Policy Brief

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Inside the Pre-Kindergarten Door: A deeper look at what makes a high-quality pre-K classroom

Deborah A. Phillips, William T. Gormley, Jr., and Amy Lowenstein, Georgetown University

We explored the "black box" of pre-K classrooms to identify promising targets for public investments in classrooms that promote learning.

Our study looked inside the classroom door of pre-K programs in the relatively stringent policy context of Tulsa, Oklahoma. We investigated three primary research questions: 1) What are children's experiences with regard to classroom emotional and instructional climate and exposure to academic instruction in Tulsa's pre-K classrooms? 2) Are the Tulsa pre-K classrooms characterized by higher-quality classroom environments and greater instructional time for four-year-old children as compared to comparable classrooms in other states? 3) Do program auspice (Head Start or TPS pre-K) and teacher characteristics and practices predict variation in classroom processes in Tulsa's publicly-funded four-year-old classrooms?

The rapid growth in state pre-K programs represents a national experiment focused on finding the best means of launching all young children on a trajectory of school success. In just the past five years, there has been a 40% increase in the number of four-year-olds enrolled in state pre-K programs. This trend has generated interest in the impacts of early childhood education on children's academic and social development, as well as questions related to how policy makers can focus public resources to produce high-quality classroom experiences for children. Our study addresses the latter question in the context of Tulsa, Oklahoma's pre-K program, which has generated extremely strong cognitive impacts across racial and income groups. Our sample is pre-kindergarten (pre-K) classrooms run by the Tulsa Public Schools (TPS) and four-year-old Head Start classrooms run by the Community Action Project (CAP) of Tulsa County.

All Pre-K Programs Are Not Created Equal

Teacher and classroom standards vary widely across states with pre-K programs.

State-funded pre-K programs vary extensively in teacher standards. For example, while 26 states require a BA degree and early childhood certification for all pre-K lead teachers, 8 states do not require any teachers to have a BA degree, and 10 states do not require teachers to have specialized training in early childhood education (ECE). The majority of states require a teacher-child ratio of 1:10, but 12 states allow less stringent ratios in some or all of their pre-K classrooms. Oklahoma has among the most stringent state pre-K standards, with its requirements that every classroom's lead teacher have a BA degree and an early childhood certification, a maximum class size of 20, and teacher-to-student ratio of 1:10. Salaries and benefits are the same as those of elementary school teachers, and strong support exists for focused instructional in-service training. These standards and practices apply not only to pre-K programs based in the TPS system, but also to collaborating Head Start and child care programs.

KEY FINDINGS

TPS Pre-K and Head Start Classrooms

Tulsa's pre-K classrooms offer higher levels of instructional support than their counterparts in other states. Compared to national samples, Tulsa pre-K teachers in both TPS and Head Start devoted more time to pre-literacy; TPS pre-K teachers also devoted more time to math and science.

We used the Classroom Assessment Scoring System (CLASS) to capture instructional and emotional climate in the classroom. The quality of the climates that children were exposed to in the TPS pre-K and Head Start classrooms varied across our outcome measures and within each measure. The quality of Instructional Support was notably lower (3.21, on average) than the quality of Emotional Support (5.23, on average), and the ranges within each of these quality indices were substantial (1.40 to 5.94 for Instructional Support, 3.25 to 6.80 for Emotional Support). Based on other studies, however, it appears that higher levels of Instructional Support are more difficult to achieve than higher levels of Emotional Support. Although both are 7-point scales, they may be calibrated differently, making direct comparisons of Instructional and Emotional Support problematic.

In order to assess the quantity of academic instruction, we used the Child Engagement section of the Emerging Academics Snapshot (CE-EAS). The most notable descriptive finding using this instrument is the relatively large amount of time spent on literacy activities (consuming 24–30% of instructional time) as compared to time spent on math, science, or social studies. This likely reflects the strong emphasis placed on literacy in early educational contexts in the United States today.

