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Introduction:

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P R O C E E D I N G S

MR. NIVOLA: Good morning everybody.

Welcome to Brookings this morning. I'm Pietro Nivola, the Director of Governance Studies, in which the Brown Center on Education Policy is situated here at Brookings.

The Brown Center was started in 1992, with a generous grant from the Brown Foundation in Houston. And it's mainly dedicated to figuring out how to improve academic achievement at the elementary and secondary levels of the U.S. educational system.

We hope to extend this mission in the years ahead to certain aspects of higher ed, some of which is becoming, as I'm sure many of you suspect, a kind of remedial high school. But that's for another day.

Today we're going to be unveiling the 2007 Brown Center Report. This is the seventh edition of this excellent report. And this one will have three foci.

First, it reviews the 2007 math and reading test scores for fourth and eight graders as measured by the National Assessment of Education Progress -- the NAEP Test, which is the supposed gold standard for proficiency standards.

Another part of the report examines enrollment patterns in private schools, which has been declining over the past half century, especially in the transition to high schools.

Perhaps the most intriguing part of this year's report, though, is an analysis of whether more time spent in the classroom and doing homework actually pays off in terms of math achievement. As many of you may know, previous research on this question using international and cross-sectional data found little or no relationship between the time spent doing homework and in the classroom, and the results.

Tom Loveless looks at eighth graders at two points in time -- 1995 and the year 2003 -- and gets rather different results in his analysis.

So, with that, let me turn things over to the Director of the Brown Center, Tom Loveless.

Thank you.

MR. LOVELESS: Thank you, Pietro.

This is the longest room that exists on the planet.

(Laughter.)

And everyone sits all the way in the back, so it makes it a lot of fun.

The Brown Center Report, as many of you may know -- this is our seventh edition, and the way it's organized, it has three sections. These three sections are not meant to cohere into a single argument. They're really three separate studies, although this year they do have something in common, and I'll talk about that in a sec.

But essentially the first section looks at the latest achievement data and answers the kind of main question about how well are students learning, and we focus on math and reading.

The second section is a thematic section. This year it's on the private school enrollment.

And the third section has something to do with policy. We take a question up that has to do with policy relevance. And, as Pietro mentioned, this year it's on "time," and the correlation between time and achievement which, oddly enough, using international data in the past 50 years, researchers have not been able to find any relationship between the amount of time the kids actually study math in classrooms and then their subsequent achievement -- on a national basis.

We came up with a different finding that's a little more positive and a little more intuitive, as opposed to counterintuitive.

So let's get started.

(Slide.)

With Section One, it began -- and you can follow along. These are pretty much in the order of the hard copy that you have. In Section One we take a look at NAEP scores and place them in historical context. The NAEP, the National NAEP, or "main NAEP" as it's called, was started in 1990.

(Slide.)

This is the graph of eighth grade scores and fourth grader scores. You see just tremendous progress on the NAEP, and this has been continuing. This has been one of the main headlines of NAEP since its inception: large increases in math. These two gains, if you go back to 1990, this is kind of a ballpark figure here, in terms of change in years of learning, both at the fourth and eighth grade, over two years in learning.

(Slide.)

In reading, the scores have been more stable, but there has been a development in the last couple of administrations of NAEP. But the fourth grade level there's been some growth down here. It may be hidden by the podium. But at the eighth grade level, they've remained fairly stable. They just really haven't budged very much.

There's another pattern you can barely see in this particular graph. It's the scaling that doesn't allow you to really see it.

But eighth graders did make some gains in the 90s. A slight gain here, and then it's been completely flat since the late '90s, since '98.

Whereas fourth graders actually declined a little in the '90s -- down here, and then have gained a few points since 2000.

And the reason why that's important -- let me skip ahead here —

(Slide.)

-- there's the gain in reading, by the way, in terms of this "years of learning" metric. It's only about .4 years -- less than a half-year -- at both the eighth and fourth grade levels since the beginning of the reading test in 1992.

But the point I want to make is if you take this combination of the fact that fourth graders really only have made their gains since 2000, and eighth graders have not, you see a slippage, if you create these sort of pseudo-cohort. And let me explain what I mean by that.

If you take the fourth graders' score, (inaudible) this first one that I did was fourth graders in 1994, and then four years later, in 1998, you ask the question, "Well, how are eighth graders doing now?" So they were fourth graders in '94 and then in '98 you have an eighth grade class. And you can roughly situate these on a common scale on NAEP. So they gained about 49 NAEP points, the '94 to '98 cohort.

The next cohort you can do this same examination with is the ‘98 to 2002 cohort. They gained about 49 scale score points.

But the (inaudible) you see some slippage. They only gained 45 points. So this is kind of a cautionary signal that we might be seeing some deterioration between fourth and eighth grade, in terms of reading, most recently.

And, of course, one key aspect of this is that these are the key No Child Left Behind years -- right? Fourth through eighth are all NCLB years. And yet this latest cohort, the 2003 to 2007 cohort, spent those years under No Child Left Behind. It was being implemented. And yet we’re seeing this slippage in reading.

Now, I’m not going to attribute this slippage to No Child Left Behind, just as if they went up four points I wouldn’t be saying, “Oh, that’s because of No Child Left Behind.”

But I do think a good explanation has to do, actually, with the status of research on reading. And that is that we know much more about how to teach kids how to read before fourth grade than we do after fourth grade. Our best science on the reading acquisition -- the acquisition of reading skills is on beginning reading. And we have some very good work on that. We know how kids learn how to decode. We know the elements that go into learning how to decode.

But it's when we get to comprehension and interpretation of what we've read where the science gets actually shakier. And so the grades after grade four are much less informed by good solid research than the grades before fourth grade. And I think that's a more compelling explanation than attributing it to any policy intervention, including No Child Left Behind.

