

The Effects of Oklahoma's Universal Pre-Kindergarten Program on School Readiness



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THE EFFECTS OF OKLAHOMA'S UNIVERSAL PRE-K PROGRAM ON SCHOOL READINESS: AN EXECUTIVE SUMMARY

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Parents and public officials are increasingly concerned about the school readiness of young children. In recent years, state governments have boosted their support for pre-K programs. Several states, including Oklahoma, have opted for universal pre-K, making pre-K available to all four-year-olds on a voluntary basis. At the same time, the federal government, through the No Child Left Behind Act, has imposed new testing requirements on public schools, to determine whether students as a whole and particular subgroups of students are making good academic progress. These trends have heightened interest in the effectiveness of pre-K programs.

The Oklahoma pre-K program is of special interest because it enrolls a higher percentage of four-year-olds than any pre-K program in the U.S. It is also of particular interest, because it is based in the public schools and because it places strong emphasis on high quality: all lead teachers must have a college degree and must be early-childhood certified; to recruit and retain outstanding individuals, they are paid at the same rate as other public school teachers.

In September 2003 we administered a nationally-normed test to 1,567 pre-K students and 3,149 kindergarten students in Tulsa, Oklahoma. Nearly half of the kindergarten students had participated in the Tulsa pre-K program during the 2002-03 school year. All of the pre-K students were about to begin the Tulsa pre-K program.

We administered three subtests of the Woodcock-Johnson Achievement Test (WJ-ACH-III): Letter-Word Identification (which measures pre-reading skills); Spelling (which measures pre-writing skills); and Applied Problems (which measures pre-numeracy skills). We specifically chose subtests that are thought to be appropriate for relatively young children.

We compared kindergarten students who had just completed Tulsa pre-K (our treatment group) to pre-K students who were about to begin Tulsa pre-K (our control group). We included statistical controls for gender, race/ethnicity, socio-economic status (as measured by eligibility for a free lunch), mother's education, and date of birth.

Our research strategy helps to correct for selection bias, because both our treatment group and our control group selected Tulsa pre-K. More importantly, because Tulsa uses a strict birthday cut-off for eligibility, we can control for selection bias by statistically comparing "old" Tulsa pre-K children to "young" Tulsa kindergarten children who were in Tulsa pre-K the previous academic year. The observable characteristics of these two groups are quite similar, which gives us greater confidence that their unobservable characteristics are also similar.

