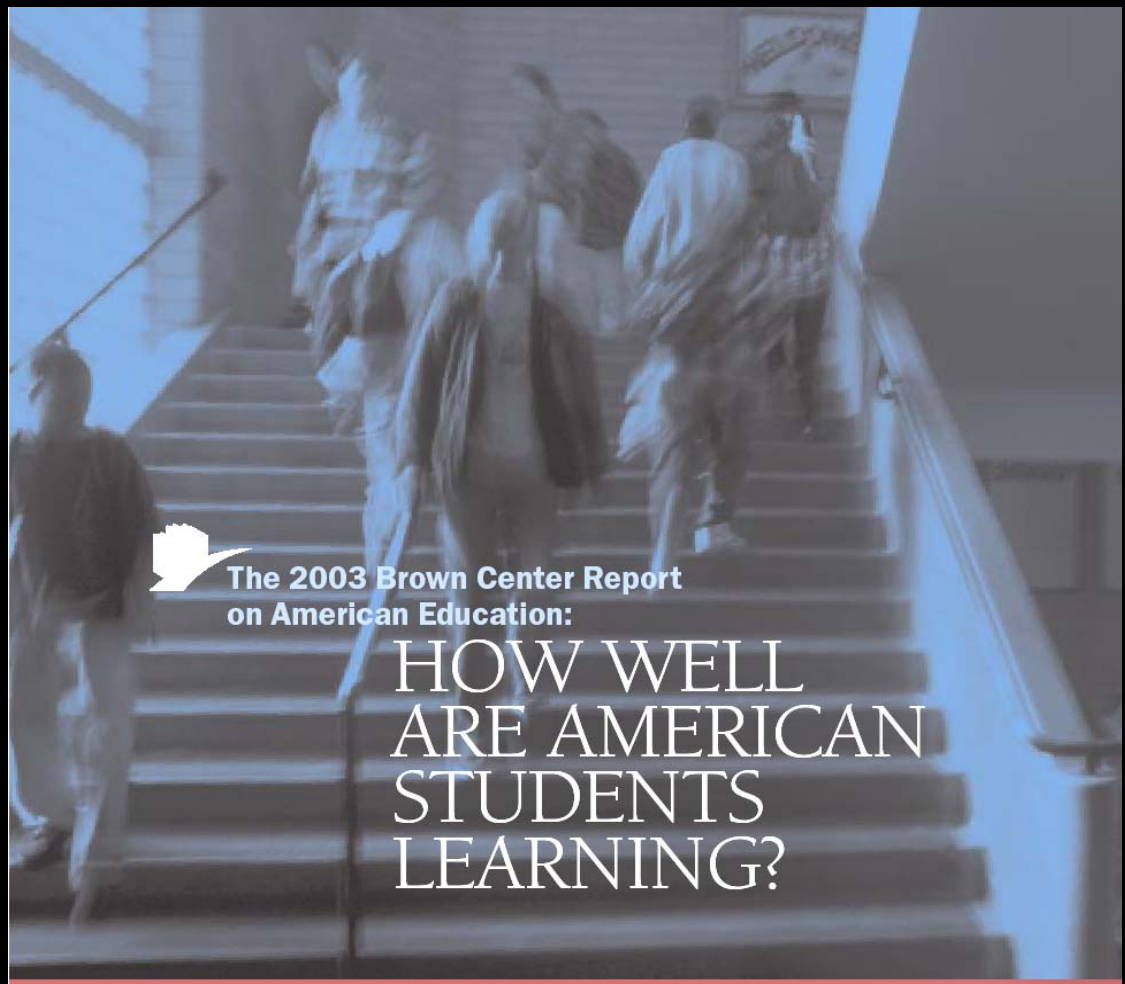


The 2003 Brown Center Report on American Education:

HOW WELL ARE AMERICAN STUDENTS LEARNING?

With special sections on homework, charter schools, and rural school achievement

THE BROOKINGS INSTITUTION

2003 BROWN CENTER REPORT OVERVIEW

- National Achievement
- Rural Schools
- Homework
- Charter Schools

Math Main NAEP Scores, 1990–2002

(average scale scores)

Table 1-1

	1990	1992	1996	2000	1990-2002 Change	Change in SD Units
Grade 4	213	220	224	228	15	.47
Grade 8	263	268	272	275	12	.33
Grade 12	294	299	304	301	7	.19

Source: Standard Deviations in 1990 were: Grade 4, 32 points; Grade 8, 36 points; Grade 12, 36 points.

