

SUPERIOR COURT OF THE STATE OF CALIFORNIA  
COUNTY OF SAN FRANCISCO  
UNLIMITED JURISDICTION

ELIEZER WILLIAMS, a minor, by )  
Sweetie Williams, his guardian )  
ad litem, et al., each )  
individually and on behalf of )  
all others similarly situated, )  
 )  
Plaintiffs, )

vs. ) No. 312236

)  
STATE OF CALIFORNIA, DELAINE )  
EASTON, State Superintendent )  
of Public Instruction, STATE )  
BOARD OF EDUCATION, )  
 )  
Defendants. )

DEPOSITION OF ERIC A. HANUSHEK, PH.D.

San Francisco, California  
Monday, September 8, 2003  
Volume

Reported by:

JODI L. BOSETTI, RPR  
CSR No. 11316  
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2 COUNTY OF SAN FRANCISCO  
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13 \_\_\_\_\_ )

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15  
16  
17 Deposition of ERIC A. HANUSHEK, PH.D.,  
18 Volume 1, taken on behalf of Plaintiffs Eliezer  
19 Williams, et al., at 425 Market Street, 33rd Floor,  
20 San Francisco, California, beginning at 9:00 a.m.  
21 and ending at 4:55 p.m., on Monday, September 8,  
22 2003, before JODI L. BOSETTI, RPR, Certified  
23 Shorthand Reporter No. 11316.  
24  
25

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1 San Francisco, California, Monday, September 8, 2003  
2 9:00 a.m. - 4:55 p.m.  
3

4 ERIC A. HANUSHEK, PH.D.,  
5 having been first duly sworn, was examined and testified  
6 as follows:

7 EXAMINATION

8 BY MR. GROSSMAN:

9 Q Good morning, Dr. Hanushek.

10 A Good morning.

11 Q You have been deposed in numerous lawsuits, I  
12 understand?

13 A I have.

14 Q So I won't go over the basic routine with you.  
15 We have this deposition scheduled for four days, I  
16 believe. I don't think we're going to take that full  
17 amount of time. What I want to do in the first part of  
18 the deposition is walk you through your expert report in  
19 the case, go over the bases for your opinions, for your  
20 critique of the expert opinions from the plaintiffs'  
21 side and make sure we understand the evidence behind  
22 your opinions. So that will be topic number one, and  
23 then later on we'll get into some of your other writings  
24 that were cited.  
25

1 And I also promise you that I try to avoid  
2 trick questions. If I have a trick question I'll raise  
3 my hand, and then you'll know that this is one that  
4 there's a lurking got you so you can be fully aware of  
5 where I'm going.

6 Let's first mark as Exhibit 1 your report.  
7 (Defendant's Exhibit 1 was marked  
8 for identification by the court reporter.)

9 BY MR. GROSSMAN:

10 Q Could you identify what's been marked as  
11 Exhibit 1 for us, please?

12 A This is the expert report that I prepared for  
13 the Williams' case.

14 Q Could you turn to the first page of that. In  
15 the third sentence of the first paragraph you said, "I  
16 have written or edited more than a dozen books and over  
17 a hundred professional articles with a large proportion  
18 of them directly related to the issues in this case"; do  
19 you see that?

20 A Yes.

21 Q What do you mean by "directly related to the  
22 issues in this case"?

23 A They relate to school finance, to the  
24 determination of achievement of students and to school  
25 policy.

1 Q And by the issues in this case that you're  
2 referring to there, and you can point me to somewhere  
3 else in your report if you want, the issues in the case  
4 that you're referring to there, what did you have in  
5 mind?

6 A I had in mind the arguments that, in fact, the  
7 State should change the way it governs educational  
8 policy and that it should emphasize certified teachers,  
9 facilities, and textbooks.

10 Q Could you take a look at the third paragraph.  
11 It says, "Indeed many of the central theories and  
12 arguments advanced are directly contradicted by  
13 extensive research into the determinants of student  
14 achievement"; do you see that?

15 A Yes, I do.

16 Q Again, I'm focusing on the word directly there.  
17 What did you mean by "directly contradicted"?

18 A The research that I'm speaking about considers  
19 how the factors and inputs and organization specified in  
20 the experts for the plaintiffs affect achievement. And  
21 the evidence in many cases does not find that these are  
22 directly related to student outcomes.

23 Q In the next paragraph, in the second sentence  
24 you say, "They then assert that there is inequitable  
25 distribution of these factors, but they do not provide

1 any systematic evidence about that"; do you see that?

2 A Yes, I do.

3 Q In your research dating back to the work you  
4 did on the Coleman Report, are you aware of any evidence  
5 going to the inequitable distribution of these factors?

6 A For specific study, specific samples of  
7 students in various parts of the country, I am aware of  
8 that.

9 Q And what do you believe is an appropriate  
10 methodology for determining inequitable distribution of  
11 the factors of any factors in school resources?

12 MS. DAVIS: Vague and ambiguous.

13 THE WITNESS: I believe that inappropriate  
14 methodology is knowing that factors that are identified  
15 as being inequitable first have an effect on student  
16 performance; and secondly, that the distribution is  
17 biased in some way that is not reasonable.

18 BY MR. GROSSMAN:

19 Q And with reasonability being tied back to your  
20 first point about whether it bears on student  
21 performance?

22 A It would be tied to the first point and  
23 secondly tied to what alternative use of funds was being  
24 made.

25 Q And on the second point on a stand-alone basis,

1 what do you believe are appropriate methodologies for  
2 determining whether there is a bias in the distribution  
3 of resources?

4 MS. DAVIS: Same objection.

5 THE WITNESS: I don't understand what that means.

6 BY MR. GROSSMAN:

7 Q Which part is problematic?

8 A On a stand-alone basis meaning --

9 Q Meaning not looking at --

10 A -- if I looked at the amounts of some specific  
11 resource?

12 Q Correct.

13 A I have no opinion on that.

14 Q You don't have an opinion on how you measure a  
15 bias in the distribution of a resource?

16 A Typically we would look at whether it was  
17 related adversely to some specific factor, but that has  
18 to be put in the context of, again, the total resources  
19 that are available and what alternative uses resources  
20 there are.

21 Q Well, I guess I'm focusing on your fragment,  
22 "They do not provide any systematic evidence about  
23 this," quote, unquote, "Referring back to an assertion  
24 of inequitable distribution"; do you see that?

25 A Yes.

1 Q They do provide evidence about this, correct?  
 2 A Yes.  
 3 Q And so your critique is it's not systematic?  
 4 A Yes.  
 5 Q So you had in mind some systematic method of  
 6 determining whether there was inequitable distribution  
 7 of the factors mentioned?  
 8 A I did.  
 9 Q And what is that look like? What renders a  
 10 review of such evidence systematic?  
 11 A I think minimally it would require some  
 12 evidence about the distribution of these resources  
 13 within the State as opposed to a specific small sample  
 14 that we don't know the properties of.  
 15 Q Did you review the results of the Harris survey  
 16 that was relied on by some of the plaintiff experts?  
 17 A I only read the summary in the, Jeannie Oakes  
 18 summary sequence.  
 19 Q Do you have an opinion as to whether that  
 20 evidence is systematic?  
 21 A I thought it had some systematic basis, but it  
 22 was very limited in its scope.  
 23 Q Did you review the evidence on teacher  
 24 distribution provided by Linda Darling-Hammonds's  
 25 report?

1 A I again read the summary of this and did not  
 2 see the evidence on the distribution.  
 3 Q Now, you yourself have commented, have you not,  
 4 on the effect of class size reduction on the  
 5 distribution of experienced teachers in the State of  
 6 California?  
 7 A I have.  
 8 Q Well, what evidence have you looked at -- start  
 9 with, what evidence did you look at in doing that work?  
 10 A I looked at a Western Report that suggested  
 11 adverse consequences, and I also looked at the Rand and  
 12 Consortium Report on class size reduction.  
 13 Q And those reports provided evidence of a bias  
 14 in the distribution of experienced teachers?  
 15 A They suggested that that was the case. Neither  
 16 of them went into a lot of detail. There were more  
 17 anecdotes than systematic evidence.  
 18 Q And what is your view of the current state of  
 19 the evidence on that question whether or not it was  
 20 included in plaintiffs' experts' reports?  
 21 A My view is that nobody has very systematically  
 22 looked at this, but what evidence is there suggests that  
 23 class size reduction led to more inexperienced teachers  
 24 for kids in inner city schools.  
 25 Q And I take it that a component of that

1 conclusion is that there is a bias in favor of the  
 2 distribution of less experienced teachers of inner city  
 3 schools in the State of California today?  
 4 MS. DAVIS: Vague and ambiguous.  
 5 THE WITNESS: I'm sorry, it's almost a double  
 6 negative.  
 7 BY MR. GROSSMAN:  
 8 Q I think it was.  
 9 A Bias in favor of.  
 10 Q I was trying to use your language.  
 11 Is it the case today that there are a higher  
 12 proportion of inexperienced teachers in inner city  
 13 schools in the State of California than in other  
 14 schools?  
 15 MS. DAVIS: Vague and ambiguous.  
 16 THE WITNESS: I don't know the data. I suspect  
 17 that's the case from other work I've done, but I don't  
 18 know the exact data.  
 19 BY MR. GROSSMAN:  
 20 Q And then you say, "They assert that the State  
 21 should eliminate any variation in these factors," quote,  
 22 unquote; do you see that?  
 23 MS. DAVIS: Next sentence.  
 24 THE WITNESS: Yes.  
 25 BY MR. GROSSMAN:

1 Q Where did you -- I think we would agree with  
 2 you that the State should reduce the amount of variation  
 3 in these factors. I'm wondering where you got the  
 4 notion that it was the view of the plaintiffs that the  
 5 State should eliminate any variation in these factors?  
 6 A That was my reading of the Jeannie Oakes  
 7 summary of what was being concluded.  
 8 Q Does setting a minimum standard in schools for  
 9 schools in the State comprise eliminating any variation?  
 10 MS. DAVIS: Vague and ambiguous.  
 11 THE WITNESS: Not necessarily.  
 12 BY MR. GROSSMAN:  
 13 Q But you read the plaintiffs as proposing both a  
 14 floor and a ceiling on these factors?  
 15 A I read the plaintiffs as being ambiguous about  
 16 exactly what they wanted to do.  
 17 Q And would it affect your opinion if you were  
 18 persuaded that what the plaintiffs want to do is impose  
 19 a floor on these factors but not a ceiling?  
 20 A It may. It depends on how the plaintiffs would  
 21 want to do that.  
 22 Q And then you say, "In essence, eliminating any  
 23 role for local decision-making and imposing the  
 24 decisions of the State everywhere"; do you see that?  
 25 A Yes.

1 Q What did you base that conclusion on?

2 A I based it on the fact that there are limits on  
3 spending across districts and that there are equalized  
4 spending differences, and if you control large portions  
5 of the budget from the State, you essentially eliminate  
6 budget flexibility at the local level.

7 Q So in reading the plaintiffs' reports on  
8 maintenance, you understood that the plaintiffs would  
9 propose that the State set minimum standards for school  
10 maintenance, correct?

11 A My understanding of that, of the maintenance  
12 part was a bit confused because it looked like the first  
13 thing the State had to do was to check into what's going  
14 on in every school in the state and maintain an  
15 up-to-date roster of that and then take some action  
16 based on that.

17 Q On the issue of trained teachers, you  
18 understood that what the plaintiffs were proposing is  
19 that the State set a floor on the number of qualified --  
20 on the percentage of qualified teachers in each school,  
21 correct?

22 MS. DAVIS: Vague and ambiguous.

23 THE WITNESS: Well, I read it as saying the floor  
24 at 100 percent, if that's a floor.

25 BY MR. GROSSMAN:

1 Q And did you analyze that question in detail?

2 MS. DAVIS: Vague and ambiguous.

3 BY MR. GROSSMAN:

4 Q Did you analyze the budgetary impact of  
5 plaintiffs' proposals?

6 A No, I didn't.

7 Q At what level of certainty do you hold that the  
8 plaintiffs' proposals would eliminate any role for local  
9 decision-making?

10 MS. DAVIS: Vague and ambiguous.

11 THE WITNESS: I'm confused by what "certainty"  
12 means. You mean the probability that I'm right?

13 BY MR. GROSSMAN:

14 Q The probability that you're right, exactly.  
15 How certain are you that that proposition is correct?  
16 Let me lead up the question a little bit. You're a big  
17 believer in empirical research as a basis for making  
18 policy decisions?

19 A Yes, I am.

20 Q And empirical research has to be done in a  
21 disciplined, type of controlled, transparent sort of  
22 way?

23 A I believe that.

24 Q And it ideally would be repeatable?

25 A Yes.

1 Q You didn't see a proposal for an 80 percent  
2 figure?

3 A It may have been there. It's not in my mind  
4 now.

5 Q And on classroom resources the plaintiffs  
6 propose a standard of a textbook for every child in core  
7 classes; do you recall that?

8 A I never even saw the word "core classes" used.  
9 I saw that they proposed a textbook for every student to  
10 have a textbook to go home, and I thought all courses  
11 from what I read.

12 Q And it's your view as you read the reports,  
13 based on your understanding of the plaintiffs' proposal  
14 that would effectively exhaust local budgets?

15 A Oh, no, there's other parts of budgets.

16 Q So I'm coming back to your reason -- the reason  
17 you propose for why it would eliminate any role for  
18 local decision-making and imposing the decisions of the  
19 State everywhere.

20 A I believe the combination restricts a large  
21 part of the budget that can be spent. And since there's  
22 also a restriction on the total amount to be spent,  
23 that, in essence, restricts severely the other parts of  
24 the budget and the flexibility that local districts  
25 have.

1 Q A model of the kind of research you would like  
2 to see more of as the research that was done in  
3 Tennessee on class size reduction where students were  
4 randomly assigned to smaller versus larger classes?

5 A That methodology is certainly right, not the  
6 way they did it.

7 Q So my question to you is, what's the level of  
8 analysis or research, empirical or otherwise, underlying  
9 the conclusion you propose here that the plaintiffs'  
10 proposals would eliminate any role for local  
11 decision-making?

12 A The line of reasoning is that the State,  
13 according to the proposals I saw, would have a much  
14 larger role of looking over the shoulder and eliminating  
15 variations and choices by local districts, that coupled  
16 with the adding up properties that all the decisions  
17 have to have a certain amount lead me to believe that  
18 local districts would have much less flexibility.

19 Q Did you analyze what areas of local decisions  
20 plaintiffs' proposals would not bear on?

21 A Not explicitly.

22 Q And so, for example, you didn't consider that  
23 the significance of the fact that plaintiffs propose no  
24 particular curriculum choices for local districts?

25 A No, I did not.

1 Q And in the next sentence you say, "The  
2 plaintiffs offer no indication of where any funding  
3 necessary for implementing these State's policies should  
4 come from"; do you see that?

5 A Yes, I do.

6 Q And you say, "In particular, if these policies  
7 are to be implemented within currently legislated  
8 budget, it is necessary to reduce spending elsewhere to  
9 match any increases, but the plaintiffs' experts provide  
10 no indication of which areas have lower priority"; do  
11 you see that?

12 A Yes, I do.

13 Q Are you confident that plaintiffs' proposals  
14 would, in fact, require a net addition to the total  
15 amount of school spending?

16 MS. DAVIS: Vague and ambiguous.

17 THE WITNESS: I didn't think that they would imply  
18 a net addition because that was never addressed.

19 BY MR. GROSSMAN:

20 Q So you don't have a judgment one way or the  
21 other as to whether plaintiffs' proposals would require  
22 a net addition to aggregate school spending?

23 A No. I presume that the aggregate spending was  
24 set elsewhere and that these were proposals that had to  
25 do with the distribution spending.

1 Q Within a fixed budget, it is, of course, the  
2 case that re-allocation, moving resources in greater  
3 amount to one area implies reduction in other areas,  
4 correct?

5 A That is correct. That is the substance of this  
6 comment.

7 Q And your research indicates that reductions  
8 that might be concomitant with increases would not  
9 necessarily affect student performance, correct?

10 A I'm sorry, I'm confused. Reductions in --

11 Q In resources allocated to a particular school  
12 resource.

13 MS. DAVIS: Vague and ambiguous.

14 THE WITNESS: I'm sorry. You want my conclusions  
15 about their relationship between resources and  
16 achievement?

17 BY MR. GROSSMAN:

18 Q Well, isn't the flip side of your basic  
19 conclusion that we are on the flat of the curve when it  
20 comes to increases in school resources affecting student  
21 performance, that concomitantly decreases in the  
22 allocation of school resources would not affect school  
23 performance?

24 MS. DAVIS: Same objection.

25 THE WITNESS: Well, you're asking about my general

1 view about resources spent on U.S. schools?

2 BY MR. GROSSMAN:

3 Q Let's take California schools.

4 A California schools. I think that my general  
5 statement is that there is not a direct relationship  
6 between what's spent in individual places and the  
7 outcome of students so that policies to alter the total  
8 level of resources are unlikely to show up in  
9 achievements.

10 Q And that works both ways, both in the area of  
11 increases and the area of decreases?

12 A Well, I'm not sure that it does, because you're  
13 -- if you change the allocations at local districts were  
14 made, you could, in fact, lead to other problems that  
15 could in fact lead to other reductions. I don't think  
16 that it's necessarily symmetric.

17 Q Maybe we can get into that in a little greater  
18 detail. That's something I'll want to come back to and  
19 understand.

20 A Fine.

21 Q So let's go into your review of the research.  
22 Your research and conclusions have been -- strike that.

23 Are there any conclusions in section one of  
24 your report that you have not published elsewhere?

25 MS. DAVIS: You're talking about from what page to

1 what page?

2 MR. GROSSMAN: Fair point. Page 2 through 10.

3 MS. DAVIS: If you want to take -- you want to take  
4 time to look at that?

5 BY MR. GROSSMAN:

6 Q Let me ask it a little differently. In  
7 connection with section one, did you do any original  
8 analysis or research?

9 A For the purposes of this report you mean?

10 Q Yes.

11 A No.

12 Q And so the flip side of it is, did you draw on  
13 your published work to prepare section one?

14 A Yes, I did.

15 Q And is there anything in -- as you scan through  
16 section one, is there anything you haven't published  
17 before?

18 A I don't see anything, no.

19 Q And what is your most current publication, if  
20 there is a single one, that covers the topics addressed  
21 in section one?

22 MS. DAVIS: That's really overbroad.

23 THE WITNESS: Well, the closest to covering the  
24 range is a publication in the Economic Journal of 2003.

25 BY MR. GROSSMAN:

1 Q And is that particular document cited in this  
2 section?  
3 A It is.  
4 Q So that's the report cited on page 10?  
5 A Yes, it is.  
6 MR. GROSSMAN: So why don't we pull that out. So  
7 we'll mark as Exhibit 2 a copy of an article, "The  
8 Failure of Input-Based Schooling Policies," by you  
9 published in the Economic Journal in 2003, February.  
10 (Defendant's Exhibit 2 was marked  
11 for identification by the court reporter.)  
12 BY MR. GROSSMAN:  
13 Q Let me ask you a tautological question. Do you  
14 regard your work as falling within the context of  
15 meta-analysis?  
16 A In some ways yes and in some ways not. That  
17 term actually confuses me a bit, and it's used in  
18 different ways.  
19 Q So in what way would you characterize what you  
20 do as meta-analysis?  
21 A I would characterize meta-analysis in terms of  
22 its attempt to summarize a body of existing literature.  
23 Q And the reason that you would not qualify it as  
24 meta-analysis or why others might not call it  
25 meta-analysis is what?

1 A Some people had tried to use the term  
2 meta-analysis to refer to very specific ways of  
3 summarizing research that they've developed in that way.  
4 It is not.  
5 Q And those specific ways are what?  
6 A Those specific ways include a series of  
7 statistical tests of summary statistics on articles and  
8 findings.  
9 Q And tests that you didn't apply in doing your  
10 work?  
11 MS. DAVIS: Are you talking about all of his work  
12 or just this?  
13 MR. GROSSMAN: I'm actually talking about the work  
14 reflected in Exhibit 2.  
15 THE WITNESS: I didn't apply the tests that some  
16 people propose because I don't think they're correct.  
17 BY MR. GROSSMAN:  
18 Q And have you done any work to check whether if  
19 you do apply those tests, the results change?  
20 A If I apply an incorrect test, do I get  
21 different results; is that the question.  
22 Q Well, I can ask it a little differently if it's  
23 problematic for you. The critics who apply those tests  
24 get different results?  
25 A Not to the questions I'm asking, but they get

1 different results to other questions.  
2 Q So your view is they don't get different  
3 results to the effective resources on performance?  
4 A That's not the specific question that I'm  
5 asking.  
6 Q What's the question that you think you were  
7 asking?  
8 A The question I think I'm asking is whether  
9 there is a systematic impact of resources on performance  
10 that is found across the studies that relate to that.  
11 Q And the question they're asking?  
12 A The question that's been asked by other people  
13 that have critiqued this in the meta-analysis framework  
14 is whether there are any studies that support the fact  
15 that resources improve student achievement.  
16 Q And the work that you were referring to is work  
17 by whom?  
18 A The person who has done the most work on this  
19 is a person named Larry Hedges, who is currently at the  
20 University of Chicago, and he had a couple of his  
21 graduate students who have worked with him over time on  
22 that.  
23 Q And what is the most recent publication of the  
24 debate, if you will, between you and Hedges? If one  
25 wanted to get the current state of that debate, what

1 would you suggest looking at?  
2 MS. DAVIS: Vague and ambiguous.  
3 THE WITNESS: I think there was a publication in  
4 1996 that ended most of the formal debate.  
5 BY MR. GROSSMAN:  
6 Q That was your response to him or his --  
7 A Yes. Well, they had a study and I had a  
8 response to it, yes.  
9 Q And so if you had to characterize the state of  
10 the debate in 2003, where would you place it?  
11 MS. DAVIS: Vague and ambiguous.  
12 THE WITNESS: The state of the debate about whether  
13 resources have a systematic effect on achievement?  
14 BY MR. GROSSMAN:  
15 Q Yes.  
16 A I would place it that there's general agreement  
17 that resources of the common character looked at do not  
18 have a systematic effect on achievement.  
19 Q And by "systematic" here, what do you mean?  
20 A I mean that if you apply the resources more  
21 generally to schools, that you can expect to get a  
22 commensurate improvement in student performance.  
23 Q And when you say more generally across the  
24 schools, what does that mean?  
25 A I mean if the policy relates specifically to

1 adding more of a specific resource as opposed to part of  
2 a larger set of policies, it might change a lot of other  
3 factors in schools that you don't expect an impact.

4 Q Is it your view that the state of the research  
5 today is that that's true, even for cases where  
6 resources are increased, not in what I think you mean by  
7 generally across the schools, but aimed at targeted  
8 populations?

9 MS. DAVIS: Calls for speculation. Vague and  
10 ambiguous.

11 THE WITNESS: There are many different resources.  
12 I think that at this point talking about resources in  
13 general is going to confuse the issue.

14 BY MR. GROSSMAN:

15 Q Well, I'm trying to understand what you mean by  
16 systematic. Does systematic mean across the board as  
17 opposed to targeted?

18 MS. DAVIS: Vague and ambiguous.

19 THE WITNESS: No, it doesn't mean across the board.  
20 It means that that is the policy that is applied, not  
21 perhaps to all schools in California, but to a specific  
22 subsidy.

23 BY MR. GROSSMAN:

24 Q And I understand your conclusion to be that as  
25 to the totality of the research, it shows no correlation

1 targeted or whether across-the-board.

2 BY MR. GROSSMAN:

3 Q So is there any case where there is a  
4 multiplicity of studies that would support such a  
5 direction?

6 MS. DAVIS: Same objection.

7 THE WITNESS: What I've stated is that when I  
8 accumulate the evidence, I don't see that it suggests a  
9 systematic impact. There are in every case that I know  
10 of specific resources that people have looked at, a  
11 group of studies that support such a policy, and there  
12 are similarly a group of studies that do not support  
13 it. If you restrict your attention only to those  
14 studies that support it, yes, they support it. But  
15 that's not, I believe, the right way to do it.

16 BY MR. GROSSMAN:

17 Q And the right way to do it is what?

18 A The right way to do it is evaluating the entire  
19 set of studies, paying attention to the quality of  
20 individual studies, and to aggregate across different  
21 investigations of topics.

22 Q So is there any case where any such approach  
23 leads you to conclude that there is, in fact, a  
24 relationship between an increased resource, perhaps  
25 targeted, perhaps not, and student performance?

1 between --no systematic correlation between increased  
2 resources and student performance; is that correct?

3 A I'm sorry, I lost you at the beginning.

4 Q I'm focusing on the totality of the research  
5 point with this question.

6 A The totality of the research.

7 Q You distinguish your conclusion from, for  
8 example, Hedges, who you said asked whether there are  
9 some studies that show a correlation?