(Slide.)

Now the second part of Section One looks at NAEP proficiency levels. And NAEP proficiency levels are in the headlines all the time. In the last couple of years, mainly it's been with several researchers -- not myself, but several researchers questioning whether states are racing to the bottom because of No Child Left Behind.

The states routinely report many, many more kids at "proficient" -- this is a level, this is a performance level called "proficiency." The states routinely report more kids performing at a proficient level in both reading and math than the Federal government does on NAEP.

Now, I've criticized the NAEP proficiency levels before. I've criticized the test. But this is -- what I did in this particular analysis was take a study by Gary Phillips at the American Institutes of Research, and reinterpret some of his data.

Now, what Phillips did was he took countries around the world -- there's a test called TIMSS, which is an international test -- and he took the eighth grade TIMSS data and he mapped the TIMSS scores on the NAEP. And he asked the question: "How would countries around the world score, in terms of proficiency, if the kids in those countries took NAEP?" That's basically what the question was.

And here's what he found about some of the highest scoring countries in the world.

(Slide.)

Here are the top five countries in the world, and then the United States. You can see that Singapore, here's its mean score, average score, 605. That would only be at the "proficient" level. So the highest scoring country in the world on the eighth grade NAEP would only, its average kid would only be "proficient," would not be "advanced." There's another level above "proficient" called "advanced."

And you can see the other countries, too, with the U.S. at 504, that actually only scores at what's called the "basic" level on the NAEP.

The levels on NAEP are "advanced," at the very top, "proficient," "basic," and then anything that's below the cutoff or threshold for "basic" is known as "below basic."

(Slide.)

Now, another way of taking a look at this same data is to ask the question: "What percentage of kids in each country would score at "proficient?" Don't forget that No Child Left Behind requires the states and local districts to get 100 percent of children to proficiency.

So the question here is: well, we know we have some very high achieving nations around the world, how would their kids do, in terms of the percentage of kids who would hit that No Child Left Behind stipulation?

And you can see that Singapore would have about 73 percent of its kids at "proficient." So 27 percent would be scoring below "proficient."

By the way, our language and our public discourse in terms of the use of the word "proficiency" has changed.

When NAGDE first created these levels in the early '90s, proficiency was thought of essentially as a student who knows materials at grade level not -- you know, is no great scholar (inaudible), but has a good solid foundation in sort of grade-level material. And I'm giving you my own definition of what they thought. But that's basically, if you read all the materials, that's what they defined "proficiency" as.

That has changed. And if you read both journalistic accounts, and also researchers' studies of NCLB today, what you often hear is that any child who doesn't score at "proficiency" is "failing." I

mean, that's really the way the press handles proficiency rates now -- that if you don't score "proficient," you're failing.

Well, what this means now, in terms of these countries around the world that are high-flyers is that 27 percent of the kids in Singapore would be thought of as failing.

Take a look at Japan. We know Japan has always scored very well on math tests. Only 57 percent would score "proficient," so 43 percent would be failing.

The United States, 26 percent, on this particular scale. In terms of the real NAEP scale, about a third of the kids -- so this is pretty close -- about a third of the kids score "proficiency," two-thirds are still not reaching that threshold.

Look at some of the other countries: England, 22 percent. England, Scotland, Italy, in the 20s, in terms of proficiency. Norway -- is that 9 percent? Norway, 9 -- so a lot of Norwegians are being left behind. I mean, there's no question about that -- nine out of 10 of them.

And then you have countries in Africa that actually scored zero.

(Slide.)

So my recommendation in the report is that reexamine these cut-points for proficiency. I think the cut-point is two high, and it's being used a test that's too easy. And so it really creates an Alice in

Wonderland situation, where you have a test -- the eighth grade test in mathematics is essentially a test of whole-number arithmetic. It does not have fractions on it. The last study of the content of the eighth grade NAEP in mathematics put the level of fractions at less than 15 percent. So it's a test that is dominated by whole-number arithmetic.

These problems are tricked up. And by that I mean they are posed as two or three-stage word problems. So kids miss them. Kids don't get them all right, even thought they're just whole numbers. They do miss them. The test is tricked up, the content is too easy, and then the proficiency rate is way too high.

So NAEP needs a lot of reform, and that's the basic message of Part One.

(Slide.)

In the second part, now, of the study -- in the second study that's presented -- this has to do with private school enrollment. And this is something I've always wanted to examine. Because, you know, with all of the discussions of school choice, and private schooling, there's been this steady trend downward in private school enrollment since 1960.

And the question really is: why?

Now, I, unfortunately, all I can do is speculate as to why, but it's interesting to look at these enrollment data and see what some of the trends are in it.

(Slide.)

Here's essentially the 20th century, and enrollment of 14 through 17-year-olds in schools. And you can see that at the beginning of the century, in that first column where it's "Overall," since 1890, anyway, high school still was not a common experience. Only 5 percent of kids went to high school. It was preparatory for college, essentially.

And you can see the steady gains in terms of kids.

Now, coming into the schools, teenagers enrolling in school, the Depression helps a lot. It drives kids out of the labor market and into schools.

And you can see all the way through the 20th century this really is a mammoth story -- right? It is a success story of American education, that 14 through 17-year-olds began the century not attending school. By the end of the century, schooling is routine. And this didn't only happen in the United States, it happened throughout the world.

But here are the shares now of public schooling and private schooling in terms of the percentage of kids at that same age level -- 14 through 17. And you can see the private schools, you know,

they lagged the public schools all the way along. But they really peak in 1960 at 9.3 percent of this particular age group.