Comparison of Tulsa Programs to National Samples

When compared to other school-based pre-K programs from multi-state samples, teachers in the Tulsa TPS pre-K classrooms, and to a lesser extent the Tulsa Head Start classrooms, received significantly higher ratings on aspects of classroom management and instructional support, specifically, how well teachers use classroom time, maximize students' engagement in learning, and provide feedback that expands understanding (Figures 1 and 2 show significant differences). On dimensions related to the emotional climate (e.g., warm/fun emotional tone, teachers who are responsive to students' needs and consider students' interests and points of view), however, the Tulsa pre-K classrooms did not differ from those in the multi-state samples. The Tulsa pre-K teachers in both TPS and Head Start classrooms also devoted substantially more time to pre-literacy activities as compared to their counterparts in the multi-state study, and the TPS pre-K teachers devoted significantly more time to math and science than other school-based pre-K programs.

Figure 1. **Quality comparisons between TPS pre-K and multi-state school-based pre-K classrooms**
(Significant difference at $p<.01$)**

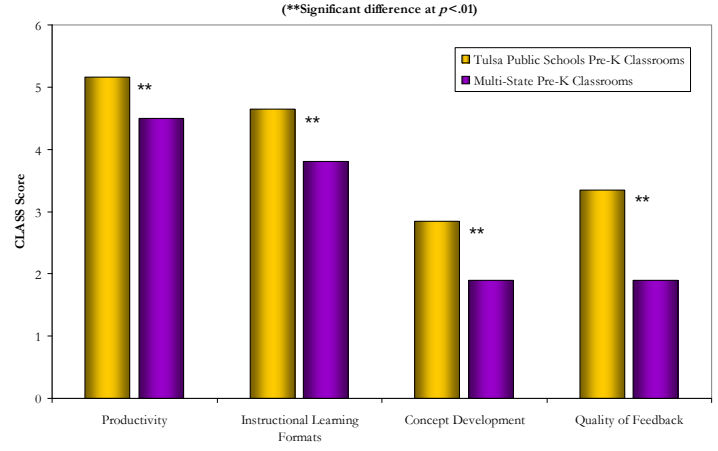
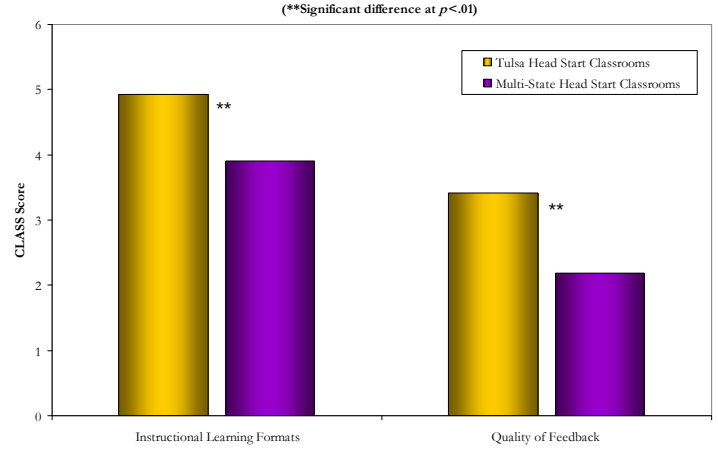


Figure 2. **Quality comparisons between Tulsa Head Start and multi-state Head Start classrooms**
(Significant difference at $p<.01$)**



Predicting Classroom Climate and Instructional Time Allocation

Teacher and program characteristics have success at predicting instructional time allocation, but not the climate in the classroom.

A critical question for policy purposes concerns how to produce the kinds of pre-K classrooms that generate learning and social gains. We examined which teacher characteristics and practices predicted higher-quality classroom processes in the Tulsa pre-K classrooms. To this end, we investigated associations between the outcomes of classroom climate and instructional time allocation and the inputs of school auspice (TPS pre-K or Head Start); teachers' educational backgrounds, experience, undergraduate GPAs, and curricular choices; and whether the classroom was on a full- or half-day schedule. None of these program or teacher characteristics predicted variation in the quality of the instructional or emotional climate that children experienced in Tulsa's pre-K programs, as measured by CLASS.

