



The 2007 Brown Center Report  
on American Education:

# HOW WELL ARE AMERICAN STUDENTS LEARNING?

*With sections on the nation's  
achievement, the mysteries of  
private school enrollment, and  
the impact of time on learning*

**BROOKINGS**

Part

I

# THE NATION'S ACHIEVEMENT



# The NAEP math test shows dramatic gains.

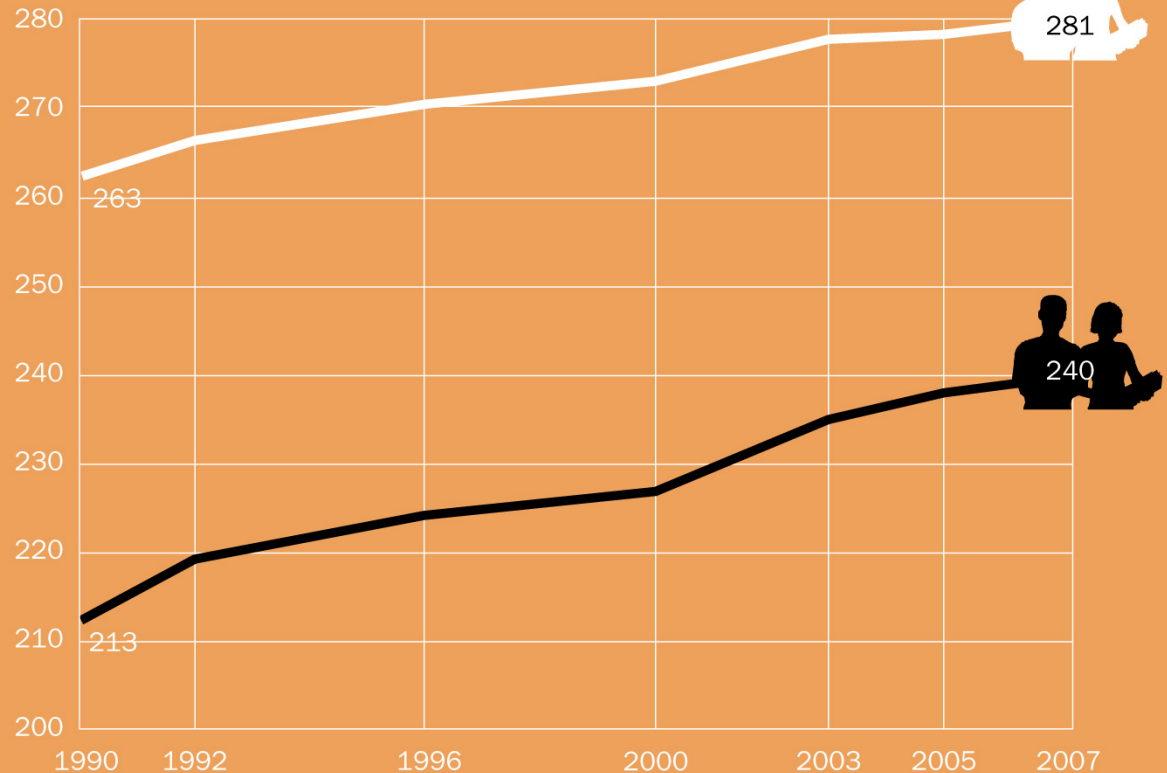
Fig  
**1-1**

**The scale score gains at both grade levels are equivalent to more than 2 years of learning**

Source: NAEP data explorer,  
<http://nces.ed.gov/nationsreportcard/nde/>

— 8th Grade  
— 4th Grade

**Math NAEP Scores**



**Math scores have been steadily increasing since 1990.**

**Table**

**1-1**

	1990	1992	1996	2000	2003	2005	2007	1990-2007 Change	Change in Years of Learning
<b>Grade 4</b>	<b>213</b>	<b>220</b>	<b>224</b>	<b>226</b>	<b>235</b>	<b>238</b>	<b>240</b>	<b>+27</b>	<b>2.2</b>
<b>Grade 8</b>	<b>263</b>	<b>268</b>	<b>270</b>	<b>273</b>	<b>278</b>	<b>279</b>	<b>281</b>	<b>+18</b>	<b>2.3</b>

Years of learning based on 1990 score differences. Grade 4: 1 year equals 1/4th the difference between 4th and 8th grades (12.5 scale score points). Grade 8: 1 year equals 1/4th the difference between 8th and 12th grades (7.75 scale score points).

