



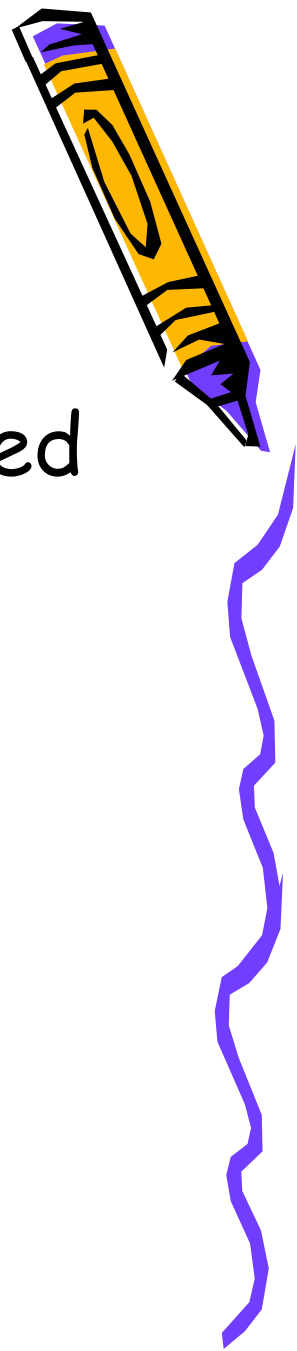
SMALL MIRACLES IN TULSA:
THE EFFECTS OF UPK
ON COGNITIVE DEVELOPMENT

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OKLAHOMA'S PRE-K PROGRAM

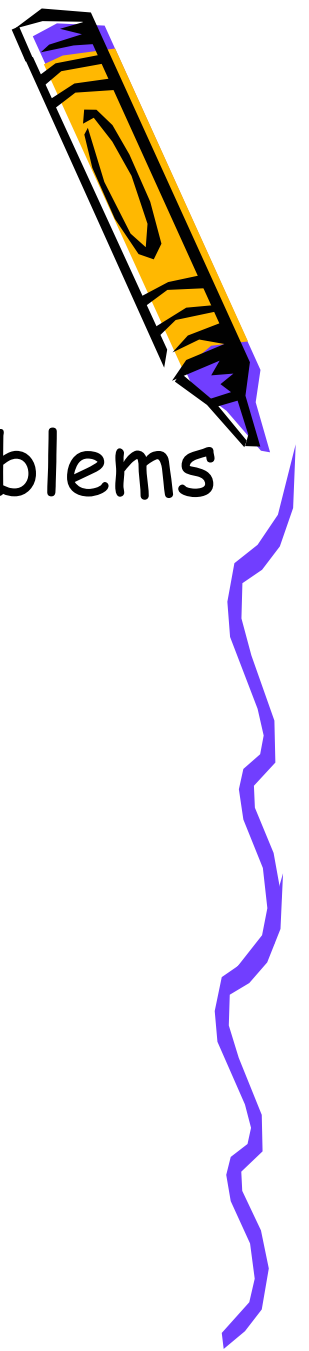


- Became universal, 1998
- All money flows through local public school districts
- Lead teacher must have a B.A. and be early-childhood certified
- Child/staff ratios are 10/1
- Collaborations with Head Start, day care centers are possible



Findings from 2003 Testing

- Woodcock-Johnson: Letter-Word Identification, Spelling, Applied Problems
- Tests conducted August 2003
- Findings published in Developmental Psychology (November 2005)
- Findings available through CROCUS website:
<http://www.crocus.georgetown.edu>



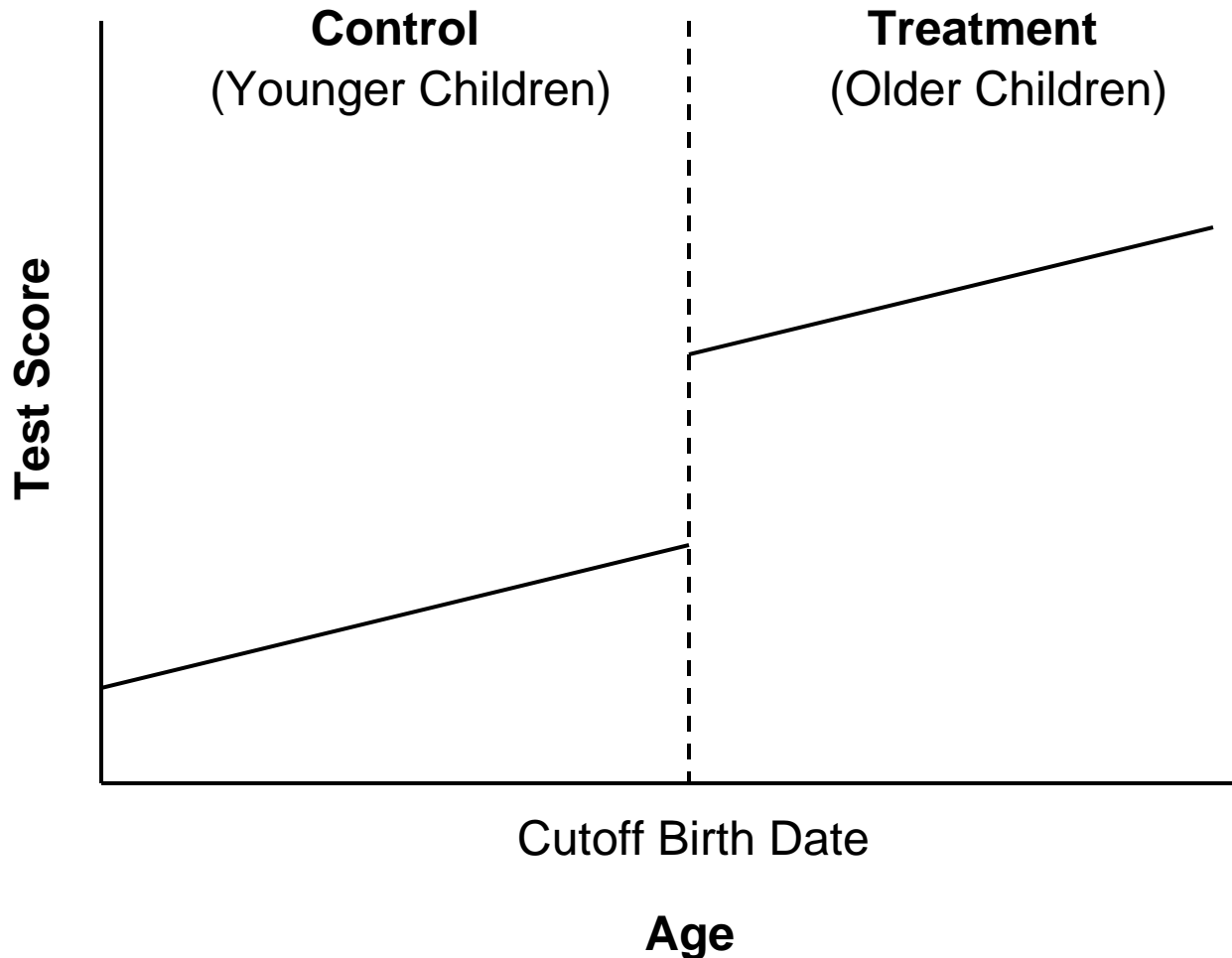


METHODOLOGY

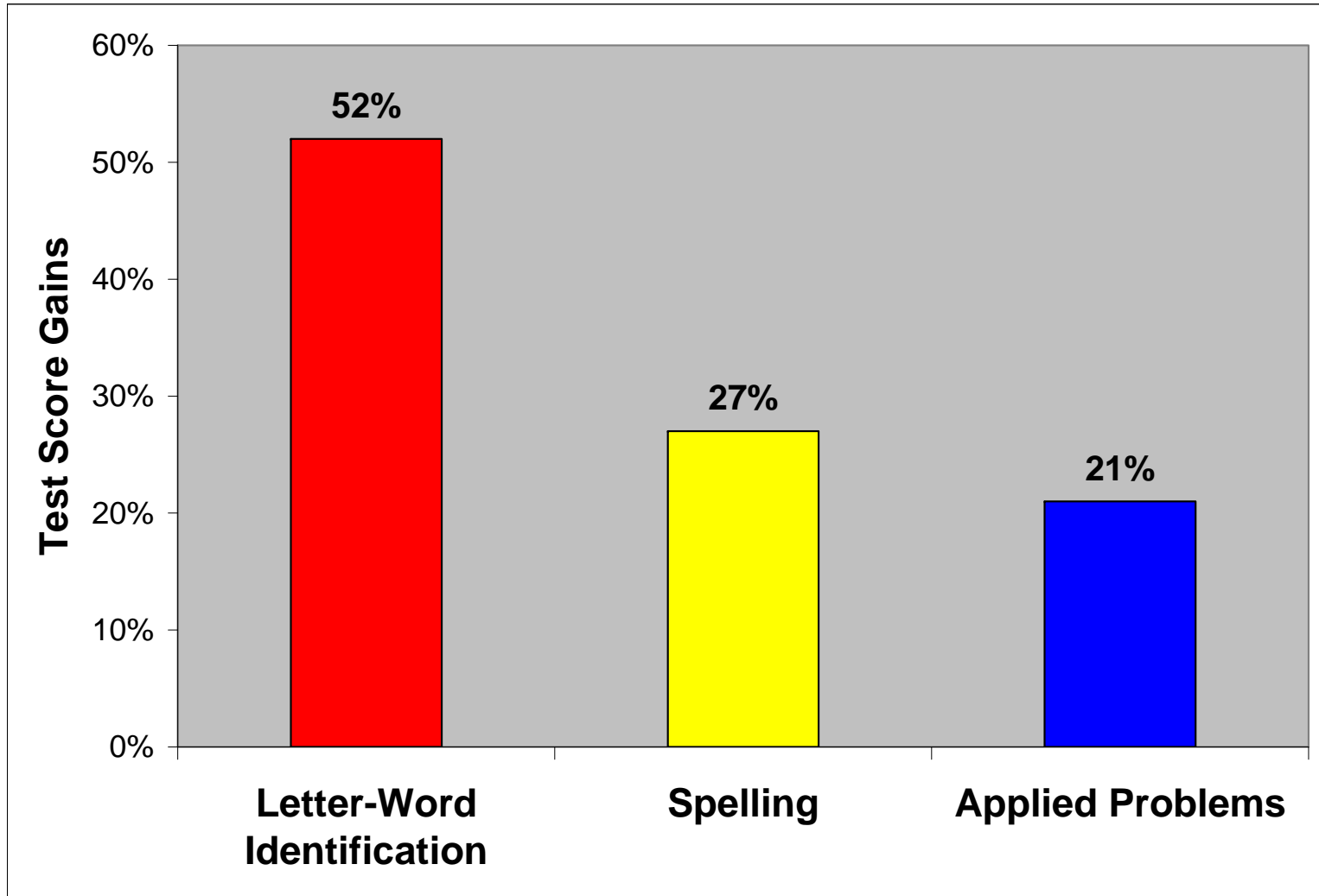
- Regression discontinuity design
- September 1 birthday cutoff is critical
- Treatment group: kindergarten students who were in TPS pre-K previous year
- Control group: pre-K entrants
- Covariates: date of birth, gender, race/ethnicity, school lunch eligibility, mother's education