And then in the ‘60s -- the ‘60s were not a good decade for private schools. There’s a big fall-off in enrollment. They decline to 8.4 percent.

By the end of the century -- 2000 is the last year we have really solid data on, but we have some 2004 estimates here, too, at the bottom in a footnote -- it’s 7.7 percent. But it’s declined. You know, the headline here is: it’s declined.

If you can’t see this, which I assume you can’t because I’m in the way and so is the podium, it’s in your hard copy. It’s Table 2.1 Does anybody have the page number where that is? 17 -- page 17.

SPEAKER: (Inaudible.)

MR. LOVELESS: Home schooling’s pretty trivial -- but how about if we just hold off and then we can discuss them all at the end.

So that’s the story with 14 through 17-year-olds.

(Slide.)

Now, when you look at elementary and secondary, you get a slightly different pattern after 1960.

You see that both of them -- here’s the private school elementary, it peaks in 1960 at 14.7 percent of the kids enrolled in school.

And at the secondary level, it peaks at 11.1 percent of the kids enrolled in school, with the public schools, of course, having the rest.

The slight difference is this: you see both private school sectors, at elementary and secondary, taking a hit in the 1960s, as I said. But the elementary schools, since 1970 -- 1970 it was 11.4 percent -- they have gained students. They have gained market-share. You know, if we think of this now as a competition between private schools and public schools for market-share, well the elementary schools in the private sector have gone from 11.4 percent to 12.5 percent. They've gained share.

Not so -- not so -- at the secondary level. They've continued declining -- from 11.1 down to 8.4 percent.

(Slide.)

Now, this raises an interesting question.

High school is the time -- well, it raises a couple of issues. Number one, there's been a great deal of social science, very famous reports that have come out over the last 50 years, that have indicated that private schools might do a better job than public schools at educating kids. This goes back to James Coleman in the 1980s publishing a couple of books on the superiority of private schools, even after controlling for such things as -- well, don't better students go to

private schools? And aren't parents more committed when they send their child to private school?

Even controlling for, as best as one can, for those kinds of confounding characteristics, the private schools still look to have some kind of advantage. And there have been a series of studies. Tony Bright's study of Catholic schools, for instance. Derrick Neil , who's an economist at the University of Chicago has looked at drop-out rates and the ability to hold minority students, in particular, through high school, and get them to persist to graduation -- private school advantage, a Catholic school advantage in inner cities. So there's been all kinds of social science.

The second thing is when you do public opinion polling of parents and the public, and ask them, the public indicates they think -- the public out there thinks private schools are better.

Now, if that's so, what's going on? Because parents are voting with their feet as if that's not true at all. They are leaving private schools, and they're leaving them especially -- especially -- at the high school level.

(Slide.)

And here's what we did to examine this question.

Remember the cohorts I just discussed with NAEP data, well we created some cohorts here. And what we did is we looked at

enrollment data at the eighth grade in 1990, and we then examined enrollment data two years later and said, “What’s the breakdown between public and private schools in the 10th grade?” So that would be in 1992 that we examined that.

And you can see here, in this first column, the private schools at the 10th grade, two years later, have 86.7 percent of enrollment. So they have lost kids. And the reason why this eighth to 10th grade period is so critical, that is the transition to high school.

So they’re losing them somehow, getting them from middle school to high school, they’re losing kids.

The public sector is gaining them. Public schools enroll 102.2 percent of the enrollment that they enrolled in eighth grade two years previously, in that 1990 cohort.

So we did this for all the cohorts in the ‘90s, every two years. And you can see, looking down those columns there, on the eighth to 10th grade transition, it’s pretty consistent that public schools enroll a larger percentage of kids two years after eighth grade than the private schools do. Although you also see some narrowing on that particular gap between private and public schools

(Slide.)

We did the same thing looking at enrollment statistics from 10th to 12th grade. So you get an opposite trend here.

Once a kid gets to 10th grade in private schools, they're more likely, that student is more likely to persist to 12th grade and to graduation. So you see that private schools, all the way down, in terms of these 10th to 12th grade cohorts, maintain a higher share than the public sector does.

So you have really sort of two advantages working in opposite ways here. In the eighth to 10th grade transition, public schools win that market-share battle. And then on the 10th to 12th grade enrollment data -- and this could be driven completely by dropouts in the public sector. I don't know -- because they are more likely to drop out. But on that 10th to 12th grade period, the private schools win that particular competition for the market.

If you look at the entire period from eighth to 12th grade, the public schools have an advantage, although, again, some signs that that has narrowed, that did narrow, over the '90s.

But it really does raise this conundrum: if private schools are so good, and the public thinks they're so good, why aren't they staying in them in high schools?

Now, there are three main explanations. All of them are speculative, but they're all reasonable.

(Slide.)

One is simple costs. The cost of sending a child to high school in the private sector is around $8,500. In elementary, it's only $5,000. So there's a huge financial burden one incurs, once -- you can have your kid in private school all the way to eighth grade. But once you decide to go to high school, your bill just simply jumps significantly.

So that's one aspect to this. And maybe there is a cost-to-achievement -- maybe parents, you know, undergo some sort of calculation where they say, okay, we recognize that high schools are better, but they're not $3,500 better. But there is a jump in cost.

(Slide.)

The second explanation is demographic and has to do with Catholic schools. Catholic schools dominate the private school sector. They are closing Catholic schools left and right. It costs a lot more money to keep a private school -- to keep a Catholic school open than it did in 1960, when Catholic school enrollment peaked, mainly because of the loss of nuns. Nuns were a cheap source of labor for Catholic schools in 1960. And today, not only are there almost no nuns teaching anymore, there are very few nuns teaching anymore, but the Catholic schools have to compete with the public schools in terms of teacher salaries. And the schools are just much more expensive.

