Equity in Education

Rice University School Mathematics Project Mathematics Leadership Institute

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THE THREE R's

Rigor

Exposing students to challenging coursework with academic and social support

Relevance Demonstrating how students can and will use their learning

Relationships Building positive, caring and supportive connections with students, parents, and communities

E. Robinson & M. Robinson, NC Raising Achievement and Closing Gaps Conference, 2007 International Center for Leadership in Education, 2008 National Center for Education Statistics National Assessment of Educational Progress (NAEP) Main Version

National and State Results

Reading and Mathematics 1978 – 2007 (29 years)

Vanneman, A., Hamilton, I., Baldwin Anderson, J. and Rahman, T. (2009). Achievement Gaps: How Black and White Students in Public School Perform in Mathematics and Reading on the National Assessment of Educational Progress.

Selected Historical Factors Impacting Educational Outcomes

Brown v. Board of Education 1954 • 1965 **Elementary and Secondary Education** Act – ESEA (Public Law 89-10, 79 Stat. 27) • 1970's "Singleton Ratio" and other desegregation strategies (magnet schools) • 1980'-90's Integration policy roll-backs in higher education • 1990's **Re-segregation of public schools** 2001 No Child Left Behind (re-authorization of the ESEA)

NAEP S Trends in average reading scale scores and score gaps for White students and Black students at age 9: Various years, 1980–2004



NAEP Reading achievement score gaps between Black and White public school students at grade 4: Various years, 1992–2007



Grade 4 Reading



NAEP 4. Trends in average reading scale scores and score gaps for White students and Black students at age 13: Various years, 1980–2004



NAEP Reading achievement score gaps between Black and White public school students at grade 8: Various years, 1992–2007



Grade 8 Reading



NAEP

Trends in average mathematics scale scores and score gaps for White students and Black students at age 9: Various years, 1978–2004





Grade 4 Mathematics



Trends in average mathematics scale scores and score gaps for White students and Black students at age 13: Various years, 1978–2004

NAEP



NAEP 4 Mathematics achievement score gaps between Black and White public school students at grade 8: Various years, 1990–2007



Grade 8 Mathematics



Persistent Trends

Rigor?

On average, Black and White students achieved far below the maximum score of 500. (A large opportunity gap for all)

Relevance?

On average, White students scored higher. Black students achieved gains exceeding White students' (closing the gap). However, longitudinal reading gains were only 1.2-6.3% (Black) and 0.4-4% (White). Greater gains were achieved in mathematics - 9.7-18.7% (Black) and 6.7-13.2% (White).

Relationships?

These educational trends reflect historical disparities among U.S. communities' health and general welfare.

Texas Assessment of Knowledge and Skills (TAKS) English Version

Statewide and Selected Regional Results

Reading, Mathematics and Science 2007 and 2008

Texas Education Agency (2008). 2008 District Academic Excellence Indicator System Report.

State of Texas TAKS Results – Met Standard (Sum of All Grades/Standard Accountability Indicator)

	Year	All Students	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
Reading/ English Language Arts	2008 2007	91% 88%	87% 83%	87% 84%	96% 95%	93% 91%	96% 95%	75% 71%	82% 78%
Math	2008	80%	69%	75%	89%	83%	95%	61%	63%
	2007	77%	64%	71%	87%	79%	93%	56%	58%
Science	2008	74%	61%	66%	87%	79%	90%	39%	53%
	2007	66%	49%	55%	81%	72%	86%	27%	42%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator) Reading/English Language Arts

	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
State of	2008	91%		87%	87%	96%	93%	96%	75%	82%
Texas	2007	88%		83%	84%	95%	91%	95%	71%	78%
Austin	2008		91%	85%	85%	97%	93%	97%	75%	81%
(Region XIII)	2007		89%	81%	82%	95%	92%	96%	69%	76%
Beaumont	2008		91%	84%	87%	95%	93%	91%	77%	82%
(Region V)	2007		88%	81%	85%	93%	90%	91%	73%	79%
Corpus Christi (Region II)	2008 2007		90% 88%	88% 86%	88% 85%	95% 94%	95% 92%	96% 94%	71% 68%	82% 78%
Fort Worth	2008		92%	86%	86%	96%	93%	95%	77%	82%
(Region XI)	2007		90%	83%	83%	95%	91%	94%	74%	79%
Houston	2008		91%	87%	88%	96%	93%	96%	74%	83%
(Region IV)	2007		89%	84%	85%	95%	92%	95%	70%	79%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator) Reading/English Language Arts (continued)