Regression Discontinuity Design with Effective Treatment

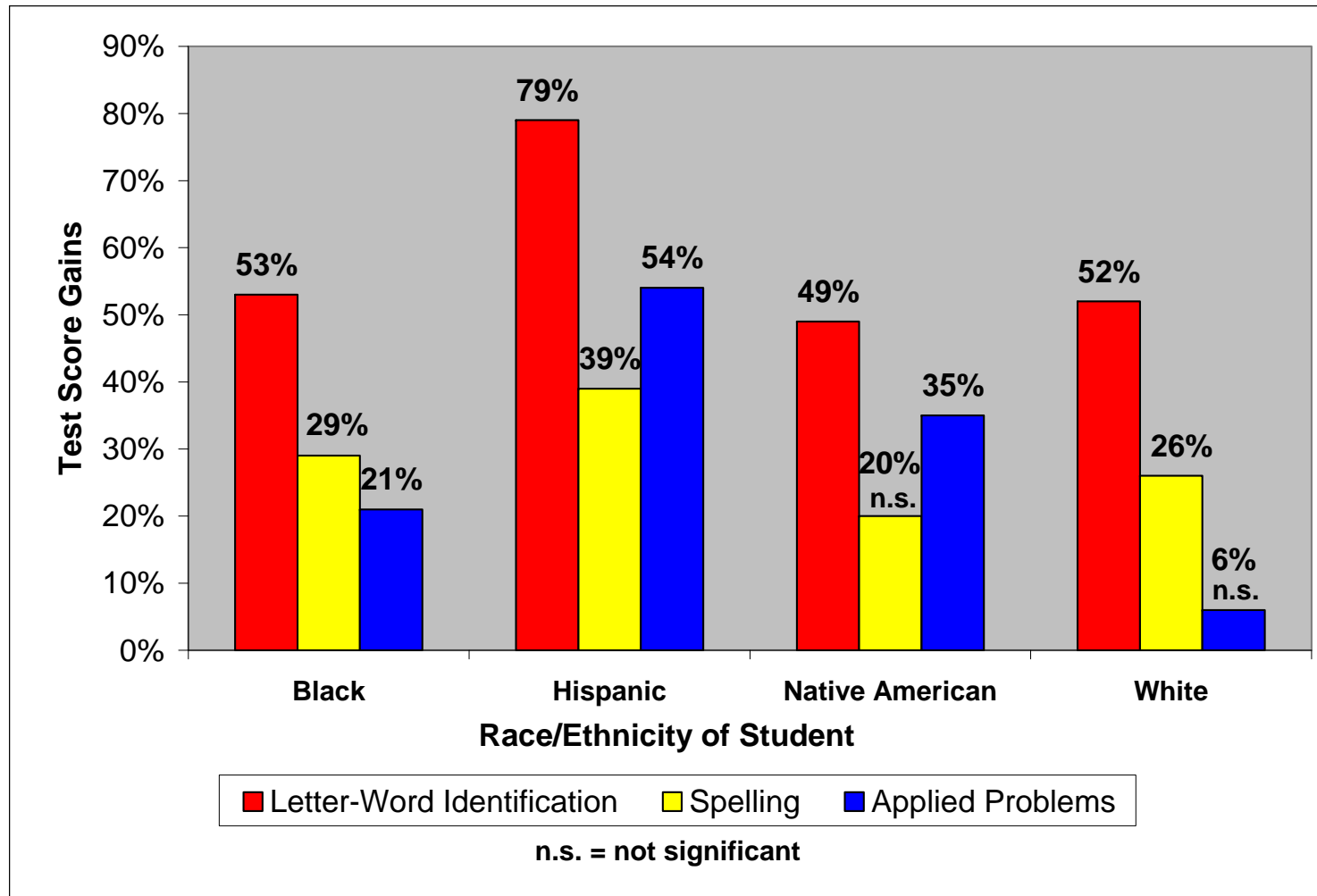


Overall Effects of Tulsa Pre-K Program



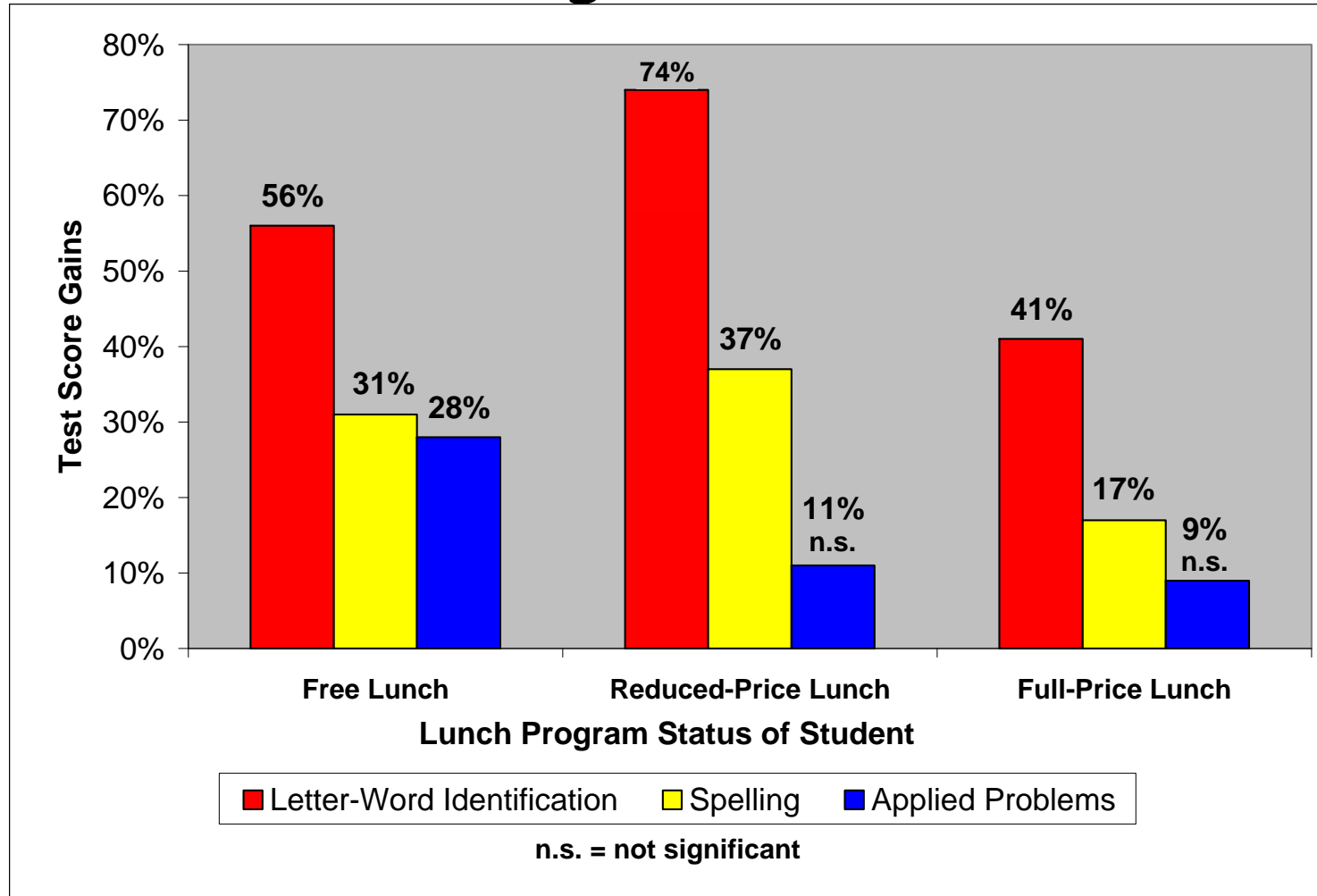
Tulsa pre-K students experience statistically significant gains on all three tests.

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



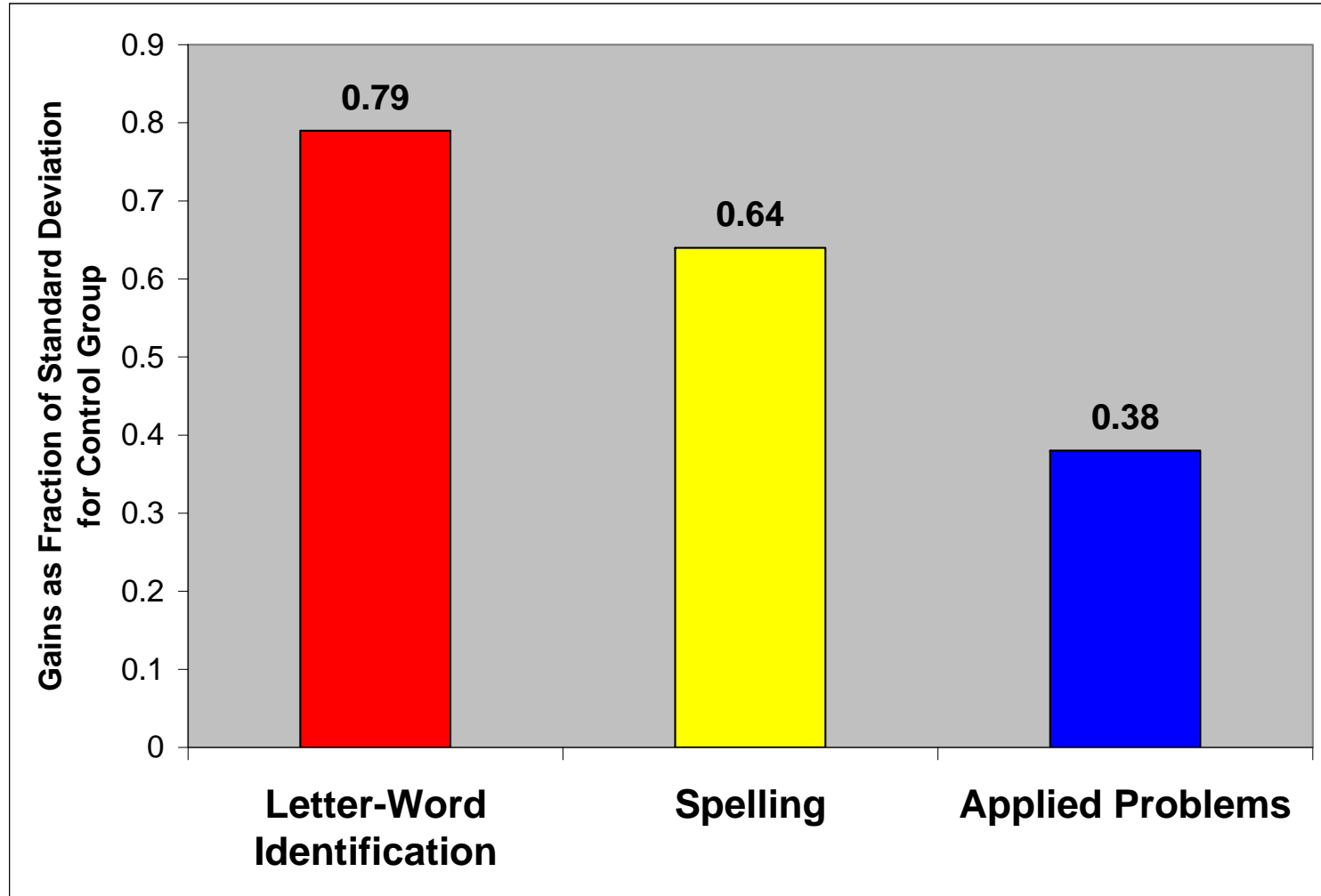
Students of diverse races and ethnicities benefit from the Tulsa pre-K program.

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



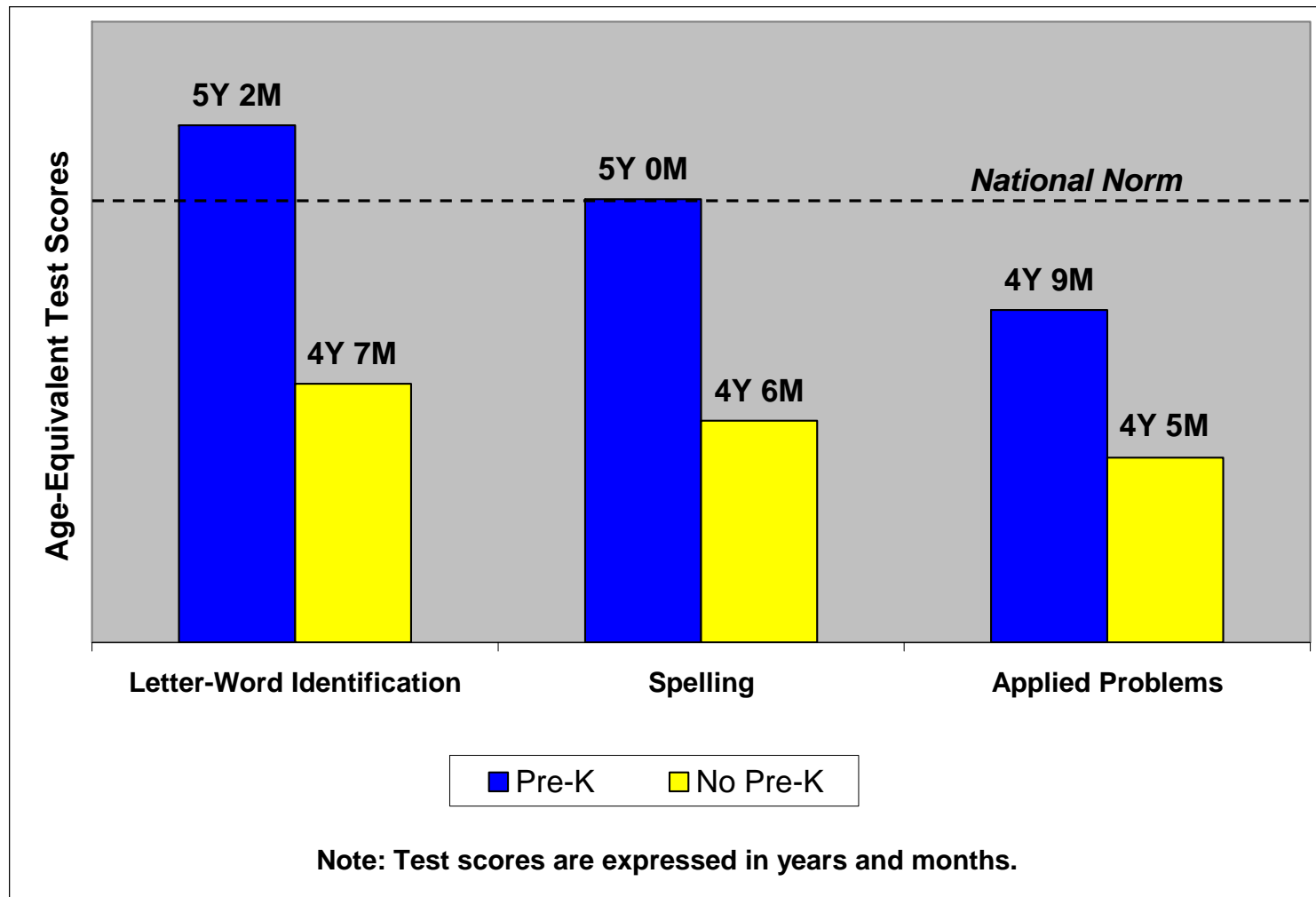
Students from diverse socio-economic backgrounds benefit from Tulsa pre-K.