So the Catholic schools just haven't been able to stay open, and lots of them are closing. They're still not attracting kids, though, so it's not completely the fact of expenses.

But, anyway, those are the two primary explanations for this trend.

(Slide.)

I offer one third one that is more cultural, and that is: I think, from other studies that I've done, that parents today -- this is a parenting issue -- that parents today offer their kids more input on where they go to school than they did in 1960. I think it was more likely in 1960 that a child in eighth grade, that the parents sat him down and said, "Here's where you'll be going to school next year." Today, I think, there's probably a family meeting, and they discuss options, and kids have more say in the kinds of schools that they're going to attend. And lots of kids may want to go to school with their friends in their own neighborhood rather than a school across town, even if that school may offer an academic advantage. So that's my sort of cultural explanation.

But, to me, these trends are fascinating, and it will be interesting -- these narrowings of this gap, you know, maybe this is changing, but we'll have to see with later data.

Okay, the third and final study.

(Slide.)

"Does more time mean more learning?"

I was on the *USA Today* blog this morning because they ran a story about this study, and the comments were: well, of course it does. Everyone knows that. Is this guy at Brookings insane? What a stupid idea to study this.

Actually, the idea for studying it came from the fact, as I mentioned earlier, that research has actually shown no relationship before, with international data. It has shown no relationship between the amount of time kids spend time in school in any given country and those countrys' test scores.

So what we did is something slightly different. Those studies have always looked at cross-sectional data, and they looked at the 1995 data. And the best study of this was David Baker and Gerald Letendre, who are at Penn State. And what they did is they took the '95 TIMSS data, international data, one point in time, and they came up essentially with these findings.

(Slide.)

These are correlation coefficients. Anything around zero means there's no relationship between time and achievement.

If it got up to 1.00, it would be a perfect positive correlation, meaning for every minute of time you get an increment of achievement. And a negative 1.00 would be a perfect negative

relationship, which would mean for every one additional minute of time, the kid loses an increment of achievement -- and eventually knows nothing, I guess, if you studied long enough.

But the idea here is correlation coefficients are scaled from negative 1.00 to positive 1.00.

(Slide.)

Now, what we did is we took the '95 data and we replicated the Baker and Letendre and other researchers' work, and we found the exact same they did.

If you just look at '95, you get no relationship -- .05, trivial -- no relationship between -- this is the number of minutes per year spent in instruction in math, and then the math scores.

We looked at homework, you get a negative relationship. This is a very mild negative, but it still is a negative relationship, and that's consistent with previous research, too.

So the country that did more homework had lower test scores -- to put it bluntly, and -- but not by a lot, this negative.

Then we created a variable that combines the two, the minutes of homework and instruction. And, again, it was negative.

(Slide.)

We did the same thing, cross-sectionally, with the more recent data. No one had done that. And we get basically the same

thing, except even now we have a mildly negative relationship for number of minutes in instruction per year and achievement.

So the basic story, we just replicated what everyone else had done.

(Slide.)

Now, we wanted to do something different, and that was to look at the change between ‘95 and ‘03. And we came up with a different correlation coefficients. And we came up with a positive correlation coefficient for instruction.

Very important to understand we’re asking a different research question here. On these cross-sectional data here, we’re asking the question: “Did countries in 1995 that spent more time on instruction have higher test scores?” The answer is no, not systematically.

The question, when you look at the change data from ‘95 to ‘03 is the following. “Did countries that added minutes tot the instructional day from 1995 to 2003, did they increase their test scores?” No matter where they started in 1995. And the answer is yes.

So when you look at the change data you get a much clearer picture. And the change data is a better analytical tool for examining this question, because you essentially have every country controlled for its own culture. So if there’s something about the culture -

- which I suspect there is -- the cultures of Singapore and South Korea and Japan that causes them to score at the top every time on these eighth grade math tests, that's controlled for because you're using their base in 1995 to compute this particular change characteristic.

If there's something in the culture of the United States that causes us to score rather mediocrely -- is "mediocrely" even a word? -- rather -- not very high -- on these tests, then, again, that will be controlled for.

So this change statistic, I think, is a better way of looking at this. You get a positive relationship in terms of instruction -- .42 is statistically significant.

Homework looks, now, neutral. And then the combined, you get a modestly positive, but not statistically significantly so, when you combine the two variables.

So here's the bottom line to this.

(Slide.)

The instruction variable goes from neutral to positive. And the homework variable goes from mildly negative to neutral. So they both look, now, a little more like we would think that they would look. And our intuitive ideas are borne out.

(Slide.)

Here's the dot plot of various countries. And we laid in the regression line for these correlations.

You can see the United States here -- the United States actually was an outlier.

Let me explain the quadrants first.

We have a change in TIMSS grade on the vertical axis, and the change in instructional minutes per year on the horizontal axis. And in this quadrant here with the U.S. are countries that decreased, from 1995 to 2003, decreased the amount of instructional minutes on math.

In the U.S. it went from 49 minutes per day to 45 minutes per day, a decrease of four minutes. But the U.S. scores went up. So the U.S. is actually bucking the trend and is an outlier on this. These other two countries were Netherlands and Latvia.

You can see these countries in this quadrant were those that increased instructional time and increased their TIMSS scores from '95 to '03.

And then the opposite down here -- down here, including Japan -- the countries decreased their time, and also their scores went down.

And then over here you have Norway increasing its time, but its scores went down.

Norway and Sweden are outliers. By the way, if you take Norway and Sweden out, you get a really strong correlation coefficient. It's like .61, I think, or .62. So if you remove these two outliers at the bottom.

(Slide.)

Now, here's kind of a score card, if you want to, you know, keeping score on this.