NOTE: Beginning with 1996, scores reported here include students who required special accommodations to take the NAEP

Source: NAEP data explorer, <http://nces.ed.gov/nationsreportcard/nde/>

# Fourth graders have made progress in reading since 2000.

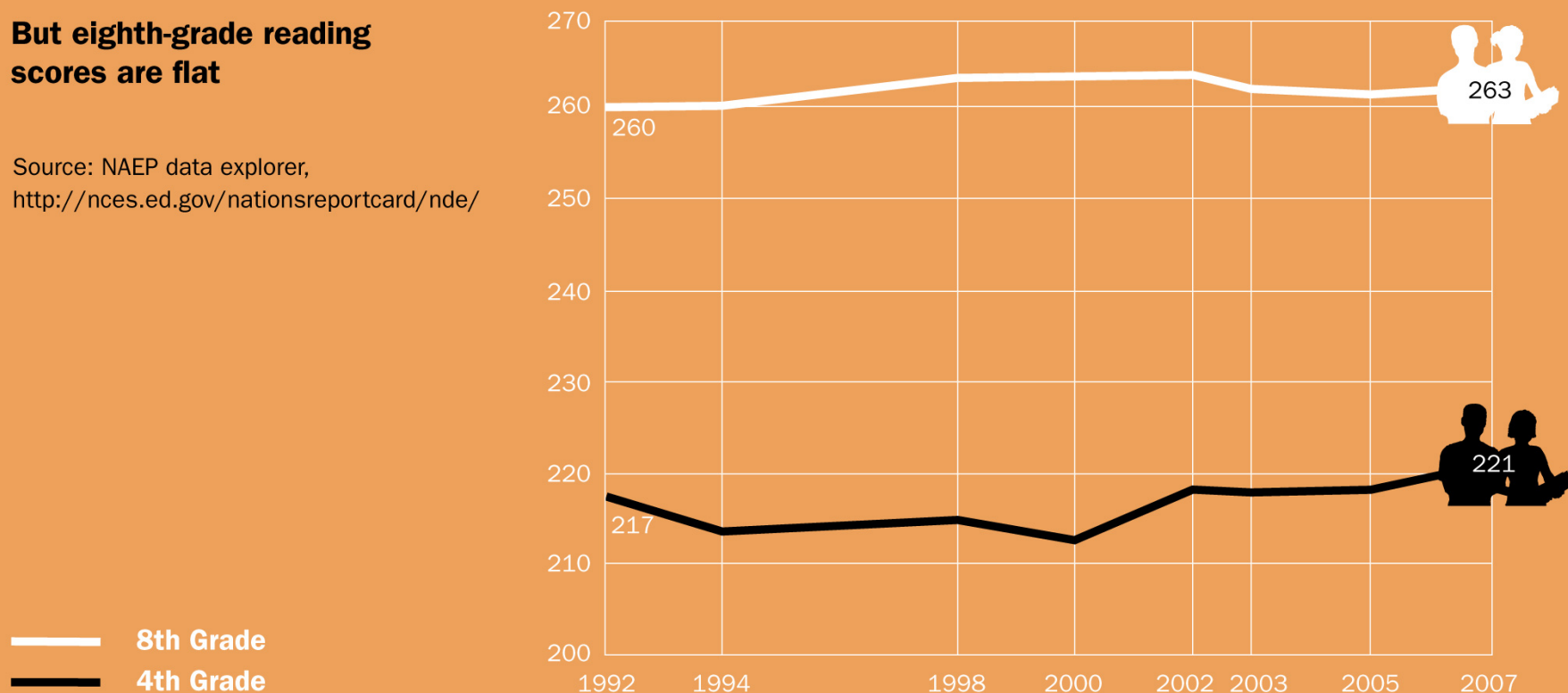
Fig

1-2

**But eighth-grade reading scores are flat**

Source: NAEP data explorer,  
<http://nces.ed.gov/nationsreportcard/nde/>

Reading NAEP Scores



## Reading scores ticked up between 2005 and 2007.

Table

**1-2**

	1992	1994	1998	2000	2002	2003	2005	2007	1992-2005 Change	Change in Years of Learning
Grade 4	217	214	215	213	219	218	219	221	+4	.4
Grade 8	260	260	263	—	264	263	262	263	+3	.4

Years of learning based on 1992 score differences. Grade 4: 1 year equals 1/4th the difference between 4th and 8th grades (10.75 scale score points). Grade 8: 1 year equals 1/4th the difference between 8th and 12th grades (8.0 scale score points).

NOTE: Beginning with 1998, scores reported here include students who required special accommodations to take the NAEP.

Source: NAEP data explorer, <http://nces.ed.gov/nationsreportcard/nde/>



**Progress in reading is  
deteriorating between  
4th and 8th grades.**

**Table**

**1-3**

<b>Cohort</b>	<b>Score Gain</b>
<b>1994-1998</b>	<b>+49</b>
<b>1998-2002</b>	<b>+49</b>
<b>2003-2007</b>	<b>+45</b>

Author's calculations from NAEP reading data.

Source: NAEP data explorer,  
<http://nces.ed.gov/nationsreportcard/nde/>

## Even high achieving nations would not be “advanced” on NAEP

(basic = 469, proficient = 556, advanced = 637)

Table

1-4

Nation	Mean	Level of Nation's Mean
Singapore	605	Proficient
Korea, Rep. of	589	Proficient
Hong Kong, SAR	586	Proficient
Chinese Taipei	585	Proficient
Japan	570	Proficient
United States	504	Basic

Source: Revised version of table 11 from Gary W. Phillips, Linking NAEP Achievement Levels to TIMSS, Washington: American Institutes for Research.