Test Score Gains Attributable to Tulsa Pre-K



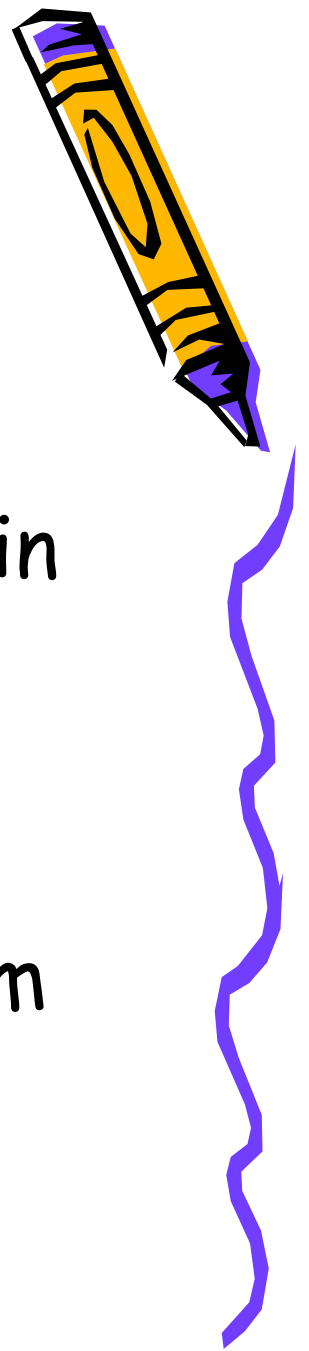
Effect sizes for all three tests are substantial.

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



Students in Tulsa pre-K advance several months beyond other students.

Conclusions: 2003 FINDINGS

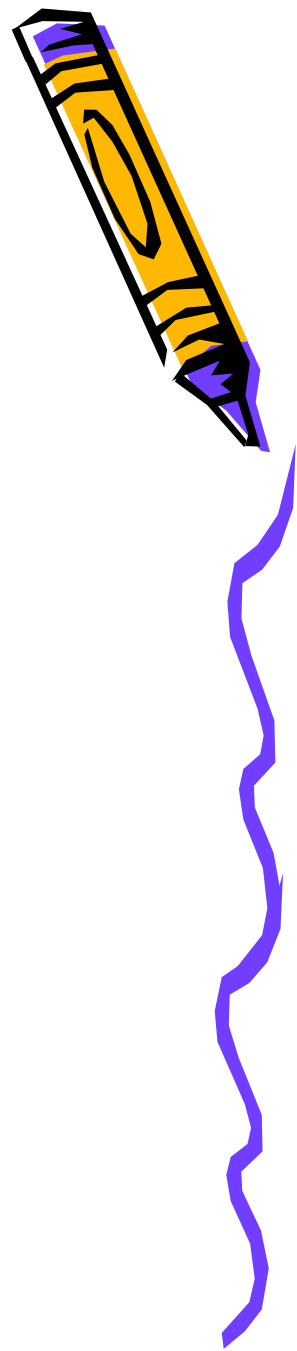


- A well-designed UPK program can produce impressive improvements in school readiness
- A well-designed UPK program can benefit children from diverse racial/ethnic backgrounds and from diverse social strata



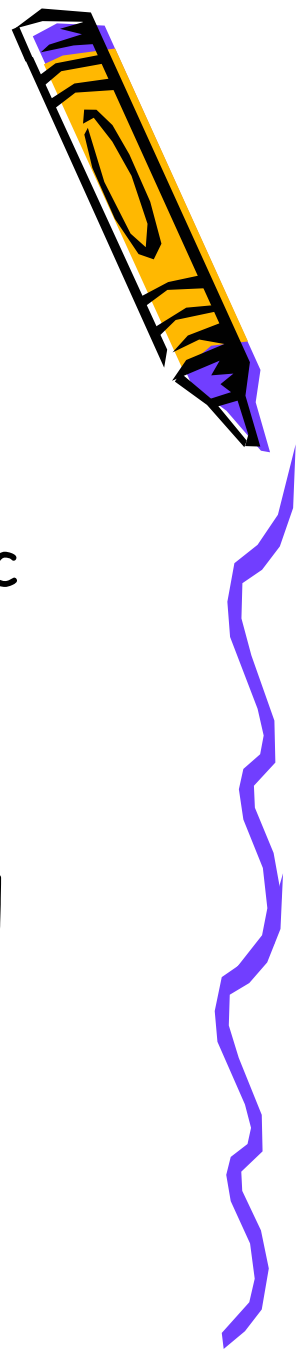
Possible Explanations

- Public School Auspices or Public School Wages
- B.A. Degree, Early Childhood Certification
- Teachers' Classroom Practices

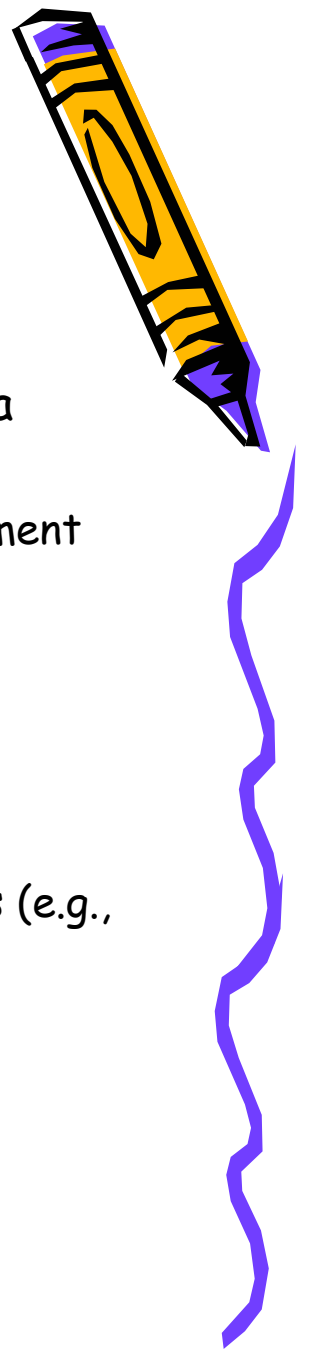


Findings from 2006 Classroom Observations

- Classroom observations: Feb.-May, 2006
 - 77 pre-K classrooms run by Tulsa Public Schools (TPS)
- Observers: 8 University of Tulsa students
- Observed from student arrival until lunch



Methods



- Observation instruments
 - Classroom Assessment Scoring System (CLASS, Pianta, La Paro, & Hamre, 2004)
 - Instructional support, Emotional support, Classroom management
 - 11 dimensions
 - 7-point scale: Low (1), High (7)
 - Emerging Academics Snapshot, Child Engagement section (Ritchie, Howes, Kraft-Sayre, & Weiser, 2002)
 - Time individual children spend engaged in any of 15 activities (e.g., reading, math, science)



Figure 8

**Classroom Assessment Scoring System (CLASS) Scores, Instructional Support:
Tulsa Public Schools Pre-K v National Pre-K Sample**

CLASS Score	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Productivity	5.212	4.508	0.000 ***
Concept Development	2.835	2.041	0.000 ***
Instructional Learning Formats	4.642	3.837	0.000 ***
Quality of Feedback	3.293	1.976	0.000 ***

* (10% significance level)

** (5% significance level)

*** (1% significance level)

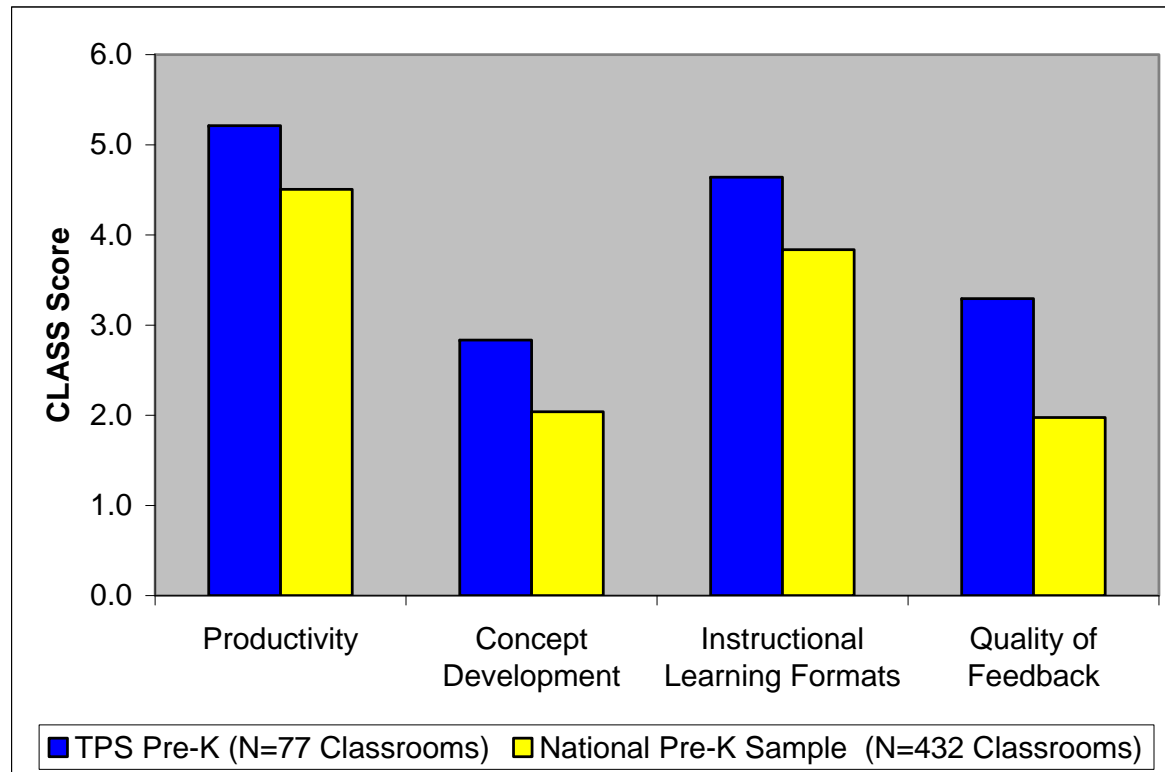


Figure 9

**Classroom Assessment Scoring System (CLASS) Scores, Emotional Support:
Tulsa Public Schools Pre-K v National Pre-K Sample**

CLASS Score	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Positive Climate	5.059	5.304	0.016 **
Negative Climate	1.357	1.505	0.041 **
Teacher Sensitivity	4.827	4.715	0.209
Behavior Management	5.034	4.982	0.632

* (10% significance level)