10 A Right.

11 Q And your conclusion was that you're really  
12 asking a different question, which is if you look at the  
13 -- across the totality of the studies, is there a  
14 correlation?

15 A That is correct.

16 Q So have you examined the question whether there  
17 is any subset of those studies that demonstrates a  
18 correlation sufficient to satisfy you that a policy  
19 designed around increasing resources in a particular way  
20 would be beneficial?

21 MS. DAVIS: Vague and ambiguous.

22 THE WITNESS: I have looked at that question a  
23 lot. I have contributed a number of studies to this. I  
24 do not think that any single study can provide the basis  
25 for a general policy of resource additions whether

1 A Is there any case where I think that a general  
2 policy could in fact lead to outcomes? Yes, I suspect  
3 that there are cases. I have not looked at the question  
4 in that way, because I don't think that's the correct  
5 way to think about policy.

6 Q And why is that?

7 A Because I believe that centralized decisions on  
8 the applications of resources to schools tend to be very  
9 inefficient and tend quite frequently to not yield the  
10 results that people desire.

11 Q And what's the basis for that?

12 A The basis for that is the range of studies that  
13 I've looked at and the range of resource investigations  
14 that I've looked at.

15 Q So let me make sure I understand your view.  
16 You suspect that there are cases where, if you compare  
17 -- if you took the totality of the data and sliced it up  
18 into topics of potential interest and then weighed the  
19 studies supporting a relationship between an increased  
20 resource and student performance against those that  
21 don't support it and then looked at that comparison,  
22 that you would conclude that an increase in resource  
23 could lead to improvement in outcomes; is that correct?

24 MS. DAVIS: I'm going to object to the extent that  
25 mischaracterizes testimony.



1 THE WITNESS: There are so many clauses and  
 2 conditionals in that statement that I'm not sure what I  
 3 can agree in that.  
 4 BY MR. GROSSMAN:  
 5 Q Let's break it up. We're talking, first of  
 6 all, about taking the totality of the studies and  
 7 breaking them up into topics of potential interest?  
 8 A Yes.  
 9 Q And we're talking about weighing the studies  
 10 that support the application of increased resources as  
 11 correlated with increased performance against those that  
 12 don't support it, correct?  
 13 A Yes.  
 14 Q And instead of looking at the whole 2 or 300 of  
 15 those studies to look for an across-the-board  
 16 correlation, we're looking at a more narrow question as  
 17 to a particular resource or particular target  
 18 population?  
 19 A Yes.  
 20 Q I understand your view to be that you suspect,  
 21 but aren't sure, that if you did slice it up in that way  
 22 and did the kind of analysis that you spoke about  
 23 earlier as representing the correct form of analysis,  
 24 you might well find an area that may have showed a  
 25 correlation between an increased resource and

1 performance?  
 2 A Yes.  
 3 MS. DAVIS: Same objections. Call for speculation.  
 4 BY MR. GROSSMAN:  
 5 Q But the reason you don't want to go down that  
 6 path is because you fear, and now slightly putting words  
 7 in your mouth, you fear that conclusion might lead to  
 8 centralized direction of that resource in a way that  
 9 would perhaps overallocate it or cause misallocation  
 10 elsewhere?  
 11 MS. DAVIS: Same objections.  
 12 THE WITNESS: I'd say something close to that, that  
 13 it does in fact potentially lead to inefficient  
 14 policies, yes.  
 15 BY MR. GROSSMAN:  
 16 Q And are you aware of anyone who has gone down  
 17 that path whose research you regard as of sufficient  
 18 quality to turn your suspect into belief?  
 19 MS. DAVIS: Vague and ambiguous.  
 20 THE WITNESS: I can't think of -- I can't think of  
 21 people at this time who have done that.  
 22 BY MR. GROSSMAN:  
 23 Q Now if you look at page F75 of Exhibit 2, your  
 24 2003 article.  
 25 A Uh-huh.

1 Q And you say there in that incomplete top  
 2 paragraph, "Of course a number of subsequent analyses  
 3 have also appeared since 1995"; do you see that?  
 4 A Yes.  
 5 Q "While not formally assessed, it is clear that  
 6 including them would not significantly change any of the  
 7 results reported here given their mixed results and the  
 8 large number of prior estimates"; do you see that?  
 9 A Yes.  
 10 Q Is there any report published since 1995 that  
 11 stands out to you as being of particular significance in  
 12 this connection?  
 13 A Oh, I'm not thinking of anything in  
 14 particular. We're looking at if there have been a  
 15 number of studies of looking at achievements since 1995.  
 16 I suspect a number of them are recorded in a footnote  
 17 here or I can find a listing.  
 18 Q Do any of them stand out to you as being of  
 19 high quality?  
 20 A There are many high quality studies. This  
 21 statement has to do about whether a particular high  
 22 quality would, in fact, shift the weight of evidence.  
 23 And this statement says I don't believe that that's the  
 24 case.  
 25 Q And has anyone done a formal assessment? You

1 say, "While not formally assessed." Do you know if any  
 2 formal assessment has been done?  
 3 A To my knowledge, no.  
 4 Q Is that a project you're undertaking?  
 5 A No.  
 6 Q And that's because --  
 7 A I have more things to do with my time than try  
 8 to record somebody else's work.  
 9 Q Are you doing any studies that would, in your  
 10 own view, be so persuasive as to potentially change the  
 11 outcome of your conclusion?  
 12 A I don't think any single study by me or others  
 13 is going to change that conclusion. I'm doing a lot of  
 14 studies that have -- that lead me to adjust my views  
 15 about what determines achievement and what policies are  
 16 correct.  
 17 Q And what studies relate to the -- that fall  
 18 within the category of the studies referred to in the  
 19 end of that paragraph, top of F75?  
 20 A Which studies have appeared since 1995?  
 21 Q No. Which studies are you working on?  
 22 A Oh, I've most recently been doing a lot of work  
 23 on achievement in the state of Texas that relate to why  
 24 there's differences in achievement.  
 25 Q And some of those studies relate to teacher

1 quality?

2 A Yes, they do.

3 Q And you do have a view that teacher quality is

4 correlated with student performance, correct?

5 A Yes, I do.

6 Q And have you diagnosed yet what the elements of

7 teacher quality are that relate to student performance?

8 A I have been led to believe that simple measures

9 of specific characteristics are not very good measures

10 of teacher quality.

11 Q Are there any good measures of teacher quality?

12 A Yes.

13 Q What are they?

14 A Student performance.

15 Q Value added over time?

16 A Yes.

17 Q Based on performance at the beginning of a

18 period contribution by teacher and performance at the

19 end of that period?

20 A That's a simple schematic of it, yes, but

21 that's the general idea.

22 Q And is that the sole basis you have right now

23 for estimating teacher quality? Let me ask it a little

24 differently.

25 If you were hiring for a school district, you

1 policies I've used. I have thought about having people

2 make more precise assessments on -- perhaps from their

3 student teaching experiences or internship experiences,

4 how well they've done. And I've also thought about more

5 policies that relate to performance after people have

6 been hired and making decisions then.

7 Q One of the requirements for measuring teacher

8 performance in the way that you believe it should be

9 measured is to have longitudinal data on a student by

10 student basis, correct?

11 A That's the requirement for research purposes,

12 and I think it would also be helpful for some policy

13 purposes, but that's not the sole basis for making

14 decisions on individual teachers.

15 Q How would you do it without that data?

16 A We have some evidence that, in fact, principals

17 can in fact assess value added by individual teachers.

18 I speculate, and I don't have direct evidence on it, but

19 I speculate that, in fact, other teachers in the system

20 and other personnel in schools can, in fact, also

21 provide useful information on the quality of individual

22 teachers.

23 Q Based on observation of technique?

24 A I think it's based more upon the totality of

25 their performance in the classroom.

1 have to make some decisions based on unmeasured value

2 added? You have to make a decision about hiring before

3 you can put the teacher in that system, correct?

4 A Yes.

5 Q And so your methodology doesn't yet give a lot

6 of guidance to someone trying to make an initial hiring

7 decision, correct?

8 A It gives a lot of guidance.

9 MS. DAVIS: Objection. Vague and ambiguous.

10 BY MR. GROSSMAN:

11 Q How is that?

12 A It says first that you shouldn't pay too much

13 for the characteristics that are on the personnel form

14 that are normally corrected.

15 Q So it tells you that a lot of things don't

16 matter, correct?

17 A It does do that.

18 Q And does it give you any guidance as to what

19 does matter?

20 A Not in terms of what would be written on the

21 employment form.

22 Q And how would you -- have you thought through

23 the question how you take the results of your research

24 and apply it to a hiring decision?

25 A I've not thought of the exact personnel

1 Q Including whatever proxies for a longitudinal

2 database you might have that somehow show increases in

3 student achievement?

4 A I think that would be useful information, but

5 that's not the sole information that one would not want

6 to use.

7 Q And what else would you want to use?

8 A I would use judgments of supervisors and other

9 people in the system. By supervisors I don't mean just

10 the principals, but I mean also people who are involved

11 in the organization of instruction in schools.

12 Q And in a sense you're suggesting that a

13 professional judgment as to teacher quality is an

14 important component of the measurement of teacher

15 quality?

16 A Yes, I am.

17 Q One of the things you have commented on in some

18 of your research is the use of studies from developing

19 countries?

20 A Yes.

21 Q In your view of the utility of those studies is

22 what?

23 A My view is that they are potentially very

24 useful for devising policies to improve the education in

25 developing countries, but that in general they do not

1 provide much information about how to adjust the schools  
2 in California.

3 Q Okay. Let's take a look at your formulation of  
4 this on page F83. And the paragraph at 2.2, I believe,  
5 is language you've used in other studies as well on this  
6 -- in other publications as well on this topic, correct?

7 MS. DAVIS: Do you need to read that?

8 THE WITNESS: I should read this.

9 BY MR. GROSSMAN:

10 Q Really what I want to ask you is, is there  
11 anything new in this paragraph as opposed to things you  
12 have said over the last seven or eight years about the  
13 use of studies from developing countries?

14 A I would like to believe I'm fresher than eight  
15 years old, but that's -- you make your judgment on that.

16 Q I have bad news for you having read your work.  
17 Let the reflect laughter in the room. I don't need to  
18 you answer that question.

19 I want to ask you about this sentence, "One  
20 explanation of the lack of relationship between  
21 resources and performance in the U.S. is at schools that  
22 are generally operating in an area of severe diminishing  
23 marginal productivity placing most on the flat of the  
24 curve"; do you see that?

25 A Yes, I do.

1 The point is that right now we cannot see in that adding  
2 resources to schools leads to an outcome that we're  
3 looking for in terms of achieving the students. That  
4 could come because we're already saturated with  
5 resources, and adding resources won't add, contribute  
6 very much of this or it could come because they're not  
7 using resources effectively. And I don't think it's a  
8 matter of whether we look at individual classrooms or  
9 not. It's a matter of basically the operations of the  
10 schools that we're observing.

11 Q And by "the operations of the schools," what do  
12 you mean?

13 A Whether they are using resources as effectively  
14 as possible or not.

15 Q Well, I'm not sure I follow you, but let me  
16 come at it a slightly different direction. It is your  
17 view that the aggregate of the studies shows that we're  
18 on the flat of the curve in terms of whether marginal  
19 increases in resources lead to corresponding increases  
20 in performance, correct?

21 A I'm afraid that you've jumped into an article  
22 written for economists, and I think that you've  
23 misinterpreted it. The general presumption behind this  
24 for economists, that is not laid out in great detail, is  
25 that we are talking about some underlying production

1 Q Do you have a view as to the accuracy of that  
2 explanation?

3 MS. DAVIS: Vague and ambiguous.

4 THE WITNESS: Well, I obviously do because I wrote  
5 it. I believe that it's a reasonable possible  
6 explanation, but that I don't have a real way of  
7 assessing the -- that is the explanation at this point  
8 in time.

9 BY MR. GROSSMAN:

10 Q What is it that's missing from the data that  
11 allows you to reach that conclusion?

12 A What's missing from the data is an  
13 understanding about the underlying efficiency of which  
14 schools use resources. That would be -- that statement  
15 is a statement that rather assumes that schools are  
16 using resources efficiently and then looks at the impact  
17 of additional resources. And we don't have any way of  
18 assessing the efficiency either over time or across  
19 countries that would allow us to do that.

20 Q The resource measurements are at a level too  
21 removed from understanding what happens in the classroom  
22 to tell you the efficiency of an input to the  
23 educational entity as opposed to what happens in  
24 instruction?

25 A No, that's -- I don't think that's the point.

1 function, which has a very technical meaning in  
2 economics that we are getting the maximum possible  
3 output from a given set of resources. And in that  
4 context, looking at a production function, then one  
5 might look at whether added resources in fact have  
6 varying effects on outcomes.

7 This statement refers to the possibility that  
8 we are actually looking at the production function and  
9 we're at a point where we're not getting much from  
10 additional output. The other side of it, though, that  
11 is not stated here is that we could not be looking at  
12 data that are derived from a production function in the  
13 economist sense which has efficient use of resources.

14 Q And the implication of that second case is  
15 what?

16 A The implication of that second case is that if  
17 schools were operating efficiently in the sense of using  
18 resources to the best purpose, then we could see added  
19 resources leading to more outcomes, even at the level  
20 that we're talking about.

21 Q But your research indicates that you don't see  
22 that?

23 A Yes, it does.

24 Q So whatever the -- I guess whatever the cause  
25 of that result is, your research indicates that we are

1 on the flat of the curve as an empirical matter?

2 A Flat of the curve when used here in quotes is  
3 referring to the economist view of it.

4 Q Using the production function?

5 A Yes. My interpretation of what we have seen in  
6 the U.S. is that lots more resources have been applied  
7 and we've not gotten more output. So if you want to  
8 interpret this as the curve being in between the simple  
9 use of resources over time in the U.S. and outcomes,  
10 yes, we are on the side of the curve.

11 Q And is there another way to interpret this?

12 MS. DAVIS: Calls for speculation.

13 THE WITNESS: I've given you two ways to interpret  
14 this. Do you want a third?

15 BY MR. GROSSMAN:

16 Q No, I'm not following the -- I'm not sure why  
17 it matters what the cause is as to whether, in your  
18 judgment, we are on the flat of the curve?

19 A It matters very much what the cause is because  
20 if, in fact, we could through some change that led to  
21 more efficient use of resources get an impact of added  
22 resources, then we might want to consider policies that  
23 added resources to the schools in targeted or general  
24 ways. If in fact we have efficient use of resources now  
25 and adding more resources is not going to change

1 Q Is there any work that you regard as probative  
2 that seeks to isolate schools that are not operating in  
3 an area of severe diminishing marginal productivity and  
4 determine whether increased resources result in  
5 increased performance?

6 A I'm not sure of the work that might fall in  
7 that category. Lots of work is trying to find out under  
8 what circumstances resources might matter and what they  
9 don't. Again, it's generally trying to add up pieces of  
10 a puzzle and reach some conclusion about it.

11 Q The work in the developing countries -- your  
12 hypothesis about the work in the developing countries is  
13 that it is aimed at schools that are not on the flat of  
14 the curve, correct?

15 A Yes.

16 Q And that's because they may be operating from  
17 such a low resource state that at the level at which  
18 they're given increased resources does matter and show  
19 an increase in performance?

20 A Yes.

21 Q And your hypothesis in comparing those to the  
22 United States is that the schools in the United States  
23 aren't operating at that level?

24 A Yes.

25 Q And so one I'm not sure you know, but in the

1 achievement, we probably would not want to add more  
2 resources to schools.

3 Q And the unknown right now is that there is no  
4 empirical evidence to suggest that a policy that added  
5 resources to the schools would result in the efficient  
6 use of those resources and increase student performance?

7 A Yes.

8 Q Has any of your work focused on evaluating the  
9 degree to which schools, in fact, are generally  
10 operating in an area -- let me strike that. Let me  
11 start over.

12 You say that schools in the United States are  
13 generally operating in an area of severe diminishing  
14 marginal productivity; do you see that?

15 A I see that one explanation for the lack of  
16 relationship is that -- that is not the only  
17 explanation. That's what I've been trying to say.  
18 There are other explanations. I have said there that  
19 one explanation would be that.

20 Q And just fill out the -- in the form of this  
21 sentence, fill out the other explanation so I can see  
22 them squarely counterposed.

23 A An alternative explanation for the lack of  
24 relationship between resources and performance in the  
25 U.S. is its schools are not effectively using resources.

1 Williams case we've referred to the schools that we're  
2 targeting as offering third world quality of education.  
3 Are you aware of any research in the United States that  
4 focuses on schools that are resource deprived, as you  
5 would understand that term, to determine whether an  
6 increase in resources to those schools would be  
7 correlated with performance?

8 A In the early 1990s I did some research on  
9 northeast Brazil, three states in northeast Brazil.  
10 In the early 1990s the U.S. equivalent of expenditures  
11 per pupils in those states was \$30 per student per  
12 year. That strikes me as a different version of third  
13 world, if in fact the schools in California are third  
14 world by your statement.

15 There are people who have looked at low  
16 expenditure schools in the United States. I'm not sure  
17 what to make of it. It's not that anybody has looked at  
18 it in terms of an empirical analysis to show that these  
19 are in fact third world schools.

20 Q Does that research suggest that those schools  
21 are in the realm of severe diminishing marginal  
22 productivity?

23 A The research that I've seen does not suggest  
24 that resources are more important in the low resource  
25 schools that are often identified in these studies.

1 Q And what studies are you referring to?  
 2 A I can refer to some of my own studies that  
 3 suggest looking at across school districts in the state  
 4 of Alabama, which is not regarded as one of the top  
 5 resource state systems in the country, that there was no  
 6 differentiation of resources for the lowest spending  
 7 schools in Alabama versus the highest schools in  
 8 Alabama.  
 9 Q When you say "no differentiation," you mean --  
 10 A Resources had no more impact on the low  
 11 spending schools in Alabama than they did on the high  
 12 spending schools in Alabama.  
 13 Q And those were tests of the correlation between  
 14 resources and performance?  
 15 A Yes, they were.  
 16 Q Which work are you referring to? Is it cited  
 17 in this paper?  
 18 A I do not believe so. We can find it on my CV.  
 19 Q Actually, I think it might be at the back of  
 20 your expert work, or maybe that's just references cited.  
 21 A That's reference cited.  
 22 MR. GROSSMAN: So let's mark your CV Exhibit 3.  
 23 (Defendant's Exhibit 3 was marked  
 24 for identification by the court reporter.)  
 25 THE WITNESS: If you look on page 9 of my CV in the

1 middle, there's an article called, "Can Equity Be  
 2 Separated From Efficiency in School Finance Debates,"  
 3 Emily P. Hoffman, editor, Essays on The Economics of  
 4 Education, published by the UpJohn Institute.  
 5 BY MR. GROSSMAN:  
 6 Q You published a lot of papers, so this may be  
 7 an unfair question. Can you summarize what you reported  
 8 there?  
 9 A I believe that I reported there attempts to  
 10 uncover the effects of resources in Alabama schools on  
 11 student performance and found that there was no  
 12 systematic impact.  
 13 Q And the resources you looked at?  
 14 A I believe there I was looking at spending per  
 15 pupil, but I am unclear about that at this point.  
 16 Q Any other studies that you can think of that  
 17 look at what might be thought of as low resource schools  
 18 and determine whether they're in a realm of diminishing  
 19 marginal productivity?  
 20 A Low resource U.S. schools?  
 21 Q Yes.  
 22 A I'm a little bit confused as to how you would  
 23 like to identify diminishing marginal productivity.  
 24 Q Regardless of costs, is that what you're  
 25 directing your question to? I'm identifying as

1 regardless of costs, that there is a focus.  
 2 A So you're not using, as we discussed -- you're  
 3 not using an economist term here. So you want to say do  
 4 I know of any other studies that find a lack of  
 5 relationship between achievement and student performance  
 6 in low resource schools?  
 7 Q The other way around, that show a correlation  
 8 between increased resources and performance?  
 9 A I'm afraid that I've never characterized my own  
 10 mind studies in that way, so I couldn't be very  
 11 effective at this point in doing that.  
 12 Q And the same would be true if I asked the  
 13 question using the economist understanding of severe  
 14 diminishing marginal productivity?  
 15 A Yes. What I've said here is that the evidence  
 16 does not allow us to distinguish between alternative  
 17 explanations.  
 18 Q But my point is -- my question is, you haven't  
 19 categorized the studies in your mind as relating to low  
 20 resource schools, whether or not you use a more general  
 21 or an economist definition of severe diminishing  
 22 marginal productivity?  
 23 A At one point in the past I tried to summarize  
 24 the international evidence, and part of that is in here,  
 25 that suggests that even across-the-board, if you look

1 across international circumstances, you do not see a  
 2 very strong impact of resources. You probably see a  
 3 slightly stronger impact of resources in really third  
 4 world countries as opposed to U.S. analogs to these.  
 5 I cannot think of any summary of U.S.  
 6 experiences that has particularly looked at that  
 7 question. I know that a number of these studies that  
 8 went into this work were conducted at a time in which  
 9 resources in the U.S. were much lower than they are  
 10 currently and were much lower than they are in any  
 11 California school today, and that they did not find  
 12 systematic impacts of achievement.  
 13 So to the extent that you're asking about has  
 14 anybody looked at the current situation in California,  
 15 and whatever set of schools you want to call third  
 16 world, I know that there have been studies directed at  
 17 that -- at less than that level of resources that has  
 18 not found an impact of achievement.  
 19 Q Are you familiar with the literature on failing  
 20 schools and reconstitution of failing schools?  
 21 A Not specifically, no.  
 22 MR. GROSSMAN: Why don't we take a break.  
 23 (Recess.)  
 24 BY MR. GROSSMAN:  
 25 Q Let's go back to page 3 of your report.

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1 A Yes.  
2 Q The importance of the period 1890 to 1990 in  
3 your research is what?  
4 A It's 100 years over which we had data.  
5 Q Do we have data on student performance?  
6 A No.  
7 Q So what's interesting about that period is the  
8 real spending per pupil increase, correct?  
9 A Yes.  
10 Q And we don't really know before 19 -- the 1970s  
11 what the impact of spending increases on student  
12 performance were?  
13 A We don't have very good information. There's a  
14 little bit of suggestive information.  
15 Q Do you regard that as sufficiently probative to  
16 make judgments upon?  
17 A No.  
18 Q So turning to the '70s to the present,  
19 distinguishing between NAEP and the SAT --  
20 A I'm sorry, I'm completely lost on where you  
21 are. I don't see anything on page 8 about 1890 and  
22 1990.  
23 MS. DAVIS: Page 3.  
24 THE WITNESS: Page 3. I thought you said 8. I was  
25 looking throughout this whole page. I didn't see what

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1 you were talking about.  
2 BY MR. GROSSMAN:  
3 Q Page 3?  
4 A Yes.  
5 Q So I want to understand your view on the  
6 utility of studies based on the SAT. Are they probative  
7 or -- are they strongly probative or weakly probative?  
8 MS. DAVIS: Vague and ambiguous.  
9 THE WITNESS: I think they provide some  
10 information. It's not as clear information as we might  
11 desire, but it requires information.  
12 BY MR. GROSSMAN:  
13 Q But the NAEP is more reliable?  
14 A Yes.  
15 Q And have you, in doing your weighing of the  
16 studies, isolated the NAEP studies from the whole set to  
17 determine whether there is -- to determine whether that  
18 alters the results of the analysis?  
19 MS. DAVIS: Vague and ambiguous.  
20 THE WITNESS: Which analysis are we speaking about  
21 now?  
22 BY MR. GROSSMAN:  
23 Q So the whole set includes studies based on both  
24 the NAEP and the SAT, correct?  
25 A I don't know what set you're speaking about. I

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1 don't think that there's any reference here to a set of  
2 studies.  
3 Q Well, let's go back to your article, "The  
4 Failure of Input-Based Schooling Policies"?  
5 A Yes.  
6 Q When we talked about that article, you talked  
7 about the weighing of and the comparing of positive and  
8 negative studies; do you recall that?  
9 A Yes.  
10 Q And there's a set of studies that was looked at  
11 for that purpose from before 1995?  
12 A Yes.  
13 Q And I understood that that was the same set of  
14 studies that you looked at in conjunction with your  
15 expert report?  
16 A Yes.  
17 Q And in looking at that set of studies, you were  
18 looking at studies that were based on NAEP and studies  
19 that were based on the SAT, correct?  
20 A No.  
21 Q What did you look at?  
22 A I looked in the part that I thought we were  
23 referring to, to a set of econometric studies that  
24 looked at a wide variety of different measures of  
25 outcomes. I am at a loss to think of whether any of the

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1 studies referred to in that set looked at NAEP at all.  
2 I know that a couple looked at the SAT, but I can't  
3 think of any that looked at NAEP.  
4 Q So what outcome measures were they relying on?  
5 A A wide variety of other outcome measures.  
6 Q And do you have any explanation for why they  
7 didn't look at NAEP?  
8 A Certainly. The NAEP for most of its time  
9 period from 1969 on gave you only periodic aggregate  
10 scores for the U.S.  
11 Q And so the results you're reporting here is, in  
12 your judgment, not an econometric -- what's the  
13 significance of what you just said for the paragraph in  
14 the middle of page 3?  
15 A The significance is just the direction you were  
16 going in. This discussion on page 3 does not refer to  
17 an econometric study. It refers to plotting out NAEP  
18 scores over time and comparing them to expenditures over  
19 time.  
20 Q And I don't want to -- I don't mean to quibble  
21 with you terminologically, but is that or is that not an  
22 econometric study?  
23 A That would not be called an econometric study.  
24 Q Because it's not multivariate?  
25 A It's not variant at all. It's looking at plots

1 as opposed to statistical analysis. The problem being  
2 that there are too few observations much in the way of  
3 statistical analyses of the NAEP scores; and secondly,  
4 there are reasons why you wouldn't want to do it.