**Worldwide, NAEP  
proficiency standards  
leave a lot of children  
behind.**

**Table**

**1-5**

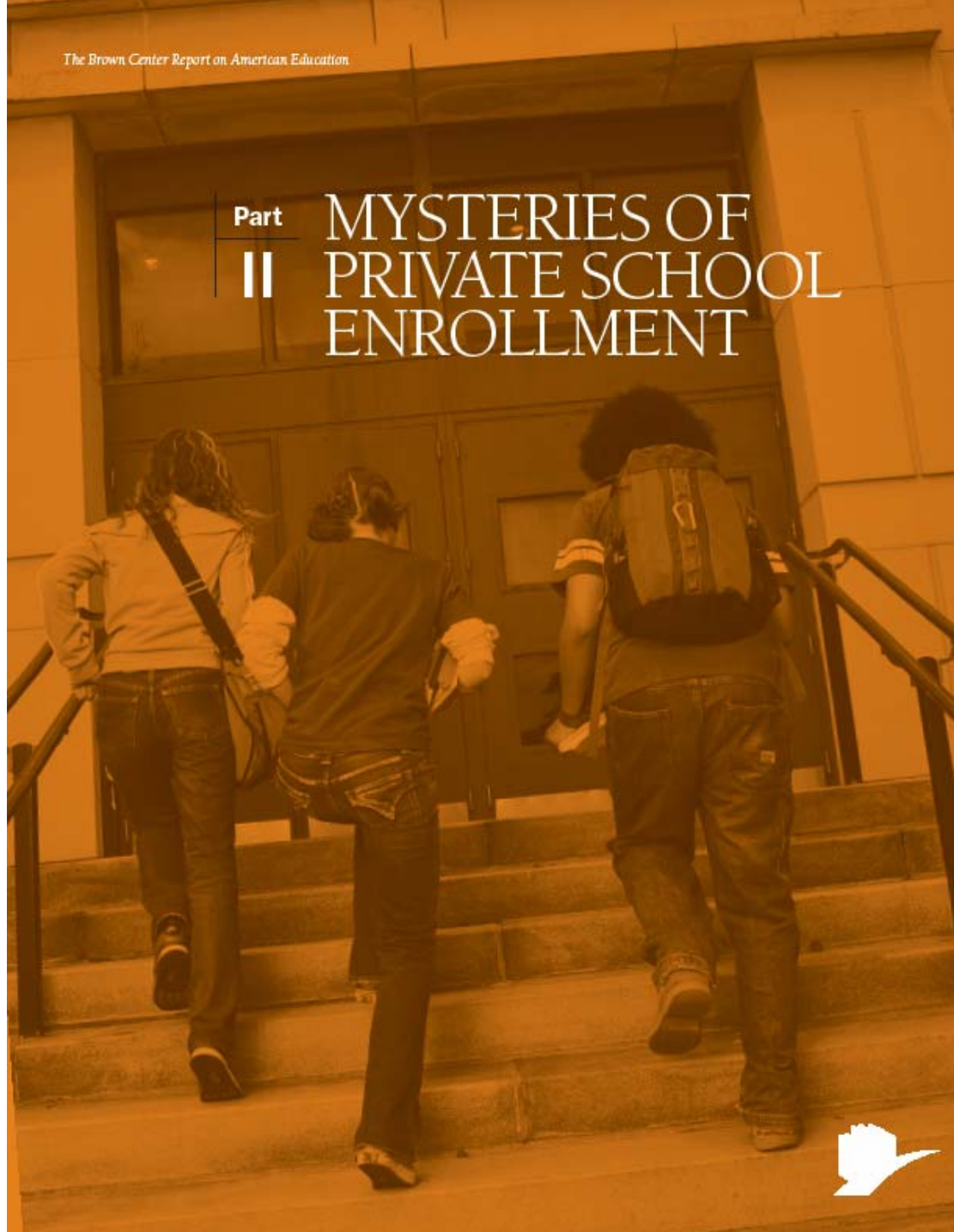
<b>Nation</b>	<b>Percent at or above Proficient</b>
<b>Singapore</b>	<b>73</b>
<b>Hong Kong, SAR</b>	<b>66</b>
<b>Korea, Rep. of</b>	<b>65</b>
<b>Chinese Taipei</b>	<b>61</b>
<b>Japan</b>	<b>57</b>
<b>Belgium (Flemish)</b>	<b>40</b>
<b>United States</b>	<b>26</b>
<b>Israel</b>	<b>24</b>
<b>England</b>	<b>22</b>
<b>Scotland</b>	<b>22</b>
<b>Italy</b>	<b>17</b>
<b>Norway</b>	<b>9</b>
<b>Morocco</b>	<b>1</b>
<b>Botswana</b>	<b>0</b>
<b>Saudi Arabia</b>	<b>0</b>
<b>Ghana</b>	<b>0</b>
<b>South Africa</b>	<b>0</b>

Source: Revised version of table 10  
from Gary W. Phillips, Linking NAEP  
Achievement Levels to TIMSS,  
Washington: American Institutes  
for Research.