** (5% significance level)

*** (1% significance level)

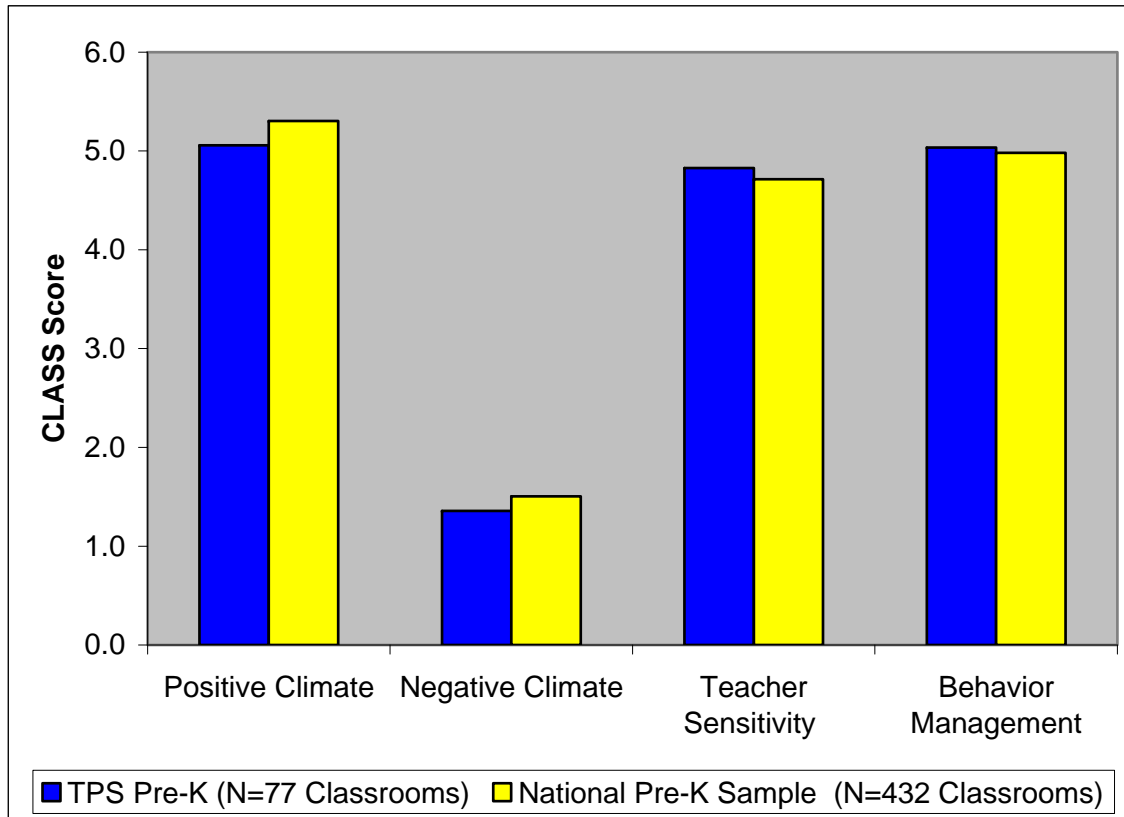


Figure 10

**Classroom Assessment Scoring System (CLASS) Scores, Composite Measures:
Tulsa Public Schools Pre-K v National Pre-K Sample**

CLASS Score	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Instructional Climate Composite	3.064	2.008	0.000 ***
Emotional Climate Composite	3.220	Not Comparable	NA

Instructional Climate is a composite of Concept Development and Quality of Feedback.

Emotional Climate is a composite of Positive Climate, Negative Climate (reversed), Teacher Sensitivity, and Regard for Student Perspectives.

* (10% significance level)

** (5% significance level)

*** (1% significance level)

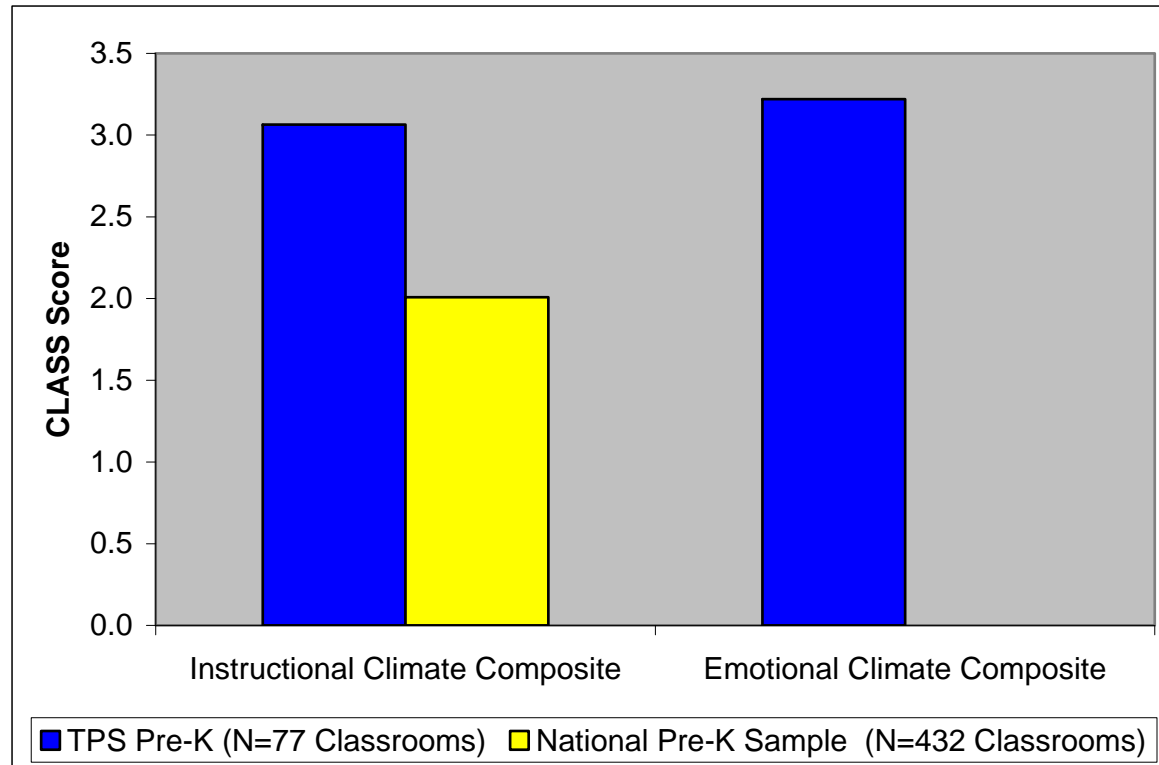


Figure 11

**Classroom Time Allocation, Language & Literacy (Snapshot):
Tulsa Public Schools Pre-K v National Pre-K Sample**

Proportion of Time Spent	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Being Read To	0.105	0.056	0.000 ***
Pre-Read	0.073	0.033	0.000 ***
Practicing Letters & Sounds	0.125	0.047	0.000 ***
Expressive Language	0.072	0.058	0.042 **
Writing	0.027	0.016	0.008 ***

* (10% significance level)

** (5% significance level)

*** (1% significance level)

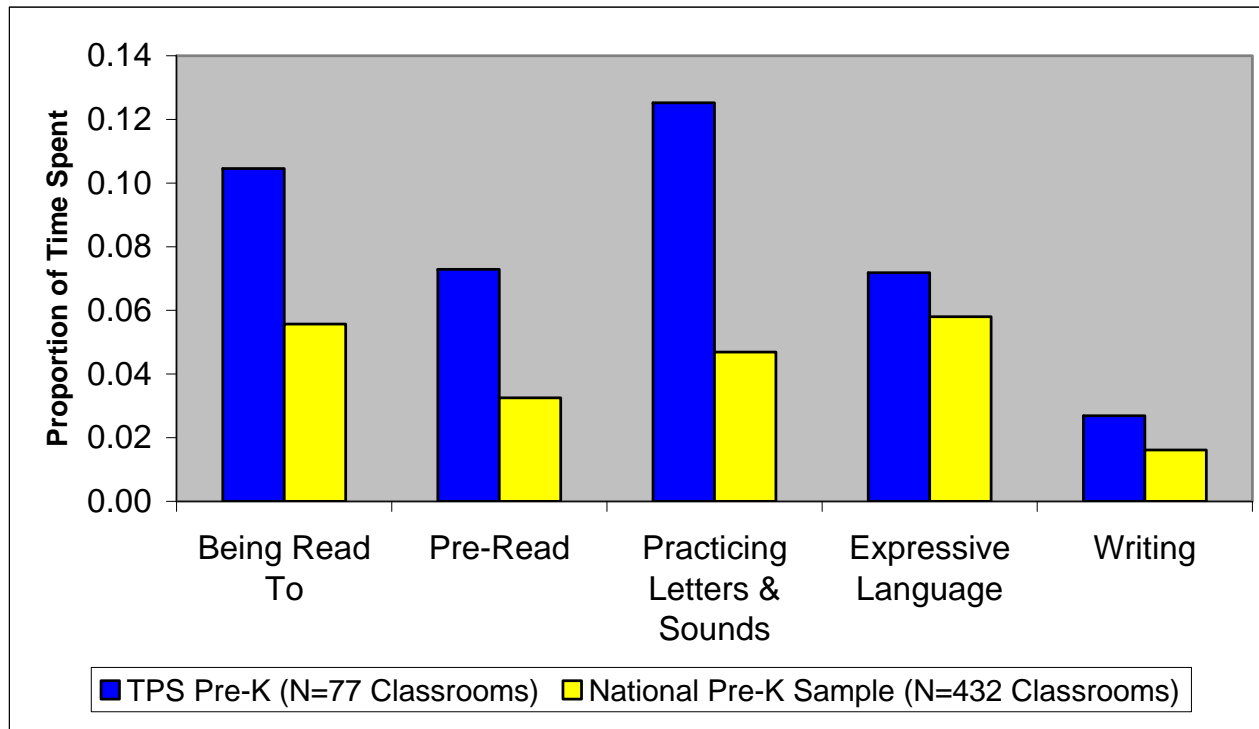


Figure 12

**Classroom Time Allocation, Math & Science (Snapshot):
Tulsa Public Schools Pre-K v National Pre-K Sample**

Proportion of Time Spent	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Engaged in Math	0.173	0.086	0.000 ***
Engaged in Science	0.172	0.108	0.000 ***
Using the Computer	0.031	.	NA

* (10% significance level)

** (5% significance level)

*** (1% significance level)

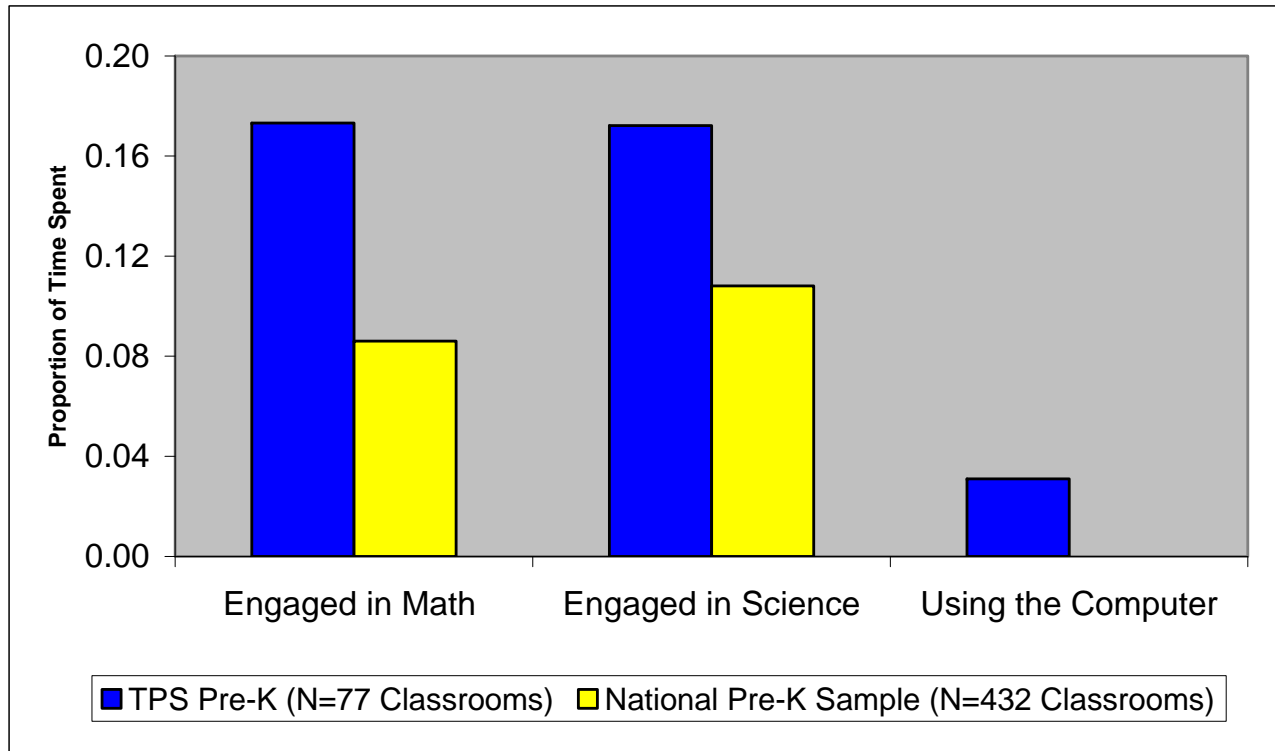


Figure 13

**Classroom Time Allocation, Other Educational Activities (Snapshot):
Tulsa Public Schools Pre-K v National Pre-K Sample**