5 Q On the first point, is NAEP now disaggregated  
6 by a state?

7 A Yes, it is.

8 Q And when did that start?

9 A 1990 was the first year that that was done.

10 Q And is it disaggregated by any other  
11 disaggregation method?

12 A Well, over time there's been a varying amount  
13 of detail from surveys of the participants that include  
14 disaggregating NAEP nationally by race by, I believe,  
15 urban rural schools, and maybe some other  
16 characterizations, but those are the ones that I know  
17 of.

18 Q And have any studies that you're aware of  
19 looked at NAEP since it became disaggregated to try to  
20 correlate resource usage with student performance based  
21 on NAEP?

22 A Yes.

23 Q And what are those studies?

24 A Which specific studies? I know that I've done  
25 some with it myself.

1 Q Which are those?

2 A If you look on my CV on page 5, there are two  
3 studies about state accountability systems. The first  
4 is "Lessons About the Design of State Accountability  
5 Systems" with Margaret E. Raymond in a forthcoming  
6 Brookings book. The second is "Improving Education of  
7 Quality, How Best to Evaluate Our Schools" with Margaret  
8 E. Raymond in a book from the Boston Federal Reserve  
9 bank that has now been published.

10 On page 6 there is a study entitled "Schooling,  
11 Inequality, and the Impact of Government" with Julie A.  
12 Somers in a book edited by Finis Welch and published by  
13 the University of Chicago Press.

14 And then there is a look at NAEP scores. And  
15 on page 6, the article titled "Black and White  
16 Achievement Differences in Governmental Interventions"  
17 in the American Economic Review of May 2001.

18 I believe those are the published studies using  
19 NAEP. I've been recently working in more detail on the  
20 same set of NAEP data and accountability systems, but  
21 it's not published.

22 Q And the reason you're more recently focusing on  
23 the use of NAEP data is what?

24 A The use of NAEP data provides some information  
25 about the effects of state accountability systems that I

1 don't know of any other way that it can be understood.

2 Q Because it cuts across the entire country?

3 A Yes.

4 Q What was the substance of the lessons about the  
5 design of state accountability systems article that  
6 hasn't yet been published?

7 A That article tries to review work on  
8 accountability systems, to provide a framework for  
9 thinking about accountability systems, and to provide  
10 some evidence on the impact of existing accountability  
11 systems on performance.

12 Q And what was that evidence?

13 A The evidence suggests that states that  
14 introduced accountability systems during the 1980s in  
15 fact got better growth in mathematics achievements on  
16 NAEP than states that did not.

17 Q And by accountability systems there you mean  
18 what?

19 A Well, I mean a collection of what states do  
20 that include detailed reporting systems of  
21 accountability in schools, plus states that introduced  
22 rewards and sanctions for performance on some measure of  
23 performance.

24 Q So to fall within the set of states that you  
25 considered as having an accountability system, there had

1 to be those two elements?

2 A Had to be one of those two. We looked at the  
3 difference between simple reporting systems that didn't  
4 attach consequences to scores and those that did. And  
5 we, in our work could, not detect any difference between  
6 those.

7 Q So there was a difference to the reporting --  
8 attributable to the reporting function but not to the  
9 intervention function?

10 A No. We could not find a differential impact of  
11 the consequences over reporting systems.

12 Q But as to reporting versus nonreporting, there  
13 was a differential impact?

14 A Yes, there was.

15 Q And did you hypothesize as to why that was so  
16 in that piece?

17 A Yes.

18 Q What were your hypotheses?

19 A That providing information on performance in  
20 schools was a valuable thing to do.

21 Q And that it was a motivator?

22 A Yes.

23 Q Let's see, "Improving Education Quality" is now  
24 out?

25 A Yes, it is.

1 Q Can you summarize it for me?

2 A Both of these articles are very similar. He  
3 spends a little bit more time looking at whether there  
4 are unattended consequences of introducing  
5 accountability systems.

6 Q And what was your conclusion?

7 A That a number of analyses that had investigated  
8 accountability systems had found some short-run,  
9 unattended consequences in terms of special education  
10 placements or potential cheating or focusing of the  
11 instructional time. But when we looked across states at  
12 the impacts on special education placements, we could  
13 find no impact.

14 Q Suggesting that the evidence was anecdotal  
15 rather than statistically significant?

16 A Suggesting more that there might be specific  
17 short-run impacts, but that they didn't persist over  
18 time.

19 Q On, let's see, "Schooling Inequality and the  
20 Impact of Government," is that -- what was the gist of  
21 that piece?

22 A That work tried to see whether levels of  
23 spending affected NAEP scores, and it also tried see  
24 whether movements to equalize expenditures along the  
25 lines of the numerous school finance court cases that

1 There was some specific factors found in both  
2 sets of studies that related to both different racial  
3 ethnic groups and to overall performance, but I haven't  
4 looked at those in a while.

5 Q I guess where I was going with my question is  
6 that this has been something that you looked at fairly  
7 frequently over your career; that is the differential  
8 impact by ethnic background or racial characteristics of  
9 school policies?

10 A Yes, it is.

11 Q And is it an area of continuing interest to you  
12 in part because it's an issue that you took on right  
13 when the Coleman Report was published, correct?

14 A Yes.

15 Q And can you summarize -- I realize I'm asking  
16 you to summarize kind of a lifetime of work here. But  
17 is there a synthesis of your work on this issue that you  
18 -- can you synthesize your work on this issue and tell  
19 us what your conclusions are about the differential  
20 impact of resource policies across racial groups?

21 MS. DAVIS: Overbroad.

22 THE WITNESS: No.

23 BY MR. GROSSMAN:

24 Q And that's because you get different outcomes  
25 based on different approaches?

1 have gone on had an impact on substantive labor market  
2 outcomes.

3 Q And the answer was?

4 A In general it did not have a consistent  
5 impact. We divided up people by race and gender and  
6 found that potentially equalization was associated with  
7 better earnings for black females, but not so for black  
8 males or for whites of either gender.

9 Q You have done other studies that sliced the  
10 student population by race dating back to your analysis  
11 of the Coleman Report, correct?

12 A That's true.

13 Q And your own research at the time of the  
14 Coleman Report, as I recall, was that there was a  
15 correlation as to African-Americans, but that is between  
16 resources and performance, but not necessarily, as I  
17 think you called them at the time Mexican-Americans; is  
18 that correct?

19 A I wouldn't have summarized that that way. I  
20 guess I should go back and look at this. That wouldn't  
21 have been my summary of this. The work after the  
22 Coleman Report actually included two separate studies,  
23 one of the Coleman data and one of a separate sample.  
24 It turns out to be Norwalk La Mirada School District in  
25 California. I'd have to look at the specific things.

1 A Well, different studies. I'm not sure if it's  
2 the approach if you're going to emphasize the  
3 methodology. But it's hard to characterize and  
4 summarize the different specific results that I have  
5 gotten over time.

6 Q Have you -- and by results we're talking about  
7 your own studies as opposed to analysis of other  
8 studies?

9 A I thought that's what you wanted me to restrict  
10 to.

11 Q Yes.

12 A Yes.

13 Q And have any of your studies showed an absence  
14 of variation across racial groups?

15 MS. DAVIS: Same objection.

16 THE WITNESS: Have any of mine shown the absence of  
17 resource impacted?

18 BY MR. GROSSMAN:

19 Q Yes.

20 A Yes.

21 Q Which ones?

22 A Well, the work I'm currently doing, that is  
23 emphasizing racial differences, does not find that state  
24 differences and resources has any impact on the NAEP  
25 performance.



1 Q So maybe I got confused. The 2001 studies  
2 showed a difference as to African-American women,  
3 correct?

4 A That's true.

5 Q More recent studies show that that was an  
6 incorrect conclusion?

7 A Well, I don't think it's a matter of correct or  
8 incorrect. I think that we've been able to take  
9 different slices at the issue in different studies.  
10 These aren't all doing the same thing, and they are not  
11 all looking at the same, shall I say parameter, and so  
12 there have been different findings and different  
13 studies. And I don't think, as I said before, that any  
14 individual study is conclusive, including my own.

15 Q And therefore you think that the research is  
16 still insufficient to determine whether increased  
17 resources might differentially benefit particular racial  
18 subgroups more than others?

19 A That is true.

20 Q Now, I have a feeling that you are convinced  
21 that teacher quality measured not as a resource function  
22 but as a somewhat more multifactorial summing of the  
23 teacher's abilities in the classroom do have  
24 differential impacts on disadvantaged kids; that is,  
25 teacher quality makes more of a difference for

1 Q And it observes that for disadvantaged or low  
2 income children, high quality teachers can overcome what  
3 you call the achievement deficit, correct?

4 A Yes.

5 Q And then you say, "In fact," it is at the next  
6 paragraph, "the current school system does not insure  
7 any streaks of such high quality teachers, particularly  
8 for disadvantaged students"; do you see that?

9 A Yes.

10 Q And that's based on other work that you've done  
11 that shows concentration of what you have a feeling are  
12 low quality teachers in schools with high numbers of  
13 disadvantaged students, correct?

14 A No.

15 Q What is that based on?

16 A This is entirely different. I can't think of  
17 any work that I have done that relates teacher quality  
18 here to differential impacts.

19 Q I'm not asking about differential impacts right  
20 now actually. I was going in a different direction.

21 A Oh, I am sorry.

22 Q Which is your observation here that the current  
23 system particularly does not insure any streaks of such  
24 high quality teachers for disadvantaged students, with  
25 the focus on the words "particularly"; do you see that?

1 disadvantaged kids than for other kids?

2 MS. DAVIS: Vague and ambiguous.

3 BY MR. GROSSMAN:

4 Q I'm looking at page F91 of your 2003 study.

5 MS. DAVIS: Where are you looking on that page?

6 MR. GROSSMAN: The paragraph that says these  
7 estimates of teacher quality.

8 MS. DAVIS: Okay.

9 THE WITNESS: Uh-huh.

10 MS. DAVIS: Feel free to read that paragraph and  
11 any other parts of it.

12 THE WITNESS: I don't think that relates to your  
13 question at all.

14 BY MR. GROSSMAN:

15 Q Why not?

16 A Because your question said -- was related to  
17 whether there's a differential impact of teacher quality  
18 by race. This tries to characterize the impact of  
19 variations in teacher quality by income level, not race  
20 first. And secondly, it doesn't say that there's a  
21 differential impact for one race or another. It says  
22 teacher quality is important, but it doesn't say that  
23 there's a differential impact. This is trying to say  
24 how big is the impact of teacher quality.

25 BY MR. GROSSMAN:

1 A Yes.

2 Q And what was that based on?

3 A I don't think I can give you a specific  
4 citation from that. I think it comes in part from  
5 suggesting that disadvantaged students frequently have  
6 more teachers in the beginning of their career than  
7 advantaged students. So in that way there's an impact,  
8 but that's sort of a minor part of this whole question.  
9 That's all I can think of --

10 Q So --

11 A -- that leads to the word particularly.

12 Q So are you avowing that sentence or disavowing  
13 it?

14 A I think if you want to attach some probability  
15 to it, I see that there's no real effort to insure that  
16 is a general observation, but it's not related to a  
17 specific research that tries to trace the placement of  
18 students for disadvantaged or advantaged students.

19 Q But you have done some work in that area that  
20 suggests that, at least as a matter of experience, and  
21 maybe that's what we're quibbling with, but as a matter  
22 of experience, experienced teachers tend towards schools  
23 with advantaged kids, correct?

24 A That's just what I was referring to, yes.

25 Q And is it the experience versus quality issue

1 that --

2 A Yes. Experience is one thing in our Texas work  
3 that suggested that the initial years of teacher  
4 experience are a bit rocky, but that that's also a  
5 relatively small impact compared to the impact of total  
6 teacher quality differences.

7 Q And just help me on that last point for a  
8 minute. I misunderstood your words earlier when you  
9 said teachers -- more teachers in their initial years,  
10 and I thought you were talking about a revolving door of  
11 teachers in a student's initial years. You were talking  
12 about more teachers who were early in their careers; is  
13 that correct?

14 A That is correct.

15 Q And your last point is that the variation in  
16 teacher quality that is correlated with your -- even in  
17 the early years, suggests that you can have highly  
18 capable teachers even in their first years of teaching;  
19 is that correct?

20 A Correct.

21 Q And so the predictability in your judgment of a  
22 teacher being one, two, three years out of school and  
23 starting out on their career as it relates to teacher  
24 quality is what?

25 A From our work in Texas it suggests that

1 performance for advantaged and disadvantaged kids.

2 Q And how about in schools with higher  
3 proportions of disadvantaged kids? In other words, I  
4 understood your answer now to be relating it more on a  
5 one-to-one basis?

6 A There is an open question in my mind of whether  
7 there is any impact of proportion disadvantaged kids  
8 over and above the impact of being disadvantaged for the  
9 individual child. Our work has not suggested that there  
10 is a large impact of the proportion disadvantaged over  
11 and above whether or not this individual student is  
12 disadvantaged, but that's a very difficult hypothesis to  
13 test, and so I think that there is an open question on  
14 that.

15 Q And the open question, just to make sure I have  
16 your opinion, completely relates to teacher experience  
17 on that, on the issue you just cited?

18 A No, no. It's that one level removed from that.

19 Q Which is?

20 A It's at the level of whether concentrated  
21 poverty has a negative impact over and above being in  
22 poverty for individual students, so it's at the higher  
23 level than that. It is not then looking in detail at  
24 the second order question about experience conditional  
25 on that.

1 that's -- that is something that should be looked at,  
2 and that could potentially be important from our work in  
3 Texas.

4 Q And did you look particularly at the impact of  
5 that factor on teacher performance with disadvantaged  
6 kids?

7 A Yes.

8 Q And what was the result?

9 A The result, as I remember it is, that there's  
10 not much difference between advantaged and disadvantaged  
11 kids and the impact of initial experience.

12 Q So you're aware of the hypothesis that inner  
13 city schools with kids coming from disadvantaged  
14 backgrounds, it's all the more important to have a,  
15 quote, unquote, "experienced teacher," than it might be  
16 in a suburban school with advantaged kids? You're aware  
17 of that hypothesis, correct?

18 A Yes.

19 Q And you regard yourself as having tested that  
20 hypothesis with this study?

21 A Yes, it is a test of that hypothesis.

22 Q And your conclusion is what?

23 A If I have it correct in my mind -- I don't have  
24 the study in front of me -- that there was not much  
25 difference in the impact of initial experience on

1 Q The first question you're referring to is the  
2 peer effects question?

3 A Yes, it is.

4 Q And the second order question is whether  
5 teacher experience might be more correlated with  
6 performance if there was a concentration of Impoverished  
7 children?

8 A Holding constant the individual child's  
9 poverty. The problem is that these are very difficult  
10 questions to analyze them and have any confidence that  
11 you have meaningful causal results, and therefore we  
12 have not looked at these interaction effects with  
13 characteristics of the overall school in our work. I do  
14 not know of anybody who has done that in a way that is  
15 convincing.

16 Q Meaning using an econometric form of analysis?

17 A Using an appropriate econometric form of  
18 analysis, yes.

19 Q And is the problem in doing that in your Texas  
20 work that the data set isn't large enough?

21 A It's usually hard to complain about having a  
22 million and a half observations as being not large  
23 enough. In this case it's not so much the data set as  
24 having detailed information about the background of  
25 students, and their advantaged or disadvantaged status

1 is one issue.

2 The second issue is that it is very hard to  
3 separate out individual background effects from the  
4 aggregate in a convincing way given the imprecision of  
5 the estimates of family background.

6 Q And my understanding of the way this is usually  
7 done is that you look at, for example, percentage of  
8 kids on the reduced or free lunch, free meals program as  
9 a proxy for the associated economic status of the school?

10 A Do you mean me specifically or me generically?  
11 There are people who do do this work.

12 Q People who do this work.

13 A People who do this work typically do that  
14 because those are the data that are available to measure  
15 family background. That is also partially what we do in  
16 Texas when we want to be very specific about  
17 disadvantaged status.

18 Q And I guess I'm wondering why it wouldn't be a  
19 pretty straightforward data sort to analyze  
20 differentially the impact of experience level on schools  
21 where there is a relatively low proportion of students  
22 on that program versus schools where there is a high  
23 proportion of students on that program?

24 A How long do you want the lecture to be?

25 Q I have to get it some point I figure.

1 school is a better measure of individual family  
2 background than the own identification of whether they  
3 are on free or reduced lunch. That happens because  
4 there's a lot of variation in take-up rates for free and  
5 reduced lunch, for individuals. There is -- it is a  
6 crude measure in the first place because it only relates  
7 to a couple of points in the income distribution where  
8 you get free and reduced lunch, implying that it is very  
9 difficult to interpret a simple measure of percent on  
10 free and reduced lunch as a characteristic of the peers  
11 that's relevant.

12 If you then were to interact this with measures  
13 of teacher characteristics, when that is measured with  
14 error, you would have great difficulty in determining  
15 what that interaction meant, therefore we have not done  
16 that. We have thought that it was more important to use  
17 the available data in other ways to characterize  
18 differences in family backgrounds generically for  
19 individual students and to then looking at what we could  
20 on the specific characteristics of teachers.

21 Q On page 8 was the -- I think was the black  
22 white achievement piece. Yes, black white achievement  
23 differences and governmental differences. I don't think  
24 I asked you about that one yet. Can you just summarize  
25 what that paper reports?

1 A In all of our work in Texas we have been very  
2 concerned about separating out the various sources of  
3 achievement differences and being clear about them. The  
4 issue of peer effects raises several concurrent  
5 problems. In our analysis we have worried that family  
6 backgrounds and abilities of different students aren't  
7 well measured and that those could be correlated with  
8 characteristics of the schools or teachers, but not  
9 causal, that some of the characteristics may not be  
10 causally related.

11 In order to separate out peers, you have to  
12 accurately differentiate individual student performance  
13 first, and you have to have a good measure of peers.  
14 Free and reduced lunch is the best available measure of  
15 economic disadvantage, but it's not particularly good  
16 because it is voluntarily reported by students. The  
17 reporting changes over time as I am led to believe  
18 because students in someplaces feel stigmatized by  
19 identifying themselves as being on free and reduced  
20 lunch; therefore it is very error prone.

21 Having an error prone measure of individual  
22 performance or individual family background interacts  
23 badly with trying to identify the effects of a large  
24 number of peers. It could be, for example, that the  
25 proportion of free and reduced lunch students in the

1 A This was an early attempt to try to say  
2 something about why the black white achievement gap was  
3 changing in the way it has between 1970 and 1996, I  
4 believe. And we tried to sort out some of the factors  
5 that were behind this.

6 Q And the way the gap was changing was what?

7 A The black white achievement gap is measured by  
8 NAEP, narrowed noticeably in the 1980s and then going to  
9 1990s. It either remained constant or widened some in  
10 the 1990s.

11 Q And at that point when you were writing this  
12 piece your hypotheses or conclusions were what?

13 A My conclusions which were identified as being  
14 rather speculative, I believe, suggested that the one  
15 factor that seemed to be explaining this pattern or  
16 those consistent with this fact pattern was the course  
17 of school desegregation and integration that had  
18 occurred over time.

19 Q Which had accelerated in the '80s and then  
20 altered in the '90s?

21 A Accelerated in the '70s and started to slow  
22 down in the '80s and '90s.

23 Q The '80s was your conclusion that in the '80s  
24 African-American achievement was positively effected by  
25 the school desegregation perceived in the '70s and that

1 positive effect halted?  
 2 A Yes.  
 3 Q And have you since done more work on the issue  
 4 that was the focus of that paper?  
 5 A The issue of the achievement gap?  
 6 Q Yes.  
 7 A Yeah, we've done related work to that. Again,  
 8 some of our recent work in Texas has related to that.  
 9 Q Aside from what you've reported so far on  
 10 Texas, any other conclusions from your Texas work that  
 11 bear on the achievement gap?  
 12 A Yes.  
 13 Q What are they?  
 14 A We've done work on integration of schools and  
 15 find that high concentrations of black students appear  
 16 to hurt black students, but not have any effect on white  
 17 or Hispanic students.  
 18 Q In those schools?  
 19 A Yes. So that has implications for the  
 20 achievement gap, that they're related in part to  
 21 composition of these schools.  
 22 Secondly, we've done work on student mobility.  
 23 And being in schools with lots of mobile students,  
 24 African-American students tend to be -- tend to move  
 25 schools, change schools more frequently than white

1 students and they tend to be in schools that have more  
 2 other students moving, and both of those have negative  
 3 impacts on achievement.  
 4 Q Not only for the movers but for the stayers?  
 5 A That is true, correct.  
 6 Q And were you able to identify significant  
 7 variation in the impact of -- in the impact on  
 8 achievement of the mobility factor across schools? In  
 9 other words, were there some schools with a highly  
 10 mobile population that were able to compensate for that  
 11 somehow, or was there a close concentration around the  
 12 mean?  
 13 MS. DAVIS: Vague and ambiguous.  
 14 THE WITNESS: We never looked at the variation  
 15 across individual schools.  
 16 BY MR. GROSSMAN:  
 17 Q So you saw an average effect in the school  
 18 system; am I using the right term?  
 19 A Yes.  
 20 Q Would it be -- is this something you're  
 21 interested in, that you're following up on, how schools  
 22 might have compensated for mobility or --  
 23 A It's likely that we will go back to that, but  
 24 we've been unable to do it within our current data.  
 25 Q And same question with respect to high

1 concentration of African-American students, did you look  
 2 at variation among schools with high concentrations?  
 3 A We have not.  
 4 Q If you look at page 5 of your report, there's a  
 5 reference to Grissmer, et al.?  
 6 A Yes.  
 7 Q And the conclusion, their overall findings are  
 8 that black students perform better over time and would  
 9 be expected from the trends in black family; do you see  
 10 that?  
 11 A Yes.  
 12 Q And they attribute this better performance to  
 13 improvements in schools; do you see that?  
 14 A Yes.  
 15 Q And that white students performed in the  
 16 opposite direction; do you see that?  
 17 A Yes.  
 18 Q Do you have a view as to the quality of the  
 19 work that Chris Martel did in that study?  
 20 A I don't think it's very good work.  
 21 Q Why is that?  
 22 A Because the econometric approach is that they  
 23 used would introduced biases that would not allow them  
 24 to actually analyze them if school factors are  
 25 correlated with the background factors that they looked

1 at.  
 2 Q And what was the error that they made in your  
 3 judgment?  
 4 A They used bad econometric techniques.  
 5 Q In what way?  
 6 A They estimated misspecified models that only  
 7 had achievement related to family backgrounds and not to  
 8 the characteristics of schools.  
 9 Q So there was a term that you used a lot in your  
 10 writing and I need to you explain. Misspecified, what  
 11 does that mean in econometrics?  
 12 A That generally means that the assumptions that  
 13 go into making the statistical techniques good or  
 14 appropriate are violated. And the typical way in which  
 15 that is the case is that the factors that are not  
 16 measured, not included in the analysis, are in fact  
 17 correlated with the factors that are included in the  
 18 analysis. When that happens, you misestimate the  
 19 impacts of the included factors because they will  
 20 partially reflect the omitted factors.  
 21 Q And so coming back to this study, the  
 22 misspecification was that they didn't include school  
 23 factors?  
 24 A That is true.  
 25 Q And the school factors might well have been

1 correlated with the family background factors?  
 2 A Yes.  
 3 Q And so familiarly background might have been  
 4 shown to have greater weight than it would have had they  
 5 separately included school factors or separately  
 6 considered the school factors?  
 7 A Well, it would have a different weight. You  
 8 can say which way the bias goes from just that.  
 9 Q But in this particular case there was a bias  
 10 you think?  
 11 A I think that the whole analysis is very suspect.  
 12 Q In which direction, or you don't know?  
 13 A I don't have a any firm reason to believe -- to  
 14 understand the direction.  
 15 Q Let's go back to page 4. The sentence, "In  
 16 simplest terms, policies focused on inputs have been  
 17 vigorously pursued over a long period of time, but there  
 18 is no evidence that the added resource have improved  
 19 performance, at least for the most recent three  
 20 decades"; do you see that?  
 21 A No. Where are you?  
 22 Q On the top of page 4.  
 23 A I see. I'm on the fold of the document here.  
 24 Yes.  
 25 Q By no evidence, and focusing on the rather

1 totalistic not there, what did you mean there?  
 2 A I meant that the aggregate evidence did not  
 3 seem support that case. And I think -- actually, I'm  
 4 not sure where we are in this report. I think we're  
 5 just talking about aggregate evidence at this point and  
 6 that the aggregate evidence is not consistent with that.  
 7 Q Now, let's go back to page 3, and I want to  
 8 refer you to figure one, table one. Yes, it's actually  
 9 table one. I want to refer you to figure one in the  
 10 text. Do you see that? Maybe that's not right. I'm  
 11 sorry.  
 12 A No.  
 13 Q I'm sorry. I'm looking in the wrong place.  
 14 A That's not true. Figure one is what it should  
 15 refer to.  
 16 Q Where is figure one?  
 17 A It's been reproduced.  
 18 Q Yes, page 25. Sorry.  
 19 Figure one is scores by 17 year olds; do you  
 20 see that?  
 21 A Yes.  
 22 Q And in your work do you concertedly use the  
 23 17-year-old data?  
 24 A That's what I've used most often. That's not  
 25 always.