Part

II

# MYSTERIES OF PRIVATE SCHOOL ENROLLMENT



## School enrollment of 14-17 year olds, 1890-2000

(Percentage of students by sector and decade)

Table

2-1

Year	Overall	Public	Private
1890	5.6	3.8	1.8
1900	10.2	8.4	1.8
1910	14.3	12.7	1.6
1920	31.2	28.4	2.8
1930	50.7	47.1	3.7
1940	72.6	67.9	4.7
1950	76.1	68.1	8.0
1960	83.4	74.1	9.3
1970	92.2	83.8	8.4
1980	89.8	82.0	7.8
1990	92.5	84.1	8.3
2000	91.2	83.5	7.7

NOTE: Dates refer to spring semester, e.g., 1890 is fall 1889.

NOTE: In fall 2004 8.0% and 86.9% went to private and public schools respectively.

Source: Author's calculations from Table 52 in the 2006 Digest of Education Statistics.

## Elementary and secondary enrollment, 1890-2000

(Percentage of students by sector and decade)

Table

2-2

Year	Elementary		Secondary	
	Private	Public	Private	Public
1890	10.8	89.2	31.9	68.1
1900	7.6	92.4	17.6	82.4
1910	7.9	92.1	11.4	88.6
1920	7.1	92.9	8.9	91.1
1930	9.8	90.2	7.2	92.8
1940	10.3	89.7	6.5	93.5
1950	12.3	87.7	10.5	89.5
1960	14.7	85.3	11.1	88.9
1970	11.4	88.6	9.1	90.9
1980	11.7	88.3	8.7	91.3
1990	13.3	86.7	9.0	91.0
2000	12.5	87.5	8.4	91.6

NOTE: Dates refer to spring semester, e.g., 1890 is fall 1889.

NOTE: For elementary students in fall 2004 12.3% and 87.7% went to private and public schools respectively. For secondary students the corresponding percentages were 8.4% and 91.6%.

Source: Author's calculations from Table 3 in the 2006 Digest of Education Statistics.

## Cohort enrollment statistics, 8th-12th grades

(Percentage of students by sector)

Table

2-3

Cohort Base Year	8th-10th		10th-12th		8th-12th	
	Private	Public	Private	Public	Private	Public
1990	86.7	102.2	86.3	83.1	74.8	85.0
1992	82.2	101.0	90.0	81.5	74.0	82.4
1994	87.0	99.6	87.4	82.6	76.0	82.3
1996	85.2	100.6	91.6	82.4	78.1	82.9
1998	86.8	100.0	93.6	83.8	81.3	83.8
2000	90.2	100.9	91.1	86.4	82.2	87.1

Source: Public school enrollment: author's calculations from table 36 in the 2006 Digest of Education Statistics. Spring 1990 figure from table 42 in the 1995 Digest of Education Statistics. Private school enrollment: author's calculations from tables 10-13 of Private School Universe Survey years 1989–2004.



Part

III

# DOES MORE TIME MEAN MORE LEARNING?





## Pearson correlation coefficients for cross-sectional test scores and time variables

(eighth-grade TIMSS scores)

Table

3-1

	1995 Coefficient	2003 Coefficient
Instruction (I)	0.05	-0.20
Homework (H)	-0.22	-0.28
I+H	-0.18	-0.28

Source: 1995 and 2003 TIMSS reports and userguides.  
See endnotes for a complete list of sources.

**Pearson correlation coefficients for changes in test scores  
and time variables.**

**Table**  
**3-2**

	Correlation coefficient
Instruction (I)	0.42 *
Homework (H)	-0.06
I+H	0.27

\*p<.10

NOTE: Time variables analyzed in units of minutes per year

Source: 1995 and 2003 TIMSS reports and userguides.  
See endnotes for a complete list of sources.