Proportion of Time Spent	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Engaged in Social Studies	0.133	0.137	0.653
Engaged in Fantasy Play	0.072	.	NA
Engaged in Aesthetics	0.186	0.144	0.001 ***
Watching Educational TV	0.005	.	NA

* (10% significance level)

** (5% significance level)

*** (1% significance level)

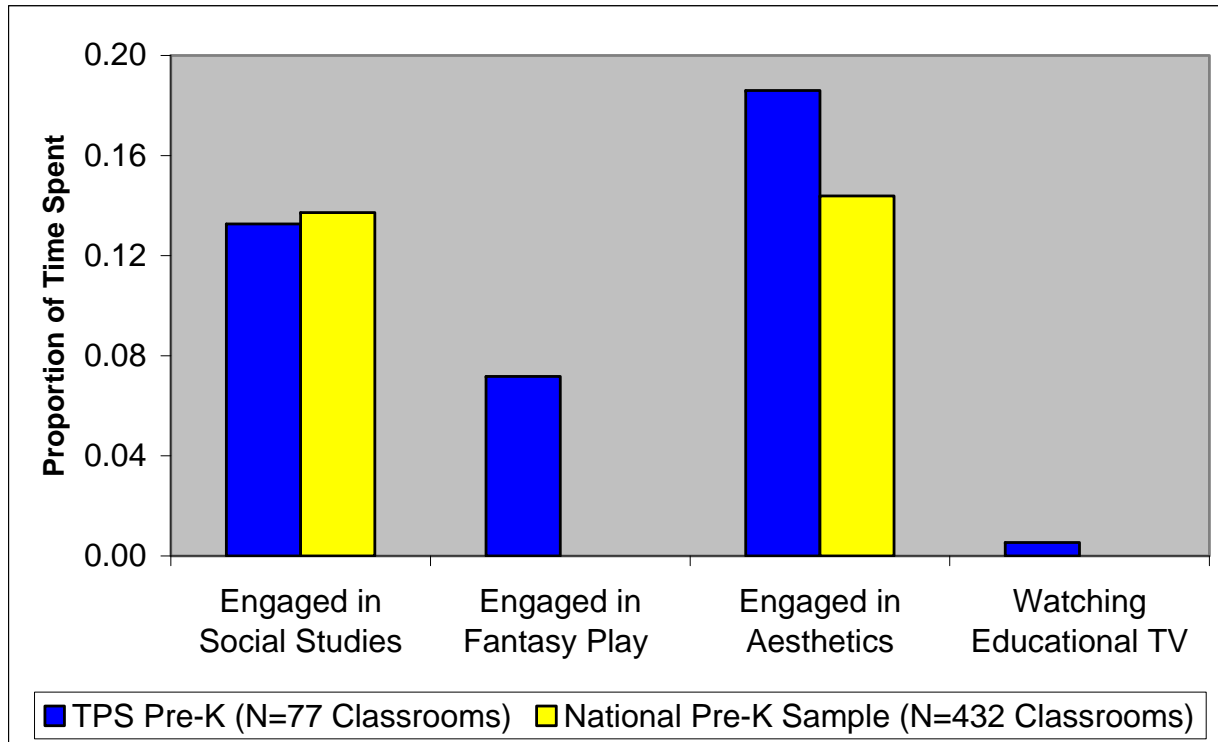


Figure 14

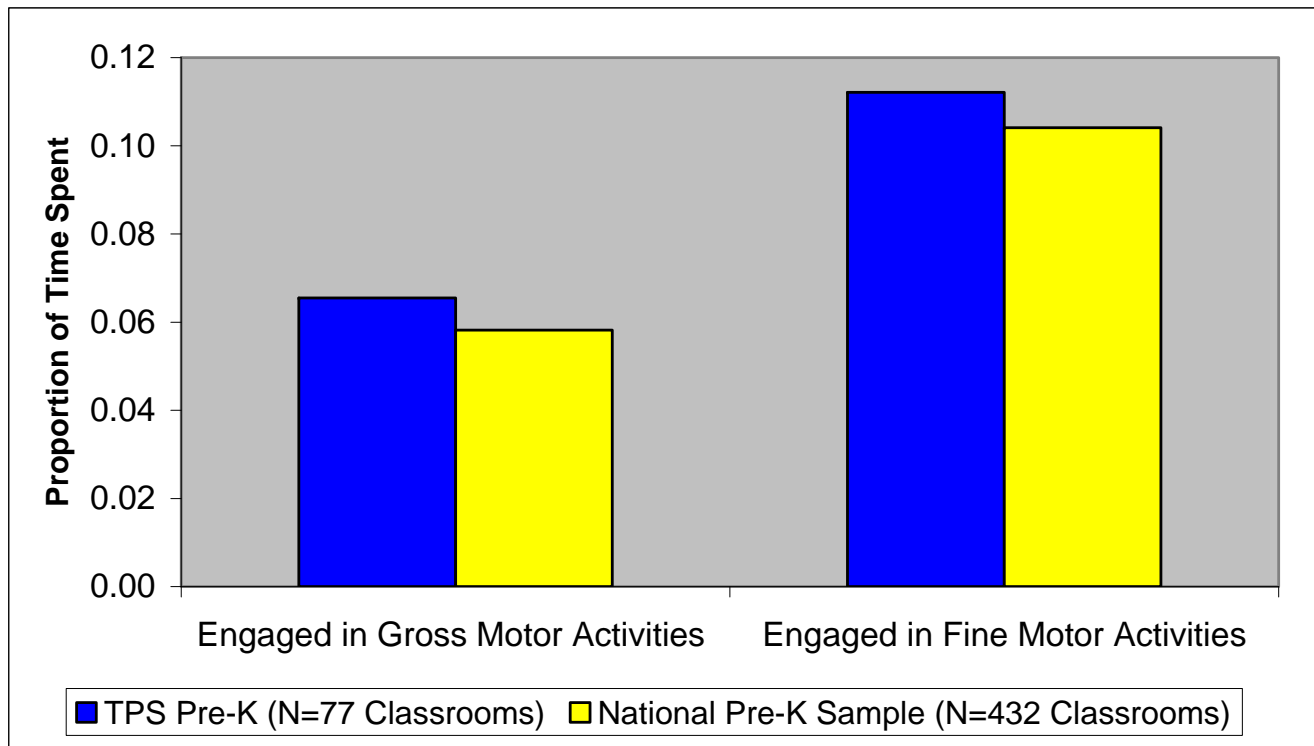
**Classroom Time Allocation, Motor Activities (Snapshot):
Tulsa Public Schools Pre-K v National Pre-K Sample**

Proportion of Time Spent	TPS Pre-K (N=77 Classrooms)	National Pre-K Sample (N=432 Classrooms)	T-Test, P-value
Engaged in Gross Motor Activities	0.066	0.058	0.336
Engaged in Fine Motor Activities	0.112	0.104	0.451

* (10% significance level)

** (5% significance level)

*** (1% significance level)



Conclusions: Classroom Quality and Time Allocation



- Tulsa pre-K scores higher on Instructional Support than a national sample of school-based pre-K
- Tulsa pre-K devotes more time to reading, math, and science than a national sample of school-based pre-K