1 Q And have you looked at the data for 9 or 13  
 2 year olds?  
 3 A At various times, yes.  
 4 Q And what do the results show for 9 and 13 year  
 5 olds?  
 6 A Well, the last time I looked at it, which was a  
 7 while back, it suggested that there was larger gain,  
 8 there were gains for 9 year olds and somewhat for 13  
 9 year olds and not for 17 year olds.  
 10 Q And what's your view of the significance of the  
 11 gains for 9 and 13 year olds and in view of the absence  
 12 of gains for 17 year olds?  
 13 A I view it that whatever performance is being  
 14 picked up at younger ages does not seem to carry through  
 15 to what performance is at the end of schooling.  
 16 Q And do you have a hypothesis on that?  
 17 MS. DAVIS: Calls for speculation.  
 18 THE WITNESS: I haven't actually spent a lot of  
 19 time looking at that. It appears that the system  
 20 doesn't build upon any earlier performance.  
 21 BY MR. GROSSMAN:  
 22 Q On page 4 again, changes in students. Looking  
 23 at the statistics at the bottom of the page, source for  
 24 those statistics?  
 25 MS. DAVIS: Are you starting at the sentence

1 "between"?  
 2 MR. GROSSMAN: Yes.  
 3 THE WITNESS: Poverty I know can be found that  
 4 current population survey, as can the family structure  
 5 be found from the current population survey. The  
 6 children not speaking English at home, I'm a little bit  
 7 unsure whether they came from the current population  
 8 survey or whether there's a summary of statistics for, I  
 9 thought, disadvantaged students. I'm drawing a blank on  
 10 the exact form of that. But I think it goes back to the  
 11 current population survey also, but I'm less certain  
 12 about that because they -- studies of those differences  
 13 aren't regularly asked in the current population survey,  
 14 I don't believe. It may be that those come from the  
 15 decennial census, but I'm not unsure about the limited  
 16 English speaking statistics.  
 17 Q And how about on the carryover of that  
 18 paragraph, the source for that data?  
 19 A The population survey on family sizes, current  
 20 population survey on adults schooling, probably a  
 21 National Center for Education Statistics, Digest for  
 22 Education Statistics, source for kindergarten and  
 23 preschool.  
 24 Q On page 6, the paragraph on special education  
 25 spending and its impact on overall cost of education; do

1 you see that?  
 2 A Yes.  
 3 Q Do you happen to know the data for California  
 4 on that question?  
 5 A Which data? On the cost?  
 6 Q Yes, and the degree to which it explains  
 7 expenditure growth?  
 8 A No.  
 9 Q Is there a current debate about this data and  
 10 whether you're correct?  
 11 MS. DAVIS: Vague and ambiguous.  
 12 BY MR. GROSSMAN:  
 13 Q Do you know of anyone who has critiqued it?  
 14 A It's not a debate that I'm involved in. There  
 15 may be a debate, but I'm not involved in it.  
 16 Q So here you're just citing the work that others  
 17 have done; is that what you mean by not being involved  
 18 in it?  
 19 A You're talking particularly the Schaken study?  
 20 Q Yes, or the Hanushek and Rifkin 1997 report.  
 21 A Well, that's my own work, so I'm --  
 22 Q That's why I'm asking you.  
 23 A I'm not debating my own work.  
 24 Q You said you're not involved in it?  
 25 A I'm not involved in any debate. You said there

1 was a debate. As far as I know there's some discussion  
 2 that in fact the 2.3 cost estimate is too high, and that  
 3 a number of people have suggested that that's not the  
 4 appropriate multiplier for the average difference. That  
 5 number in part comes from looking at what schools  
 6 currently do as opposed to some sort of real cost of it.  
 7 And secondly it comes from aggregating up across various  
 8 disabilities that have very different cost implications.  
 9 And so my understanding of the most recent  
 10 discussion is that 2.3 is judged to be too large for the  
 11 current mix of students nationally. I don't know of  
 12 any -- I don't know that it's a debate. I thought it  
 13 was more a set of recent estimates. So if there are  
 14 people who are taking various sides of this, I don't  
 15 know about it.  
 16 Q And on the question of expenditure growth, have  
 17 you looked at whether special education spending might  
 18 differentially account for expenditure growth in schools  
 19 or school districts with different student populations?  
 20 A Have I looked specifically at that, no.  
 21 Q Are you aware of any evidence on that score?  
 22 A I am aware of a variety of bits of data as  
 23 opposed to real analysis, but it's bits of data that  
 24 suggest that a number of large school districts have had  
 25 more rapid growth in special education populations in

1 the nation as a whole.  
 2 Q Let's go another few minutes and take another  
 3 break.  
 4 The bottom of page 6, the Coleman Report.  
 5 A Yes.  
 6 Q What's your current view of the conclusions in  
 7 the Coleman Report, if you have one?  
 8 A I do. My current view is that at least the  
 9 popular conclusions from the Coleman Report that  
 10 suggests that schools don't matter is incorrect. Much  
 11 of this is a question about what was in the Coleman  
 12 Report more how people interpreted it subsequently. And  
 13 so I came to the conclusions vis-a-vis the subsequent  
 14 interpretation. If you want the full treatment of  
 15 exactly what conclusions can be found in the Coleman  
 16 Report, we can do that also.  
 17 Q I wanted to pick up on schools don't matter  
 18 versus schools matter. So your view is that schools  
 19 matter?  
 20 A Yes.  
 21 Q And that quality schooling can compensate for  
 22 low socioeconomic status to some degree?  
 23 A Yes.  
 24 MS. DAVIS: Vague and ambiguous.  
 25 BY MR. GROSSMAN:

1 Q And the mechanism by which that occurs is what?  
 2 A Learning in the classroom.  
 3 Q And how does learning in the classroom occur?  
 4 A I don't know how to answer that.  
 5 Q Well, do you have a view as to what the  
 6 mechanism of learning is in a classroom?  
 7 A My view is that it's a very complicated  
 8 combination of teacher skills and abilities, curriculum,  
 9 and other things that lead to outcomes, and I should say  
 10 of student and family participation in the process also.  
 11 Q As an independent or dependent variable?  
 12 A Student and family --  
 13 Q Participation.  
 14 A I'm viewing that as an input to student  
 15 knowledge. It probably also is affected by what schools  
 16 do, but we don't know much about that.  
 17 Q We don't know yet in a systematic way how  
 18 schools can engage parents and families in student  
 19 learning from the policy standpoint?  
 20 A Not directly, but we do -- what we do see is  
 21 that places where they have real external accountability  
 22 it appears that students work harder.  
 23 Q External accountability on students or on the  
 24 schools?  
 25 A Both.

1 Q As in the case of students as in high stakes  
2 testing?

3 A Yes.

4 Q Are you aware of the -- did you take a look at  
5 the Coskey Report on the -- his view of what resources  
6 were needed to teach the current California state  
7 standards?

8 A No.

9 Q Have you done any work on the relationship  
10 between high standards and the accoutrements of an  
11 educational standard necessary to teach to those  
12 standards?

13 MS. DAVIS: Vague and ambiguous.

14 THE WITNESS: No. I have no idea how you would do  
15 that.

16 BY MR. GROSSMAN:

17 Q Have you done any research on or analysis on  
18 what are referred to as opportunity to learn indicators?

19 MS. DAVIS: Vague and ambiguous.

20 THE WITNESS: One interpretation of much of my work  
21 is that it's looking at opportunity to learn  
22 indicators. So one interpretation, unless you want to  
23 add more detail, is that much of my work has looked at  
24 that.

25 BY MR. GROSSMAN:

1 that you find not particularly interested in?

2 A I don't know how you would do such a study, so  
3 I -- I guess I would be interested in it, but I don't  
4 know how it possibly would be done.

5 Q And is that something you've thought through or  
6 something you're just answering here as you sit here in  
7 this deposition?

8 A I've thought a little bit about it, but it's  
9 not something that is near the front of my mind very  
10 much.

11 Q So the to the extent that you've thought about  
12 it, why is it difficult to analyze that? I take it when  
13 you mean you don't know how to do such a study, you  
14 don't know how to do it in the econometric way that you  
15 think such a study should be done; is that correct?

16 A Well, it doesn't have to be done in an  
17 econometric way. It can done in a variety of different  
18 ways. Presumably if you could define this by random  
19 assignment experience as an alternative. What I find  
20 difficult in that study is how you would differentiate  
21 specific resources required for specific standards as  
22 opposed to the other levels of resources that are  
23 provided in general and how you would make that  
24 distinction and how you would in fact fully analyze the  
25 variety of inputs that go into the process.

1 Q And the specific sense in which opportunity to  
2 learn has been used currently, for example, as it  
3 relates to the decision to postpone application of the  
4 high school exit exam, have you done any work on that  
5 area?

6 A You're talking about the decision in June?

7 Q Yes.

8 A No.

9 Q Have you done any -- what I was asking you,  
10 though, was the use of the phrase opportunity to learn  
11 in that context. Have you done any specific research  
12 into that?

13 A Opportunity to learn is an ambiguous term.  
14 It's been used in a wide variety of ways. I interpret  
15 meaning as providing a certain set of inputs or  
16 resources to the process.

17 Q As opposed to an aggregate level of resources?

18 A As opposed to paying attention to outcomes.

19 Q Have you done any specific analysis of whether  
20 there is a correlation between educational resources  
21 that are particularly targeted at the current state  
22 standards and student performance in meeting those  
23 standards?

24 A No.

25 Q Is that an area that you are interested in or

1 Q So policy makers have to make a decision  
2 whether it is appropriate to institute a high stakes  
3 test based on the current state standards, and one of  
4 the factors in that decision is in their judgment  
5 whether students have been given a reasonable  
6 opportunity to learn the substance of the standards. Is  
7 there, in your view, any meaningful inputs that  
8 educational researchers can give to that question?

9 A I think there's very limited input educators  
10 can give to that.

11 Q And so the judgment would have to be made based  
12 on what?

13 A I believe the judgment that was made this last  
14 summer and most of judgments are political judgments  
15 made by political officials on what they think is  
16 possible and how they think the system should be  
17 organized.

18 Q Did you read the Humrow (phonetic) study that  
19 was done in anticipation of that decision?

20 A No, I didn't.

21 MR. GROSSMAN: Why don't we break. If you're okay,  
22 I'll start again in ten minutes and go to 12:30 or so.

23 (Recess.)

24 BY MR. GROSSMAN:

25 Q On page 7 you have a paragraph there the

1 summary of results?

2 A Yes.

3 Q And we looked at the -- at the exhibit "The  
4 Failure of Intrabased Schooling Policies" as the most  
5 recent iteration of your work in this area. Is that the  
6 particular piece that you had in mind when you were  
7 writing this paragraph, if you had any piece in mind at  
8 all?

9 A Yes.

10 Q And have you published anywhere the list of the  
11 studies that you reviewed?

12 A I don't think it's in here. I might be wrong,  
13 but I believe you can find it. There's a 1997  
14 publication. On page 7 of my CV there's a study  
15 assessing the effects of school resources on student  
16 performance and update, which I am virtually certain  
17 includes the list of studies.

18 Q And I don't think I asked you this before,  
19 although we talked about the general topic, you refer to  
20 the subsequent analyses that have appeared since 1995 in  
21 this paragraph on page 7. I think we looked at it also  
22 in conjunction with the failure of intrabase school  
23 policies?

24 A Yes.

25 Q What studies do you have in mind in that

1 production function to a grade level result within a  
2 larger study, that they span multiple grade levels. Is  
3 my understanding A, of what you did, and B, that that's  
4 something that the critics have latched onto, correct?

5 A Could we agree on the terminology and then we  
6 can do this efficiently?

7 Q Sure.

8 A There are publications which have a series of  
9 estimates in them. We are probably best off not using  
10 the word study because it's been variously used to apply  
11 to specific estimates and variously used to apply to  
12 particular publications.

13 Q So an estimate is what?

14 A An estimate is a statistical estimate of the --  
15 I'm having trouble finding a synonym for estimate. It's  
16 hard to define estimate in terms of estimates. It is a  
17 particular --

18 Q Let me ask it differently. How did you decide  
19 how deep you could go in terms of disaggregating results  
20 as to come up with a unit of estimate?

21 A I used what was available in the published  
22 studies.

23 Q So if the published studies reported distinct  
24 estimates for different sorts of data --

25 A I then would use those different sorts.

1 sentence, or is there someplace you can refer me to  
2 where you have listed those studies?

3 A There's some listed in the 1997 article I just  
4 gave you, and after that I don't have a firm list of  
5 those studies.

6 Q So let's mark as the next exhibit your 1997 --  
7 the 1997 piece that I think you were referring to. Is  
8 this it?

9 A That is correct.

10 MR. GROSSMAN: So this will be 4.

11 (Defendant's Exhibit 4 was marked  
12 for identification by the court reporter.)

13 BY MR. GROSSMAN:

14 Q So I take it that the list of studies is under  
15 sources of tabulated results?

16 A Correct.

17 Q And as I understand your work and one of the  
18 issues around your work, there are 376 separate  
19 production function estimates from how many different  
20 studies?

21 A Tell me how you want to define the term study  
22 and I'll tell you the answer.

23 Q One of the issues around your work, as I  
24 understand it, is that you disaggregated some studies,  
25 for example, by grade level and assigned a separate

1 Q And so one of the other issues I picked up from  
2 reading the articles is that you used a voting rule or  
3 you were characterized as using a voting rule?

4 A People have characterized it that way, yes.

5 Q And what's your terminology for how you weighed  
6 the differing results of the estimates?

7 A I have at various times in various places used  
8 different ways of summarizing the results. One is the  
9 simple tabulation of the results of different estimates.

10 Q And are there more, if you will, sophisticated  
11 methods that you have used or more analytical methods  
12 you've used to summarize the data?

13 A Yes. I've also tried to summarize them by the  
14 quality of the underlying studies.

15 Q And is there a point at which your analysis of  
16 those results reached its -- in your mind its logical  
17 conclusion and there was no further deepening of your  
18 analysis?

19 A Well, I think in the 2003 study I provide the  
20 results and different perspectives on the results as far  
21 as I have gone and probably as far as I will go.

22 Q I guess what I'm asking is, had that work come  
23 to kind of a breaking point earlier on and then with the  
24 2003 report essentially restating it, or have you  
25 continued to evolve it all the way through the 2003



1 report?

2 A There are a few parts of evolution in the 2003  
3 report, but there are similar results in the 1997.

4 Q In table two --

5 A This is of my report?

6 Q Yes, in your report of Exhibit 1, is from your  
7 1997 piece. The revised there means what at the  
8 bottom?

9 A Revised by the 2003 piece.

10 Q Oh, so is this data actually taken from the  
11 2003 piece?

12 A I don't believe that this particular table  
13 appears in 2003, but we can check that.

14 Q Let's trace it back to its origins. It looks  
15 like it may be you're correct in that the table three on  
16 page F76 itself says, "Hanushek 1997 A revised." So  
17 maybe that is the --

18 A So this table appears, but it's revised because  
19 I know, among other things, one different publication  
20 and set of estimates that I included in 1997 was  
21 erroneously included.

22 Q It looks like the data are the same.

23 A I think that the table I have as table two in  
24 my report is the same as table three in the 2003 paper,  
25 that what I'm saying is that the table three in the 2003

1 A Which estimates? The footnote refers to  
2 several.

3 Q That the estimated coefficient is statistically  
4 insignificant without giving the direction. Oh, I am  
5 sorry, now I understand it.

6 So you're saying that many of them show no  
7 direction, and those that show direction it's split  
8 evenly?

9 A Yes.

10 Q But all of those would be showing under this  
11 statistically insignificant column?

12 A That is correct.

13 Q Now, I'm hypothesizing myself that you had to  
14 do some sorting of these estimates into your categories,  
15 such as teacher education or teacher experience,  
16 correct?

17 A Where?

18 Q That is the estimates themselves may have been  
19 not labeled teacher education; they might have been a  
20 more granular form of teacher education, and you had to  
21 put -- you had to aggregate the studies or estimates?

22 A I am not sure what more granular means.

23 Q Well, for example -- maybe I should just ask  
24 you. What was the definition of teacher education used  
25 in the estimates that you looked at? I suspect it

1 paper does not appear precisely in the 1997 publication,  
2 but was in fact a revision of that.

3 Q Have you broken out the 376 estimates into  
4 various categories in your mind as to their research  
5 quality?

6 A Yes.

7 Q Are any of them of the -- strike that.

8 The STAR study in Tennessee on class size, is  
9 that one of the studies you refer to on table two?

10 A No.

11 Q So why did you exclude it?

12 A In everything that I've done I have included  
13 STARs as a separate section receiving essentially equal  
14 weight to the econometrics because it's importantly  
15 different in methodology and focus.

16 Q Because it's an experimental study with a  
17 randomized assignment of students?

18 A Yes.

19 Q And so none of the other studies that you  
20 included in tabular form were of that nature?

21 A That is correct.

22 Q So if you look at footnote two on page 8 of  
23 your expert report, I want to understand, how did you  
24 treat those studies in the table or those estimates in  
25 the table?

1 varied across the estimates.

2 A It varied across the estimates. By far the  
3 most common was whether teachers had a master's degree  
4 or not, but it generally referred to amounts of graduate  
5 education past a BA degree. It varied by the study of  
6 how they measured that, whether it was number of credit  
7 hours of graduate work, whether it was a master's  
8 degree, or there was a master's degree and credit hours  
9 or went on to a doctorate and so forth. And this is the  
10 summation of those.

11 Q And this is teacher education without regard to  
12 whether that education is linked to the teacher  
13 assignment?

14 A Correct.

15 Q And aside from what you reported based on your  
16 work in Texas in the earlier hour, what other  
17 information do you have on the degree to which teacher  
18 experience, especially in the earlier years of a  
19 teacher's career, is associated with student  
20 performance?

21 A What we see in the econometric studies is that  
22 almost 30 percent of these studies find a positive and  
23 statistically significant impact on performance.  
24 There's still a large number that don't find that, but  
25 that is most consistent with experience being

1 important.

2 Other than that, there was a study that Richard  
3 Merlene did at some point in the past that tried to look  
4 at different patterns of experience, and I believe found  
5 that the first years were most important, but after that  
6 could not find anything systematic. Those are the  
7 specific studies I think.

8 Q And have you ever sorted your teacher  
9 experience set of studies so as to focus on the  
10 estimates that are most linked to the early years of a  
11 teacher's experience level?

12 A No.

13 Q Is that doable?

14 A Probably not.

15 Q Because the studies tend not to isolate the  
16 early years from the general category years of  
17 experience?

18 A Correct.

19 Q And so that's actually something you did do in  
20 the Texas work?

21 A Yes.

22 Q And to the best of your knowledge, other than  
23 that study by -- I missed your --

24 A Richard Merlene.

25 Q Merlene. You're not aware of any other studies

1 A I am sorry, was there a question mark at the  
2 end? I didn't -- could you ask that once more.

3 Q And I saw you processing. I didn't know I  
4 hadn't asked one. I want to focus for a minute on  
5 issues within a district and disparities at the school  
6 level within districts.

7 A Yes.

8 Q Did any of the studies you looked at look at  
9 within districts variances?

10 A I frankly don't know.

11 Q Are you aware of the emerging literature that  
12 looks at school level expenditures within large urban  
13 districts and sees wide variation in expenditure levels?

14 A There's been work on similar issues for 30  
15 years.

16 Q And have you looked at that data with any  
17 particular focus?

18 A I have not, no.

19 Q So I guess I'm wondering what conclusion you  
20 draw about the utility of per pupil expenditure studies  
21 one way or the other given their quality level as  
22 reported on page 9?

23 A I don't think that the information from the per  
24 pupil expenditure studies is very illuminating, that you  
25 get much more information from the studies of specific

1 that focus econometrically on that question?

2 A None come to mind. There may have well been  
3 some, but none come to my mind.

4 Q The results reported on page 9, "In fact, 7  
5 percent even suggests some confidence in the fact that  
6 spending more would harm student achievement"; do you  
7 see that?

8 A Yes, I do.

9 Q Do you have a hypothesis as to how that --  
10 strike that.

11 Do you have a view that that correlation  
12 suggests causality?

13 A No.

14 Q So what is your hypothesis as to where that  
15 result comes from?

16 A My hypothesis is that the majority of the per  
17 pupil expenditure studies aren't very high quality and  
18 can't be relied upon.

19 Q And this is in fact -- this result, the 7  
20 percent result is an indicator of the low quality level  
21 of those studies?

22 A It's consistent with that view, yes.

23 Q And do you recall whether any of the studies  
24 that you used on spending, disaggregating spending  
25 within or as to schools within a school district?

1 resources, real resources, and that those are the ones  
2 that have more information in them.

3 Q And in that connection you're thinking of what?

4 A Studies that look at class size, salaries and  
5 what determines the salaries, experience, graduate  
6 degrees and so forth.

7 Q And do any of those studies in your view drive  
8 policy conclusions that are generalizable?

9 MS. DAVIS: Vague and ambiguous.

10 THE WITNESS: Yes.

11 BY MR. GROSSMAN:

12 Q Which ones?

13 A I think that the whole collection does. You  
14 want specific ones. The whole collection suggests that  
15 these resource variations aren't closely related to  
16 student performance.

17 Q So you're saying that you can't -- that the --  
18 you can derive a policy conclusion from the more focused  
19 studies and that they show -- the policy conclusion is  
20 that you have to look very closely at how the resource  
21 is increased rather than just increase the resource?

22 A Yes.

23 Q But as to the per pupil expenditures, you can't  
24 necessarily draw a conclusion one way or the other?

25 A No. The per pupil expenditures are very

1 closely related to those resources, and so they don't  
2 provide a lot more information, but they provide a lot  
3 more difficulty because it's difficult to assign per  
4 pupil expenditures in a meaningful way to individual  
5 schools, and so you are typically left with trying to  
6 compare expenditures across school districts, or at  
7 worse across states or things like that. And they do  
8 not provide the kinds of policy guidance one might want.

9 Q And let me just ask you about this word again,  
10 systematic. On the bottom paragraph of page 9,  
11 "Similarly looking at the remaining estimates of  
12 factors identified as potentially important, few  
13 characteristics have a systematic and consistent  
14 relationship with student outcome."

15 Systematic means significant when measured by a  
16 production function equation?

17 A Yes.

18 Q You talk about school facilities in the next  
19 sentence. "School facilities show no systematic  
20 relationship in student achievement."

21 A Yes.

22 Q I want to ask you about the flat of the curve  
23 issue again. Are you aware of any studies that focus on  
24 the question of improving the habitability and  
25 serviceability of schools in really, for want of a

1 Q So the basis for the first half of that last  
2 sentence, that clearly we want the facilities that meet  
3 that standard that you just described, that's a judgment  
4 based on what?

5 A It's a judgment on my statement of what society  
6 should be providing for kids, and that that's a minimal  
7 standard that we should insure that kids aren't in harms  
8 way by the public facilities that we're providing.  
9 That's my personal judgment, and I think it's the  
10 collective judgment of society. That's where that comes  
11 from.

12 Q You say, "Common measures of administrative  
13 inputs aren't systemically related to student outcomes";  
14 do you see that?

15 MS. DAVIS: A couple of sentences down.

16 THE WITNESS: Oh, yes.

17 BY MR. GROSSMAN:

18 Q And this is your -- this ties back to the table  
19 and the studies and estimates under administration?

20 A Yes.

21 Q What is the -- what is being measured in those  
22 estimates? By that, I mean, what administration  
23 resource is being measured?

24 A This is actually a collection of a number of  
25 despot studies, some measure the qualifications of the

1 better word, crummy condition and whether that would  
2 result in performance gains?