**A scatterplot of the data shows a positive relationship between changes in yearly instruction and achievement (1995–2003).**

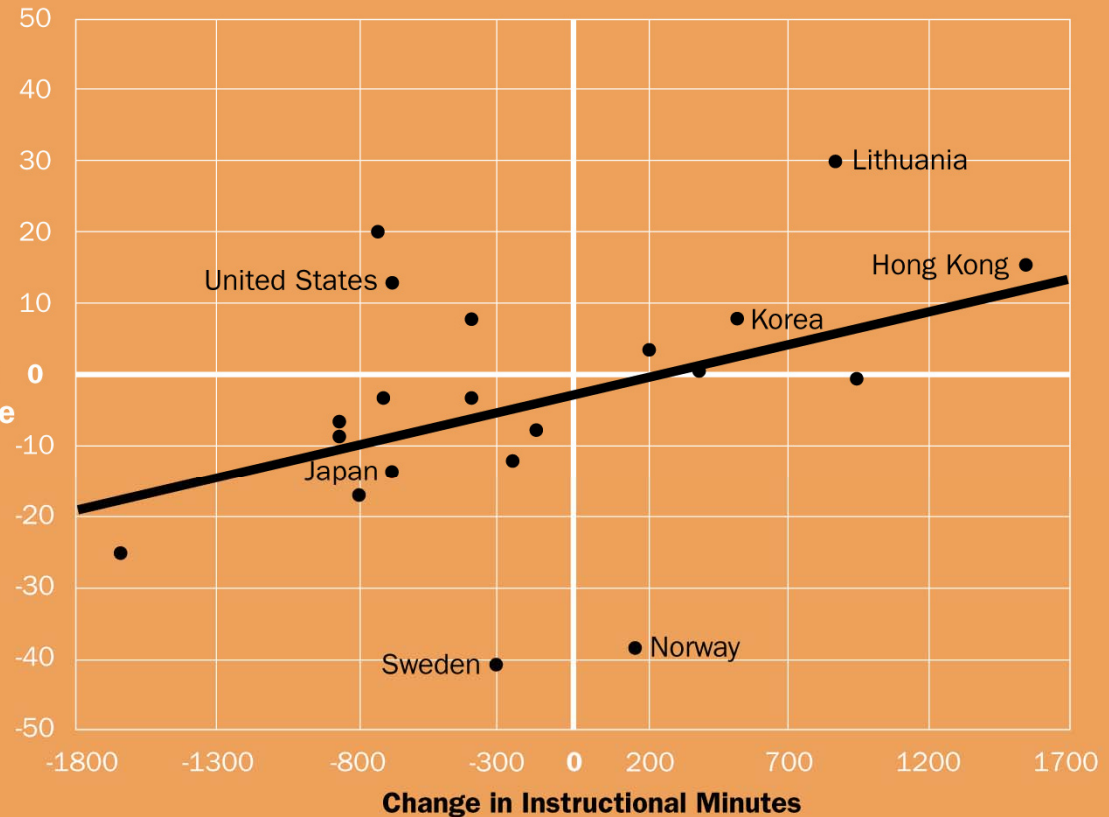
Fig

**3-1**

**Most countries that added instructional time increased their math scores.**

Source: 1995 and 2003 TIMSS reports and userguides.  
See endnotes for a complete list of sources.

Change in  
8th Grade  
TIMSS Score



**Eighth grade TIMSS scorecard**

**Table**  
**3-3**

	<b>TIMSS score went up</b>	<b>TIMSS score went down</b>
<b>Increased instructional minutes</b>	<b>5 countries</b>	<b>2 countries</b>
<b>Decreased instructional minutes</b>	<b>3 countries</b>	<b>10 countries</b>

Source: 1995 and 2003 TIMSS reports and userguides.  
See endnotes for a complete list of sources.

**The effect of adding  
1800 minutes of  
math instruction to  
the school year**

**Table**

**3-4**

<b>Increase in Instruction</b>	<b>Gain in TIMSS Score</b>
<b>10 minutes per day</b>	<b>19.0 points</b>
<b>40 days per year</b>	<b>8.5 points</b>

NOTE: results of regression of change in TIMSS score on change in time variables.

Source: 1995 and 2003 TIMSS reports and userguides.  
See endnotes for a complete list of sources.