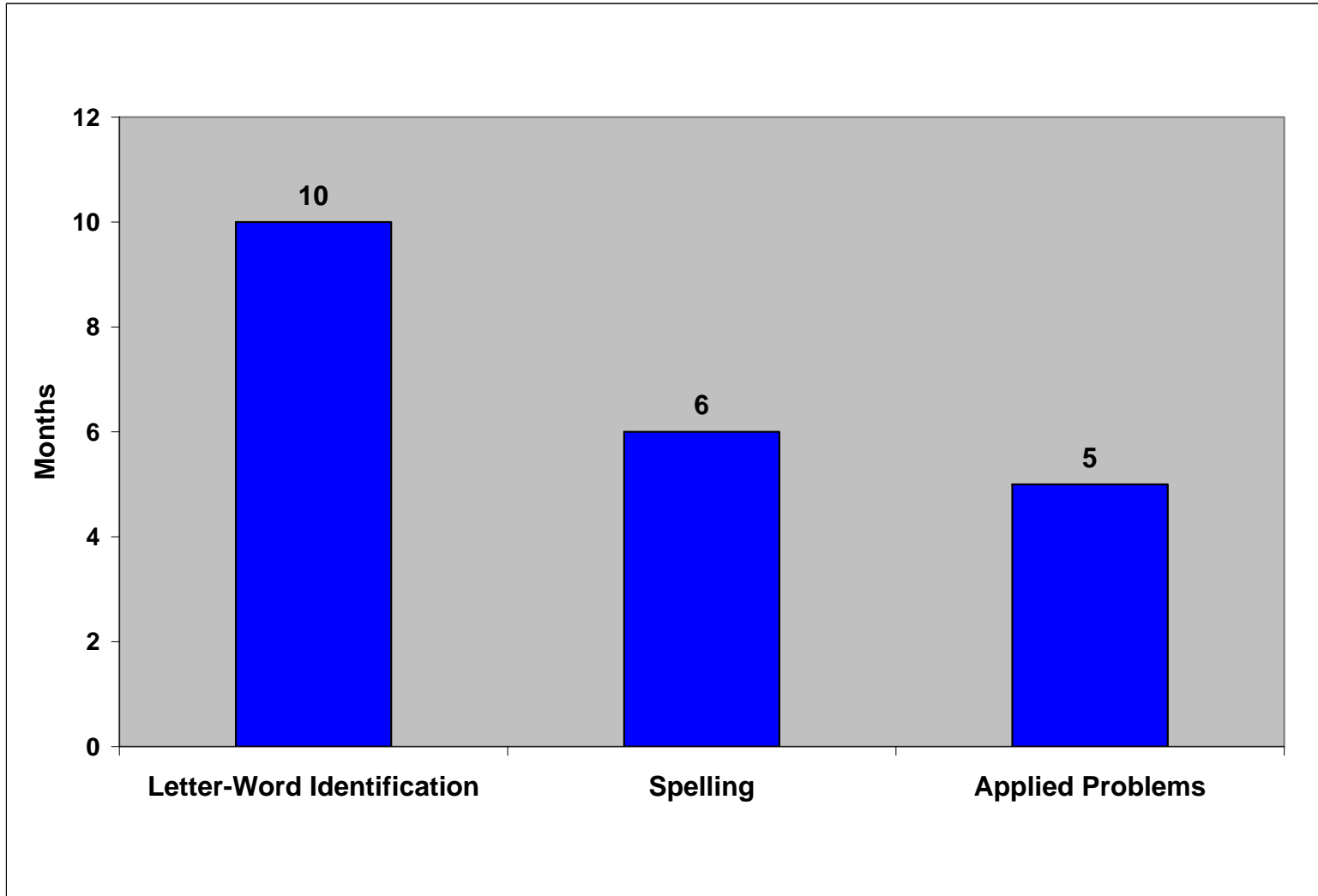
COMING ATTRactions



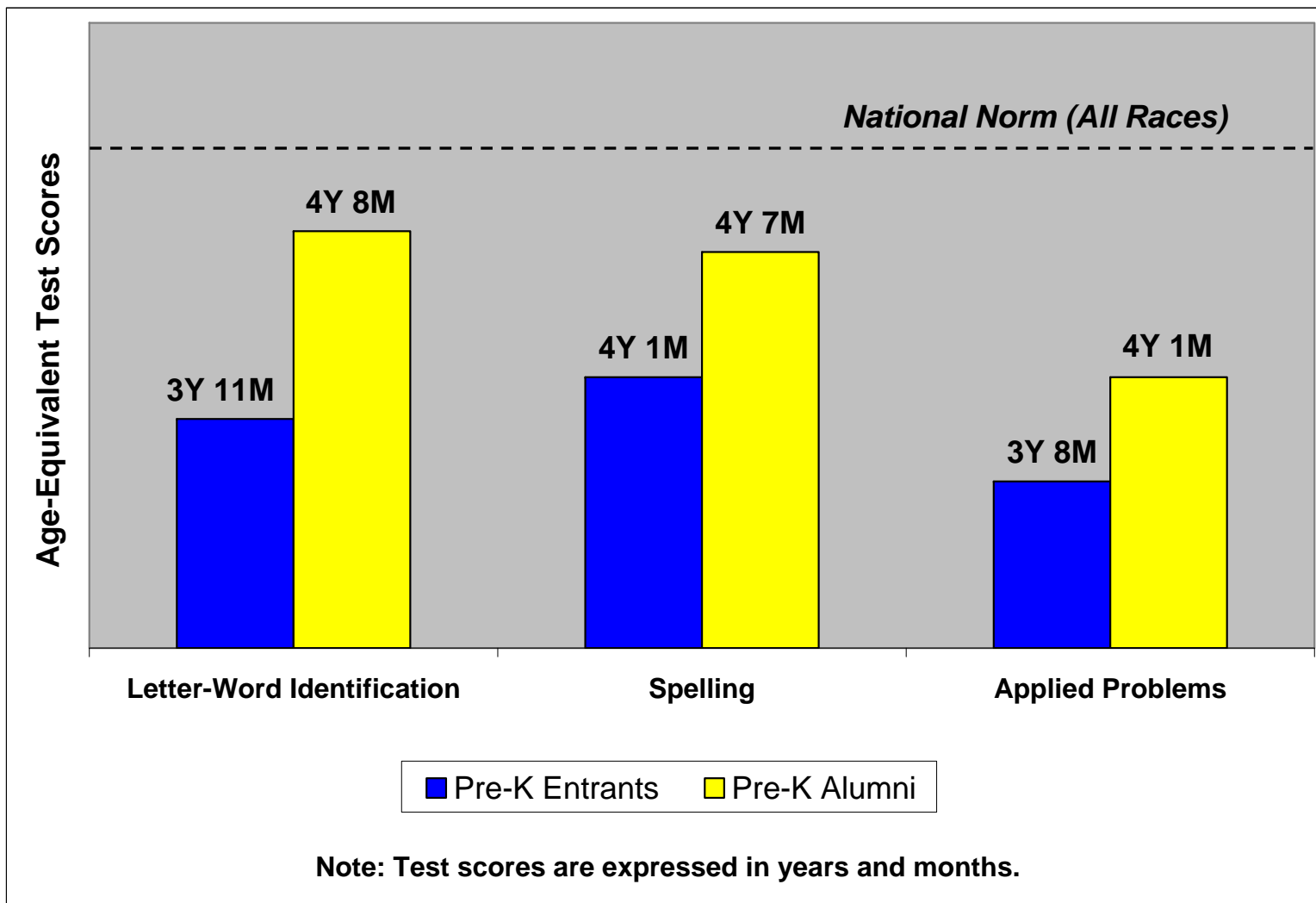
- What effects, if any, does Tulsa pre-K program have on socio-emotional development?
- How effective is Tulsa pre-K program (cognitive, socio-emotional) in comparison to Tulsa Head Start?
- Which teacher characteristics and choices (curricula) are associated with higher classroom quality?
- Which classroom practices are associated with stronger outcomes?
- Which Hispanic students benefit the most from the Tulsa pre-K program?
- Do pre-K participants learn more if a higher percentage of their classmates are middle class?
- What are the long-term effects of the Tulsa pre-K program?



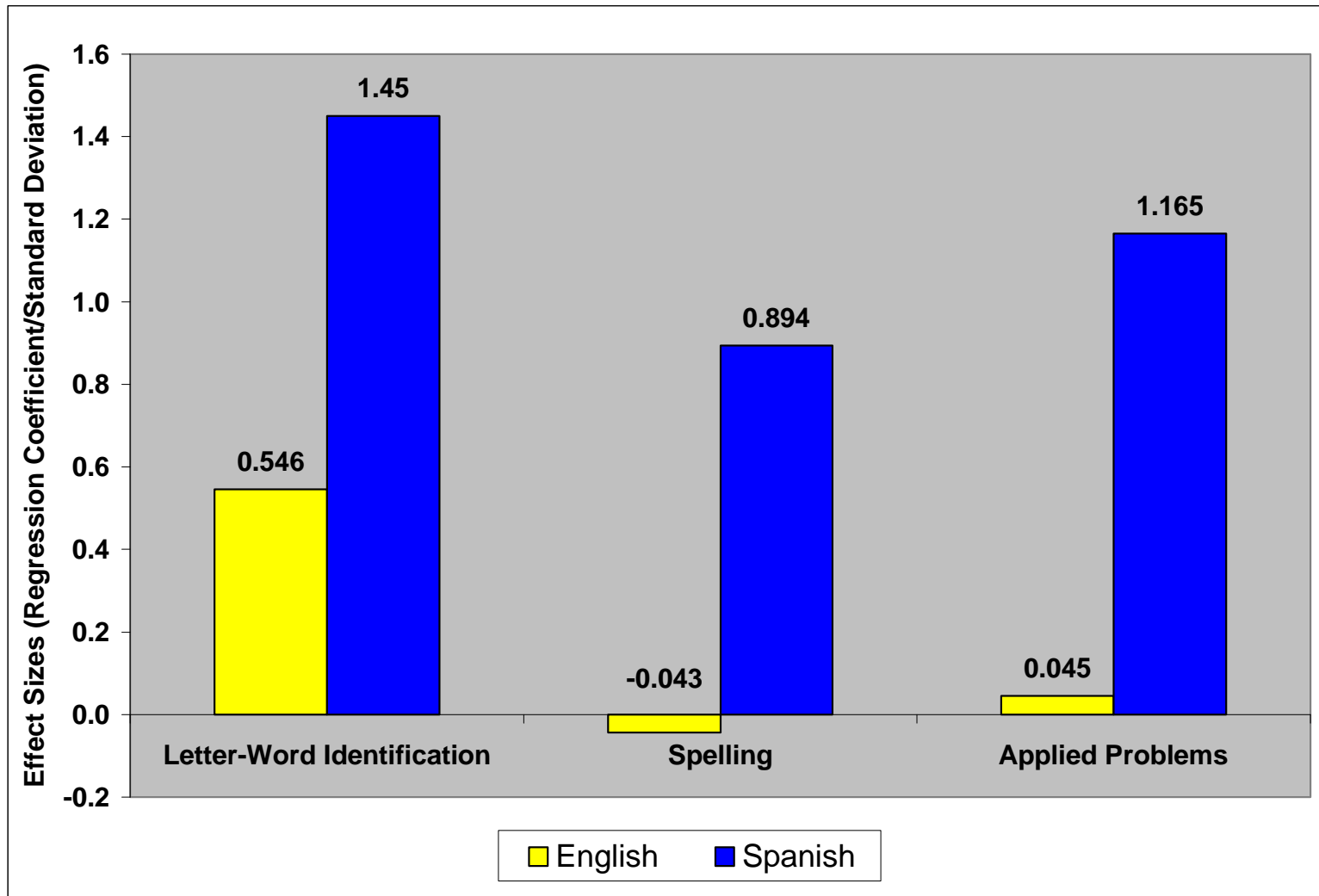
Test Score Gains for Hispanic Students, in Months



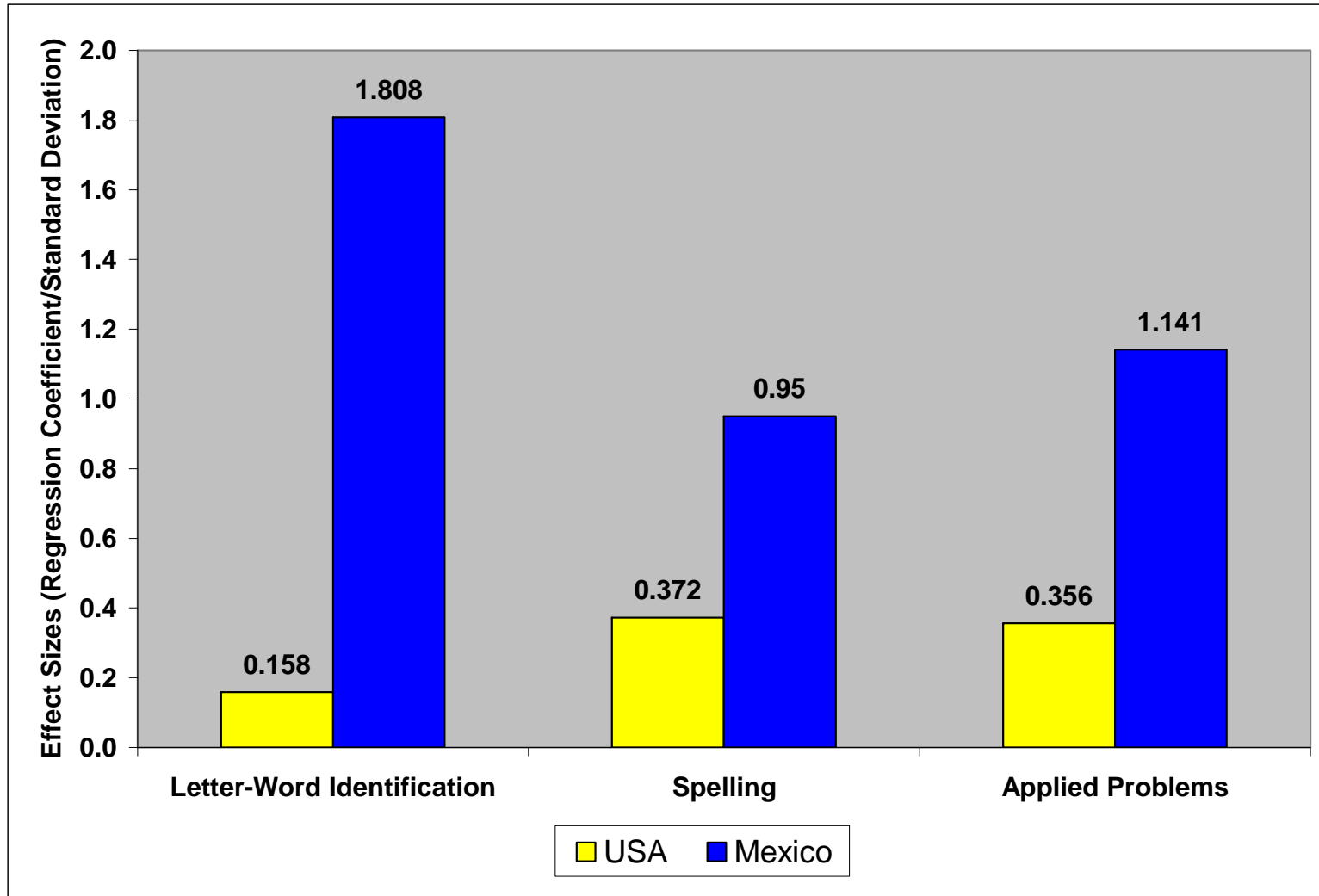
Age-Equivalent Test Scores for Hispanic Children Exposed to Tulsa Pre-K



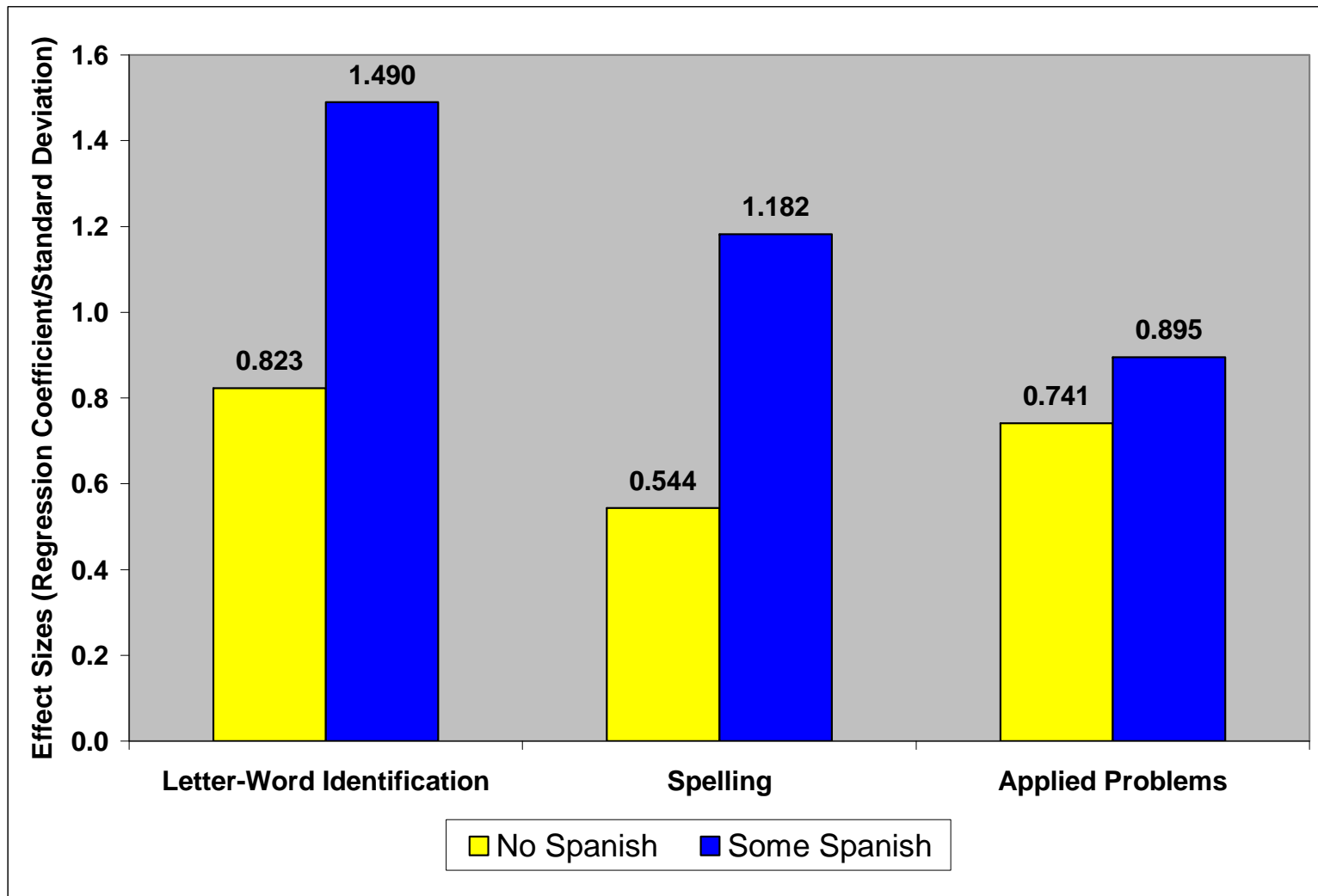
Effects of TPS Pre-K Program on Cognitive Development of Hispanic Students, by Primary Language Spoken at Home