3 A No.

4 Q Do you have a -- do you have a view on whether  
5 -- I mean obviously at one level there is a step  
6 function you -- it's difficult to learn without a school  
7 facility, correct?

8 A Correct.

9 Q So we have to -- it's pretty straightforward to  
10 conclude that we have to spend enough to provide a  
11 facility for students to learn in in order to achieve  
12 student performance?

13 A Right.

14 Q But there is no econometric measure available  
15 of that, right?

16 A That's true. Well, going back to your previous  
17 discussions, I visited schools in Sierra State of Brazil  
18 in which the school was a lean-to structure on the edge  
19 of a barn that the livestock was filtering around  
20 outside of. There kids were learning, even though this  
21 would be kind of minimal by our standards.

22 Clearly you want safe and sanitary and healthy  
23 facilities for our kids, and we shouldn't tolerate  
24 anything but that. But in terms of its impact on  
25 achievement, I don't know what studies.

1 principals and superintendents, education levels  
2 experience and so forth. Others measure expenditure on  
3 administration. So it's a wide variety of things that  
4 generally point to resources going to some sort of  
5 administrative function.

6 Q Are you aware of any measures of administrative  
7 quality?

8 MS. DAVIS: Vague and ambiguous.

9 THE WITNESS: Question?

10 BY MR. GROSSMAN:

11 Q Yes.

12 A I'm not aware of any measures that  
13 systematically relate to student performance. There are  
14 lots of measures of administrative quality, but I don't  
15 know of any that have been shown to systematically  
16 relate to student performance.

17 Q And coming back to your measure of teacher  
18 quality, which I understood to be value added over time  
19 for use of a shorthand, is there -- well, let me just  
20 focus on that for a minute.

21 I take it that you do believe it is possible  
22 and desirable to figure out what those elements of  
23 teacher quality are once we engage in the process of  
24 using a value added measure?

25 A No. I don't think we're likely in my lifetime

1 to divide up teacher quality into some component  
2 elements.

3 Q And so the answer will be some have it and some  
4 don't?

5 A For a shorthand, yes, although I'm sure that  
6 some of those who have it, have it because they have  
7 been provided background and experience in preparation  
8 that enables them to have it. But I don't know how it's  
9 done and I don't think we're going to find it  
10 out.

11 Q So the same question with respect to  
12 administrative quality or administrative efficiency,  
13 have you given any thought to how you would measure  
14 performance of administrators in a way that was  
15 consistent with this idea of looking at student  
16 performance?

17 MS. DAVIS: Calls for speculation.

18 THE WITNESS: I think that I would basically do it  
19 in the same way. I would want to combine some  
20 information on the performance of schools and the  
21 teachers and kids in the individual schools with  
22 professional judgments about the ability of individual  
23 school administrators to contribute to that learning.

24 BY MR. GROSSMAN:

25 Q And on the issue of the performance measures,

1 Q And so your judgment as to how to measure  
2 student performance is that one would rely exclusively  
3 on psychometric tests over time?

4 A Do we rely exclusively on that? I think that  
5 the current set of psychometric tests is rather  
6 incomplete and imperfect, and that I would certainly  
7 want to see that better done. That's part of the  
8 answer.

9 And secondly, I'm not sure if you're leading  
10 back to the general question of evaluation, but the -- I  
11 think that there is a lot more than individual  
12 psychometric tests as given now, particularly as is  
13 given now because of the imperfections.

14 Q I guess what I was driving at is that some have  
15 suggested that one should look at a student's portfolio  
16 of work or engage in other what might be thought of as  
17 professional judgments of student performance as opposed  
18 to test-taking measurements. My question is whether you  
19 have a view on that?

20 A Yes.

21 Q And what is your view?

22 A I think that portfolios of work are very  
23 important in the design of teaching programs by  
24 individual teachers. I think it's very important they  
25 assess how students can put together materials. I think

1 what is your current view as to the best way to actually  
2 measure that, student performance measures?

3 A What is the best way to measure student  
4 performance?

5 Q In a realistic world that you operate in in  
6 terms of what might expect a high quality school  
7 district to do.

8 MS. DAVIS: In California or anywhere?

9 MR. GROSSMAN: Anywhere.

10 THE WITNESS: I think it's a combination of the  
11 best psychometric test of student performance in various  
12 core subject matters and combined with information on  
13 essentially the value added of schools so that you want  
14 to take into account both the performance at a point in  
15 time for individual kids and how they got there and the  
16 preparation they brought to them from outside of school  
17 and from other schools.

18 BY MR. GROSSMAN:

19 Q And I understand the psychometric measurement  
20 part, that is administer tests and collect the results.  
21 How would you collect the second half?

22 A The second half you collect by looking at  
23 performance over time and the growth patterns of  
24 individual student performance and how that relates to  
25 individual schools and teachers.

1 it's very hard to use this material in a really  
2 systematic way. I think that their attempts to assess  
3 students for accountability purposes on portfolios have  
4 shown limited success of being able to do that.

5 I believe that administrators would naturally  
6 take into account any portfolio information that they  
7 have in assessing individual teachers on their  
8 performance, but that it's very difficult to do. Among  
9 other things, it's hard to put portfolio information  
10 into any value added framework. I think it would  
11 contribute to somebody's assessment of it, but it's hard  
12 to do it systematically.

13 Q How about other factors that have been proposed  
14 for measuring school performance, such as graduation  
15 rates, dropout rates, missed days?

16 A I think that all of those are important  
17 indicators. Graduation rates and completion rates and  
18 so forth are important indicators of performance.  
19 Again, it is very difficult in doing that to disentangle  
20 the causal impact of schools and teachers from a variety  
21 of other things that impact on those measures. I think  
22 that's an objective of something we would like to do,  
23 but we don't have the tools readily available right now.

24 Q And do you have a view as to the currently --  
25 to the best currently available psychometric measures?

1 A No.

2 Q So in your section two you tackle the items  
3 that we have focused on in the case. And maybe what  
4 we'll do is break here and come back at 1:25.

5 (Lunch recess.)

6 BY MR. GROSSMAN:

7 Q I want to focus your attention on page 11 of  
8 your report, please. The sentence in the first  
9 paragraph, "Unfortunately, there is no evidence that  
10 variations in these factors have anything to do with  
11 variations of student outcomes," should that be read as  
12 the aggregate of the evidence?

13 A Yes.

14 Q As a general matter, how did you prepare this  
15 report?

16 MS. DAVIS: Vague and ambiguous.

17 THE WITNESS: On Microsoft Word.

18 BY MR. GROSSMAN:

19 Q Did you draft it yourself?

20 A Yes.

21 Q And provide a draft to counsel for the State?

22 A Yes.

23 Q And you got comments back?

24 A Yes.

25 Q Did any of your conclusions require adjustment

1 disadvantaged populations, and that if you went to a  
2 typical school serving disadvantaged populations, you  
3 would have a good chance of finding these conditions.

4 Q And then so in the next paragraph at the top of  
5 page 12, "There is some plausibility to some of the  
6 extreme cases cited, but this does not generalize to  
7 the situation across California," what did you mean  
8 when you said, "This does not generalize to the  
9 situation across California"?

10 A I meant to suggest that I had no reason to  
11 believe that some of the extreme situations cited could  
12 be found in very many schools in California.

13 Q So taking the formulation of what plaintiffs  
14 were trying to show that you gave me a few minutes ago,  
15 that was that if you went into a -- I forget your exact  
16 language, but something to the effect that if you went  
17 into a school with a lot of disadvantaged kids, you  
18 would have a good chance of finding these conditions;  
19 do you believe that not to be true?

20 A Yes.

21 Q So put conversely, you believe that if you went  
22 to a school with large numbers of disadvantaged kids,  
23 you would likely not find the conditions, one or more of  
24 the conditions that plaintiffs have highlighted in the  
25 Complaint?

1 in view of those comments?

2 A I don't believe so.

3 Q And these words that are in here are your  
4 words?

5 A Yes.

6 Q Next paragraph, "As a general matter, the  
7 plaintiffs cite extreme situations where actions might  
8 be plausible and then simply extrapolate wildly to  
9 assert that the matter is an issue throughout  
10 California"; do you see that?

11 A Yes. I do.

12 Q What did you understand the plaintiffs to be  
13 trying to show with respect to the extent of the  
14 conditions that had been identified as the gravamen of  
15 the plaintiffs' complaint?

16 A I believe they -- I interpreted the plaintiffs  
17 attempting to show what is highlighted in the paragraph  
18 at the bottom, a problem that exists in many California  
19 schools, many being worse, that show that as a general  
20 broad, widespread condition.

21 Q And by widespread, what did you understand the  
22 plaintiffs to be trying to do?

23 A I understood that they were trying to suggest  
24 that this was a set of problems that was particularly  
25 prevalent within the schools of low income,

1 A Well, there's an aggregation here of one or  
2 more. Yes, I believe that that's almost certainly the  
3 case, that one or more of the conditions would not exist  
4 in almost every urban city school.

5 Q There is a lot of data available on the extent  
6 of schools in the state that have high numbers of  
7 emergency credentialed teachers. You're aware of that  
8 data, yes?

9 A Yes.

10 Q So there really isn't much doubt about the  
11 extent of that problem, is there?

12 MS. DAVIS: Vague and ambiguous.

13 THE WITNESS: If you define the problem  
14 specifically in terms of emergency credentials, no.

15 BY MR. GROSSMAN:

16 Q And it is highly correlated with whether the  
17 schools serve predominantly low income, minority kids,  
18 is it not?

19 A I believe that's the case. I've never seen  
20 actually the correlations done.

21 Q You didn't focus on that aspect of Linda  
22 Darling-Hammond's report?

23 A What I focused on in her report was the going  
24 back and forth between emergency credentials and low  
25 quality teachers, which I didn't think was necessarily

1 pinned down.

2 Q But leaving aside that issue, you did note that  
3 she correlated the degree to which schools were impacted  
4 by emergency credentialed teachers?

5 A I would have to go back and see the exact work  
6 there.

7 Q So looking at the next paragraph on textbook  
8 availability, I think we already covered this point.  
9 But just to tie it up, you say, "Studies view the  
10 effects of textbooks find an impact only in places where  
11 the level and distribution of textbooks is radically  
12 different than found in California"; do you see that?

13 A Yes.

14 Q But you don't have any information on how bad  
15 the textbook situation is in the schools that are the  
16 focus of plaintiffs' complaint with respect to  
17 textbooks, do you?

18 MS. DAVIS: Vague and ambiguous.

19 THE WITNESS: I had information summaries in the  
20 plaintiffs' reports, and I also had more direct  
21 information on the situation in the developing  
22 countries.

23 BY MR. GROSSMAN:

24 Q From your own observation?

25 A Yes.

1 Q So it's possible that the schools in which low  
2 income, minority kids are predominant have textbook  
3 shortages and their parents also don't have a lot of  
4 books at home, correct?

5 MS. DAVIS: Calls for speculation.

6 THE WITNESS: I certainly would believe that there  
7 are fewer books in the homes of low income people than  
8 there are in higher income people. So if, in fact,  
9 there are schools for serving low income people that  
10 don't have textbooks available, I think it would always  
11 be quite possible to find parents who don't have  
12 textbook around.

13 BY MR. GROSSMAN:

14 Q Or regular books?

15 A Or regular books.

16 Q Now top of page 13, "Asserting that a few  
17 districts may not have the most current district  
18 textbooks is very different than demonstrating that  
19 textbooks shortages are severe"; do you see that?

20 A Yes, I do.

21 Q So plaintiffs have more -- the plaintiffs'  
22 experts and the evidence that you've seen in this case  
23 is more than just about whether districts have the most  
24 current textbooks; is it not?

25 A Yes.

1 Q But you don't have any information that you're  
2 going to rely on to say that --

3 A I have not done my own study of textbook  
4 availability.

5 Q And you're not aware of any data or other  
6 studies?

7 A No.

8 Q No, that's correct?

9 A Yes, I am not aware of any studies. I am  
10 sorry.

11 Q Thank you very much.

12 A It's a good correction. I usually try to get  
13 that.

14 Q And in the next paragraph, top of page 13 --  
15 actually, let me go back. On 12, do you have any  
16 information on variations in textbook -- strike that.  
17 Let me start over.

18 On 12, do you have any information on  
19 variations in the availability of books in homes in the  
20 state of California?

21 MS. DAVIS: Vague and ambiguous.

22 THE WITNESS: No, not specifically. There's some  
23 of the original Coleman work that we can probably dig  
24 out, but I don't have that available.

25 BY MR. GROSSMAN:

1 Q In some cases it's schools that only have  
2 classroom sets, for example, and don't have enough  
3 textbooks to give a book to the kid to take home?

4 A That's what the assertion is, yes.

5 Q And then next paragraph, "Plaintiffs offer no  
6 evidence to suggest that any lack of textbooks is  
7 attributable to insufficient resources"; do you see  
8 that?

9 A Yes.

10 Q Why was that an important -- why does that  
11 matter in your analysis?

12 A Why does that matter, because if a district  
13 doesn't have as many textbooks as the plaintiffs may  
14 want, it could well be that they thought that a better  
15 use of their funds was something other than textbooks.

16 Q And do you have any basis for knowing whether  
17 that is in fact the explanation for textbook shortages?

18 A I see no analysis of what -- either how to  
19 define textbook shortages in California or elsewhere or  
20 what are the determinants of it.

21 Q And are you aware of any districts  
22 affirmatively making resource allocation choices which  
23 would result in students not having a textbook to take  
24 home, conscious affirmative decision to allocate  
25 resources that would result in that?

1 A I have never seen any studies of that.  
 2 Q Have you ever seen any districts do that?  
 3 A No. If that's -- I've never looked.  
 4 Q So while it's a possibility that the disparity  
 5 in textbook distribution is the result of a judgment by  
 6 districts that gain from such expenditures were not  
 7 worth the expense, there are a range of other  
 8 explanatory possibilities as well?  
 9 A I assume so. I've never seen that.  
 10 Q The major point here that you're making, it  
 11 really shouldn't be attributable to aggregate resource  
 12 levels, because as a percentage of gross expenditures,  
 13 textbooks aren't a big expense?  
 14 A That's true.  
 15 Q So in fact it's unlikely that districts are  
 16 affirmatively making that choice given the relative --  
 17 as opposed to, for example, in a time of budgetary  
 18 crisis, reducing the number of teachers where the impact  
 19 on a school budget could be very large?  
 20 MS. DAVIS: Vague and ambiguous.  
 21 THE WITNESS: Could you try once more. I think I  
 22 got confused.  
 23 BY MR. GROSSMAN:  
 24 Q It's not that good of a question.  
 25 So in the next paragraph you have in text form

1 what I believe you said before, "Specifically no  
 2 district should permit unsafe or unhealthy schools. If  
 3 unsafe or unsanitary schools exist in the state, they  
 4 should be immediately corrected or shut down"; do you  
 5 see that?  
 6 A Yes.  
 7 Q Have you given any thought as to how that  
 8 prescription might be made operational?  
 9 A Yes.  
 10 Q Can you share it with us?  
 11 A I think that you ought to encourage reporting  
 12 to the State of these conditions. The State should have  
 13 a way of getting information from parents and districts  
 14 about their unsafe or unsanitary conditions. On the  
 15 other hand, I do not believe that the State should try  
 16 to keep an active inventory of all the facilities of the  
 17 schools in the state in their condition at every point  
 18 in time.  
 19 Q And the idea would be that the State would  
 20 obtain this information in the way that you described  
 21 and then do what?  
 22 A Well, if they're really unsafe and unsanitary,  
 23 I believe that we have laws that demand their  
 24 correction, and so they out to enforce the laws.  
 25 Q And in the next paragraph, did you understand

1 the plaintiffs to be asking for all schools to be state  
 2 of the art?  
 3 A I was frankly quite confused on what the  
 4 plaintiffs were asking for in terms of facilities.  
 5 Q And then again could the schools' facilities be  
 6 better, the fact that you asked that question was  
 7 perhaps a function of your view that the plaintiffs were  
 8 unclear as to what they wanted with respect to  
 9 facilities?  
 10 A Yes.  
 11 Q On the issue on page 14 of credentialing as it  
 12 relates to a measure of or proxy for teacher quality --  
 13 A Yes.  
 14 Q -- you say right in the middle of page 14,  
 15 "What is equally clear, however, is that the  
 16 effectiveness of a teacher is not directly related to  
 17 her training, experience, and credentials"; do you see  
 18 that?  
 19 A Yes.  
 20 Q So actually directly related. What does  
 21 "directly" there mean?  
 22 A That if you changed one of those, you could be  
 23 assured of getting a more effective teacher.  
 24 Q Assured --  
 25 A Of getting a more effective teacher.

1 Q I was focusing on the word "assured." Meaning  
 2 there's no certainty in anything in life, correct?  
 3 A No certainty in anything. Having a good  
 4 chance, significantly higher probability of.  
 5 Q And when you say part of this evidence was  
 6 previously presented, is that the evidence on table two?  
 7 A Yes.  
 8 Q And then another part comes from direct  
 9 investigation of credentials and their effects, what are  
 10 you referring to there?  
 11 A I have done some work on looking at teacher  
 12 credentials and have read a lot of other studies related  
 13 to those and have not been convinced that there is a  
 14 very direct relationship to student achievement.  
 15 Q And your own work on this issue would include  
 16 the Texas work that you were referring to before?  
 17 A The Texas work, yes.  
 18 Q What else?  
 19 A I'd have to go back and see. I had the  
 20 impression, for example, that I had looked at some of  
 21 that with the original Coleman Report work and that  
 22 other people who had looked at that time had also done  
 23 that. I don't have a list of specific studies. There  
 24 is a debate that I have between Darling-Hammond and  
 25 Gordon Balou (phonetic), the work summarizing teacher

1 credentials and critiqued by the Able Foundation Report,  
2 the original work by Darling-Hammond, critiqued by the  
3 Able Foundation Report.

4 I believe that some of the work by Balou and  
5 Bragowsky (phonetic) also relates to that, although I'm  
6 not sure precisely on that.

7 Q Do you have a view as to any credentialing  
8 system that offers promise or prospect of being directly  
9 related to teacher effectiveness? In other words, do  
10 you have a state that you -- in mind or a country in  
11 mind that you think credentials teachers in a way that  
12 is correlated with an impact on student performance?

13 A No, I do not have that in mind.

14 Q And is it your view that that's essentially an  
15 impossible task?

16 A I think it's -- I think it's at best an  
17 imperfect way to manage schools and the supply of  
18 teachers. I think at worst it could be impossible or  
19 bad. I think it has both positive -- credentialing has  
20 both positive and negative aspects, and we don't even  
21 know on that if it's possible.

22 Q Do we know enough in your judgment in  
23 disbanding credentialing systems?

24 MS. DAVIS: Vague and ambiguous. Calls for  
25 speculation.

1 How about time spent about classrooms on hands-on  
2 training programs?

3 A I don't think -- to my knowledge, we don't have  
4 evidence on that, good, solid empirical evidence on  
5 that. My guess is that kind of training has some value,  
6 but I have never seen any evaluation of either the  
7 amount of it or the character of it and how that relates  
8 to student achievement.

9 Q And how about content-based knowledge?

10 A I think in general it's good to know what  
11 you're teaching.

12 Q And therefore linking substantive expertise to  
13 the courses you're instructing on has, again, probably  
14 not been empirically evaluated but is probably a good  
15 idea?

16 MS. DAVIS: Vague and ambiguous. Calls for  
17 speculation.

18 THE WITNESS: I thought we were talking about  
19 content as opposed to a specific list of courses. It  
20 gets a little more difficult there.

21 BY MR. GROSSMAN:

22 Q By content I mean you're a math teacher so you  
23 majored or minored in math.

24 A I think on average that would be a good idea.  
25 On the other hand there are other ways of demonstrating

1 THE WITNESS: I think the answer to that question  
2 depends upon the entire system that you're going to put  
3 in place. Abandoning credentials without any other  
4 change may or may not be good. Abandoning credentials  
5 with some other changes could be good.

6 BY MR. GROSSMAN:

7 Q So if we had a system of the sort that you  
8 were envisioning before in which you measured teacher  
9 performance by measuring student performance, then that  
10 might be suitable or so strong a basis for qualifying  
11 teachers that you wouldn't need the kind of  
12 credentialing system that we have now, correct?

13 A That's correct.

14 Q But in the absence of such a system, what is  
15 your judgment as to what you do with credentials?

16 A In the absence of such a system, I would  
17 dramatically change what we have now because I know  
18 parts of it aren't working.

19 Q And what parts are those?

20 A The parts that require significantly more time  
21 to be spent on pedagogy and other matters where there's  
22 no demonstration that I know of that suggests that that  
23 amount of time is beneficial in terms of student  
24 achievement, and we know that it is detrimental in terms  
25 of the supply of potential teachers. Q

1 math performance. It's the classic statement of Collin  
2 Powell that he couldn't teach high school social studies  
3 because he hasn't met the set of courses. The same  
4 holds for math, where I know of instances where  
5 engineers have been prevented from teaching high school  
6 math because they don't have a math major.

7 Q So what's your prescription for the system  
8 again in the absence of the kind of system you envision  
9 for the future?

10 A Well, I think that --

11 MS. DAVIS: Same objections. Go ahead.

12 THE WITNESS: Sorry. I'll give you time to get  
13 your objections out.

14 MS. DAVIS: Thank you. I appreciate that.

15 THE WITNESS: I think the answer is that  
16 particularly where there's a lot of difficult,  
17 specialized content, you want to have a variety of ways  
18 of demonstrating content knowledge, but you want to make  
19 sure that people know what they're teaching.

20 BY MR. GROSSMAN:

21 Q And the variety of ways might include  
22 examination as opposed to having taken courses?

23 A Might include examinations. That would be one  
24 way.

25 Q Might include classroom observation?



1 A It might include classroom observation.  
 2 Q With the focus being on avoiding arbitrary  
 3 barriers that limit the supply of otherwise quality  
 4 teachers?  
 5 A That's a very good summary.  
 6 Q So you refer to rigid standards on the bottom  
 7 of 14, top of page 15, "The rigid standard suggested by  
 8 the plaintiffs"; do you see that?  
 9 A Yes.  
 10 Q And you compare that -- or you note the  
 11 requirements of the No Child Left Behind Act with  
 12 respect to teachers; do you see that?  
 13 A Yes.  
 14 Q What's your understanding of the requirement of  
 15 NCLB with respect to the credentialing of teachers?  
 16 A I think it's ambiguous.  
 17 Q Is it rigid?  
 18 A It insists on a high quality teacher, but I  
 19 wouldn't call that rigid. But I can certainly see some  
 20 implementations of what high quality means to be rigid.  
 21 Q And the standard that you understood plaintiffs  
 22 to be advocating was what?  
 23 A Ambiguous. My reading of the work of  
 24 Darling-Hammond was that it jumped back and forth  
 25 between high quality teachers, knowledge of subject

1 matter, and fully credentialed. Where at times fully  
 2 credentialed meant -- according to the current standards  
 3 of credentialing at times meant some other hypothetical  
 4 set of credentialing standards.  
 5 Q Did you note in any of your study of the  
 6 plaintiff papers that the standard proposed was that no  
 7 school drop below 80 percent in its proportion of fully  
 8 credentialed teachers?  
 9 A You pointed that out earlier. It wasn't strong  
 10 in my mind.  
 11 Q Does that sound like a rigid standard to you?  
 12 MS. DAVIS: Vague and ambiguous.  
 13 THE WITNESS: Yes.  
 14 BY MR. GROSSMAN:  
 15 Q So you think even in the -- that in the current  
 16 credentialing environment it's reasonable for a school  
 17 to go below 80 percent of credentialed teachers?  
 18 A It may be reasonable and it may be  
 19 unreasonable. It depends on who they -- what the  
 20 teachers who are uncredentialed look like.  
 21 MR. HAJELA: May I ask a quick clarification on  
 22 NCLB? You said the No Child Left Behind Act requires  
 23 high quality teachers; is that correct?  
 24 THE WITNESS: I thought that was the phrase. I  
 25 forget the exact phrase. If that's not the right

1 phrase, then you can try me out on a different phrase,  
 2 but I thought it was high quality teachers.  
 3 MR. GROSSMAN: Highly qualified.  
 4 THE WITNESS: Highly qualified, I'm sorry. Thank  
 5 you.  
 6 MR. HAJELA: The reason why I'm asking that is not  
 7 to test your memory on what it said. To me highly  
 8 qualified is closer to the credentialing issue that  
 9 you're criticizing than high quality would be?  
 10 MS. DAVIS: I guess that would be your opinion of  
 11 it.  
 12 THE WITNESS: There's ambiguity as to my  
 13 understanding as to what highly qualified means. Each  
 14 state is defining their own version of it. Some states  
 15 have proposed defining it in terms of student  
 16 performance, and others have proposed defining it in  
 17 terms of their traditional credentialing. I obviously  
 18 favor a highly qualified standard that goes closer to  
 19 student performance than one that goes closer to most  
 20 of the teacher certification requirements that exist  
 21 today.  
 22 MR. HAJELA: Do you know for California how they're  
 23 going to define highly qualified?  
 24 MS. DAVIS: Why don't we just leave that.  
 25 MR. HAJELA: Yeah, I'll do that.