	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
State of	2008	91%		87%	87%	96%	93%	96%	75%	82%
Texas	2007	88%		83%	84%	95%	91%	95%	71%	78%
Huntsville	2008		93%	84%	88%	96%	92%	97%	79%	84%
(Region VI)	2007		90%	80%	85%	94%	92%	97%	74%	80%
Kilgore	2008		91%	85%	86%	95%	93%	95%	74%	83%
(Region VII)	2007		89%	81%	83%	94%	90%	92%	70%	79%
Richardson	2008		91%	87%	86%	97%	94%	97%	78%	81%
(Region X)	2007		89%	84%	83%	96%	93%	96%	75%	78%
San Antonio (Region XX)	2008 2007		91% 88%	88% 86%	89% 86%	96% 95%	92% 89%	96% 95%	74% 72%	84% 79%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator) Mathematics

	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
State of	2008	80%		69%	75%	89%	83%	95%	61%	63%
Texas	2007	77%		64%	71%	87%	79%	93%	56%	58%
Austin	2008		82%	67%	73%	91%	83%	96%	61%	61%
(Region XIII)	2007		79%	62%	69%	89%	81%	94%	54%	56%
Beaumont	2008		77%	63%	75%	85%	80%	90%	64%	58%
(Region V)	2007		74%	59%	72%	81%	76%	88%	57%	54%
Corpus Christi (Region II)	2008 2007		75% 72%	69% 65%	71% 67%	86% 84%	84% 85%	92% 89%	57% 52%	55% 51%
Fort Worth	2008		82%	67%	73%	89%	84%	93%	63%	61%
(Region XI)	2007		79%	63%	69%	87%	79%	91%	60%	57%
Houston	2008		81%	70%	78%	91%	85%	95%	60%	66%
(Region IV)	2007		78%	65%	74%	88%	80%	94%	55%	60%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator) Mathematics (continued)

	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
State of	2008	80%		69%	75%	89%	83%	95%	61%	63%
Texas	2007	77%		64%	71%	87%	79%	93%	56%	58%
Huntsville	2008		84%	68%	79%	89%	82%	96%	70%	66%
(Region VI)	2007		81%	62%	75%	86%	77%	95%	65%	61%
Kilgore	2008		81%	66%	77%	87%	84%	92%	60%	63%
(Region VII)	2007		78%	62%	73%	85%	78%	92%	55%	59%
Richardson	2008		81%	69%	76%	91%	84%	96%	66%	63%
(Region X)	2007		78%	64%	71%	89%	81%	94%	61%	57%
San Antonio	2008		78%	70%	74%	90%	78%	92%	60%	62%
(Region XX)	2007		75%	67%	70%	88%	74%	91%	55%	56%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator)

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	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Special Ed.	At Risk
State of	2008	74%		61%	66%	87%	79%	90%	39%	53%
Texas	2007	66%		49%	55%	81%	72%	86%	27%	42%
Austin	2008		77%	60%	63%	89%	88%	90%	43%	54%
(Region XIII)	2007		71%	50%	53%	85%	73%	87%	30%	43%
Beaumont	2008		72%	57%	67%	80%	79%	83%	35%	52%
(Region V)	2007		65%	47%	58%	73%	76%	80%	31%	42%
Corpus Christi (Region II)	2008 2007		68% 60%	59% 50%	62% 53%	84% 79%	85% 78%	86% 83%	32% 23%	48% 38%
Fort Worth	2008		76%	58%	62%	86%	79%	86%	38%	53%
(Region XI)	2007		69%	48%	53%	81%	73%	82%	30%	44%
Houston	2008		76%	64%	69%	89%	80%	91%	42%	56%
(Region IV)	2007		67%	50%	57%	84%	75%	87%	28%	43%

TAKS Met Standard (Sum of All Grades/Standard Accountability Indicator) Science (continued)

	Year	State	Region	African American	Hispanic	White	Native American	Asian/Pacific Island	Spec. Ed.	At Risk
State of	2008	74%		61%	66%	87%	79%	90%	39%	53%
Texas	2007	66%		49%	55%	81%	72%	86%	27%	42%
Huntsville	2008		78%	55%	66%	86%	79%	91%	44%	55%
(Region VI)	2007		71%	43%	56%	80%	69%	89%	30%	45%
Kilgore	2008		74%	54%	61%	83%	81%	83%	32%	52%
(Region VII)	2007		66%	44%	52%	77%	69%	82%	23%	43%
Richardson	2008		75%	61%	66%	89%	82%	91%	44%	53%
(Region X)	2007		67%	50%	55%	84%	73%	87%	31%	42%
San Antonio	2008		74%	66%	68%	89%	71%	88%	39%	56%
(Region XX)	2007		65%	56%	58%	85%	68%	86%	27%	44%

Persistent Trends

Rigor?