As measured by the National Assessment of Educational Progress (NAEP), for grades 4, 8, and 12. NAEP data are expressed as scale scores, ranging from 0 to 500.

Reading Main NAEP Scores, 1992–2002

(average scale scores)

Table 1-2

	1992	1994	1998	2000	2002	1990-2002 Change	Change in SD Units
Grade 4	217	214	217	217	219	2	.06
Grade 8	260	260	264	*	264	4	.11
Grade 12	292	287	291	*	287	-5	-.15

Source: Standard Deviations in 1992 were: Grade 4, 36 points; Grade 8, 36 points; Grade 12, 33 points.

As measured by the National Assessment of Educational Progress (NAEP), for grades 4, 8, and 12. NAEP data are expressed as scale scores, ranging from 0 to 500.

How much is a STANDARD DEVIATION?

Average American adult woman's height:
63.7 inches

0.2 standard deviations taller =
Half an inch (maybe perceptible)

0.5 standard deviations taller =
One and a quarter inches (clear difference in height)

Source: National Center for Health Statistics: http://www.cdc.gov/nchs/about/major/nhanes/Anthropometric%20Measures.htm

Converting Z-scores to Percentile Ranks

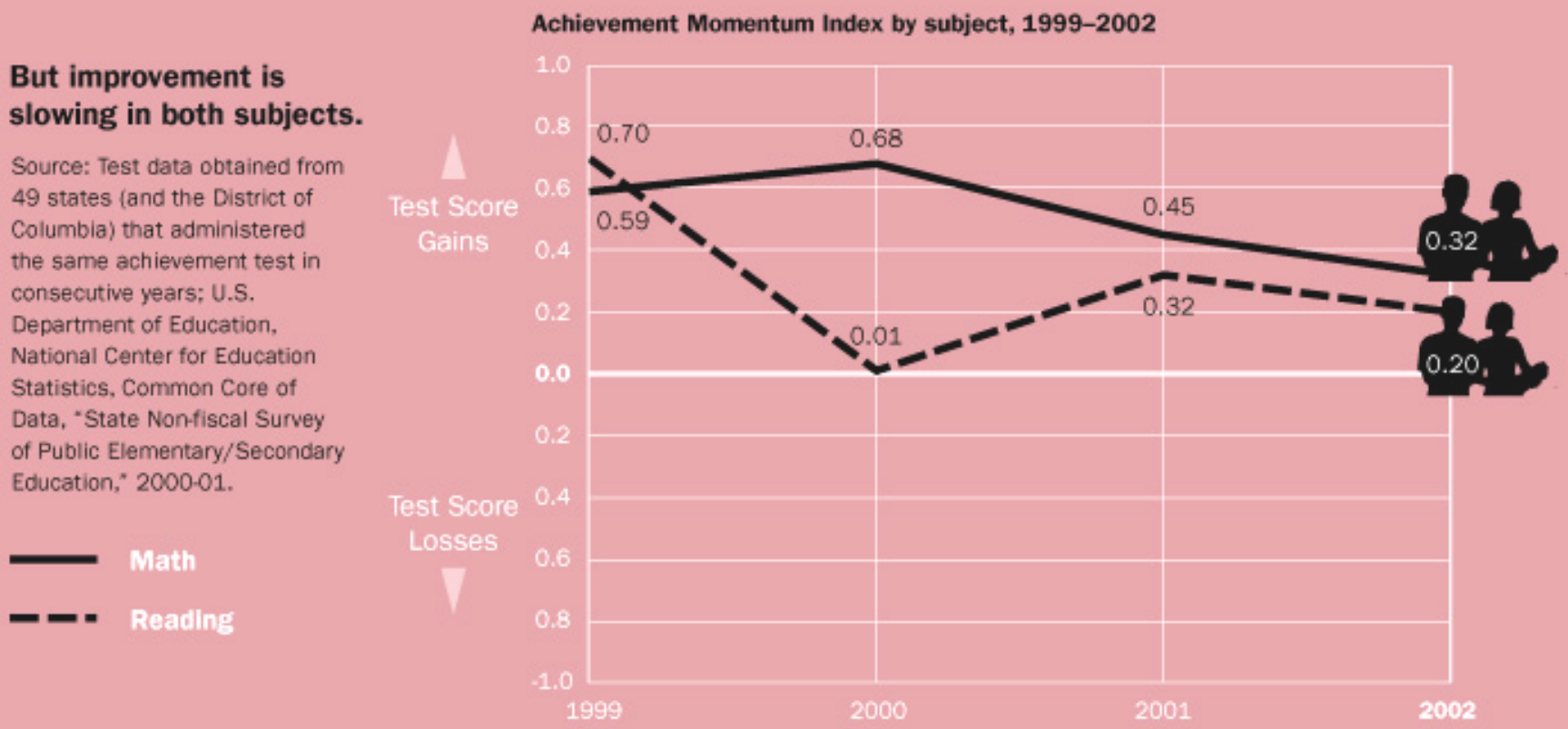
Z-score	Percentile
-1.00	16th
-0.50	31st
-0.20	42nd
0.00	50th
0.20	58th
0.50	69th
1.00	84th