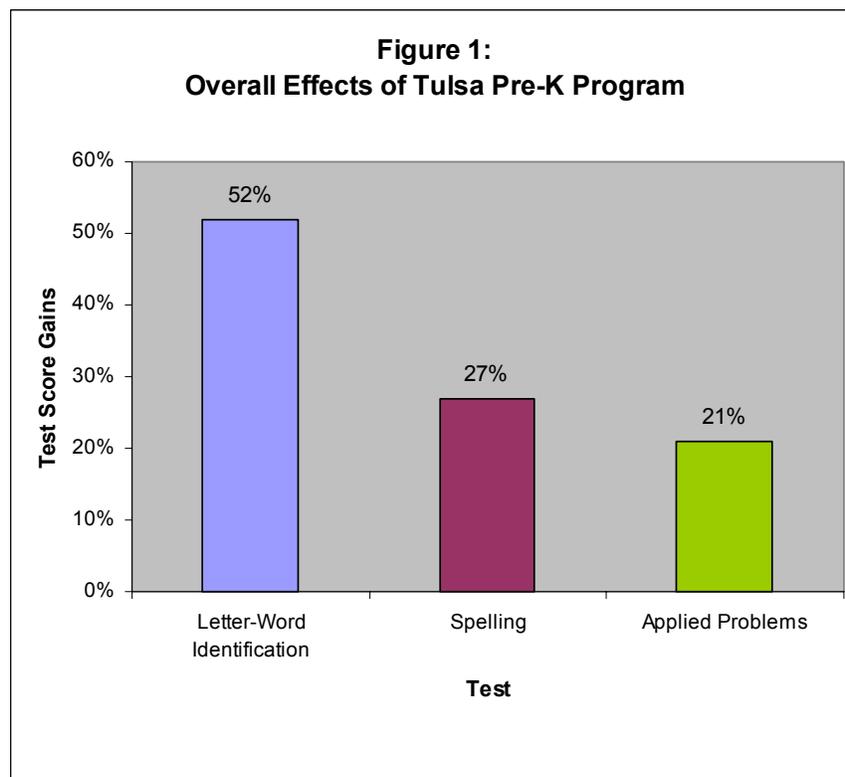
OKLAHOMA PRE-K PROGRAM AT A GLANCE

- Available to all four-year-olds, irrespective of income
- Became universal, fall 1998
- Funded by state general revenues
- All funding flows through public schools
- All lead teachers must have a B.A. degree and must be early-childhood-certified
- All lead teachers are paid at public school wages
- Maximum child/staff ratio: 10/1
- Maximum group size: 20
- Collaborations with Head Start programs and day care centers possible
- 91 percent of all Oklahoma school districts participate
- 60 percent of all Oklahoma four-year-olds participate, either directly or through a Head Start collaborative program

Our key findings are presented below.

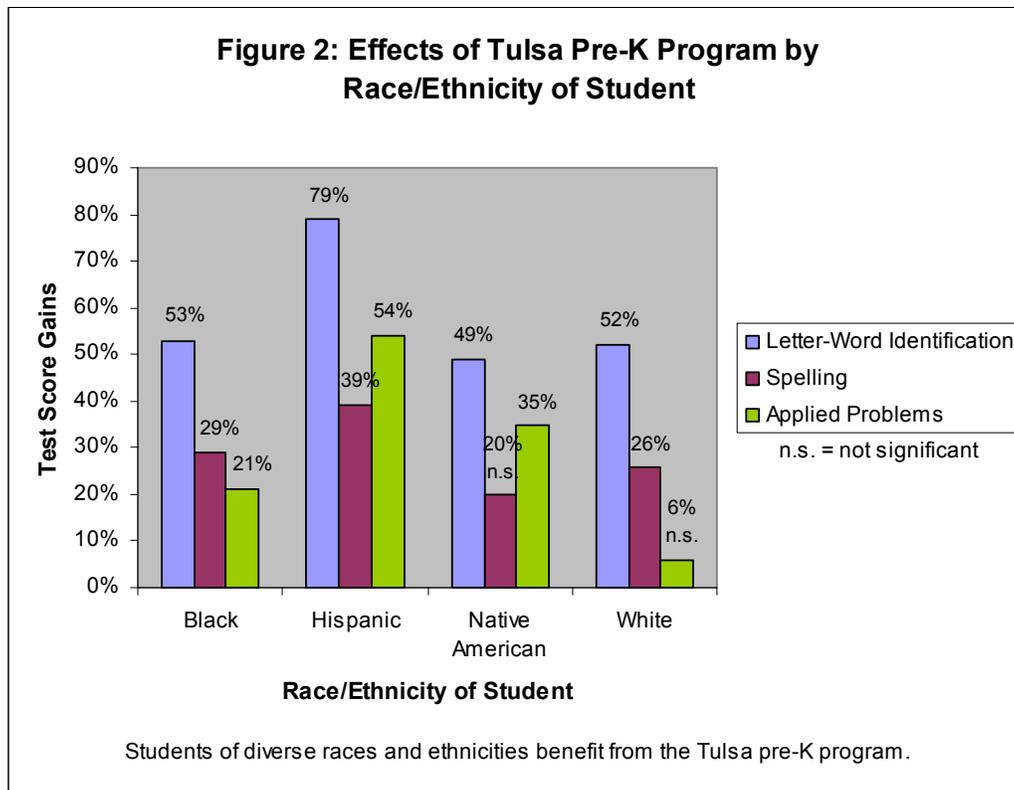
Overall Effects: Pre-Reading, Pre-Writing, and Pre-Math

For students as a whole, the overall effects of the Tulsa pre-K program are: a 52 percent gain in the Letter-Word Identification test score; a 27 percent gain in the Spelling test score; and a 21 percent gain in the Applied Problems test score. That is the average change in each test score attributable to the Tulsa pre-K program, above and beyond the gains that naturally occur as the child ages one year (see Figure 1).