So there were seven countries that increased their minutes. Of the seven, five of them saw -- their scores went up, two went down.

Thirteen nations, including the U.S., decreased their instructional minutes. As you saw, three countries went up, including the U.S., and 10 of the countries went down.

So, I mean, this is a real clear picture that there appears to be a relationship between these two variables.

(Slide.)

Lastly -- and this will be the last table that I'll talk about, and then we can have discussion and questions -- we did a two-factor regression where we asked the following question, essentially: well, okay, there appears to be this positive relationship between instruction and achievement. Is it calendar time or clock time? Is it adding days to

the year, or is it adding minutes to the day? I mean, there are two different ways of extending instructional time.

And so what we did is we took a base of 1,800 minutes of math instruction. If you were going to increase math instruction in the U.S. by 1,800 minutes, at 45 minutes per day, that would be 40 days. Or it would be -- we have 180-day calendar year, it would be 10 minutes per day.

So we asked the question: which one is -- you know, where do you get more bang for your buck?

And it turns out you get more bang for your buck -- both of them are positive, but you get more bang for your buck with increasing the instructional day by 10 minutes.

Now, what's key to this is it has to be in math. It's 10 minutes of math instructional time. It has to be that. But 10 minutes per day adds up to a lot more minutes of instruction -- 1,800 minutes over the course of the school year -- and it would be predicted to produce, it would be correlated with a gain of about 19 TIMSS points.

Now, 19 TIMSS points, to give you an idea, we're about 100 points below Singapore. So, let's not, you know, throw a parade just yet. But 19 points is 19 points.

Okay. With that, I'm going to stop, and we can discuss, and if you have any questions I'll take them now.

Yes?

SPEAKER: (off mike)

MR. LOVELESS: We have a mic coming for you.

SPEAKER: I just have a question about that table right there. Those findings were statistically significant? Because didn't you have a pretty small sample?

MR. LOVELESS: Yes, we have a small sample, 20 nations.

I don't know the p-values of these. I'll have to look that up.

Do you know?

And let me thank Katy Field, who actually did everything I just showed you -- did all the assistance on the work.

SPEAKER: (off mike)

SPEAKER: In the regression. But the minutes per day was.

MR. LOVELESS: Other questions?

Over here.

SPEAKER: I wonder if you studied Israel -- and I understand that Israel was where Singapore is 20 or 30 years ago, and is now below us.

Is that true? And do you have any -- and do you know why?

MR. LOVELESS: I don't know if it's true. But Israel is in TIMSS. But I don't -- off the top of my head, I do not know what Israel's done over the last 20 or 30 years.

I doubt that Israel was in TIMSS until the '80s, would be my guess. So, okay, so that would be 20 years.

And as to why it would have fallen since then, I don't know. And I say that with some embarrassment, because I actually was in Israel in March. But I didn't ask that question.

Other questions?

In the back.

SPEAKER: (off mike)

MR. LOVELESS: Hang on just a sec.

SPEAKER: This goes to your second study.

Do we know the extent to which Catholic schools are closing relative to charter schools opening? And I would just say that if you talk to Catholic school leaders on the ground, they'll say one of their biggest competitors are charter schools, and parents see those as choice schools.

MR. LOVELESS: Yes, that's a very good point.

The last statistic I saw on where do charter school kids come from, about a third of them come form private schools. And probably a bunch of those are from Catholic schools.

So -- yes, charter schools are part of that, what's going on there.

However, charter school enrollment isn't so large that it's going to make a big difference, either, and really drive these numbers. And don't forget that the patterns that were displayed here started in 1960. And the first charter school didn't open until the '90s, in Minnesota.

So it's kind of tough to make the case that charter -- charter schools may have pitched into this trend after 1990, but they certainly didn't initiate it before then.

And the same thing, by the way, with home schooling. Somebody brought that up earlier, was interesting in home schooling.

You know, the estimates for home schooling -- we don't have really good data on home-schoolers, and some of the estimates run as high as 1.5 million kids. I doubt that -- 1.2 million. I think that's probably inflated even, but that's usually the estimate.

And 1.2 million has to be placed in the context of total K-12 enrollment over 50 million, so you're still only talking about 2 percent.

Yes? Pietro? Hang on for the mic, Pietro.

Another aspect, by the way -- and this is related to that -- public schools have given parents lots of choices since 1960. You're much less likely today to just simply enroll your kid down the street in a

public school than in 1960. So -- including charter schools. But there are other kinds of choice, public school choice, that are available.

So, again, if you think of these two sectors as competing for market share, that's the kind of interesting thing about this: the public school has responded in some respects.

SPEAKER: Could we flip back to the chart that had all the countries in it, and proficiency levels, the equivalent of the NAEP test?

(Pause.)

MR. LOVELESS: Apparently we cannot. Oh, it's way back at the beginning.

(Slide.)

SPEAKER: There it is. No, there it is.

MR. LOVELESS: There we go. Okay.

SPEAKER: I wonder if you'd want to just discuss this a little more and explain, you know, what are your hypotheses for why, not just Israel, but a whole slew of other countries are doing, according to this, anyway, worse in terms of percent at or above "proficiency" level, worse than the United States.

It just -- that seems to be really bizarre. But I just wonder, you know, what the explanations might be.

MR. LOVELESS: Yeah. Well, first of all, none of these -- if I had actually TIMSS data up here, the chart would look a little bit

different, because we'd be able to see that a lot of these countries in the middle essentially have the same score. There's noise in any test, and if you factor in what the standard error is of this particular test, these countries in the middle -- U.S., Israel, England -- they score about the same on the eighth grade test. In terms of speculating why, every country has its own story.