State tests show math gains outpacing gains in reading…

Fig 1-1

But improvement is slowing in both subjects.

Source: Test data obtained from 49 states (and the District of Columbia) that administered the same achievement test in consecutive years; U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Non-fiscal Survey of Public Elementary/Secondary Education," 2000-01.

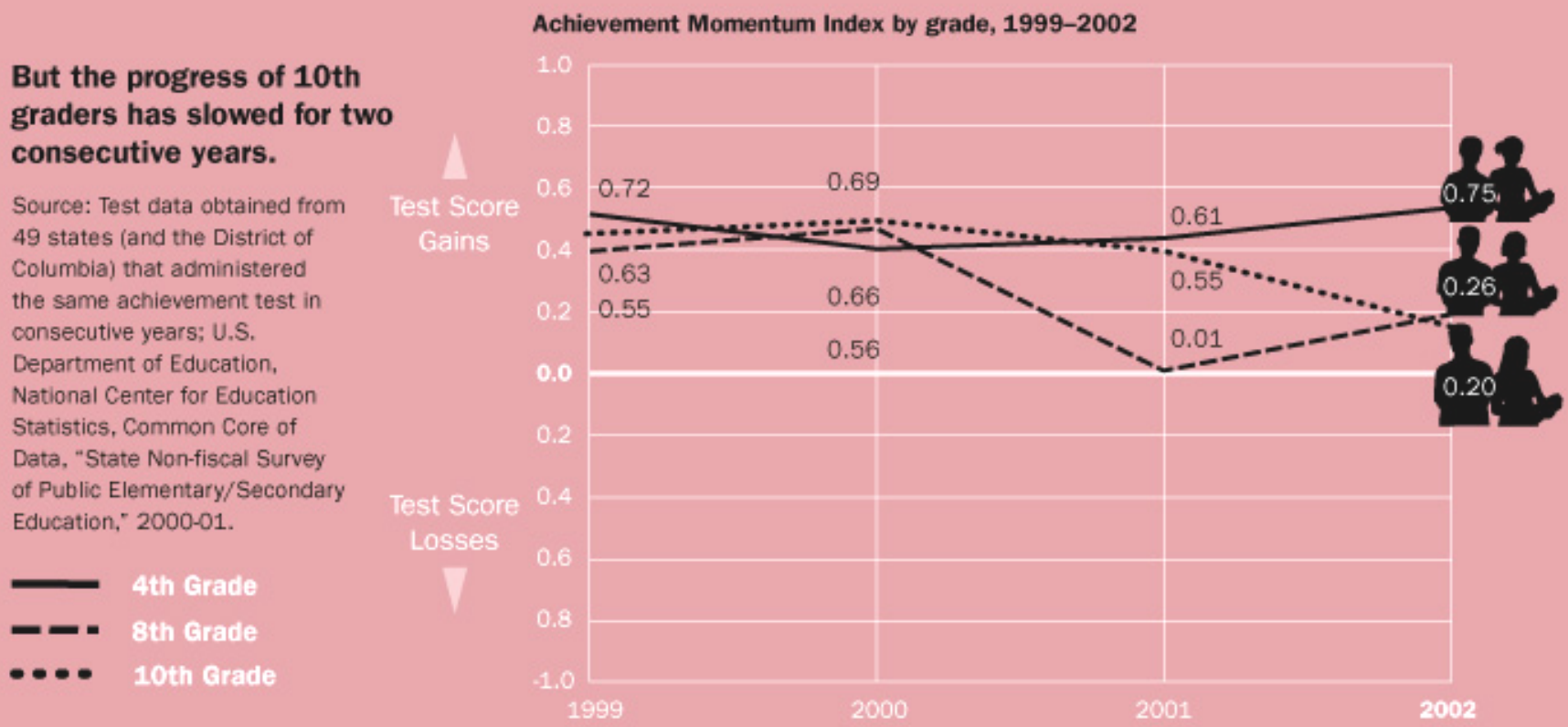


State tests show 4th graders making greater gains than older students…

Fig 1-2

But the progress of 10th graders has slowed for two consecutive years.