In contrast, the teachers' allocation of instructional time was affected by several of the inputs we examined (see Table 1, next page). The location of the classroom in a Head Start or TPS pre-K program was the most consistent predictor of children's exposure to instructional activities. Teachers in Head Start classrooms spent significantly less time practicing letters and sounds and on math activities, but they spent more time on social studies than did their counterparts in TPS pre-K classrooms.

Of the teacher characteristics, years of classroom experience showed the most consistent associations with classroom time allocation. More experienced teachers showed a pattern of results suggesting that they devote

Table 1. Predicting Classroom Time Allocation Practices from Teacher and Classroom Characteristics (TPS and CAP Head Start classrooms combined)

	Proportion of Time Spent on Academic Activities								
Variable	Reading	Practicing Letters/ Sounds	Building Expressive Language	Writing	Literacy Activities (Composite)	Math	Social Studies	Gross Motor Activities	Fine Motor Activities
School-level variable									
Head Start Classroom	n.s.	−	n.s.	−	n.s.	−	+	+	−
Classroom-level variables									
BA ECE	+	n.s.	+	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
MA	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Teacher Experience	+	+	+	n.s.	+	n.s.	−	n.s.	n.s.
Undergraduate GPA	n.s.	n.s.	+	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Half-day Classroom	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Direct Instruction	n.s.	+	n.s.	n.s.	+	n.s.	n.s.	n.s.	n.s.
Thematic Instruction	−	−	+	−	n.s.	n.s.	n.s.	n.s.	n.s.
Creative Curriculum	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.

Note. "n.s." = not a significant association at $p = .10$ level.

more time to pre-literacy activities. The teachers' educational backgrounds, specifically whether they had majored in ECE and their GPA, played significant, but less influential roles.

The teachers' choice of curricula also affected their use of instructional time in ways that correspond to the differing emphases of the different curricula. These findings need to be interpreted cautiously in light of the extremely common practice, among the Tulsa teachers, of integrating multiple curricula and the fact that this research was not designed as a curriculum evaluation study.

POLICY IMPLICATIONS

The policy priority should be to identify effective teachers and reward them appropriately.

In some respects, our research supports generally cautious findings from the education literature—it is possible to identify differences in classroom quality and classroom practices, but it is difficult to explain them. Although Tulsa's pre-K classrooms are superior to those of other school-based and Head Start pre-K classrooms with college-educated, early-childhood-certified teachers, it is hard to pinpoint teacher characteristics that account for the higher levels of instructional support in Tulsa. It is possible to identify some teacher characteristics that help to explain differences in how pre-K classroom time is spent, but these variables may have limited predictive power. It is important to keep in mind that these conclusions are drawn in the context of Oklahoma's relatively stringent pre-K policy environment, the general effect of which we have not assessed.

The two most powerful variables we have identified are auspices (school-based programs differ from Head Start) and teacher experience. If our goal is to have pre-K teachers devote more time to literacy and math in the classroom, then **we should direct more experienced teachers to pre-K classrooms and equip Head Start teachers to spend similar amounts of high-quality time on math and literacy instruction as their school-based counterparts.**

However, we always need to **recruit new teachers into the system**. Recent teacher recruitment initiatives, including the Teach for America program and the North Carolina TEACH program, have helped to lure bright, talented college graduates and mid-career professionals into public school classrooms, including many inner-city classrooms that need them desperately. Public officials might wish to expand the pre-K components of these programs and evaluate the outcomes. Similarly, the federal No Child Left Behind law is an important focus for efforts to bring greater attention and resources to the nation's pre-K classrooms.