But if you compare the countries at the top with the countries that are not in the top, there are some things that clearly are not an explanation.

One of them has to do with, say, whether or not the educational system is centralized. There are countries sprinkled from the top down to the bottom that have heavily centralized systems with a national test, that kind of thing. So that appears not to be related at all to whether or not a country scores high or low.

There are these countries in Asia that dominate at the top. People have speculated that it's some sort of Confucian culture advantage to math achievement that begins in the home, it begins before kids come to school. We do know that American children -- this is, you know, there was this great work done by Stevenson and Stigler back in the early '90s comparing American children to Chinese children to Japanese children. And they picked up quite a few different things, just watching mothers deal with their kids.

The mothers, for instance, of Japanese children, when the kids missed the items, were more likely to blame the child's lack of effort. And the remedy -- the way these mothers responded was, "You need to work harder because you need to learn this stuff."

The American mothers were more likely to say, "Oh, I wasn't good at math, either."

(Laughter.)

And to blame it on sort of a lack of inherent, innate ability. And this has been picked up in other cross-cultural studies comparing the U.S. to other nations.

The other thing that's fascinating about the Stevenson and Stigler work -- and this has been replicated, too, in larger studies -- is that American children and their parents are more likely, before they take the first test to find out where they score, to say, "My child is really good at math." And when they're asked to predict the score, they'll predict a very high score, much higher than they actually score.

And in Japan and China, it's the opposite. The parents will predict, like say, a score of 50. The kid will score 80. And the parents will say, "Well, 80's okay, but let's get it up."

(Laughter.)

And in the United States, the American parents are more likely to say, "Well, my kid will score 90." They score 50. And the

American parent says, “Oh, well. That’s not good. Let’s get it up to 60.” You know, that kind of thing.

So there are really some key differences in terms of how parents and kids interact on mathematics.

SPEAKER: (off mike)

MR. LOVELESS: One thing about international data —

SPEAKER: Can I --

MR. LOVELESS: Can I just add one more thing?

One thing about international data that everyone should be cautious about, though, because you read about it in the paper a lot. And I’m on the national math panel. And some of my fellow math panel members suffer from this flaw. And it is this -- it’s an interpretive flaw -- but it’s this.

To pick out those top countries and to say, “Well, let’s look at the A+ countries -- ” -- that’s what they’re called by shorthand -- ” -- and let’s just see what they’re doing. And that must be good.” Right? Making, in other words, a causal inference about why the A+ countries are A+ countries.

The problem with that is you better go down and look at the other end of the spectrum, because those African nations at the bottom all modeled their educational systems after European countries -- as did the Asian countries at the top.

So the systems, when you look at curriculum and stuff, they don't look that different.

So before you single out any one element and say, "This is what's causing an A+ country to be an A+ country," you better look at the D- and F countries and see if they're not doing the same thing. Because you really can't make that causal inference unless you look across the spectrum of nations.

Yes?

SPEAKER: I mean, I guess my question was, I think the top countries -- it's relatively intuitive to find explanations for why they're doing so much better. It's a little odd that Belgium is doing that much better. But Japan, Taipei, Korea, et cetera, Singapore, which is a tiny place, a little city-state.

But what about -- I mean, what puzzles me is the Norway in there.

MR. LOVELESS: Yeah.

SPEAKER: Where's Sweden.

SPEAKER: (Off mike.) Well, it was on the other chart?

SPEAKER: Oh, okay.

MR. LOVELESS: Yeah, it was on the other chart. It lost 45 points.

SPEAKER: Yeah. I mean, that's a really dramatic distance between Norway and the United States. And is it possible that nine out of 10 Norwegian kids are not proficient in --

MR. LOVELESS: No. But, again, this is using NAEP -- I mean, this really shows you how out of whack the NAEP definition of proficiency is. I don't think it's possible that only 9 percent of Norwegian kids are proficient.

But the NAEP proficiency levels have never been benchmarked to an external source. So at the high school level, for example, we need to benchmark those against, say, AP tests -- right? Kids who score real well on AP should be scoring "advanced" on NAEP.

So we have these external sources, like TIMSS, where we could take a look at our NAEP proficiency levels and get them more accurate so they really do convey -- they're supposed to be a way of conveying something beyond a number. To put a word on a number, as opposed to just a number.

But they're not serving that purpose with this kind of data out there.

Ben?

SPEAKER: (off mike)

MR. LOVELESS: Hang on just a second.

SPEAKER: Thanks. On this sort of long-time debate over the NAEP proficiency levels, what about just some different words? You know, maybe “proficient” -- and, as you say, “proficient” has this kind of odd double usage, of meaning both minimally competent and excellent.

Why not just re-label “proficient” “excellent,” and then make “advanced,” you know, “very excellent,” “most excellent.”

(Laughter.)

MR. LOVELESS: Yeah. Well, we could do that. We could do that. But then we have to revisit -- obviously, the public discourse will have to change. Because -- it was only a week ago, I think I read, I was reading a newspaper article, it had to do with proficiency rates in a particular state. I think it was Maryland. And it used the term “failing” if you didn’t reach that level.

So we’re -- it’s like the Lake Woebegone thing, if we think you’re either excellent or failing. I mean, there are degrees in between.

So, maybe new words are in order. That would be one thing we could do.

If we look at this -- there’s absolutely. And, by the way, Gary Phillips’ interpretation was there’s nothing wrong with the word “proficiency,” as long we understand that it’s just this very lofty standard to aspire to -- right?

And I agree with that. There's nothing wrong with that.

But a very lofty standard to aspire to, and then if you go back to NCLB and say, "Do we really think we're going to get 100 percent?" You know -- of the kids there by 2014? That's just very doubtful.