Source: Test data obtained from 49 states (and the District of Columbia) that administered the same achievement test in consecutive years; U.S. Department of Education, National Center for Education Statistics, Common Core of Data, "State Non-fiscal Survey of Public Elementary/Secondary Education," 2000-01.



Characteristics of Urban, Suburban, and Rural Schools

Table 1-5

	Urban	Suburban	Rural
% of Nation's Students	30	43	27
% of Nation's Schools	24	34	42
Mean School Size	663	665	392
% Free/Reduced Lunch	57	32	39
% White	37	66	80
% Black	33	13	8
% Hispanic	24	15	7
% Asian	5	5	1
% Native American	1	1	4
Per Pupil Expenditure	$6,575	$6,229	$5,734
% of Revenue from State	49	44	53

Source: National Center for Educational Statistics (NCES), "Navigating Resources for Rural Schools: Public Elementary and Secondary Students, Schools, Pupil/Teacher Ratios, and Finances, by Type of Locale: 1998 and 1999", (NCES 2001); National Center for Educational Statistics (NCES), *2002 Common Core of Data*.

Achievement and Socioeconomic Characteristics for Rural Schools (2002)

Table 1-6

	Schools		*Poverty*		*Race*		*Achievement*
State	Number of Rural Schools	% in State	% Free Lunch in Rural Schools	State Average	% Non-white in Rural Schools	State Average	Mean Z-score in Rural Schools
Arizona	464	27.3	34.1	43.3	53.6	50.3	–0.23*
California	1,106	14.4	44.3	48.1	37.1	59.8	0.11*
Colorado	615	40.1	30.8	31.2	21.5	31.6	0.20*
Florida	682	22.8	44.1	47.4	31.8	47.4	0.16*
Georgia	990	50.8	47.9	50.0	34.9	47.7	0.10*
Louisiana	620	45.0	62.5	64.0	40.8	52.1	0.05
Massachusetts	381	21.1	13.1	27.0	5.0	23.8	0.28*
Michigan	1,412	40.4	33.4	36.6	7.8	25.5	0.19*
Minnesota	833	51.7	32.4	31.4	8.8	17.9	–0.07
North Carolina	1,215	56.6	46.1	45.2	35.1	41.4	0.06
Pennsylvania	1,267	40.3	25.9	29.9	4.6	20.6	0.16*
South Carolina	573	54.5	59.6	54.9	49.9	48.3	–0.21*
Texas	2,344	34.9	47.0	48.1	39.5	55.5	0.16*
Wisconsin	1,103	54.1	25.1	28.2	6.0	17.4	0.20*

* $\rho < .05$, two-tailed test of z-score = 0

NOTE: Arizona's poverty data are from 2001. Test scores collected from each state's department of education.

