authors:

Kelly M. Purtell, Ohio State University

Hui Jiang, Ohio State University

Laura Justice, Ohio State University

Tzu-Jung Lin, Ohio State University

Jessica A. R. Logan, Ohio State University

**Background/Context:** In recent years, many evaluations of preschool have documented significant advantages to preschool attendance at the start of school, but also that these advantages dissipate quickly, often by the end of the kindergarten year. One of the most commonly posited ideas to explain this convergence is the notion of sustaining environments. According to this hypothesis, the lasting effects of early interventions, such as preschool, are contingent on the quality of later environments (Bailey, Duncan, Odgers, & Yu, 2017). However, the work to date on sustaining environments has focused primarily on classroom-level indicators of quality environments. We posit that children's individual experiences in the kindergarten classroom may also contribute to patterns of convergence. For example, a child who attended preschool may receive less one-on-one attention from their teacher than a non-attender because the non-attender is behind on academic skills. In this paper, we explore three dimensions of children's individual experiences in kindergarten classrooms as potential moderators of differences between preschool attenders and non-attenders at the end of the kindergarten year. These dimensions are: learning opportunities, peer relationships, and relationships with teachers.

**Purpose:** The purpose of this paper is to examine individual experiences in the kindergarten classroom as moderators of preschool fadeout. We examine three specific questions: 1) Are there academic and social skill differences between children who attended preschool and who did not at the beginning and the end of the kindergarten year? 2) Do children who attended preschool have different learning opportunities, peer relationships, and relationships with teachers than children who did not attend preschool? 3) Does these individual experiences moderate patterns of convergence between preschool attenders and non-attenders across the school year?

**Setting:** Data were collected in a large school district in the Midwest. The district contains urban, rural, and suburban areas. Children were sampled from 15 elementary schools.

**Participants:** Our sample includes 801 kindergartens, 592 (74%) of whom attended some preschool in the year prior to kindergarten. Demographic characteristics for attenders and non-attenders are presented in Table 1. Key differences by attender status included maternal education and family income.

**Intervention:** This study was observational in nature; no intervention was conducted.

**Research Design:** We collected data on approximately 200 preschool students who attended preschool in the catchment area for the partnering school district. We followed these children into their kindergarten classrooms where we attempted to consent all of their kindergarten classmates, which included a subsample of children who did not attend preschool. We used a multi-information design to collect data across the kindergarten year, which is more fully described below.

**Data Collection and Analysis:** Our focal independent variable is children's preschool attendance. Parents answered a series of questions about children's attendance in the year prior to kindergarten. For this paper, preschool attendance is defined as any attendance at a center-based program (district run, Head Start, private pay, etc.). Our academic outcome measures are three subscales of the Woodcock-Johnson III: picture vocabulary, letter-word identification, and applied problems. Children completed these assessments in the fall and spring of the kindergarten year. Children also completed the Head Toes Knees Shoulders task as a measure of self-regulation. Teachers reported on four behavioral outcomes using the Teacher-Child Rating Scale: behavioral control, task orientation, peer social skills, and assertiveness. Our individual experience variables were captured through multiple reporters. For learning opportunities, teachers reported on 1) whether children received special pull-out instruction; 2) whether the teacher spent more or less time talking with this student as compared to others in the class; and 3) whether the teacher spent extra time working with this student on language/literacy, math, or social-behavioral skills. For peer experiences, teachers reported on whether the child experienced victimization in the classroom, children reported on their experiences of loneliness in the classroom, and peer nomination forms, where students reported on friendships, were used to capture the number of classmates who listed each individual student as a friend (e.g., number of incoming ties). For relationship with the teacher, teachers completed the conflict and closeness subscales of the Student Teacher Rating Scale.

We used multilevel regression models to examine our research questions, with children nested in their kindergarten classroom. Although this paper is not causal in nature, we did take a number of steps to isolate the relationships of interest and examine the robustness of findings. First, we included a number of demographic covariates at the student level (gender, race/ethnicity, age, maternal educational, family income, IEP status, and whether English was primary home language) and the kindergarten classroom level (class size, teacher education and experience). Second, we re-ran focal models using a stricter measure of preschool attendance (attendance= at least 10 hour per week). Last, we included ran models where we excluded classrooms that did not have any non-attenders.