1 BY MR. GROSSMAN:  
 2 Q Let's turn to section three of your report.  
 3 With some precision, what centralized decision-making do  
 4 you understand plaintiffs to be advocating?  
 5 A I understand plaintiffs to be advocating  
 6 increased scrutiny over the hiring of certified teachers  
 7 in districts. I understand the plaintiffs to be arguing  
 8 that their vague textbook standards be applied uniformly  
 9 across the state. I understood the plaintiffs to be  
 10 arguing that the State should develop a database on  
 11 facilities and maintenance that could be used to make  
 12 sure that each district did what the State required them  
 13 to do, whatever that might be.  
 14 Q And what local choices and decisions would that  
 15 eliminate?  
 16 A It would eliminate the range of decisions about  
 17 the hiring of teachers, a range of decisions about the  
 18 construction and maintenance of facilities, and a range  
 19 of decisions about the textbook policies that were  
 20 available in each district.  
 21 Q Do you believe that, in fact, there are a large  
 22 number of districts with a large number of schools that  
 23 would fall below plaintiffs' requirement of 80 percent  
 24 -- proposed requirements of 80 percent credentialed  
 25 teachers?

1 MS. DAVIS: Calls for speculation.

2 THE WITNESS: I don't have any of the data.

3 BY MR. GROSSMAN:

4 Q So we don't know how much that is a reflection  
5 of the reality for most schools, if not the schools the  
6 plaintiffs have focused on, correct?

7 A That is true.

8 Q And the same question with respect -- same type  
9 of question with respect to textbooks. Do you believe  
10 that most districts and most schools are making  
11 decisions not to supply textbooks on a one-textbook,  
12 one-students basis?

13 A I have trouble understanding what is meant by  
14 textbook in the plaintiffs' discussion, and I have very  
15 little information on the distribution of these,  
16 particularly with respect to the ability to have  
17 textbooks to take home.

18 Q You say there's a certain hubris in the  
19 confidence of the experts placed on their own judgment  
20 about how to run the schools at stake; do you see that?

21 A Yes.

22 Q Do you understand that the basic position that  
23 plaintiffs have taken in the state is that there is a  
24 normative school in the state of California, and that in  
25 those schools there are mostly credentialed teachers,

1 standards and trying to avoid any outcome standards, I  
2 think that's a problem. And so the fact that the  
3 plaintiffs' argument is to limit the range of inputs  
4 that they have chosen and specified while paying no  
5 attention to the outcomes, I think is a problem.

6 Q So let's take the second half of that. You  
7 interpret the plaintiffs as opposing outcome based  
8 standards?

9 A Yes.

10 Q And from what did you derive that?

11 A A number of discussions. I think it's in  
12 Jeannie Oakes' summary to suggest that paying attention  
13 to outcomes and not to input is a flawed system.

14 Q But she's not -- even as you've just stated it,  
15 that's not calling for dismantlement of an outcome based  
16 system, is it?

17 A I believe in there were a number of statements  
18 that I would have to go back and look that referred to  
19 the imperfect character of the outcome system and that  
20 this should really be relied upon.

21 So maybe I inferred more than she had to say,  
22 but I thought that the thrust of it was that the  
23 regulation of the system by the inputs was quite  
24 preferable to paying attention to the outcomes.

25 Q Would it change your judgment on the

1 kids have textbooks on course subject matters on a  
2 one-on-one basis and the facilities are in decent shape  
3 and not overcrowded?

4 A That's the standard?

5 Q That's the normative school, yes, that's the  
6 standard.

7 A No. I understand that to be an attempt to make  
8 sure that all schools were that.

9 Q But do you understand that fundamentally the  
10 plaintiffs are making an argument from equality that  
11 most schools look like the schools I just described, but  
12 that there's a significant number of students going to  
13 school that look materially worse on these factors that  
14 the State should set a floor?

15 MS. DAVIS: Assumes facts.

16 BY MR. GROSSMAN:

17 Q Does that resonate in your understanding of  
18 what the plaintiffs are driving at?

19 A I have no understanding of what the plaintiffs  
20 sought in the distribution of any of these factors  
21 was.

22 Q Would it be heuristic to make an argument from  
23 a principle based on comparing the typical school in the  
24 state with the worst off schools in the state?

25 A In terms of concentrating on a set of input

1 plaintiffs' view if you were reliably informed that what  
2 plaintiffs propose is to supplement the outcome based  
3 standards with a set of minimum standards below which  
4 schools should not fall on certain educational  
5 resources?

6 MS. DAVIS: Calls for speculation.

7 THE WITNESS: I suppose that there is some set of  
8 input standards, but I didn't see it in plaintiffs'  
9 case. That even if I stipulated that this was just a  
10 supplement as opposed to a replacement for, that would  
11 be appropriate.

12 (Record read.)

13 BY MR. GROSSMAN:

14 Q So I'm not sure I understood the diction of  
15 your answer.

16 A Either did I. I think it equaled your prior  
17 question.

18 Q So to that I will stipulate.

19 A Let me try it again. There are two parts to  
20 this question as I take it. And one is do I believe  
21 that the plaintiffs are for or against the current  
22 outcome standards. And the second part was, if in fact  
23 the plaintiffs were reliably for the outcome based  
24 standards, would I then think that supplementing those  
25 with input standards of the kinds that we've been

1 discussing would be appropriate.

2 Q Or would it alter your view of the case or of  
3 the issues here if that was your understanding of what  
4 we were seeking?

5 A And my answer is that it probably would not  
6 lead to a material change in my views, because I do not  
7 believe that regulating inputs is something that we know  
8 how to do in a productive way now, and that it is  
9 unlikely to improve the outcomes, which is something  
10 that I think is terribly important.

11 Q Have you analyzed the current California  
12 accountability system?

13 A I've looked at analysis of it. I have not  
14 personally analyzed it.

15 Q Do you have a judgment to the degree of which  
16 it meets the kind of outcome based system that you have  
17 envisioned as when -- for example, as it relates to our  
18 discussion of teacher quality?

19 MS. DAVIS: Vague and ambiguous.

20 THE WITNESS: I think that the current system needs  
21 improvement.

22 BY MR. GROSSMAN:

23 Q In what areas?

24 A I do not believe that the current system  
25 reliably identifies particularly good teachers or

1 A Yes.

2 Q And you are positing that in opposition to  
3 plaintiffs' proposals for a centrally mandated set of  
4 standards, correct?

5 A I'm positing that as one of the reasons why the  
6 plaintiffs want centrally mandated standards, yes.

7 Q But isn't that -- but then you go on to  
8 critique that as a reason; do you see that?

9 A Yes.

10 Q "There's no evidence that local districts are  
11 malevolent," and et cetera.

12 A Yes.

13 Q Isn't that equally true for outcome standards?

14 I'll ask it differently. Why do you need centrally  
15 driven outcome standards if there's no reason to  
16 distrust local districts to work in the interest of  
17 their students?

18 A I believe that, first, the evidence supports  
19 the case that providing better information on the  
20 outcomes of schools is helpful to improving performance  
21 of the accountability evidence that I cited before.  
22 Secondly, I believe that provides a way for both the  
23 State and local districts to reliably find out where  
24 problems exist in terms of their performance and to work  
25 to correct them in whatever way is necessary.

1 schools because it has not paid enough attention to  
2 longitudinal performance of students and to value added.

3 Q And are you aware that there's been a specific  
4 project pending at the state level to implement a  
5 student -- to implement a student database that would  
6 prevent longitudinal measures?

7 A I know that's in process and has been  
8 legislated that they do that. I also know that that's  
9 going to be a ways out.

10 Q On page 15, "Plaintiffs would in the name of  
11 equity call for dismantling any set of local programs  
12 specifically tailored for their student populations  
13 whenever they did not meet," typo, "the grand rules that  
14 are proposed by the plaintiffs"; do you see that?

15 A Oh yes, I do.

16 Q Can you point to any specific local program  
17 tailored for student population that would in fact  
18 require dismantlement if the standard proposed by  
19 plaintiffs were adopted?

20 A Can I point to any specific program, no.

21 Q So the middle of page 16, "A primary, but  
22 generally unstated reason that many support a  
23 centralized regulatory model generally appears to be a  
24 distrust of local districts to work in the interests of  
25 their students"; do you see that?

1 Q And couldn't that equally be true of standards  
2 calling for reporting on, for example, the degree to  
3 which textbooks have been made available to students?

4 A It could be made that way, but I just don't  
5 think that's the appropriate way to make school policy  
6 on the basis of inputs because we do not know enough  
7 about how specific kinds of policies relate to student  
8 performance and student outcomes.

9 Q Are you aware that in Los Angeles a few years  
10 ago there was a major issue with respect to the  
11 distribution of an availability of textbooks and a  
12 business committee was formed to -- a committee of  
13 businessmen was formed to analyze why textbooks weren't  
14 getting to kids?

15 A I'm not sure. Is that one of the studies cited  
16 in this report?

17 Q I don't know if it's --

18 A I don't know by that characterization. There  
19 was a characterization of a textbook study in Los  
20 Angeles in plaintiff expert reports. Is that the one  
21 you're speaking about?

22 Q This is more of a characterization of a problem  
23 exposed by the Los Angeles Times and the subject of a  
24 major uproar and then the formation of this committee.

25 A I don't know that.

1 Q To the extent that even school boards may be  
2 unaware of the degree to which their policies are being  
3 effectuated at the school level, policies with respect,  
4 for example, to textbook distribution, would it not be  
5 useful to require reporting of the availability of  
6 textbooks to students?

7 MS. DAVIS: Vague and ambiguous. Calls for  
8 speculation.

9 THE WITNESS: If you wanted to have a policy that  
10 discovered how textbooks were being distributed, it  
11 would be useful to have information on it. I'm not sure  
12 that that would be my highest priority policy of finding  
13 out how textbooks were distributed independent of the  
14 information about how student performance was  
15 distributed.

16 BY MR. GROSSMAN:

17 Q So you would drive the -- in your world, you  
18 would drive it in the dependent way as opposed to an  
19 independent way?

20 A Correct.

21 Q And how would that work?

22 A I would try to get much more reliable  
23 information about which schools were performing well and  
24 which weren't, and then I would think of management ways  
25 to get in and find out what was going on in the schools

1 Q And then in the next paragraph, "It might be  
2 possible to argue that some local districts do not have  
3 school boards or administrators that are fully  
4 knowledgeable about the best practices that should be  
5 applied"; do you see that?

6 A Yes, I do.

7 Q And then you propose that the appropriate  
8 response is to provide the districts with better  
9 information; do you see that?

10 A Yes.

11 Q And then in the end you say, "The State also  
12 attempts to provide districts with information about  
13 best practices in various areas and does provide  
14 targeted categorical aid to help with various potential  
15 concerns"; do you see that?

16 A Yes.

17 Q Are you aware of any State best practices  
18 information with respect to including hiring practices?

19 MS. DAVIS: Vague and ambiguous.

20 THE WITNESS: I'm unaware. I don't know one way or  
21 the other.

22 BY MR. GROSSMAN:

23 Q How about same question with respect to school  
24 maintenance?

25 MS. DAVIS: Same objection.

1 and if I could just discern the causes of low  
2 performance in some schools and do something to correct  
3 it.

4 Q And if one of those causes is administrative  
5 breakdowns such that the curriculum materials that  
6 decision-makers thought was getting in the hands of  
7 students was not, the correction would include  
8 correctives to that administrative breakdown?

9 MS. DAVIS: Incomplete hypothetical. Calls for  
10 speculation.

11 THE WITNESS: Sure.

12 BY MR. GROSSMAN:

13 Q In the end of that middle paragraph, it is  
14 self-empirically testable, is it not, not the idea that  
15 local districts are malevolent, but rather that whether  
16 the school district works as an administrative system  
17 without oversight and management from the State on the  
18 provision of resources to students is testable or not,  
19 isn't it?

20 MS. DAVIS: Calls for speculation.

21 THE WITNESS: I'm not sure what you want to test.  
22 If the State specifies that certain resources are  
23 supposed to be there, it could go out and check whether  
24 they were there in all districts. That's testable.

25 BY MR. GROSSMAN:

1 THE WITNESS: I don't know what the State is  
2 providing districts.

3 BY MR. GROSSMAN:

4 Q And how about with respect to textbook  
5 inventorying and distribution?

6 MS. DAVIS: Same objection.

7 THE WITNESS: You're asking me questions about best  
8 practices of providing inputs, and I don't know if they  
9 exist or not.

10 BY MR. GROSSMAN:

11 Q So what is the state of your knowledge, top of  
12 page 17, about the degree of equality in California in  
13 school finance as opposed to other states?

14 MS. DAVIS: Vague and ambiguous.

15 THE WITNESS: I think my state of knowledge is  
16 pretty good.

17 BY MR. GROSSMAN:

18 Q What is it? What are you relying on?

19 A A number of studies over time, including some  
20 that I've been involved with, have looked at various  
21 measures of equality in fiscal resources of school  
22 districts suggests that California is one of the more  
23 equalized states.

24 Q And what kinds of school finances have those  
25 studies looked at it? And I'll just drive to the

1 ultimate questions. Have those studies not only looked  
2 at per student operating budgets, but also at school  
3 construction financing?

4 A I believe that most of these studies have  
5 looked at current expenditures and not capital  
6 expenditures.

7 Q Do you have any information on the degree of  
8 equality among California school districts in capital  
9 expenditures?

10 MS. DAVIS: Vague and ambiguous.

11 THE WITNESS: The reason nobody looks at capital  
12 expenditures is because you wouldn't expect an equality  
13 of capital expenditures around districts.

14 BY MR. GROSSMAN:

15 Q Why not?

16 A Because districts have different demographics  
17 and different growths of school spending and different  
18 histories of when they built schools and when they need  
19 to be replaced. So you would not in general expect to  
20 find equality of capital expenditures even if you find  
21 absolute equality of operating expenditures.

22 Q And how as an econometric or economic matter  
23 would you then measure the degree to which the system of  
24 capital expenditures is fair where fairness is defined  
25 as distributional equity?

1 suggest is that I don't think anybody has even defined  
2 what could potentially be meant by distributional equity  
3 and capital expenditures. There are a number of states  
4 that pick up the capital bill, but the spending will be  
5 unequal by districts. Is that equitable?

6 BY MR. GROSSMAN:

7 Q You might be interested in whether the capital  
8 resources available on a per student basis are roughly  
9 equal, would you not, such as, for example, classroom  
10 space?

11 MS. DAVIS: Vague and ambiguous. Calls for  
12 speculation.

13 THE WITNESS: Well, I have problems with many of  
14 the definitions of equity. If we want to talk about  
15 equality, one could look at that. I'm not sure what  
16 equity means in a number of these cases, unless I know  
17 that that also has some direct relationship to the  
18 outcomes that we're interested in.

19 BY MR. GROSSMAN:

20 Q You didn't do that in your first sentence on  
21 page 17, correct?

22 A Highly equalized. School finance is highly  
23 equalized. I didn't say it was highly equitable. I  
24 said it's highly equalized.

25 Q And you don't know whether the system of

1 A I'd have to think about that. There's no  
2 obvious way to define capital expenditures in terms of  
3 expenditure distributions that I know of.

4 Q So you would have to probably look at other  
5 factors, such as demographics, demographic changes, age  
6 of facilities, et cetera?

7 A Absolutely.

8 Q And so the answer is that on capital  
9 expenditure related items, we really don't know whether  
10 the State of California is very equal or not, correct?

11 MS. DAVIS: Vague and ambiguous.

12 THE WITNESS: Well, whether they're -- I am sure  
13 that they're not very equal. In fact, it's probably  
14 more unequal in terms of other states in terms of  
15 capital expenditures around districts because the  
16 demographic changes are larger in California than the  
17 states in the northeast.

18 BY MR. GROSSMAN:

19 Q If we conclude that we need a more  
20 sophisticated analysis of the distributional equity of  
21 capital expenditures in the state, the answer to the  
22 question whether there is distributional equity is we  
23 don't know?

24 MS. DAVIS: Calls for speculation.

25 THE WITNESS: I don't think -- what I'm trying to

1 allocating capital resources to students in the state is  
2 highly equalized?

3 A I have absolutely no idea about capital  
4 resources.

5 Q So it's your judgment that as to textbooks, for  
6 example on page 17, which you focus on there, "The  
7 pattern of expenditures is currently a clear choice of  
8 the individual local district"; do you see that?

9 A Yes.

10 Q So that's an observation that you're making,  
11 that is that the pattern -- there are conscious choices  
12 being made at the local district level that are the  
13 principal explanation for the allocation of textbook  
14 resources?

15 A Well, there's state funding for textbooks, but  
16 there's also other funding made by local districts. And  
17 yes, at some point they're making choices on this.

18 Q And that's also, though, an empirical question,  
19 right, whether districts are making conscious choices  
20 that are visible and surfaced and tradeoffs are made  
21 against other educational inputs, which is what I think  
22 you're saying happens, versus someplace in the  
23 bureaucracy in a way that's not conscious to accountable  
24 decision-makers' choices or errors are made and that's  
25 where kids don't get school books?

1 MS. DAVIS: Vague and ambiguous.  
 2 THE WITNESS: Your alternative a bit mystifies me.  
 3 BY MR. GROSSMAN:  
 4 Q Why is that? Pretty common phenomenon, isn't  
 5 it?  
 6 A Some computer programmer who punched in the  
 7 wrong button and they got few too textbooks. I view  
 8 that most of the decisions are in fact made by choices  
 9 of somebody. Now it may not be the superintendent. It  
 10 may be somebody he or she has delegated to make these  
 11 choices, but I would have thought that somebody was  
 12 making those choices.  
 13 Q Well, that's testable, isn't it?  
 14 A I don't know how. You mean to find out if a  
 15 district surprisingly got few or more textbooks than  
 16 they thought they were choosing?  
 17 Q That's one way to ask the question, isn't it?  
 18 MS. DAVIS: Is that a question?  
 19 BY MR. GROSSMAN:  
 20 Q It matters to your analysis, doesn't it? Your  
 21 whole analysis is predicated here on the idea that the  
 22 kinds of minimum standards plaintiffs are proposing  
 23 would interfere with conscious choices by politically  
 24 accountable decision-makers?  
 25 A Yes.

1 Q And my proposition to you is whether that is  
 2 true or not, that is whether these variations from the  
 3 standard are being made by politically accountable  
 4 decision-makers is a testable proposition?  
 5 MS. DAVIS: Calls for speculation.  
 6 THE WITNESS: I would be willing to critique your  
 7 test of this. I don't see how you could test that.  
 8 BY MR. GROSSMAN:  
 9 Q You could analyze the school district's  
 10 decision-making decisions on this issue.  
 11 MS. DAVIS: Is that a question?  
 12 THE WITNESS: I suppose you could do that. At some  
 13 point I guess the assertion is that if the decision is  
 14 made below the level of the school board, it's somehow  
 15 not a decision by the district. I don't understand it.  
 16 BY MR. GROSSMAN:  
 17 Q On the issue of textbooks, do you have a  
 18 judgment as to whether the amount of resources the State  
 19 has categorically made available for textbooks over the  
 20 last five years would render the cost of providing one  
 21 textbook per student in core subject areas, a relatively  
 22 inexpensive proposition for school districts compared to  
 23 the kinds of choices school boards clearly do have to  
 24 make about budgetary allocations?  
 25 Let me ask that differently. Do you have an

1 understanding of the impact of state categorical funds  
 2 for textbooks on the total cost of making textbooks  
 3 available to students?  
 4 A It lowers it.  
 5 Q Do you have any sense of the --  
 6 A No, I have not done any study, nor did I see  
 7 any study by the plaintiffs.  
 8 Q So in this case your critique of the plaintiffs  
 9 that forcing increased expenditures in one area ignores  
 10 the overall finance system, you didn't yourself study  
 11 the finance system for textbooks?  
 12 A No, I did not. Yes, I did not.  
 13 Q What's the point you're making on page 18 about  
 14 a subterfuge for arguing that resources should be  
 15 increased, such polices would conflict with court  
 16 rulings in Serrano, why is that?  
 17 A My understanding is that these would  
 18 potentially violate the equality of resources under  
 19 Serrano if you push some districts spending more and  
 20 didn't change anything else.  
 21 Q And you say, "No evidence suggests that this is  
 22 a superior -- above that. "No evidence suggests that  
 23 this is a superior way to run schools, while substantial  
 24 evidence suggests that such centralization is not good."  
 25 And you cite a paper by yourself and others from 1994.

1 Do you see that?  
 2 A Yes.  
 3 Q Which paper was this?  
 4 A It's actually a book.  
 5 Q Which one is that?  
 6 A Making Schools Work.  
 7 Q And what empirical evidence did you have on  
 8 centralization?  
 9 A I would have to go back and see what was  
 10 cited. There is a variety of argumentation about making  
 11 local decisions at a point where you could provide  
 12 direct incentives and evaluate incentives to schools.  
 13 In other words, you would have to go back and find that  
 14 particular evidence, empirical evidence that is cited on  
 15 that.  
 16 MR. GROSSMAN: Why don't we take a break for ten  
 17 minutes.  
 18 (Recess.)  
 19 MR. GROSSMAN: I'll be done with this phase in  
 20 about an hour and a half, which will bring us to about  
 21 4:15, and I want to go through some of your other  
 22 writings, and so I will probably finish by no later than  
 23 10:30, 11:00 o'clock tomorrow.  
 24 MS. DAVIS: Okay. Any estimate from you?  
 25 MR. HAJELA: I'll let you know by the end of the

1 day. Not much.  
 2 MS. DAVIS: Sounds good.  
 3 MR. CATZ: And Jeff Frost will probably be  
 4 attending tomorrow, but not much.  
 5 MR. HAJELA: I'll have less than an hour, I think.  
 6 (Recess.)  
 7 BY MR. GROSSMAN:  
 8 Q Page 18, the study referred to Hanushek and  
 9 Raymond, 2002 A and B -- actually, is that two different  
 10 papers?  
 11 A Yes.  
 12 Q Can you summarize your findings from those  
 13 papers?  
 14 A Those were the papers we spoke about  
 15 previously. The findings are in terms of performance,  
 16 that growth and mathematics achievement has been greater  
 17 in states that instituted accountability systems in the  
 18 1990s than those that didn't.  
 19 Q And are there any other findings?  
 20 A Those were the other findings. I was  
 21 suggesting that we try to review the literature that  
 22 exists on accountability systems. It finds that there  
 23 are some unattended consequences, meaning other than  
 24 achievement consequences of introducing accountability.  
 25 But we don't know at this time how long term such kinds

1 of reactions of districts will be.  
 2 Q Did you look at performance data in areas other  
 3 than mathematics to determine whether you could  
 4 correlate accountability systems with performance gains  
 5 in other areas?  
 6 A We've looked at reading also and find the same  
 7 affects for reading, although the reading effects tend  
 8 to be less strong than the mathematics effects.  
 9 Q Do you have a hypothesis as to why one would  
 10 find less strong effects in reading than in math?  
 11 MS. DAVIS: Calls for speculation.  
 12 THE WITNESS: Yes. It's a fairly systematic  
 13 finding across studies when you start looking at them,  
 14 that schools tend to have more effects on mathematics  
 15 than they do on reading. And the exact cause has never  
 16 been pinpointed, although everybody, including myself,  
 17 is willing to believe that there is more reading and  
 18 language that goes on in the home and less mathematics  
 19 in the homes so that schools find it more in the  
 20 determination of mathematics.  
 21 BY MR. GROSSMAN:  
 22 Q The next sentence, "It opens the possibility  
 23 for instituting better incentives within the system,"  
 24 and that's citing "Making Schools Work," correct?  
 25 A Yes.

1 Q What better incentives within the system are  
 2 you referring to in this sentence?  
 3 A I'm referring to potential ways of having  
 4 people respond to student performance. So it could  
 5 include rewards to teachers in schools for good  
 6 performance. It could include more choice allowing  
 7 parents to move away from bad schools or into good  
 8 schools. I guess those are the primary things I'm  
 9 thinking about.  
 10 Q On the question of longitudinal data of  
 11 students, what's the scope of that data in Texas?  
 12 A They started testing and providing data in 1993  
 13 through the current period.  
 14 Q And are keeping it on a per student basis?  
 15 A The research I've been doing that keeps it on a  
 16 per students basis. The state of Texas at times --  
 17 everything is kept on a per student basis with the  
 18 unique student ID. They don't always put it together in  
 19 a way that you can track individual students, but it is  
 20 available in that form.  
 21 Q Is there any state that has a -- so to the  
 22 extent that it is difficult to link the data elements on  
 23 a student by student basis, it's less useful for  
 24 researchers?  
 25 A Yes.