Other strategies for recruiting new teachers, including **salary bonuses, also are worth considering, especially if they provide financial incentives** to qualified and motivated teachers who are willing to serve at-risk children. New York City's Teaching Fellows Program, for example, has narrowed the teacher quality gap between more advantaged and less advantaged public schools.

At a minimum, we need to ensure that we do not lose effective pre-K teachers for reasons, such as wage disincentives, that can be prevented. Although teacher salaries in Tulsa are not notably high, pre-K teacher salaries in Tulsa are close enough to the prevailing wage rate that they have attracted many bright, dedicated, and energetic teachers into pre-K classrooms. **Compensating pre-K teachers at the same wage rate as other teachers**

may be an excellent strategy for promoting effective teaching in four-year-old classrooms.

Ultimately, we need to do a better job of identifying effective teachers and rewarding them. Getting children started on successful school trajectories is a daunting and extremely important job. Efforts to predict who will and will not be an effective teacher remain elusive, which signals **the need to observe teachers as they practice their craft and to evaluate the progress made by their students**. Under the Denver Pro Comp plan, for example, teachers whose students perform better receive higher compensation than teachers whose students perform worse; teachers also are rewarded for ongoing professional development. An alternative would be for principals or peers to reward teachers based on their own assessment of teachers' performance. We are sympathetic to the intent of these initiatives and would urge funders to evaluate their impacts on both the teaching workforce and student performance.

APPENDIX: METHODS

We examined classroom climate and exposure to academic instruction to gain insight into classroom processes that may help explain the highly successful outcomes of the Tulsa pre-K program.

Our classroom sample included virtually the entire universe of state-funded morning classrooms for four-year-olds in Tulsa and 106 of the 129 total pre-K classrooms (78 of the 100 TPS pre-K classrooms and 28 of the 29 Head Start classrooms).

Of the 106 lead teachers in the participating classrooms, 104 completed questionnaires about their educational background and training, employment history, and use of pre-K curricula. Seventy-seven of the teachers who completed questionnaires provided consent for us to obtain a copy of their college transcript.

Between February and May of 2006, classroom observations were conducted by pairs of trained observers in the 106 participating classrooms. We chose two instruments to assess the classrooms: the Classroom Assessment Scoring System (CLASS), used to capture the instructional and emotional climate in the classrooms, and the Child Engagement section of the Emerging Academics Snapshot (CE-EAS), used to capture exposure to academic instruction. CLASS is generally portrayed as a measure of classroom quality, whereas CE-EAS is most accurately viewed as a measure of the quantity of academic instruction.

We consolidated the 11 CLASS dimensions into three composites: emotional support, classroom management, and instructional support. Furthermore, we focused on 10 out of 14 CE-EAS activities, selected to capture individual children's exposure to instruction and activities in a range of skill domains.

Comparison to Other National Samples

In order to place the descriptive data from the Tulsa classrooms in a broader context, the National Center for Early Development and Learning (NCEDL) Multi-State Study of Pre-Kindergarten and the State-Wide Early Education Programs (SWEEP) Study provided comparison classroom data from 11 states.

We restricted our cross-site comparisons to classrooms with a lead teacher who had both a BA-degree and was certified to teach children ages four through third grade (to match the early childhood certification requirement in Tulsa). A total of 241 classrooms from the NCEDL/SWEEP sample met these criteria. The six Tulsa classrooms in which the lead teacher was not early-childhood-certified also were excluded.

Hierarchical Linear Modeling

In order to examine predictors of variation in classroom processes in the Tulsa pre-K programs, we used hierarchical linear modeling (HLM) to take into account the nesting of classrooms within TPS pre-K and Head Start programs. The Head Start/TPS pre-K variable was modeled as a school-level variable, and the other independent variables (teacher has a BA in ECE, teacher has MA, teacher experience, teacher's undergraduate GPA, full day/half day classroom, teacher's use of curricula) were modeled as classroom-level variables.

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The full text of this report is available through the Center for Research on Children in the U.S. (CROCUS) at Georgetown University. The web site is: http://www.crocus.georgetown.edu.