**Findings/Results:** As shown in Table 2, attenders showed significantly higher academic skills at the fall of kindergarten but these advantages dissipated by the spring. However, teachers also rated preschool attenders as having lower behavioral control and higher assertiveness than their non-attender peers. Although these differences were weaker in spring, they remained statistically significant. In terms of individual experiences, there were few differences between attenders and non-attenders. Attenders had significantly more conflict in their relationship with their teacher and were less likely to receive special pull-out instruction than non-attenders. For research question 3, few interaction terms were significant. Notably, closeness with teacher significantly moderated the associations between preschool attendance and both vocabulary and self-regulation. As shown in Figure 1, non-attenders made large gains in vocabulary across kindergarten regardless of teacher closeness but attenders only made comparable gains when they had close relationships with their teacher. Similar findings emerged for both sets of sensitivity analyses.

**Conclusions:** These findings suggest that individual experiences in the kindergarten classroom may be a mechanism that contributes to preschool fadeout. However, more work on identifying the best ways to measure individual experiences is needed, as is causally-designed research. A

continued focus on individual experiences in early elementary will help understand ways to maximize on the gains children accrue through preschool participation.

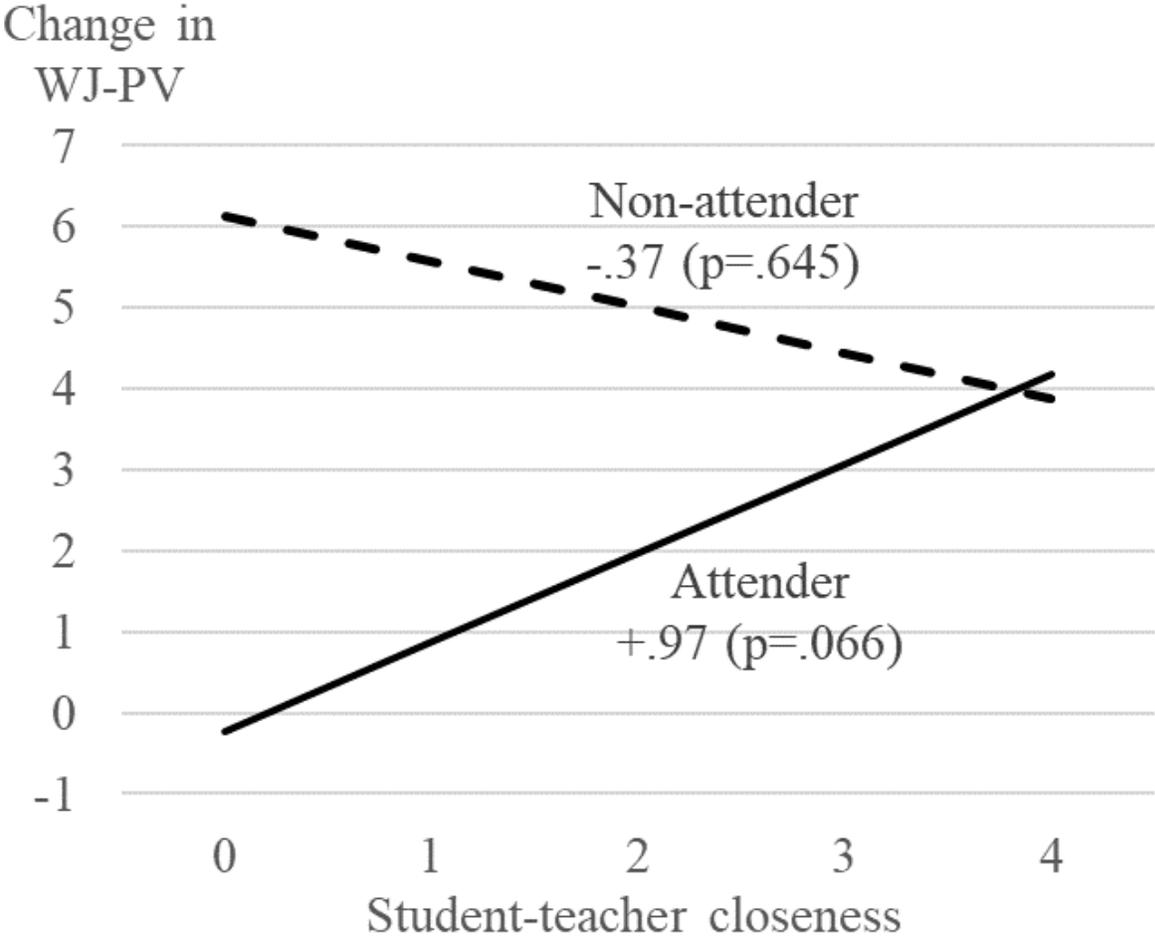
Table 1. Descriptive Statistics, by Attender Status