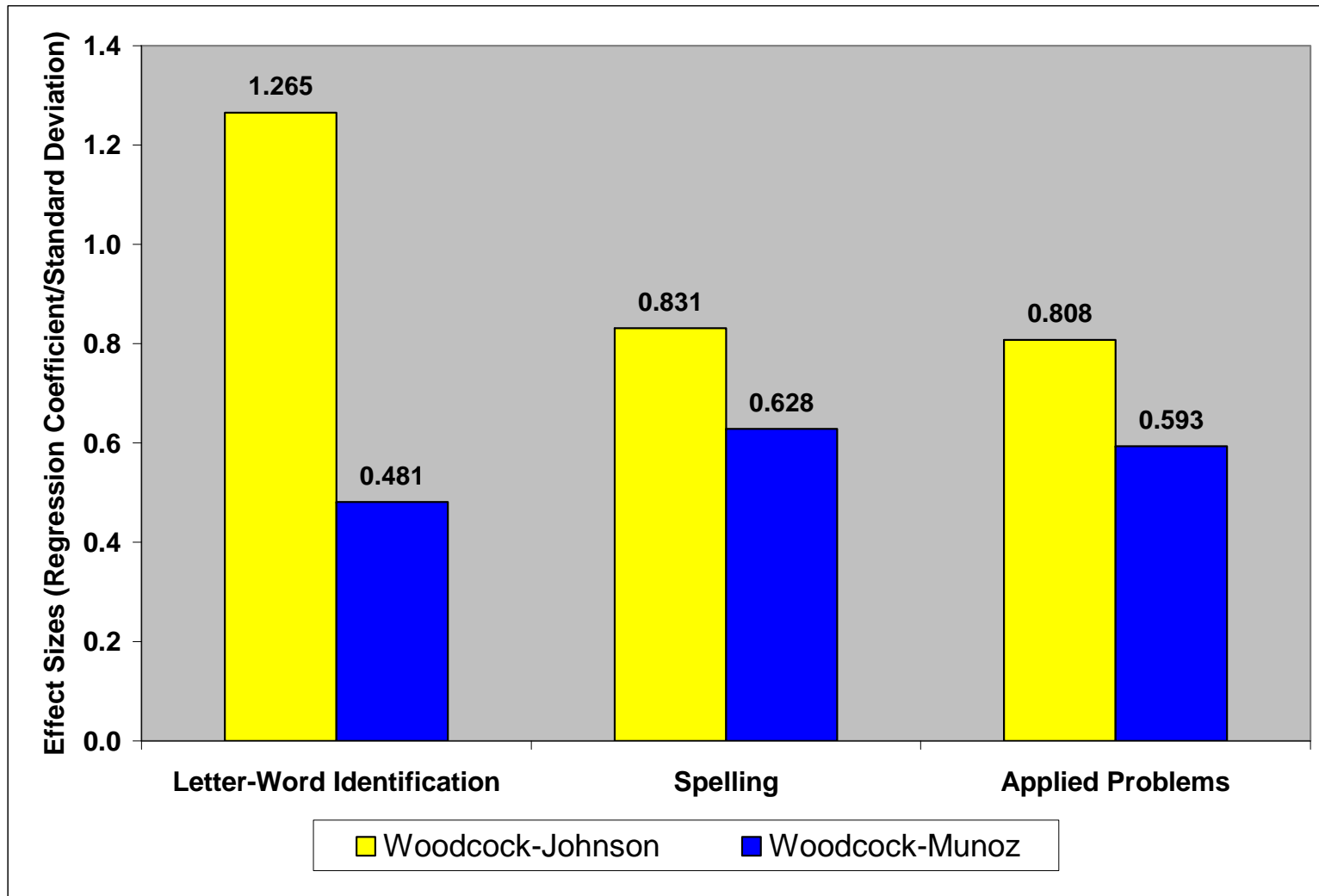
Effects of TPS Pre-K Program on Cognitive Development of Hispanic Students, by Parent's Place of Birth



Effects of TPS Pre-K Program on Cognitive Development of Hispanic Students, by Whether Teacher Speaks Spanish

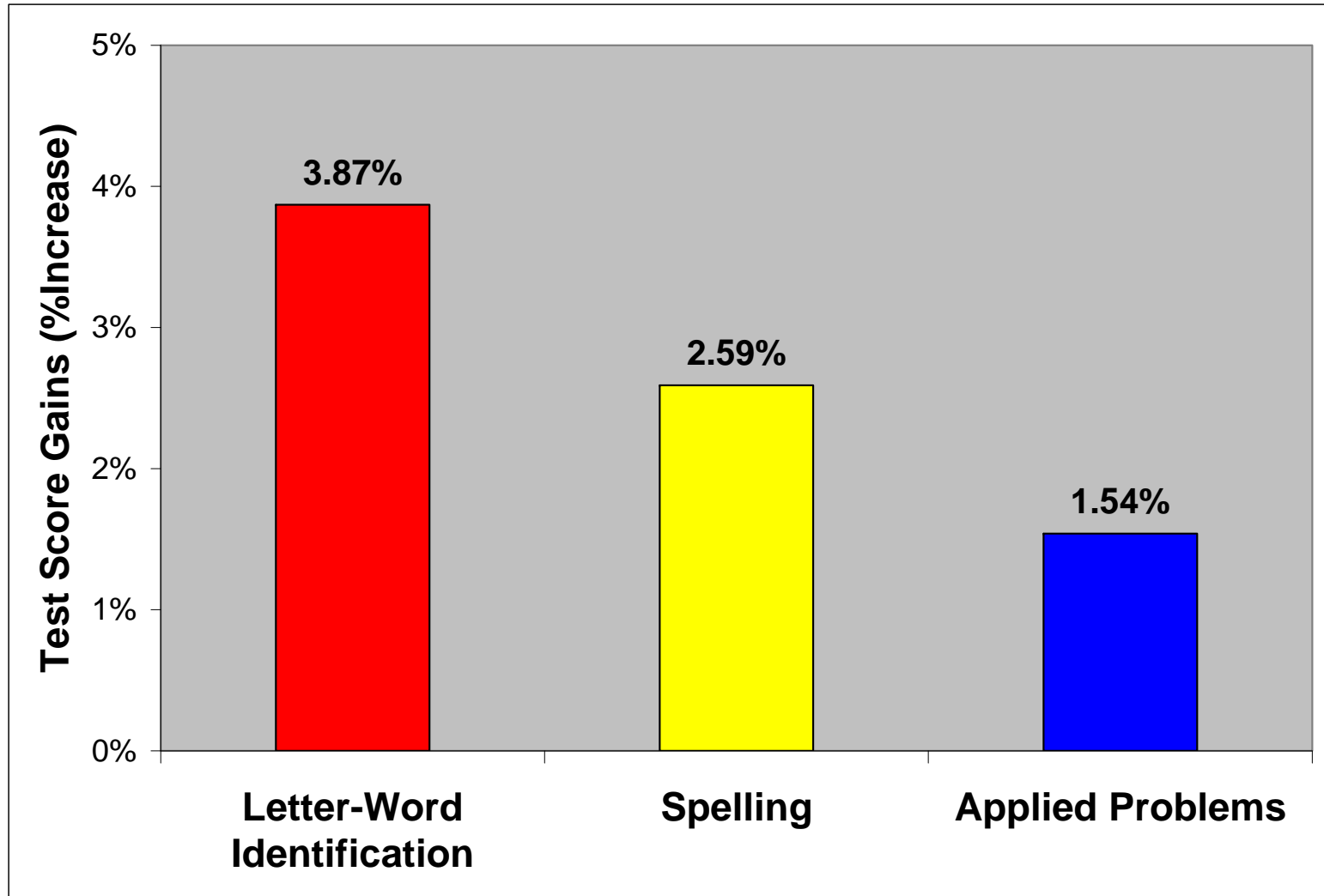


Cognitive Gains for Hispanic Students who Took Woodcock-Johnson Test (English) and Woodcock-Muñoz Bateria (Spanish)



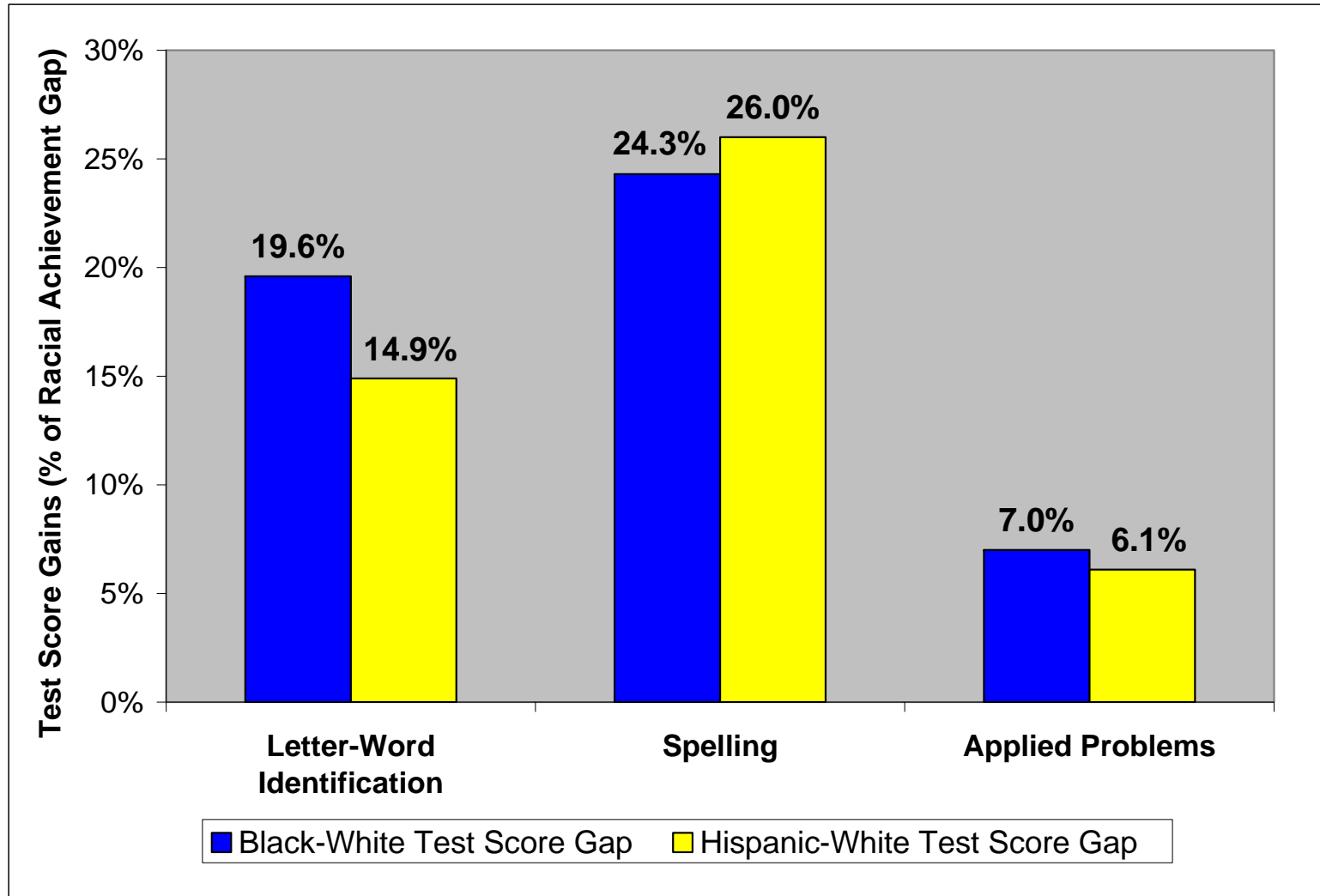
Effects of a 10-point Increase in Middle-Class Peers for Half-Day Students in Tulsa