There's nothing wrong with us, for instance, in the field of health, to want to maybe increase our longevity to age 100. But the people who die at 98 are not "left behind."

(Laughter.)

You know what I'm saying? That's a really, nice, high aspiration. But it's doubtful that we're going to get 100 percent there.

Yes?

(Pause.)

We need to be more realistic in our rhetoric about what these things mean.

Yes?

SPEAKER: Well, without worrying "proficiency" too much, could we say that a "proficient" eighth grader can read *The New York Times*, which is supposed to be written at an eighth grade level. Is that eighth grade level of the *New York Times*, is that a different level than "proficient" eighth grader.

MR. LOVELESS: Umm -- no one's ever benchmarked the -- I don't know the answer to that question, because no one's benchmarked *The New York Times* to the proficiency level on the NAEP reading test. So I really don't know.

And the NAEP reading test involves not just reading non-fiction, or informational reading, but also poetry and some other forms of literature, which *The New York Times* probably wouldn't help assess.

But I don't know the answer to your question.

The New York Times, in terms of its readability, my guess would be actually higher than eighth grade, based on the vocabulary of proper nouns that one would need to know. For instance, looking at this chart here, if it were in *The New York Times*, one would need to know something about different nations in the world, and where they're located, and that kind of thing, which not necessarily all eighth graders are going to possess.

Yes.

SPEAKER: The instructional time?

MR. LOVELESS: Yeah.

SPEAKER: You sort of extrapolate to say that x-number of minutes might correlate to x-number of points. But I'm just wondering if there was any indication of a sort of plateau, or a point at which that

coefficient wouldn't apply, once you get to a certain level. Like, you know, you don't want 700 minutes of reading instruction a day.

And I'm wondering if there was any indication of where that might be, or just what your thoughts were.

MR. LOVELESS: Yes, I'm sure there is. That's right. That's a very good point.

I'm sure you can't just add minutes forever and get an effect and it's going -- the positive association would fall off somewhere. But it's not evident from this data where that would be.

I can tell you as a former sixth grade teacher, however, that you can only get kids to do so much each day. And there is a point at which you get negative returns.

Yep?

And that's when you go out and play volleyball or something or, you know, do something different.

Yeah -- back in the back.

SPEAKER: On a similar note, could you talk a little bit more about the homework effect? Because it would seem -- what's the difference between the 10 minutes in-school versus 10 minutes' homework.

Could you talk a little bit more about that?

MR. LOVELESS: Yes. There isn't support for additional minutes of homework in international data sets. Even looking at the change statistic that we looked at, the relationship is neutral. It's zero, essentially.

And maybe the international data just aren't the right data to be looking at that, anyway. It may be that homework practices are so heterogeneous within countries that to find out something about mean national homework just is not terribly revealing.

There are better studies of that -- student level studies. Julian Betts did an excellent study a few years back tracking kids from seventh grade through 10th grade, I think it was. And he found that an extra half-hour of homework per night in mathematics, that the kids, by the end of 10th grade, had gained close to two years of learning. I believe it's footnoted in this article. You'll see that at the end, in the footnotes.

So that's a pretty dramatic increase.

The problem with homework -- there are a lot of problems with homework, in terms of measuring their effects. But one of the big problems is, we can't -- it's very difficult to tease out what direction the causal arrow is, right? So, especially -- and it kind of works like this. Especially with little kids, if you look at primary school children and you survey them, and you ask the question, "How much homework do you

have?" -- the ones who have a lot of homework very often are struggling students. And they have a lot of homework because they don't read very well, and everything takes longer for them to do.

And so when you run any sort of cross-sectional analysis, you get a negative relationship. The kids who have more homework -- when I taught sixth grade I'd survey my kids every year: "How much homework do you have?" And I need to say, I was their only teacher. They didn't have a whole bunch of teachers. So I gave all the homework they had.

So I'd ask them, "How much homework do you have?" And I had 35 kids. And they would average between 20 minutes a night and three hours a night. And I'm giving them all the same assignments. There's no differentiation. They all have the exact same assignments.

So the point is -- and the kids who had three hours a night had trouble reading, they had trouble with math. It took them longer to do the work than it did the kid who had 20 minutes.

So any kind of correlation that you run on cross-sectional data is going to pick up what looks like a negative relationship.

And what happens at the high school level is that that kind of flips. Because at the high school level, bright students, who love school and love homework take courses -- they take, you know, four AP classes, and they have tons of homework, and you run your correlation

and you get a positive for homework at the high school level. And the kid who doesn't have homework, and may not even do it when he or she does have it, you know, they had lower test scores.

So the whole causal question of homework is a tough one for researchers. It's hard to disentangle that stuff.

Yep? In the back.

SPEAKER: What's being done to enhance or improve research about reading after the fourth grade? Your report recommends that there's a gap there. Is that being filled?

MR. LOVELESS: Some, but not aggressively enough just yet.

There is some work going on in terms of comprehension. I'm not the only person who knows that there's this problem, that we know much more about decoding and beginning reading skills than we do later reading skills.

There is more research. I know the Department of Education has a number of studies that are ongoing right now that look at older kids' reading acquisition -- and interventions that work with -- you know, we have 10 to 20 percent of the population, after grade four, that really struggles with reading. And we don't know much about what to do with them. But there are some studies that are underway now that maybe will shed light on that.

How about right here, and then we'll go across the aisle.

How are we doing on time? Okay.

SPEAKER: (Inaudible) -- I work with the Bosnian support community. I was a teacher in several different countries.

MR. LOVELESS: You were what? I'm sorry?

SPEAKER: A teacher in several different countries. I taught in various levels.

And I was wondering, when you're talking about 10 minutes for math, what grade level are you talking about? Or is that just something you just put up as an example?