	<b>Attender</b>	<b>Non-attender</b>	<b><i>p</i>-value)</b>
Child is female	49.2%	47.3%	.650
Age in months	M = 67.16 (4.40)	M = 67.50 (4.64)	.367
Race	White: 67.9% African American: 9.8% Asian/Pacific Islander: 2.1% Multiracial: 10.6% Other: 9.6%	White: 70.1% African American: 5.6% Asian/Pacific Islander: 6.6% Multiracial: 11.2% Other: 6.6%	.007
Hispanic	16.3%	14.1%	.472
Family income	M = 5.43 (4.71)	M = 4.05 (3.20)	<.001
Maternal education	<HS: 12.8% HS: 41.5% AA: 17.5% BA: 19.5% GRD: 8.7%	<HS: 16.9% HS: 55.2% AA: 15.4% BA: 9.0% GRD: 3.5%	<.001
English as Primary Home Language	88.9%	85.4%	.185
IEP Status	7.1%	4.3%	.166

Table 2. Fall and Spring Outcome Measures, by Attender Status

	<b>Attender</b>	<b>Non-attender</b>	<b><i>p</i>-value)</b>
WJ-Applied problems fall	M = 424.68 (19.41)	M = 420.24 (18.91)	.005
WJ-Applied problems spring	M = 439.68 (16.07)	M = 438.19 (15.45)	.265
WJ-Letter word ID fall	M = 362.24 (25.18)	M = 355.50 (24.04)	.001
WJ-Letter word ID spring	M = 399.30 (29.40)	M = 395.68 (27.33)	.130
WJ-Picture vocab fall	M = 469.75 (10.10)	M = 467.11 (11.96)	.007
WJ-Picture vocab spring	M = 473.40 (9.68)	M = 471.64 (10.72)	.051
HTKS fall	M = 30.80 (16.83)	M = 28.21 (16.23)	.059
HTKS spring	M = 41.29 (13.11)	M = 39.16 (13.76)	.068
Behavioral control fall	M = 20.68 (7.45)	M = 21.75 (6.20)	.057
Behavioral control spring	M = 20.44 (7.93)	M = 21.66 (7.12)	.064
Task orientation fall	M = 20.08 (8.15)	M = 19.83 (7.32)	.709
Task orientation spring	M = 19.97 (8.72)	M = 20.05 (8.15)	.916
Peer social skill fall	M = 22.94 (7.00)	M = 22.19 (6.83)	.202
Peer social skill spring	M = 22.93 (7.15)	M = 22.43 (6.85)	.419
Assertiveness fall	M = 21.72 (5.74)	M = 20.04 (6.41)	.002
Assertiveness spring	M = 22.16 (5.81)	M = 20.91 (6.01)	.019

Figure 1. The Interaction between Preschool Attendance and Student-Teacher Closeness in Kindergarten on Gains in Vocabulary across the Kindergarten Year



## References

- Bailey, D., Duncan, G. J., Odgers, C. L., & Yu, W. (2017). Persistence and fadeout in the impacts of child and adolescent interventions. *Journal of Research on Educational Effectiveness, 10*, 7-39.