(Measured as % Increase in Test Scores)



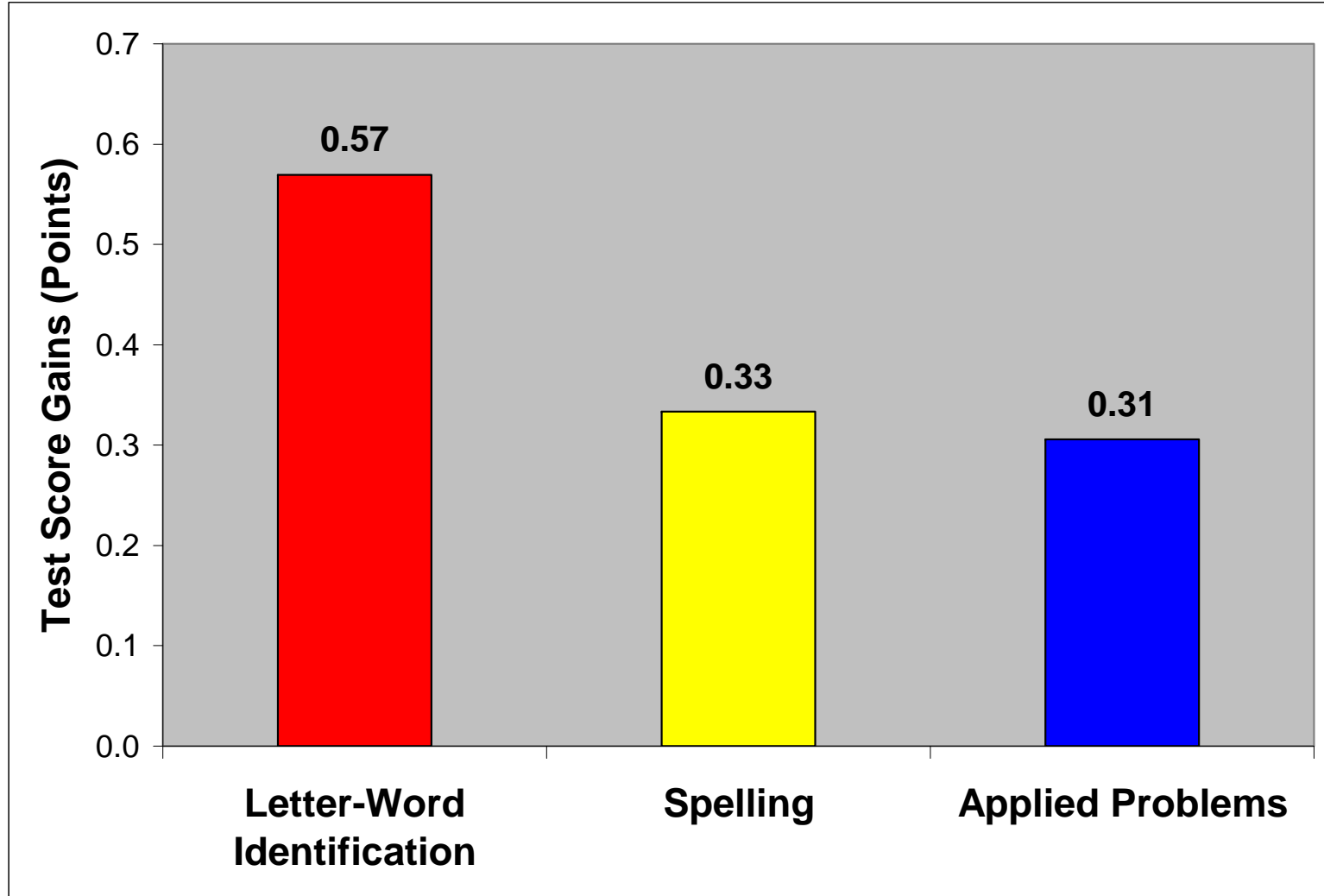
Effects of a 10-point Increase in Middle-Class Peers for Half-Day Students in Tulsa

(Measured as % of Racial Achievement Gap)



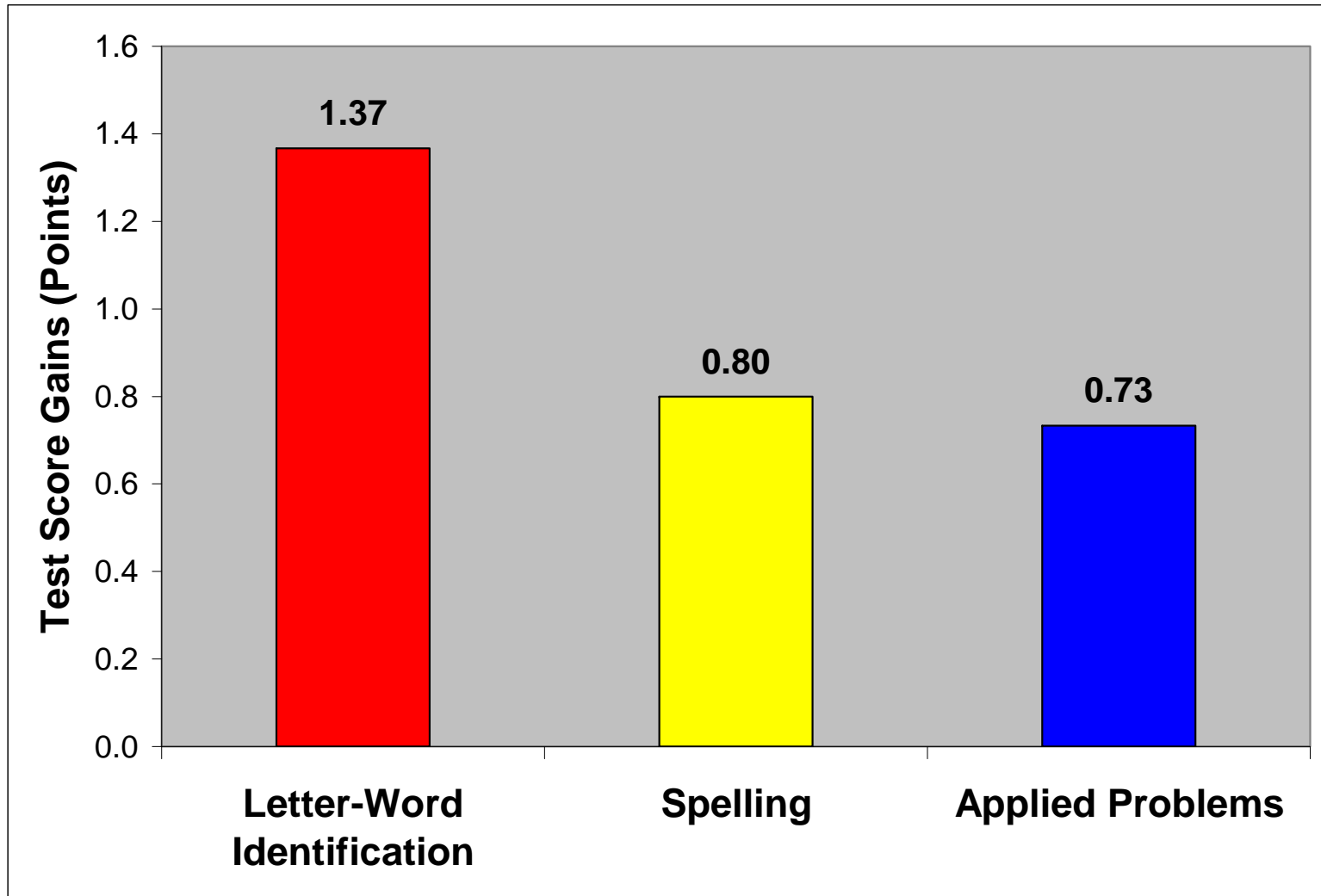
Effects of a First to Second Quartile Increase in Middle-Class Peers for Half-Day Students in Tulsa

(Measured as Score Gain)



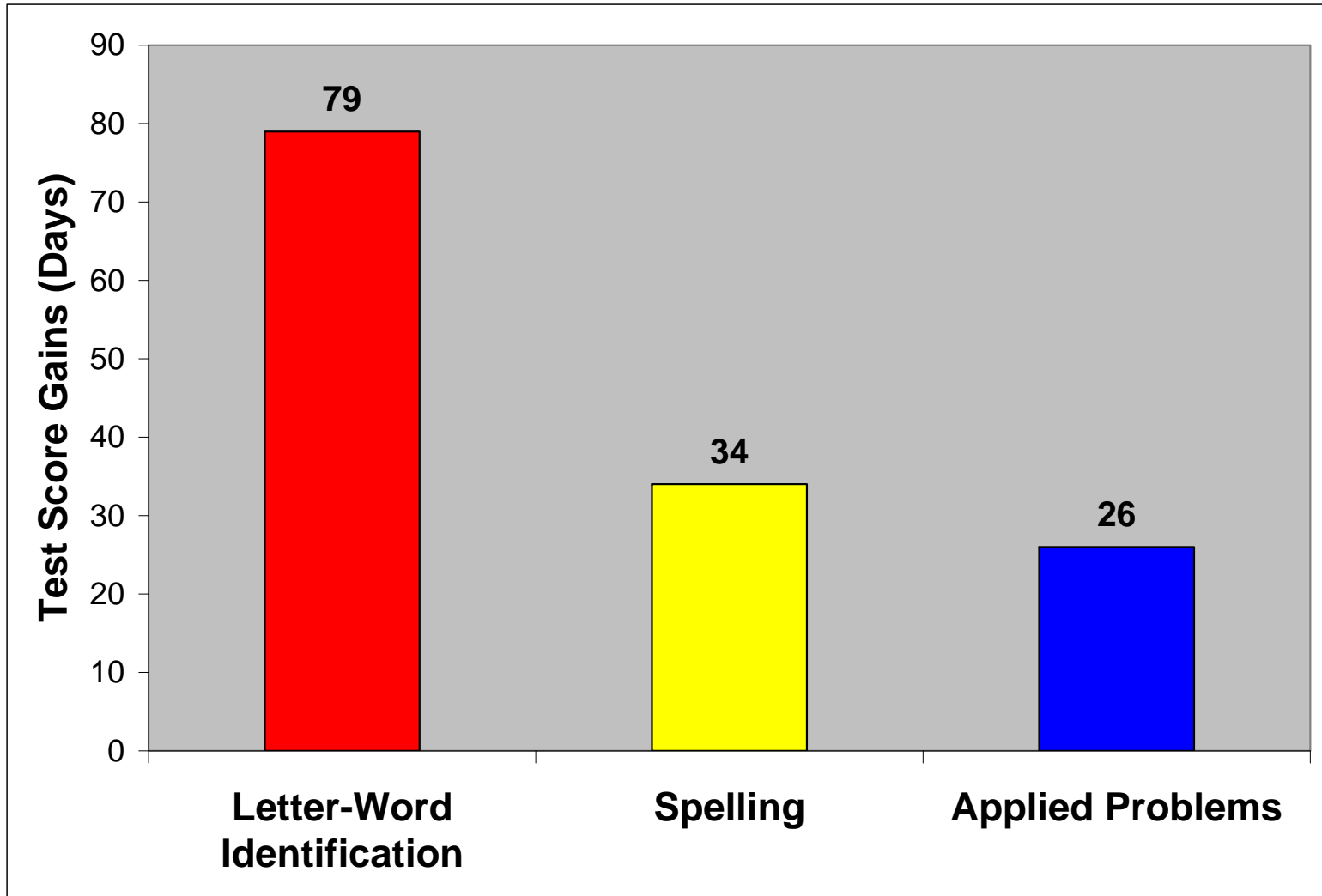
Effects of a First to Third Quartile Increase in Middle-Class Peers for Half-Day Students in Tulsa

(Measured as Score Gain)



Effects of a 10-point Increase in Middle-Class Peers for Half-Day Students in Tulsa

(Measured in Days)



Center for Research on Children in the U.S. (CROCUS)

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