1 Q Is there any state that does a, colloquial put,  
 2 better job of maintaining per student data?  
 3 A Well, Texas does a very good job of it. North  
 4 Carolina has done it. Tennessee has done it. Florida  
 5 has done it. Each of these systems has pluses and  
 6 minuses, and they don't all make the data available to  
 7 researchers, which is a specific other issue than using  
 8 it for accountability.  
 9 Q And do any of the states that have that kind of  
 10 data use it to measure teacher performance?  
 11 A Yes.  
 12 Q What examples stand out?  
 13 A Tennessee is the one that stands out all the  
 14 time. It's legislated that they should follow the value  
 15 added of individual teachers.  
 16 Q And have you studied the effect of that system?  
 17 A No, I have not.  
 18 Q Have you monitored the literature on the  
 19 effects of that system?  
 20 A The literature on that system is largely the  
 21 result of the person who is by law charged with doing  
 22 it. And it suggests that it has been beneficial, but I  
 23 don't have any independent evaluation of it.  
 24 Q And just to tie this down, do any of the other  
 25 states use that kind of data for teacher evaluation

1 purposes?

2 A At a state level, I do not believe so.

3 Q Are you aware of any districts that use that  
4 kind of data for teacher evaluation purposes?

5 A Oh, I think there are a number of districts  
6 that do that. And a lot of districts keep better data  
7 in many ways than the State has available and use that  
8 information to evaluate teachers.

9 I have some anecdotal evidence suggesting that  
10 Chattanooga, Tennessee has done that to a great effect.  
11 And I know that there are a number of other districts  
12 that have employed Bill Sanders, who is the Tennessee  
13 evaluator, to in fact provide information for them.

14 Q Is Bill Sanders the person you were referring  
15 to before as the person charged by law with reporting on  
16 the quality of the system?

17 A Yes.

18 Q So this book came out in 1994?

19 A Correct.

20 Q That is "Making Schools Work," and it's 2003.

21 Do you believe there are any demonstrations of some of  
22 the hypothesis in "Making Schools Work" other than those  
23 that you looked at in Hanushek and Raymond, 2002 A and  
24 B?

25 A I'm not sure what to call it, a demonstration

1 Q And these are grades based on student  
2 performance within those schools?

3 A Yes.

4 Q On the issue of incentives within the system,  
5 have you given any thought to how outcome incentives in  
6 school accountability might be applied to the question  
7 of educational equity?

8 MS. DAVIS: Vague and ambiguous.

9 THE WITNESS: Yes.

10 BY MR. GROSSMAN:

11 Q What is your thinking on that?

12 A Well, I think that some of the differences that  
13 we observe by race or income group are larger than I  
14 would like to see them, and I spent a lot of time trying  
15 to study why they are and what can be done about them.  
16 So I would, in fact, concentrate on trying to provide  
17 incentives to schools and students to improve the  
18 performance in low performing areas of the system.

19 Q And what measure -- have you given any thought  
20 to how you would measure educational equity in an  
21 outcome basis?

22 A Yes.

23 Q What measurement would you use?

24 A I would be interested in two factors. One  
25 would be the level of performance on various tests. And

1 of it. I think that lots of these systems have been  
2 tested to some extent, but have not been completely  
3 tested. But there are demonstrations, I believe, that  
4 performance in Chicago increased when they paid more  
5 attention to performance objectives and tested outcomes  
6 of students. I believe that we could interpret the  
7 evidence from the state of Florida as suggesting that a  
8 better accountability led to better performance.

9 Q The Chicago experience is reported on a study?

10 A There have been several studies that have  
11 talked about the Chicago experience. There's some work  
12 by Brian Jacob at Harvard. My concern is I don't know  
13 if it's already published or not. There have been  
14 analyses that have been reported at conferences on  
15 unpublished versions of this. That's what I'm thinking  
16 of largely is the best, most comprehensive study there.

17 Q How about Florida?

18 A Florida, there's some preliminary work by Jay  
19 Green who has looked at the impact of school grades on  
20 subsequent performance.

21 Q Meaning a ranking of a school?

22 A Schools are evaluated there on an A, B, C, D  
23 and F basis. And he finds that schools that are D or F  
24 schools in fact improved their performance after the  
25 fact.

1 the second would be the rate of progress or gains of  
2 individual students on those tests. And I would try to,  
3 among other things, parse out the effects of families  
4 and schools and other influences on these scores and try  
5 to provide rewards and punishments for both individual  
6 students for their performance and for individual  
7 schools for their addition and value added to  
8 performance.

9 Q And what would be a measure of equity in such a  
10 world? How would I know whether -- what would equity  
11 mean?

12 A I think that there are a variety of possible  
13 definitions of equity that could be applied, and that in  
14 large part there are large political elements in  
15 defining what equity means to society. I think that it  
16 has to do with, you know, rough sense that there are  
17 systematic lower performance, lower value added for  
18 groups in the population. We always are going to expect  
19 some random better or worse, but that if we find that  
20 these -- that the value added schools is systematically  
21 worse by race or ethnicity or by income status or on  
22 particular locations, then I would worry that that was  
23 some evidence of inequity in the system and I would try  
24 to devise policies to deal with those differences.

25 Q And what kind of policies -- so let's assume



1 that you find that variation and it's systematic, what  
2 do you do with that information if you are aiming at  
3 greater equity?

4 MS. DAVIS: Incomplete hypothetical. Calls for  
5 speculation.

6 THE WITNESS: I would then try to analyze why these  
7 outcome differences existed, whether it was a problem  
8 with the management, the hiring, the retention, the  
9 selection of teachers, or other possible sources. I  
10 don't know what they might be, but other possible  
11 sources, and then try to devise systems to improve the  
12 quality of teachers and the quality of the other factors  
13 that might influence that.

14 BY MR. GROSSMAN:

15 Q And you imagine that being done at the district  
16 level or the school level or the state level?

17 A I think that --

18 MS. DAVIS: Same objections.

19 THE WITNESS: What does "that" refer to?

20 BY MR. GROSSMAN:

21 Q "That" refers to the designing of policies or  
22 programs to correct the diagnosed reason for the  
23 inequity.

24 MS. DAVIS: Same objections.

25 THE WITNESS: I think the answer is yes.

1 teachers. I think it's more looking at the picture of  
2 teacher additions to value added, which I believe are  
3 not very highly correlated with the particular inputs  
4 that the plaintiffs want to monitor.

5 Q So taking the issue of teacher quality for a  
6 moment, since that's the one you singled out, and I take  
7 it you singled that out because that is the aspect of  
8 the student experience that you have most closely  
9 correlated with increased performance?

10 A Yes.

11 Q Therefore if there is a variation, an inequity  
12 in teacher quality, that is the one that you can most  
13 readily see having an inequitable impact on student  
14 learning opportunities?

15 A Correct.

16 Q So you go through the process that you  
17 described, as I understand as sort of a step one, which  
18 is looking at the contribution to student performance  
19 represented by schools, and you see that there is a  
20 desperately low contribution to student performance in,  
21 say, schools in urban areas with large numbers of  
22 minority, low SES status kids. That's a hypothesis I  
23 offer you.

24 And then so that suggests to you that this is a  
25 system that needs some correction from the equity

1 BY MR. GROSSMAN:

2 Q Yes to all three?

3 A Yes.

4 Q At the end of the -- the diagnosis is  
5 necessarily a diagnosis about the -- I hate the word  
6 input, so I'm going to use -- it's a diagnosis about the  
7 educational experience a student is given, correct?

8 A Yes.

9 Q And the programs are policies to cure an  
10 inequity in the educational -- and the system is  
11 therefore a program or policy aimed at the educational  
12 experience given the hypothetically disadvantaged  
13 students?

14 MS. DAVIS: Same objections.

15 THE WITNESS: Yes.

16 BY MR. GROSSMAN:

17 Q And what's the difference then between that  
18 approach to dealing with equity and what you understand  
19 plaintiffs approach to dealing with equity to be?

20 A I think the difference is quite dramatic. The  
21 system that diagnosis the fact that low teacher quality  
22 is important in this inequity, as an example, is very  
23 different than going in and saying they don't have  
24 enough credentialed teachers or that we should, in fact,  
25 move from 74 percent to 80 percent credentialed

1 standpoint, correct?

2 A Yes.

3 Q And since teacher quality is the area we're  
4 going to focus on for a moment, you would then look at  
5 what indicators to test whether it is in fact teacher  
6 quality that is the cause of this?

7 MS. DAVIS: Same objections.

8 THE WITNESS: I would look at the estimates of the  
9 value added of individual classroom teachers to  
10 learning. I would hopefully have in place a system that  
11 provided supervisory rating of their performance. That  
12 I would also look at, and then I would see how that  
13 compared to other schools that were, in fact, getting  
14 better value added.

15 BY MR. GROSSMAN:

16 Q So this may be just a small technical point.  
17 The value added teacher evaluation system associates  
18 some kind of a quality level with the teacher, a grade,  
19 if you will, or a superior or average or below average  
20 performance rating?

21 A Yes.

22 Q And one could look then at whether there was a  
23 concentration of, say, below average teacher -- below  
24 average quality teachers using that measurement system  
25 concentrated in schools that were of concern?

1 A Yes.  
 2 Q And then if there were, one could design  
 3 policies and programs to try and correct that?  
 4 A Yes.  
 5 Q The Raymond and Hanushek 2003 study cited at  
 6 the footnote on the bottom of page 19 --  
 7 A Yes.  
 8 Q -- is that the study on unattended side  
 9 effects?  
 10 A No.  
 11 Q That's the high stakes testing study?  
 12 A This is the high stakes testing study that is  
 13 in "Education Next," I believe. Yes.  
 14 Q In the next paragraph, "The majority of  
 15 researchers and policy makers have moved away from  
 16 input-based policies towards standards and outcome  
 17 accountability," the reference to standards there is  
 18 learning standards, correct?  
 19 A Yes.  
 20 Q And you endorse that?  
 21 A Yes, I do.  
 22 Q And when you say, "Input-based policies," what  
 23 specifically do you have in mind?  
 24 A The kinds of policies that I see the plaintiffs  
 25 asking for that involve specifying certain sets of

1 characteristics that are either regulated to be there or  
 2 the object of policy attention.  
 3 Q But the plaintiffs are asking for something  
 4 prospectively, and I understand this to be a  
 5 retrospective view.  
 6 A Oh, yes, yes. Well, I mean --  
 7 Q So class size reduction is an input-based  
 8 policy?  
 9 A That would be an input-based policy.  
 10 Q It's a classic case?  
 11 A Yeah, that's right. That's the easiest case  
 12 where you specify certain minimum class sizes by grade  
 13 level that have to be had.  
 14 Q Number of days of instruction is an input-based  
 15 policy?  
 16 A Days of instruction.  
 17 Q That's another state level mandate?  
 18 A That is.  
 19 Q What other input-based policies has the  
 20 State -- have been tested?  
 21 A Teacher credentials. That's what we talked  
 22 about before. Not as completely, administrator  
 23 credentials. I guess we've got class size, teacher  
 24 credentials and administrative credentials. That leaves  
 25 just about the janitors and a few other things to be

1 concerned with.  
 2 Q I can think of some others. There are  
 3 standards governing school introduction.  
 4 A I've never seen any linkage of those standards  
 5 to performance.  
 6 Q But --  
 7 A You could. There are other policies like that.  
 8 Q And I guess I'm wondering which of those -- now  
 9 that we've tried to catalog these policies, I guess  
 10 there are other policies, for example, that might be  
 11 thought of as policies, like categorical funding that is  
 12 directed toward certain inputs such as computers. Would  
 13 you consider that an input-based policy?  
 14 A Of the sorts. I mean it's never obvious when  
 15 those are binding or when they aren't or when they don't  
 16 have any impact or not. Those are policies that are  
 17 designed, yes, by the State for specific inputs and they  
 18 may or may not be relevant for decision-making.  
 19 Q And the NCLB requirement for highly qualified  
 20 teachers to the extent ends up relying on existing  
 21 certification systems, that's going to be an input-based  
 22 policy?  
 23 A Yes, it is.  
 24 Q And do you regard textbook approval processes  
 25 as input-based policies?

1 A Yes.  
 2 Q And what of the ones that we've cataloged would  
 3 you recommend dispensing with?  
 4 A Minimum class size policies, teacher  
 5 certification requirements, as we haven't specified now,  
 6 administrator certification requirements. Probably much  
 7 of the textbook approval policy, although I haven't  
 8 really looked at that in detail.  
 9 Q And the policy that I understand from your  
 10 earlier testimony you would endorse that relates to  
 11 inputs is policies going to health and safety in the  
 12 school?  
 13 A Yes.  
 14 Q And would you keep school days, number of  
 15 school days?  
 16 A Probably.  
 17 Q Because the system has to have a number of days  
 18 that kids go to school?  
 19 A There are some advantages to declaring all --  
 20 some of those things, and I think that there are  
 21 advantages to enforcing that school is in session for  
 22 certain amounts of time. I think the state of Oregon  
 23 will soon find out that there are advantages in making  
 24 sure that that happens.  
 25 Q Actually, that brings me to one of the segues I

1 wanted to go on. You have looked at time in class or  
2 time in school as a contributor to student performance?

3 A Nothing is obviously coming to me.

4 Q I'm thinking of some international comparisons  
5 you looked at where the number of days of school varies  
6 across countries.

7 A I haven't actually studied it. You might have  
8 found a quote at some point where I do not find it very  
9 persuasive to argue the fact that the Japanese have 240  
10 days and we have 180 days so that we will duplicate  
11 their system, or the obvious thing to do would be to  
12 increase our time to 240 days.

13 Q I think that's what I remembered, yes.

14 A That is not the basis -- I am not based upon  
15 specific studies or variations in days of learning so  
16 much as my view that we would make a lot more progress  
17 by first trying to fix the system we have in 180 days  
18 before we think of just reproducing the system into 240  
19 days.

20 Q Page 19 you cite Grubb and Goe and the paper  
21 they wrote on the Williams' case. And you say that  
22 their paper makes clear that, "The current knowledge  
23 does not support the input-based system implied by  
24 plaintiff pleadings and expert reports"; do you see  
25 that?

1 A To provide the detailed knowledge of the inputs  
2 and resources required to provide these outlets.

3 Q And why is that? Why do you not -- why is  
4 that, meaning why do you not favor doing that kind of  
5 research?

6 A As we discussed earlier, I don't think it's  
7 feasible. I don't think that we are anywhere close to  
8 being able to identify the specific elements of inputs  
9 that will lead to any set of outputs that we want in any  
10 efficient way.

11 Q So what's a local decision-maker to do then  
12 when confronted with low student performance?

13 A What's a local decision-maker to do?

14 MS. DAVIS: Calls for speculation.

15 THE WITNESS: A local decision-maker, in my  
16 opinion, should look at the available alternative ways,  
17 programs, curriculum, et cetera, to providing better  
18 education, and should look at the quality of the  
19 teachers it has and see whether there has to be some  
20 substitution made there and to try to find the  
21 combination of those that works to improve student  
22 performance in his or her district.

23 BY MR. GROSSMAN:

24 Q Without an empirical foundation on which to  
25 operate?

1 A Yes, I do.

2 Q And you cite, page 40, "If the new school  
3 finance is a particular perspective at this stage,  
4 rather than a set of concrete recommendations, how can  
5 it be useful?" Do you see that?

6 A Yes.

7 Q "Their specific response is to do the research  
8 used to support this radical system"; do you see that?

9 A Yes.

10 Q What are you driving at there?

11 A I thought that their testimony in fact said  
12 that trying to regulate that a school did the right  
13 thing in terms of performance was beyond our capacity  
14 right now, so that it would be hard for the State to  
15 specify what it took to, in fact, achieve higher  
16 performance of students in terms of -- achieving in  
17 terms of the input and resources required.

18 Q And did you agree with them, or are you citing  
19 them as -- or merely citing them as contradictory in the  
20 next paragraph?

21 A Yes, contradicting in the plaintiffs' case. I  
22 do agree though with them on that we don't know enough.  
23 I do not agree with them that the obvious thing to do is  
24 commission more studies designed to do that.

25 Q And designed to do specifically what?

1 A I think that there is information available  
2 that certain programs work at various times but not  
3 always. I think there's information available to  
4 suggest that there are distinct quality differences  
5 among teachers, and so I think there's an empirical  
6 basis. What there's not an empirical basis to do is to  
7 choose one simple approach and legislate it either from  
8 the district level or from Sacramento.

9 Q I want to focus on this question of what the  
10 local decision-maker is supposed to rely on versus what  
11 a state decision-maker is supposed to rely on. What I  
12 understood you to be saying is we don't have the basis  
13 for doing the kind of research that Grubb and Goe is  
14 saying that needs to be done; is that correct?

15 A Yes.

16 Q And what you understood them to be urging was  
17 research to try to systematically link what goes on in  
18 the classroom with student performance?

19 A Yes.

20 Q And in turn to then be able to analyze whether  
21 from this so-called new school finance perspective,  
22 whether the dollars into the district are giving rise to  
23 the, quote, "What goes on in the classroom," unquote,  
24 that they find desirable?

25 A Yes.

1 Q And your view is that's not knowable right  
2 now? Maybe someday when we advance the quality of the  
3 econometric and empirical research into education that  
4 will become more knowable, but at the moment that's just  
5 an impossibly large task?

6 A Yes.

7 Q So that's just an empirically large task for  
8 the moment. But let's take the teachers' issue for a  
9 moment. If you had the kind of teacher quality index  
10 that you favor, could that not give rise to mandates  
11 from the center to require, as maybe a perfect NCLB  
12 would do, that high quality teachers be equitably  
13 distributed across the state?

14 MS. DAVIS: Calls for speculation.

15 THE WITNESS: That is true. I think that is  
16 impossible. And, in fact, some states are considering  
17 doing that.

18 BY MR. GROSSMAN:

19 Q And so that takes one piece of the Goe-Grubb  
20 issue, does it not, that is whether the dollars into the  
21 school district lead to high quality teachers in the  
22 classroom?

23 A There's still a big step in between as to what  
24 system you implement to insure that you get those high  
25 quality teachers and maintain them. And how much that

1 A I think it depends on where you're looking at  
2 it. I think that the range of content standards on  
3 third grade reading is pretty small.

4 Q At the high school level, which is where you  
5 saw -- the age 17 is where you saw all those performance  
6 gates dissipate?

7 A At the high school level, my interpretation of  
8 NAEP has always been that it measures a certain set of  
9 basic reading and mathematic skills and basic science  
10 skills that are then made much more specific in a  
11 variety of content standards that states have employed,  
12 but that they represent a base level of content  
13 standards that most states in fact require.

14 Q But, in fact, with the move to content  
15 standards, is it not likely that teacher training, for  
16 example, of a particular character will more closely be  
17 correlated with student performance than in a world  
18 without content standards?

19 MS. DAVIS: Calls for speculation.

20 THE WITNESS: I think it could be. But it will be,  
21 I have no reason to believe that.

22 BY MR. GROSSMAN:

23 Q I think I said likely.

24 MS. DAVIS: Objection.

25 BY MR. GROSSMAN:

1 costs, we don't know much about that.

2 Q But that will be important to find out, won't  
3 it?

4 A Absolutely.

5 Q So --

6 A But I didn't think that is what Grubb and Goe  
7 were asking for.

8 Q What did you understand them to be asking for  
9 that was in variance with that?

10 A That they were going to then find out about the  
11 training and other characteristics of these teachers'  
12 experiences and so forth that led to high quality and  
13 then to price out that.

14 Q And that you think is to -- that is not going  
15 to be knowable?

16 A Not in the near future.

17 Q Not in a systematic way?

18 A That's correct.

19 Q So I want to ask that question specifically  
20 with respect to content standards. I could understand  
21 your argument in a world in which NAEP is the measure of  
22 student performance because NAEP is less focused than  
23 examinations directed specifically to content standards;  
24 is that -- first of all, let me start there. Is that  
25 true?

1 Q Will likely.

2 A I thought that you said would. It's more  
3 likely. I suppose it's more likely. I have no reason  
4 at the current time to believe that that's very likely  
5 or sufficiently likely that you would want to in fact  
6 put that into centralized legislation and regulations.

7 Q But unless you know whether that's true or not,  
8 as a local decision-maker you don't know whether or not  
9 to send your teachers off to courses in teaching social  
10 studies to the recent state content standards, correct?

11 MS. DAVIS: Same objection.

12 THE WITNESS: You don't have to know that it's  
13 true in general to be able to decide that your world  
14 history teachers don't know anything outside of the  
15 United States and that you might want to send them off  
16 to learn world history.

17 BY MR. GROSSMAN:

18 Q Which may be different from sending them off to  
19 a course to teach the content standards?

20 A That is potentially quite different.

21 Q But your hypothesis is that -- I take it, then,  
22 as a matter of professional judgment, local  
23 decision-makers will make better decisions about what  
24 resources to bring to bear to improve the quality of  
25 teaching than a central mandate would?

1 A I think that is potentially the case when, in  
2 fact, there are also incentives for high quality local  
3 administrators. It is not obvious that that is the case  
4 now without some effort to make sure that the  
5 administrators also have incentives to improve student  
6 performance.

7 Q I understand that point. The point I was  
8 driving at is that it's going to be a matter of  
9 professional judgment primarily that drives that local  
10 decision-making if the kind of empirical evidence that  
11 might be ideally available is for the foreseeable future  
12 and not likely to be present?

13 A Well, I think it almost necessarily has to be a  
14 matter of professional judgment. Right now we have  
15 extraordinarily little information about how specific  
16 courses of studies in education schools are continuing  
17 to develop, education programs linked to student  
18 performance.

19 Q As I understand NCLB, one of the things that  
20 requires is greater focus on research-based validation  
21 of inputs; is that your understanding as well?

22 A Yes.

23 Q So, for example, reading programs that are  
24 adopted with NCLB funding are supposed to be validated  
25 in advance through research methodologies?

1 A That is a well-defined policy, set of programs,  
2 set of actions that can be either put in place or not.

3 Q As opposed to something that exists along the  
4 gray scale?

5 A Yes.

6 Q The last paragraph, "Researchers have been  
7 pursuing this line of research since the Coleman Report  
8 in 1966. They have been unsuccessful in the quest to  
9 identify and to describe the production function for  
10 schools"; do you see that?

11 A Yes, I do.

12 Q Do you include yourself in that class of  
13 researchers?

14 A Yes.

15 Q So if we go back to the point I was making  
16 before about plaintiffs' position being driven by a  
17 comparison of, if you will, plaintiff schools against  
18 the normative California school, the typical California  
19 school, the typical California school you would have to  
20 stipulate, it seems to me, is therefore configured not  
21 based on a production function for schools?

22 A It's not configured in terms of a description  
23 of the specific inputs that go into that school, yes.

24 Q It's configured based on professional  
25 judgments?

1 A Yes.

2 Q And how does that mandate for research relate  
3 to your view on the ability to determine whether  
4 particular inputs are systematically correlated with  
5 student performance?

6 MS. DAVIS: Vague and ambiguous.

7 THE WITNESS: The kinds of things that are, I  
8 think, the basis of the NCLB requirements are well  
9 defined programs, like an open court reading program in  
10 which you can either have it or not, and then you can  
11 look at how that -- how effective that is across a range  
12 of circumstances.

13 Those inputs are a bit different, I think, than  
14 looking at other aspects of teaching quality, contact  
15 technology and so forth. And it is much harder to, in  
16 fact, think of the research design that would tell us  
17 about these other aspects of teacher quality and teacher  
18 training than it is about things like self-contained  
19 teaching programs, or even, for that matter, class size,  
20 programs where you in fact have a well-defined program  
21 that you can randomly try to divide in different  
22 circumstances and see what happens.

23 BY MR. GROSSMAN:

24 Q And the difference is what? What makes it  
25 easier to test a reading program like open court?

1 A Yes, it is.

2 Q And you're comfortable relying on professional  
3 judgments -- in fact, you endorse reliance on  
4 professional judgments at the local level in a world of  
5 outcome based systems?

6 A Yes.

7 Q If it turned out that in 90 percent of the  
8 schools in the state the affirmative decisions had been  
9 made that led to classes not on the concept six  
10 multitrack calendar, one of the inputs at issue in the  
11 case, why isn't that a reliable method for concluding  
12 that the adoption of the concept six multitrack calendar  
13 is being -- is A, not a good idea educationally, and B,  
14 being made for reasons other than a best professional  
15 judgment?