Asian and White students scored closer to 100% passing than Black and Hispanic students. However, opportunity gaps exist for all, because the numbers show percentages of students passing the TAKS with approximately 70% of the items correct - not 100%.

Relevance?

Asian and White students scored higher. Black and Hispanic students generally achieved gains exceeding Asian and White students' (closing the gap). However, substantial gaps continue and are wider for Special Education and At Risk student groups (comprised of disproportionate numbers of Black and Hispanic students).

Relationships?

These educational trends reflect historical disparities among U.S. communities' health and general welfare.



What do students experience in our communities, on our campuses and in our classrooms that produce these results?

Teacher and Student Race/Ethnicity: State and Region

2007-2008		African American	Hispanic	White	Native American	Asian/Pacific Island
State of Texas	Teachers	9.6%	21.4%	67.5%	0.3%	1.2%
	Students	14.3%	47.2%	34.8%	0.3%	3.4%
Austin	Teachers	3.9%	14.9%	79.9%	0.3%	1.1%
Region XIII)	Students	9.6%	40.8%	45.6%	0.3%	3.7%
Beaumont	Teachers	17.0%	2.3%	80.0%	0.2%	0.5%
(Region V)	Students	30.1%	12.2%	54.8%	0.3%	2.6%
Corpus Christi	Teachers	2.0%	44.1%	53.2%	0.2%	0.6%
(Region II)	Students	3.6%	70.4%	24.4%	0.3%	1.3%
Fort Worth	Teachers	6.8%	6.8%	85.1%	0.4%	0.8%
(Region XI)	Students	14.4%	29.7%	50.9%	0.6%	4.4%
Houston	Teachers	20.0%	14.6%	62.7%	0.2%	2.5%
(Region IV)	Students	21.5%	44.3%	28.0%	0.2%	6.0%

Teacher and Student Race/Ethnicity: State and Region (continued)

2007-2008	African American	Hispanic	White	Native American	Asian/Pacific Island	
State of Texas	Teachers	9.6%	21.4%	67.5%	0.3%	1.2%
	Students	14.3%	47.2%	34.8%	0.3%	3.4%
Huntsville	Teachers	4.6%	5.7%	89.2%	0.2%	0.3%
(Region VI)	Students	12.8%	25.3%	59.4%	0.5%	1.9%
Kilgore	Teachers	8.6%	3.5%	87.6%	0.2%	0.1%
(Region VII)	Students	20.2%	20.6%	58.0%	0.3%	0.9%
Richardson	Teachers	16.3%	10.8%	70.8%	0.5%	1.6%
(Region X)	Students	20.4%	38.6%	35.3%	0.5%	5.2%
San Antonio	Teachers	4.7%	38.1%	56.1%	0.2%	0.8%
(Region XX)	Students	7.5%	67.6%	22.9%	0.3%	1.8%

Factors Correlated with the Black-White Achievement Gap on the NAEP

Children of Color are:

- More likely to suffer from low birth weight (health risk)
- More likely to live in poverty
- Less likely to live with both parents
- Likely to spend more hours watching TV
- Read to by their parents for fewer hours
- More likely to be absent from school.
- Less likely to attend schools offering rigorous curriculums
- Less likely to be taught by teachers with good teacher preparation
- Less likely to experience parent participation in school

Vanneman, A., Hamilton, I., Baldwin Anderson, J. and Rahman, T. (2009).