MR. LOVELESS: No, these data were with eighth graders.

SPEAKER: Oh, I see. Because when I taught, I mean, we did math and reading all morning. I mean, I couldn't possibly have gotten through the morning in an elementary school without doing math and reading all morning, and then the science and so forth were in the afternoon.

I also wanted to ask about when these countries give you their, or you're rating them as you are, are they taking into consideration all of the children in their country, as we do? Because in my experience, the American educational system meets the needs of more people. In other words, we have the junior colleges, we have school --

a lot of extra help in the classroom for children that are slower, which I did not really experience in the countries that I taught in.

MR. LOVELESS: Umm, yeah -- the short answer is, yes, these studies in the -- the kids all take the same test around the world in these different countries. And the testing procedure and the selection of the sample is policed by an international body called the IEA, the International Educational Achievement Association. They're missing an "A" in there, I know. But it's IEA. And the studies are pretty rigorously given, in terms of protocols.

So these countries, these are representative samples of the kids in the country. That may not have been true right at the beginning of international testing, in the '50s and '60s. And Americans adopted this idea that, oh well, those countries are sort of cheating because we have all of our kids in school and they don't.

That's really not true. Actually, Japan has a higher proportion of its population in high schools than the United States does. That was not true in the '60s, but it is true now.

So, it's just not -- these are comparable samples. And don't forget, these are eighth graders. All of these nations have universal education at least through eighth grade, even the African nations here -- although they have a heck of a time, some of these countries -- Botswana, Ghana, I know, in particular -- they have a very

difficult time with attendance, you know, getting the eighth graders actually to the school. But they've also made tremendous progress in that.

But, generally speaking, this test, around the world, as it's given, is -- you can rely on the data as a survey of how the kids are doing in those countries.

Yes?

Oh, wait a minute, we had -- right across. And then we'll get —

MR. AUXTER: David Auxter, Research Institute for independent Living.

We read the papers, and know there are about 6,000 schools in California that are either low performing, non-performing. And you've got 6 million disabled children in the public schools that are doing poorly.

And my question is, where do these populations fit in to, you know, the achievement study here. It's a representative sample, but they just don't fit the mold, it seems like.

MR. LOVELESS: Yeah. In terms of exclusions of disabled children around the world? Or -- I don't know what the policies are.

SPEAKER: (off mike)

MR. AUXTER: There's significance for, you know, performance --

MR. LOVELESS: Yeah.

MR. AUXTER: -- in measuring, we're testing.

And these students are not doing well. And I guess the question is what's the public policy implications for these people that are being left behind in this study?

MR. LOVELESS: Yes. Well, disabled children in all of these achievement tests -- be it NAEP or TIMSS -- there are rules about excluding them. And those rules are pretty rigorously enforced.

Now, there's some indication that they may not, especially on NAEP, there are people who have criticized NAEP for different exclusion rates by state. But I haven't seen hard evidence of -- the evidence is that these states have different exclusion rates. I haven't seen hard evidence that it means the sinister thing that some of the critics say. It could be, but it's more inference than it is proven at this point.

But in terms of these studies, you're quite right. Disabled kids, profoundly disabled kids in particular, are usually excluded from the test. And in some cases there are alternative assessments so that we can assess how they're doing. And in other cases we just don't know how they're doing.

But you're quite right. We have a long way to go on the proper assessment of disabled children.

Yes?

SPEAKER: (off mike)

MR. LOVELESS: Hang on just one sec.

SPEAKER: What would be your prescription for improving educational levels in the U.S.? I mean, would it revolve around extending instructional time -- or what else do you perceive?

MR. LOVELESS: You know, I don't -- I'm not one to give prescriptions very much. I'm really a research and I like to ask questions and then discuss the implications of the research.

But I don't have a general answer to what would I do, what would be my magic to improve American education.

SPEAKER: (off mike)

MR. LOVELESS: Hang on just a sec.

SPEAKER: -- is Singapore math as different from the math that we use mostly in this country? I mean, is there any kind of analysis of the content? Same thing in reading?

MR. LOVELESS: There have been -- there have been international comparisons of content in mathematics. And I can tell you the national math panel's been looking at that a lot, in terms of what do other countries do.

These countries generally at the top -- and Singapore's the best example. Singapore math is available here in the United States. It's rising, in terms of its sales, and it's being used in a lot of places now.

The characteristics of that curriculum are that it's a much tighter curriculum than U.S. The typical U.S. textbook is a flabbier document, flabbier product than the Singapore math books.

The typical American math book today runs around a thousand pages, and it has lots of color photos, and is attractive. But math seems to almost be a sidebar to what's going on in the book. So they have stories, and pictures, and lots of things.

The Singapore books do not. They have mathematics, and then practicing what you learn in mathematics.

They're also organized differently. You notice in Singapore the curriculum is organized hierarchically, it's linear. It's very clear that one skill builds upon the skill taught before it.

And the American books tend to be incoherent. They jump around a lot. Many of them spiral, in terms of the coverage of particular content topics.

You can take a fourth grade book in the United States, you will find, for instance, it will introduce fractions, and you will find that

same content in an eighth grade book, which means that a kid has that in fourth, fifth, sixth, seventh and eighth grades.

The Singapore books do not do that. A skill is repeated maybe once and then extinguished. It is expected the child's mastered that skill, and the book then moves on.

So, you know, given those -- and maybe I'm answering your question by answering hers -- one way we could improve American education is to have better books, in terms of how they're organized and the content that they have.

But by the end of eighth grade, the Singapore books are far ahead of American textbooks.

Other questions? Comments?

Well, thank you all for coming. I really appreciate it. And we'll see you again next year.

Bye.

(Applause)

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