Effects of Tulsa Pre-K Program by Race/Ethnicity of Student

All racial and ethnic groups benefit from the Tulsa pre-K program. Hispanic students and black students experience statistically significant gains for all three tests. Native American and white students experience statistically significant gains for two of three tests. Gains for Hispanic students are especially impressive. Specifically, Hispanic students experience a 79 percent gain in Letter-Word Identification, a 39 percent gain in Spelling, and a 54 percent gain in Applied Problems, above and beyond the gains that occur as the child ages one year (see Figure 2).

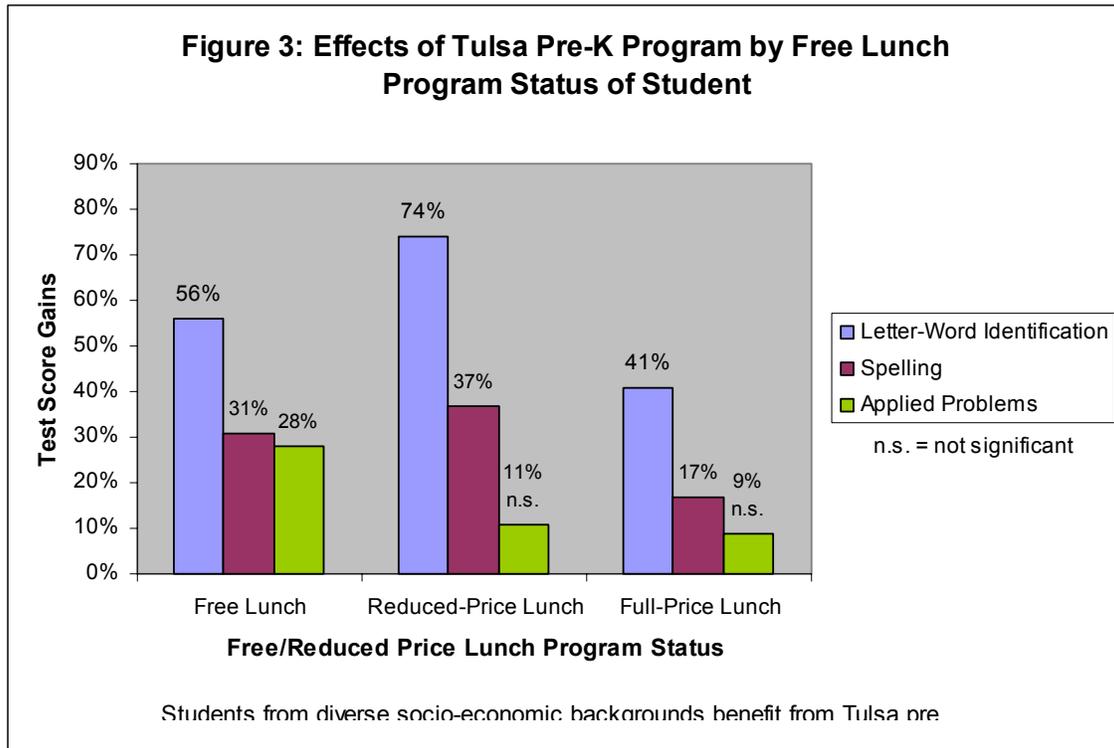


TULSA PUBLIC SCHOOLS AT A GLANCE

- Tulsa Public Schools is the largest school district in Oklahoma, with 41,048 students in 2002-03
- The student body of Tulsa Public Schools is diverse: 41 percent white; 36 percent black; 13 percent Hispanic; 9 percent Native American; 1 percent Asian
- 60 percent of Tulsa four-year-olds participate, either directly or through a Head Start collaborative program
- Inaugurated Tulsa Reads program fall 2001
- Inaugurated Tulsa Counts program fall 2003
- Students tested September 2003