Things More Likely to be Observed on Campuses with Larger Proportions of Students of Color RUSMP Mathematics Classroom Observations, 2008-2009

- Old facilities
- Obsolete or absent technology (computers, student laptops, interactive white boards, internet access in class)
- Whistle-blowing or yelling to communicate with students
- Higher student-teacher ratios
- Students with no access to textbooks for homework
- Students off-task
- Lecture format (vs. problem-solving, discovery learning, real-world applications)
- Non-Academic English spoken by teachers and students
- Low Expectations (teachers and students)

Things More Likely to be Observed on Campuses with Smaller Proportions of Students of Color RUSMP Mathematics Classroom Observations, 2008-2009

- Well-maintained facilities
- State of the art technology (computers, student laptops, interactive white boards, internet access in class)
- Assigned textbooks and access to online textbooks
- Individual white boards
- Inviting, print-rich learning environments
- Relaxed learning environments
- Academic English spoken by teachers and students
- Teachers with inviting, accessible demeanors
- Problem-solving explorations, discovery learning, realworld applications
- Teacher and student-ownership in the learning process

"You are either a part of the SOLUTION or you're a part of the PROBLEM."

writer, activist Eldridge Cleaver - 1968

THE THREE R's

Rigor

Exposing students to challenging class work with academic and social support

Relevance Demonstrating how students can and will use their learning

Relationships Building positive, caring and supportive connections with students, parents, and communities

E. Robinson & M. Robinson, NC Raising Achievement and Closing Gaps Conference, 2007 International Center for Leadership in Education, 2008

EQUALITY

- Identical instruction
- All students have equal access to high quality teachers, instruction and educational resources

COLORBLINDNESS

- To ignore race or ethnicity
- Seen as inherent to egalitarianism and often functions to the detriment of students of color because it adheres to the larger social message, that race no longer has a role in American society.
- Individuals are not held accountable to address their views toward people of color or how those views affect their interactions.

Schofield, J. W. <u>Causes and Consequences of the Colorblind Perspective, in prejudice,</u> <u>discrimination, and Racism</u>. London: Academic, 1986, pages: 231-253.



 Includes teachers' awareness of the historical impact of social stratifications on students' academic success

 Ensures reasonable and appropriate accommodations are made to promote access and attainment for all students As a society, we must recognize that race and class are not illusions and recognize their role in our world.

Reed, R. J. & Oppong, N. "Looking Critically at Teachers' Attention to Equity in their Classrooms." <u>The Mathematics Educator 2005</u>. Monograph No.1, pages 2-15.

To truly enact change, policymakers, administrators, teachers, and parents need a deeper understanding of the ways in which race, class, and gender relate to the everyday practices of teaching and schooling.

We must expect administrators and teachers to critically examine ideas that allow them to draw deterministic conclusions about what students can and cannot do or learn.

Enactment of NCSM Recommendations

How can you help students achieve?



National Council of Supervisors of Mathematics (2008). "Improving Student Achievement by leading the Pursuit of a Vision for Equity," Improving Student Achievement Series, No. 3. <<u>www.ncsmonline.org.</u>>

Consistently Express and Monitor <u>High Expectations</u>

Your Policymakers & Educators to Develop and Enact

&

Your Children to Actively Engage:

High Expectations

- 1) A results-driven culture that addresses disparities in identity, power, achievement and access to and within the curriculum.
- 2) Opportunities for teachers to learn from those with expertise about the needs of students from all groups.
- Proactive interventions and differentiated opportunities for students that are focused on individual needs.

High Expectations (continued)

 Relevant, challenging, and contextually appropriate curriculum and pedagogical skills to inspire, motivate, and respect all students' cultures and languages.

5) A climate of high expectations and deep belief in the capabilities of each student.

High Expectations (continued)

6) Policies and practices that <u>do not</u> student limit access to collegiate study or careers that use or depend on higher-order content knowledge.

7) Assessments for and of learning that measure and monitor progress towards proficiency.



Academic Subject

Relevance

Rigor

E. Robinson & M. Robinson, NC Raising Achievement and Closing Gaps Conference, 2007 International Center for Leadership in Education, 2008

RESOURCES

International Center for Leadership in Education (2008). "Rigor/Relevance Framework." Rigor, Relevance, Relationships. <u>www.leadered.com/rr/html</u>

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Robinson, E. & Robinson, M., "Rigor, Relevance, and Relationships by Design in High School Mathematics." NC Raising Achievement and Closing Gaps Conference, March 2007.

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Vanneman, A., Hamilton, I., Baldwin Anderson, J. and Rahman, T. (2009). Achievement Gaps: How Black and White Students in Public School Perform in Mathematics and Reading on the National Assessment of Educational Progress, (NCES 2009-455). National Center for Educational Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.