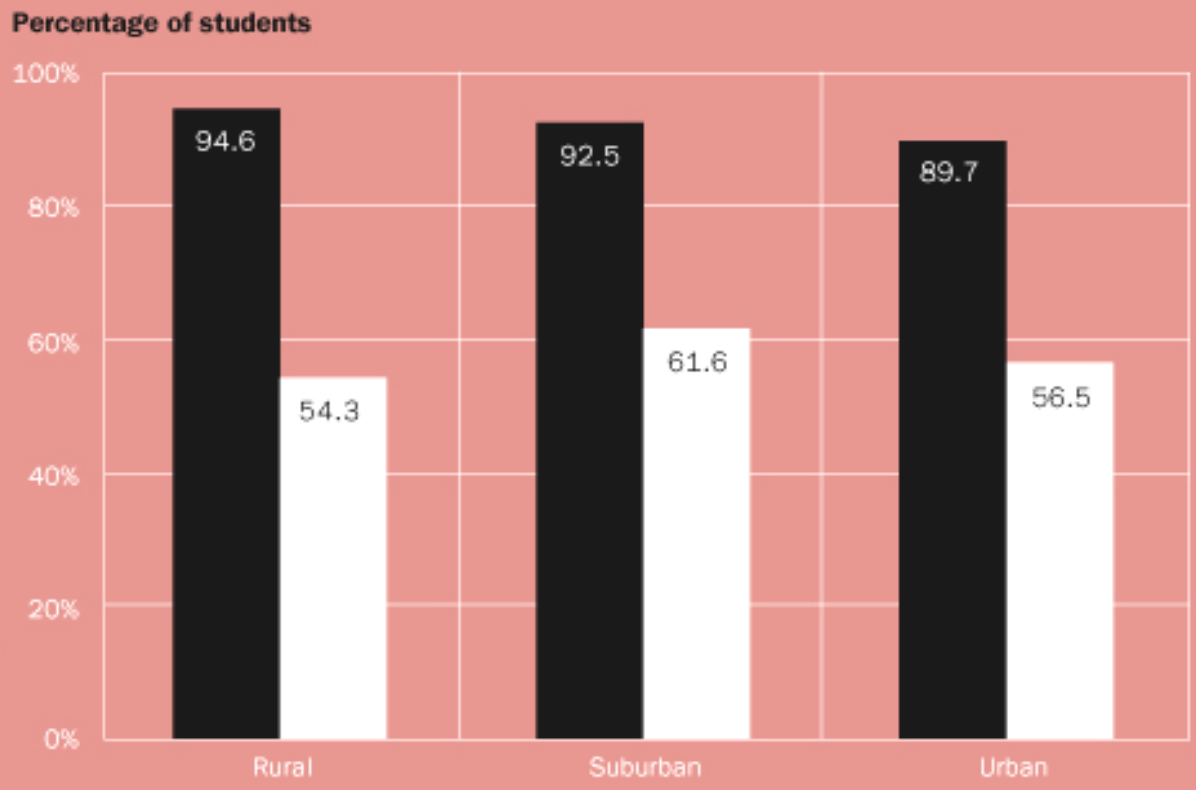
Source: Demographic data from the National Center for Educational Statistics (NCES), *2002 Common Core of Data*.

Rural 12th graders graduate from high schools in large numbers...

Fig 1-4

But they are under-represented among college applicants.

Source: Data obtained from the NCES website "Navigating Resources for Rural Schools": http://nces.ed.gov/surveys/ruraled



Homework Study Conclusions

- The typical student, even in high school, does not spend more than an hour per day on homework.
- The homework load has not changed much since the 1980s.
- Students whose homework increased in the last decade are are those who previously had no homework and now have a small amount.
- Most parents feel the homework load is about right.

Recommendations

- Take anti-homework articles with a grain of salt.
- Follow the PTA guidelines on homework.
- Understand that homework varies.
- If a homework problem exists, solutions should come from parents and teachers, not policy interventions.

Charter School Achievement

(scores expressed as adjusted z-scores, N=569)

Table 3-1

	2000	2001	2002	2000-2002 Z-score Gain
Z-score	-0.53*	-0.40*	-0.31*	+0.22*
	(0.05)	(0.05)	(0.05)	(0.04)

* $\rho < .05$, two-tailed test of z-score = 0

NOTE: Z-scores adjusted for poverty and racial composition. Standard error in parentheses.

Number of Failing Charter Schools
(July 2003)

Table 3-2

	Charter Schools			*All Public Schools*		
State	Schools in Study	Number Failing	Percent Failing	Schools in State	Number Failing	Percent Failing
Arizona	71	8	11.2%	1,489	346	23.2%
California	132	69	52.2%	8,238	3,715	45.1%
Colorado	51	1	2.0%	1,516	86	5.7%
Florida	59	0	0.0%	2,616	10	0.3%
Massachusetts	26	9	34.6%	1,858	209	11.2%
Michigan	111	13	11.7%	3,512	121	3.4%
Minnesota	21	7	33.3%	1,969	265	13.4%
Pennsylvania	32	25	78.1%	3,172	1,279	40.3%
Texas	48	6	12.5%	6,894	1,000	14.5%
Wisconsin	18	2	11.1%	2,065	72	3.5%
Total	569	140	24.6%	33,329	7,103	21.3%

NOTE: Each state has its own criteria, based on individual state tests, for determining whether or not a school is failing.

Source: Data compiled from respective state Department of Education websites.

This table was originally presented in Tom Loveless, "Charter School Achievement and Accountability" in Paul Peterson and Martin West (eds.), *No Child Left Behind? The Politics and Practice of Accountability*, Washington, DC: Brookings Institution Press, (forthcoming).