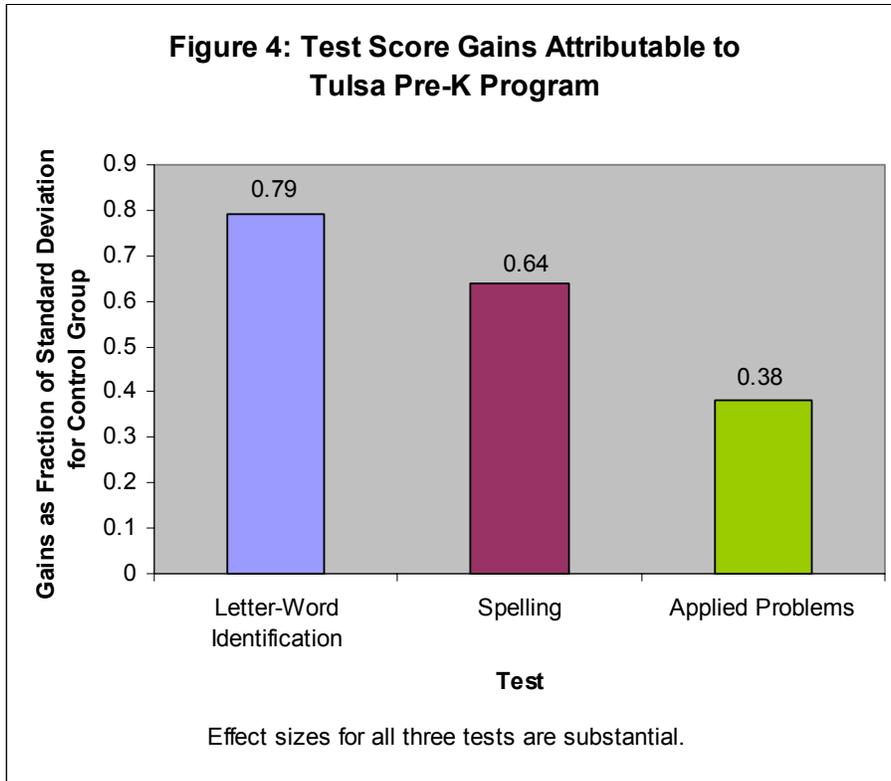
Effects of Tulsa Pre-K Program by Free Lunch Program Status of Student

All socio-economic groups benefit from the Tulsa pre-K program. Students eligible for a free lunch (the poorest students) experience statistically significant gains for all three tests, while students eligible for a reduced-price lunch and students who must pay for a full-price lunch experience statistically significant gains for two of three tests (see Figure 3).



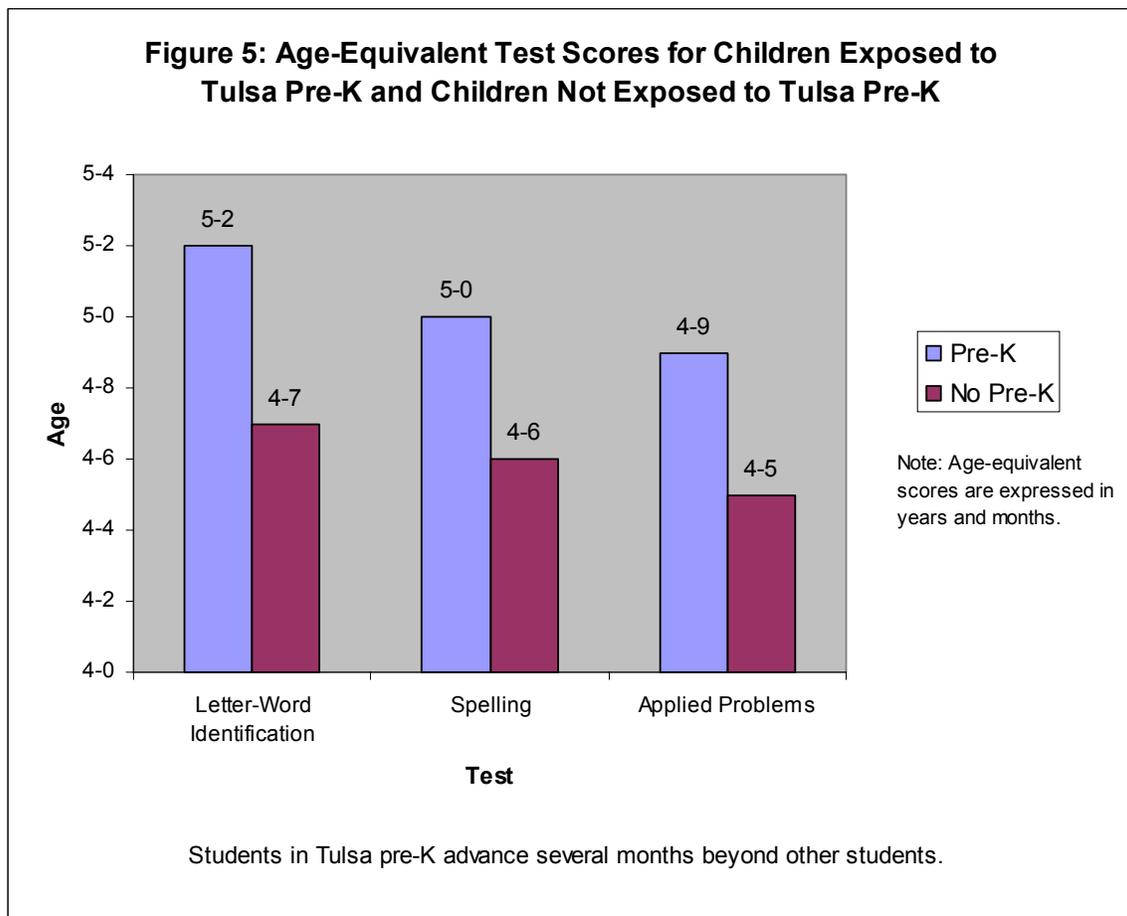
Test Score Gains Attributable to Tulsa Pre-K Program

Evaluators sometimes measure effect sizes by comparing the test score gain coefficient to the standard deviation for the control group. This helps to facilitate comparisons across studies by creating a common metric. Effect sizes for the Tulsa Pre-K program are quite substantial, in comparison to other studies: 0.79 of a standard deviation for Letter-Word Identification; 0.64 of a standard deviation for Spelling; and 0.38 of a standard deviation for Applied Problems (see Figure 4).



Age-Equivalent Test Scores for Children Exposed to Tulsa Pre-K

For a hypothetical child who just made the pre-K eligibility cutoff by one day (born on September 1 of the relevant year) and another hypothetical child who just missed the pre-K eligibility cutoff by one day (born on September 2 of the relevant year), it is possible to convert raw test scores into age-equivalent test scores. As Figure 5 reveals, the child exposed to Tulsa pre-K is substantially better off. Whereas the child not yet exposed to Tulsa pre-K falls below national norms (5.0) for all three tests, the child exposed to Tulsa pre-K exceeds national norms in Letter-Word Identification and equals national norms in Spelling. Expressed a bit differently, Tulsa pre-K yields test score gains of approximately seven months for Letter-Word Identification, six months for Spelling, and four months for Applied Problems.



AUTHORS' NOTE AND ACKNOWLEDGMENTS

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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>.