Characteristics of California Conversion Charter Schools
(2002)

Table 3-3

	Conversion Charters (N=66)	Start-up Charters (N=66)	California Regular Public Schools (N=6,623)
Enrollment (median)	633	234	669
Poverty	58%	42%	49%
White	33%	57%	38%
Black	19%	13%	8%
Hispanic	41%	23%	41%
Asian	6%	4%	11%
Urban	55%	40%	34%
Suburban	36%	38%	55%
Rural	8%	22%	12%

NOTE: Mean enrollments: Conversion = 746, Start-up = 487, CA Regular Public School = 837

California Charter School Achievement

(scores expressed as adjusted z-scores)

Table 3-4

	2000	2001	2002	2000-2002 Z-score Gain
Regular Public Schools (N=6,623)	0.00 (.01)	0.00 (.01)	0.00 (.01)	0.00 (.01)
All Charters (N=132)	–0.08 (.07)	–0.07 (.07)	–0.10 (.08)	–0.02 (.06)
Conversion Charters (N=66)	0.24* (.08)	0.24* (.07)	0.20* (.08)	–0.04 (.07)
Start-up Charters (N=66)	–0.39* (.11)	–0.39* (.12)	–0.40* (.12)	–0.01 (.08)

* $p < .05$, two-tailed test of z-score = 0

NOTE: Conversion charter scores are statistically significantly different ($p < .05$) from start-up charter scores in all years. Z-scores adjusted for poverty and racial competition. Standard error in parentheses.

California Charter School Achievement

(scores expressed as unadjusted national percentile ranks)

Table 3-5

	2000	2001	2002	2000-2002 NPR Gain
Regular Public Schools (N=6,623)	49.2 (0.2)	51.2 (0.2)	52.7 (0.2)	+3.5 (0.1)
All Charters (N=132)	46.5 (1.7)	48.9 (1.7)	50.1 (1.7)	+3.6 (0.9)
Conversion Charters (N=66)	46.3 (2.5)	48.6 (2.5)	50.2 (2.4)	+3.9 (1.3)
Start-up Charters (N=66)	46.7 (2.3)	49.1 (2.3)	50.0 (2.3)	+3.3 (1.3)

NOTE: SAT-9 scores used to measure achievement. Standard error in parentheses.

Characteristics of EMO Charter Schools
(2002)

Table 3-6

	EMO (N=90)	Non-EMO (N=479)	Regular Public School (N=25,614)
Enrollment (median)	498	248	546
Poverty	53%	47%	42%
White	43%	51%	57%
Black	41%	25%	12%
Hispanic	14%	19%	25%
Asian	1%	3%	5%
Urban	45%	52%	30%
Suburban	41%	33%	40%
Rural	15%	15%	29%

NOTE: Mean enrollments are: EMO = 507, Non-EMO = 369, Regular Public School = 664

EMO Charter Achievement

(scores expressed as adjusted z-scores)

Table 3-7

	2000	2001	2002	2000-2002 Z-score Gain
Regular Public Schools (N=25,614)	0.01 (.01)	0.01 (.01)	0.01 (.01)	0.00 (.01)
All Charters (N=569)	–0.53* (.05)	–0.40* (.05)	–0.31* (.05)	+0.22* (.04)
EMO Charter (N=90)	–1.00* (.10)	–0.69* (.09)	–0.58* (.08)	+0.41* (.08)
Non-EMO Charter (N=479)	–0.44* (.06)	–0.35* (.06)	–0.26* (.05)	+0.18* (.05)

* $p < .05$, two-tailed test of z-score = 0

NOTE: Z-scores adjusted for poverty and racial composition. Standard error in parentheses.

2003 BROWN CENTER REPORT CONCLUSIONS

- **National achievement is rising, but at a slower pace than recently. Gains in math exceed those in reading. Younger students are showing more improvement than older students.**

- **Test scores indicate that rural schools are doing better than the average school. Despite this fact, rural students are applying to college at a lower rate when compared to urban and suburban students.**

- **Students are not overburdened with homework, and the homework load has not changed much in the past twenty years. Most parents are satisfied with the current level of homework.**

- **Expertise may contribute to a charter school's academic achievement. In California, conversion charters perform as well as start-up charters, despite serving a greater proportion of urban, poor, and non-white children. Nationally, charters managed by EMOs have made significantly greater gains than non-EMO charter schools.**