16 MS. DAVIS: Vague and ambiguous. Incomplete  
17 hypothetical. Calls for speculation.

18 THE WITNESS: I'm not an expert on the concept of  
19 six.

20 BY MR. GROSSMAN:

21 Q So you don't want to tackle that one?

22 A Well, I can give you my initial reactions,  
23 which I'm happy to give, and that is that I believe it  
24 is made on a very complicated set of decision rules that  
25 do not come from a necessarily output driven system

1 right now. I don't think we have what I would call an  
 2 output driven system.  
 3 So the fact that we see it, I think, doesn't  
 4 provide much information. If we, in fact, saw that  
 5 outcome in the future when -- if we moved to a much more  
 6 reliance on outcome measurements, I'm still not sure  
 7 that you can make that judgment, because part of the  
 8 idea is that different systems may, in fact, use  
 9 different technologies to do their business, and you  
 10 can't just look at the choices they made independent of  
 11 anything else and decide that they did or did not do it  
 12 for some reason unrelated to achievement.  
 13 Q But let's suppose that the political  
 14 decision-makers decide not to move to an outcome based  
 15 system and were stuck with the current imperfect  
 16 systems, do you derive -- do you believe it's  
 17 inappropriate to derive policy prescriptions from  
 18 examining the typical California school?  
 19 A In terms of inputs?  
 20 Q Yes.  
 21 A Yes.  
 22 MS. DAVIS: Same objections.  
 23 BY MR. GROSSMAN:  
 24 Q Even in the current environment?  
 25 A Yes.

1 Q And why is that?  
 2 A Why is that. Because I don't think that much  
 3 of the input restrictions that have been put into place  
 4 in fact are ones that necessarily are related to things  
 5 that I care about, and that's the student performance.  
 6 Q That's a bit circular, isn't it? I mean if we  
 7 don't have an outcome based system and the  
 8 decision-makers decide not to achieve an outcome based  
 9 system, then how are you going to decide how to figure  
 10 schools?  
 11 MS. DAVIS: Calls for speculation.  
 12 THE WITNESS: If you want an answer to the question  
 13 how would we run a system that didn't pay much attention  
 14 to the outcomes that were cared about, I think that  
 15 there are an infinite number of ways of running that  
 16 system equally as good to run that system if we in fact  
 17 have no regard for the performance.  
 18 BY MR. GROSSMAN:  
 19 Q And how would you run the equity components of  
 20 that system?  
 21 MS. DAVIS: Same objection.  
 22 THE WITNESS: The equity components of that system,  
 23 I presume, would be something like the State of  
 24 California, that it judges equality of spending per  
 25 pupil and goes from there.

1 BY MR. GROSSMAN:  
 2 Q And it goes from there in what way?  
 3 MS. DAVIS: Same objection.  
 4 THE WITNESS: Allows for a variety of different  
 5 possible configurations within the context that there's  
 6 equality of spending.  
 7 BY MR. GROSSMAN:  
 8 Q Top of page 21, section seven, "The plaintiffs  
 9 provide a set of arguments that has been totally  
 10 discredited by the scientific literature and by the  
 11 facts." You use the word "discredited" there and --  
 12 "totally discredited." I understood much of your  
 13 testimony to be that the data is inconclusive rather  
 14 than the data is definitive. With that in mind, what  
 15 did you mean by "totally discredited"?  
 16 MS. DAVIS: I'm going to object to the extent that  
 17 that mischaracterizes his testimony.  
 18 THE WITNESS: I interpreted the data in the past to  
 19 indicate that a set of more rigid input requirements was  
 20 unlikely to lead to any positive improvements in student  
 21 performance. That's what I meant by totally  
 22 discredited.  
 23 BY MR. GROSSMAN:  
 24 Q And I'm not sure I captured this. The set of  
 25 rigid input requirements that you're referring to there

1 is what?  
 2 A Reliance on the current credentialing of  
 3 teachers in the State of California as guiding factors  
 4 in determining school policy. I presume that there's  
 5 some implementation language that would fill in the  
 6 details of what was meant by the textbook policy, and  
 7 that that would be a sensible thing to adopt. The  
 8 movement that I perceive and the plaintiffs' argument  
 9 toward more centralized decision-making or even local  
 10 decision-making and the lessening of attention to  
 11 student performance and the increase of attention to  
 12 inputs to the schools.  
 13 Q In an outcome based world one finds a school  
 14 that is not meeting its value added targets, and in the  
 15 current state system that results in a team visiting the  
 16 school and working with the local officials to come up  
 17 with a plan. Do you know anything about how that system  
 18 works?  
 19 A I don't know the details of that, no.  
 20 Q If the diagnosis of that team was that there  
 21 was an inadequate availability of curriculum resources  
 22 so that students weren't having access to the knowledge  
 23 they were supposed to learn, that would be the kind of  
 24 local decision-making that you imagine -- that you view  
 25 favorably in the context of an outcome based decision,

1 correct?

2 MS. DAVIS: Calls for speculation and it's an  
3 incomplete hypothetical.

4 THE WITNESS: Yeah, this is a little confusing. I  
5 presume that I would not support inadequate inputs that  
6 led to inadequate outputs.

7 BY MR. GROSSMAN:

8 Q Okay. That's good.

9 A Just to be clear.

10 Q But the idea that there's an outcome based  
11 system and then there's an intervention mechanism that  
12 leads to a team visiting a school, that's one example of  
13 an outcome driven --

14 A That's one example of it. It doesn't  
15 necessarily make the administrators or the teachers in  
16 the schools that are doing inadequately subject to any  
17 very strong incentives. They may or may not be.

18 Q So you would propose on top of that a system of  
19 incentives that rewards the administrators and teachers  
20 for correcting those problems?

21 A Or punishes them for allowing bad things to  
22 continue.

23 Q And by "punishment," what do you mean?

24 MS. DAVIS: Calls for speculation.

25 THE WITNESS: I think that right now we make

1 never had any materials that allowed them to learn it, I  
2 would want to find out why that existed. Was this a set  
3 of faulty decisions by the school administrator or was  
4 it the fact that the teachers didn't use or assign the  
5 books? Was it central administration that made these  
6 resources unavailable? And I would try to, if that were  
7 the problem, find a way of correcting that and providing  
8 incentives to the responsible parties to make sure that  
9 it was corrected.

10 Q And are you aware of any -- we talked before  
11 about other states that have the -- that are getting  
12 pretty close to the right measurement system. They have  
13 longitudinal state databases. And then we talked about  
14 whether there were states that were using that to  
15 measure teacher quality. Are you aware of any systems  
16 that operate effectively at the level of incentives and  
17 sanctions using that knowledge to drive improved  
18 performance?

19 A I think Florida does some of that. I believe  
20 that there are instances in Tennessee where that is  
21 done. I can't remember if it's Chattanooga or Knoxville  
22 that implemented a portion of direct incentive feedbacks  
23 for the value added systems.

24 Q For more than teachers?

25 A Yes.

1 essentially extraordinarily few decisions on the basis  
2 of whether somebody is up to the job of being a teacher  
3 or administrator. And if they fail at it, there are few  
4 sanctions in the system. So I would, on the punishment  
5 side, think that we have more review of performance of  
6 teachers and administrators in terms of their  
7 performance and that we relate that to their continued  
8 employment.

9 BY MR. GROSSMAN:

10 Q So in the context of the hypothetical I started  
11 to develop where the conclusion reached, say, by the  
12 visiting team in conjunction with local decision-makers  
13 is that one of the problems is access to the curriculum  
14 through instructional materials and that problem is not  
15 corrected, what mechanism do you imagine being put into  
16 place?

17 MS. DAVIS: Incomplete hypothetical. Calls for  
18 speculation.

19 THE WITNESS: The term "access to the curriculum"  
20 is something that didn't have much meaning to me. Can  
21 you explain that?

22 BY MR. GROSSMAN:

23 Q Textbooks for every kid.

24 A I would want to find out first why. If the  
25 real issue behind students not learning was that they

1 Q Does it go to administrators also?

2 A Yes.

3 Q And do you have any understanding of that  
4 mechanism?

5 A My understanding was that the district had, in  
6 fact, changed the employment of a number of  
7 administrators at the school level, but I don't know the  
8 details of it.

9 Q And do you know what kind of administrative  
10 level inhibitors to increase performance are the focus  
11 of that examination? In other words, what do they look  
12 at when they're looking at administrators? Do they look  
13 at whether they hire good teachers?

14 A This is going to be on my specific knowledge.

15 Q And back to Florida, incentives and sanctions?

16 A In Florida, I believe -- I believe that there  
17 is feedback through the sanction of schools. There's  
18 the opening of the schools for students to have choice  
19 and vouchers if in fact the school has failed twice in a  
20 row. I think that there is a lot of effort to make sure  
21 that there are strong administrators in schools that  
22 have a D or an F on the record. This system is fairly  
23 new and the exact mechanisms, I believe, are being  
24 studied by several different parties, and there's not  
25 full research knowledge on it because it's very new.

1 MR. GROSSMAN: Let's take ten minutes and resume  
2 at 4:00 o'clock.

3 MS. DAVIS: Okay.

4 (Recess.)

5 BY MR. GROSSMAN:

6 Q I'd like to now turn to some of your previous  
7 writings and ask you questions about some of the things  
8 you've said in the past. You wrote an article along  
9 with John Kain in 1972 called, "On the Value of Equality  
10 of Educational Opportunity, the work by Coleman as a  
11 guide to public policy." And you wrote there, and I  
12 will let you take a look at the whole article if you  
13 would like, "The extent to which -- it's a quote, "The  
14 extent to which minority groups are systematically  
15 discriminated against in the provision of educational  
16 inputs is still unknown. This is a serious matter since  
17 the correction of input in equalities is a logical and  
18 necessary first step in ensuring equality of opportunity  
19 for minorities."

20 My question to you, sir, is do you agree or  
21 disagree with what you wrote in 1972?

22 A I disagree with the emphasis on input on  
23 equality.

24 Q Do you have a recollection when you changed  
25 your view on that?

1 A I don't think there's any specific time I  
2 changed my view. I think that this I wrote at a time in  
3 the end of the '60s when, in fact, there were systematic  
4 explicitly de jure discriminatory policies in existence,  
5 and I didn't believe that those were appropriate. Now I  
6 would be much more reluctant to say precisely what kind  
7 of inputs I thought we should be looking at.

8 Q Do you have a sense of how long it will take to  
9 institute the kind of outcome based system that you  
10 envision, and based on that system to address inequities  
11 in the way that you described addressing inequities  
12 earlier in your testimony?

13 A I believe that this is something that can be  
14 done over a period of time. It was my understanding  
15 that the State of California is going a bit slowly, at  
16 least for my taste, in doing that. But I think it could  
17 -- I think that within five years you could start  
18 putting in place some of the information and that it  
19 would improve over time.

20 Q And in terms of using the information to  
21 diagnose and correct inequities, what kind of time  
22 horizon would be reasonable?

23 A Well, I believe that you're -- in the five- to  
24 ten-year period you're going to start having -- could  
25 conceivably have lots of the information do that.

1 Whether we actually end up with it or not will depend on  
2 how well we implement accountability systems and get  
3 them up and running.

4 Q Okay. I want to just -- now that I've read it  
5 again, I want to parse the language a little bit. If  
6 you were to write that sentence now, how would you --  
7 starting with, "The extent to which minority groups are  
8 systematically discriminated against, "how would you say  
9 it?

10 MS. DAVIS: It assumes he would say anything. I  
11 mean it calls for speculation.

12 THE WITNESS: I believe that has to do with our  
13 discussion previously about how you would define equity  
14 to the extent that minority groups systematically  
15 receive a lower quality education than other groups. I  
16 think that would be a serious matter that required  
17 correction.

18 BY MR. GROSSMAN:

19 Q And it's an unknown right now?

20 A Yes.

21 Q Okay. You did a study on why teachers move,  
22 right?

23 A Yes.

24 Q And it was reported in the Christian Science  
25 Monitor that you looked at the career moves of 375,000

1 primary school teachers who had been in the profession  
2 fewer than ten years. It found a greater tendency --  
3 that is the study, it found a greater tendency to seek  
4 out situations that had better test scores and fewer  
5 minority import students than to look for noticeably  
6 better pay. Do you recall your study, and is that an  
7 accurate summary of your conclusion?

8 A Yes.

9 Q Again, it goes on to say the researchers are  
10 Hanushek, John Kain, and Stephen Rifkin, caution against  
11 concluding that student teachers don't want to teach --  
12 caution against concluding that teachers don't want to  
13 teach low income or minority kids. More likely they say  
14 is they want to avoid the creaky buildings, crowded  
15 classrooms, and dangerous locations that are sadly often  
16 found in schools that such students attend.

17 Is that an accurate summary of things that you  
18 said?

19 A I don't think so.

20 Q I didn't see that in the report, so I was  
21 wondering if that came out of an interview or something  
22 else?

23 A It wasn't in an interview with me. It might  
24 have been by my coauthors, but they didn't even identify  
25 one of my coauthors correctly.



1 Q So this is the same John Kain you've been  
2 working with since at least 1972; is that correct?

3 A Yes, but sadly one month ago he died. It is  
4 the same John Kain.

5 Q I'm sorry to hear that.

6 So to come back to the statement in that  
7 article, you don't know where that came from?

8 A No.

9 Q And do you agree -- nonetheless, do you agree  
10 with the second sentence of that last paragraph that's  
11 highlighted there?

12 A No. I think what we suggested, and it might be  
13 an embellishment by Amelia Newcomb, we suggested that  
14 some of these characteristics may have to do with  
15 general working conditions, but we didn't have any  
16 direct evidence or data on other working conditions. We  
17 just had information on the characteristics of the  
18 student body.

19 Q And so this is a case of possible  
20 misspecification where the student body characteristics  
21 may be closely correlated with working conditions, but  
22 you needed to note that potential misspecifications so  
23 people wouldn't jump to the wrong conclusion why  
24 teachers were leaving?

25 A Misspecification in a causal sense, yes, that's

1 that I currently know that's readily available in the  
2 Texas state information system. And it would be  
3 relevant.

4 Q So this is an article that is entitled "When  
5 More Than Money is Needed," from the January 22, 2002,  
6 edition of the Christian Science Monitor downloaded from  
7 CSMONITOR.COM.

8 You hypothesized in the NBER paper "Why Public  
9 Schools Lose Teachers," working paper 8599 from November  
10 2001, that schools serving a high proportion of students  
11 who are academically very disadvantaged and either black  
12 or Hispanic may have to pay an additional 20, 30, or  
13 even 50 percent more in salary than those schools  
14 serving a predominantly white or Asian academically,  
15 well prepared student body. And then you went to note,  
16 of course, the availability of black or Hispanic  
17 teachers may substantially reduce the costs, of course,  
18 for hiring for these schools.

19 Do you have any reason today to strengthen or  
20 weaken that assertion?

21 A The interpretation of this that I would give  
22 that I had in mind when I coauthored this article was  
23 that the salaries have very little do with the choices  
24 of teachers. Therefore, if you only -- the implication  
25 I thought of is if you only used salary policies, it

1 right.

2 Q Now is that something that you concluded was  
3 not researchable for lack of data?

4 A It wasn't researchable by us at the time that  
5 we did this study. We have talked about pursuing this  
6 study in more detail, about providing much more detailed  
7 information about the schools and then looking at this  
8 question, but we have not been able to do that yet.

9 Q And do you have a research plan for developing  
10 the information about the schools?

11 A We do not yet. We had a proposal of somebody  
12 to fund the development of the research plan, but that  
13 has not been funded yet.

14 Q In the development phase you would figure out  
15 what kind of data you would need to gather in order to  
16 test whether it's working conditions or socioeconomic  
17 status or something else about the students?

18 A Yes.

19 Q Are you presently aware of any data elements,  
20 available data elements that you could use either  
21 directly or as a proxy for developing working  
22 conditions?

23 A Well, there is information, some of which has  
24 started to be collected in Texas about disciplinary  
25 actions against students. That's the only information

1 would be very, very expensive to do that.

2 Q As opposed to what other salaries -- I'm sorry  
3 -- what other policies?

4 A This was thinking of across-the-board salaries  
5 to the district. You can think of very specific salary  
6 inducements to teachers that were motivated toward  
7 teaching in these schools. You could think of very  
8 large rewards, in my mind, for teachers that got  
9 substantial progress from students in these schools. So  
10 that part of the contrast is between, again,  
11 across-the-board policies using the existing salary  
12 structures, which are what is tested here in very  
13 directed policies. Another part is that there might be  
14 ways to in fact improve the working conditions that  
15 would also make it more attractive.

16 Q So in the districts you studied, none of those  
17 policies were present, correct?

18 A To my knowledge, no.

19 Q So what inference can you draw about the  
20 teachers populating the schools that have lots of  
21 disadvantaged or minority kids? There's a lot of  
22 teacher turnover was one observation you made in your  
23 report.

24 A We know that there's more turnover in these  
25 schools, and that in general they'll have less

1 experienced teachers. What we don't have in this study  
2 that would be important is whether the teachers that  
3 leave are particularly the good teachers or the bad  
4 teachers or a general mixture.

5 Q So right now you don't have any information  
6 whether this is a problem affecting student performance?

7 A Reported here I do not. We have some other  
8 preliminary work that suggests that, in fact, the people  
9 that move are no better or no worse than the average of  
10 the teachers that they're leaving.

11 Q And how about the impact of the turnover itself  
12 on student achievement?

13 A What we know is that from the other work that  
14 suggests that it's not good to have a lot of initial  
15 teachers.

16 Q This is the work in Texas that we were talking  
17 about this morning?

18 A Yes.

19 Q And how about turnover as the lack of stability  
20 of the community, or can you not isolate that from  
21 inexperience?

22 A We've been unable to isolate that.

23 Q Is there any reason to think that the results  
24 you found in this MBER study would not obtain for urban  
25 school districts in California?

1 information for black models. To the extent that  
2 facilities bring physical discomfort, are poorly lighted  
3 or have no sound proofing, it is necessary to modify the  
4 basic model which specifies that facilities don't enter  
5 directly into achievement. In other words, at the lower  
6 end of the distribution of facilities, there's a higher  
7 probability that facilities are an important argument of  
8 the production function. Given that Ghetto schools tend  
9 to be older and less well maintained, it is more  
10 probable that facilities are directly important in  
11 producing achievement." And you go on, and you may want  
12 to read the rest of this because you talk about some  
13 specific data regarding the age of facilities.

14 My question to you is, would you say the same  
15 thing today? And if not, why not?

16 A This could take a moment to --

17 Q Sure.

18 MS. DAVIS: You can take your time and look.

19 THE WITNESS: So in 1965 there was survey data that  
20 said there was significant differences between the age  
21 of buildings for black and white students. I believe  
22 that's probably true. I believe that this falls into  
23 what I was saying before. I don't know where I had  
24 data, if it was in the survey or not about lighting and  
25 other characteristics in these buildings. And I know

1 A I think it's likely to obtain. If you asked me  
2 to guess, I would say that it was relevant for urban  
3 schools in California.

4 Q And are you aware of any policies that have had  
5 the effect of mitigating the patterns that you saw in  
6 that study in California?

7 MS. DAVIS: Ambiguous.

8 THE WITNESS: No.

9 BY MR. GROSSMAN:

10 Q Are you aware of any attempts to mitigate?

11 A No.

12 Q Are you unaware because you haven't looked at  
13 it or because you don't think they're present?

14 A I'm unaware because I haven't looked at it.

15 Q 1972, "Education and Race" by Hanushek,  
16 Lexington Books, Studies in Education. You wrote, "In  
17 the white production functions, the lack of good  
18 facility measures did not seem to be damaging. Within the  
19 general range of facilities in the white sample, the  
20 expectations of direct effects of planting equipment are  
21 not very large. Even so, the available data on  
22 facilities are insufficient to provide reasonable tests  
23 of facility effects on white achievement. For modeling  
24 black achievement, the data are no better. However,  
25 there is reason to be more concerned about this lack of

1 about the age. Would we find this today? I don't  
2 know. I don't know of any data that provides similar  
3 information today.

4 BY MR. GROSSMAN:

5 Q What about your comments on the implications of  
6 those conditions for the production function?

7 A I think the implications are that if the  
8 facilities impair learning, they ought to be taken into  
9 account. I believe that.

10 Q And the conditions you identified there, no  
11 sound proofing, poor lighting, you would expect to  
12 impair learning?

13 MS. DAVIS: Vague and ambiguous.

14 THE WITNESS: What I see here is inferring what was  
15 available to me in 1968 that I actually didn't have any  
16 data on to specific conditions, and so, you know, it  
17 would be improper, I think, to take these words and go  
18 running around the state or Texas or whatever looking  
19 for these conditions because we don't have any  
20 information on the specific conditions.

21 BY MR. GROSSMAN:

22 Q Do you think you need empirical evidence  
23 isolating econometrically the significance of lighting  
24 on achievement to derive prescriptions on that question?

25 A I think that fits into a generalization of my

1 safe sanitary and healthy facilities, that there are  
2 indeed minimal standards on lighting and things that I  
3 think should be available in schools. The extent to  
4 which they are not available in any of today's schools  
5 as compared to 1965 schools in northeast of the United  
6 States, I don't know.

7 Q Is it still a question that you think is  
8 important in the way that you described the question as  
9 being important in 1972?

10 A I rather doubt that it's that relevant for the  
11 State of California, but we would like more information  
12 on that.

13 Q And same questions with respect to physical  
14 discomfort, facilities that bring physical discomfort  
15 fall into your healthy, safe rubin?

16 A Yes.

17 Q And same questions with respect to sound  
18 proofing?

19 MS. DAVIS: Vague and ambiguous.

20 THE WITNESS: There are third degrees of all of  
21 these things. Yes, you would want kids to be able to  
22 hear what the teacher was saying, no doubt about it.

23 BY MR. GROSSMAN:

24 Q So I thought I had asked you about this issue  
25 before, and then I couldn't find a citation for it, so

1 MS. DAVIS: It's toward the bottom.

2 THE WITNESS: This is going to take some research  
3 to find what measures of teacher quality were used here.  
4 So if you'll bear with me for a minute here.

5 BY MR. GROSSMAN:

6 Q Actually, I wasn't -- just to be clear about my  
7 question, it wasn't so much as to at the time this was  
8 well supported or not. It's more a way of asking you  
9 what the research that you've done since then has  
10 pointed to and whether you would make the same  
11 observations and comments today?

12 A I thought we addressed that this morning, at  
13 least in Texas we did not find -- actually, it wasn't by  
14 blacks and whites. It was by economic disadvantage. I  
15 don't think we ever specifically tried to look at the  
16 different impact of teacher quality on blacks and  
17 whites. I don't think we have.

18 Q So you don't have any evidence in 2003 pointing  
19 toward or against that observation, except whatever  
20 evidence you had in 1972?

21 A To the extent that this is the evidence in  
22 1972, I don't think -- I can't think of different  
23 evidence that compares blacks and whites.

24 Q So maybe I should let you look at what the  
25 evidence was in 1972 and let you comment on its quality.

1 let's try 1972. I read to you from page 91 of  
2 "Education and Race," on page 92 you said, "In comparing  
3 the black and white models of the process, it appears  
4 that blacks are more sensitive than whites to changes in  
5 quality of teachers. These differences are small, but  
6 the total impression is one where schools have a larger  
7 impact on blacks. This is an interesting finding given  
8 that schools don't have much of an effect on  
9 Mexican-Americans. The present findings suggest that  
10 the Mexican-American finding is not simply a minority  
11 problem.

12 "Additionally, the larger effect of experience  
13 indicates that in the case of blacks, school hiring  
14 policies are not as inefficient as in the case of  
15 whites." I'm not sure that I understand that.  
16 "However, the coefficient is not large enough to suggest  
17 that the present large premiums paid for experience are  
18 entirely justified."

19 Now the experience point I think your research  
20 tends to confirm, correct, that is that paying a premium  
21 for experience may not be justified in terms of  
22 correlating experience with student performance?

23 A Correct.

24 Q How about the other points you were making in  
25 that paragraph?

1 A Well, frankly, these studies that I did then I  
2 would not repeat today. They were very early studies  
3 and I would not do them the same way. When I look at  
4 the estimates that I have here, I'm not sure that the  
5 magnitude of differences would be anything that I would  
6 make that statement about today. So I don't know. I  
7 think I would at least soften the conclusions that I  
8 reached in 1972 today.

9 Q The issue with the methodology or the data that  
10 you relied in 1972 is what?

11 A I can't imagine looking at just the level of  
12 student achievement and addressing that on some simple  
13 measures of inputs across different state boundaries.  
14 That is not the way I would approach the problem.

15 Q The way you would approach it today would be to  
16 look at longitudinal information?

17 A Yes.

18 Q Of the 300 -- you must know this number. The  
19 362 estimates you use -- what was the number?

20 MS. DAVIS: 76.

21 MR. HAJELA: 76.

22 BY MR. GROSSMAN:

23 Q 376 estimates, how many of them were based on  
24 longitudinal information?

25 A I don't have them in terms of the 376. Roughly

1 a quarter of the estimates of class size, for example,  
2 were based on longitudinal estimates.

3 Q Did you segment the estimates by whether they  
4 were based on longitudinal data or not and then  
5 determined whether the conclusion differed if you  
6 excluded the non-longitudinally based studies?

7 A Yes.

8 Q And what was the result?

9 A The general conclusion didn't change. The  
10 general conclusion being that there was not a consistent  
11 effect of these resources on achievement.

12 Q Did you publish that segment to do the  
13 analysis?

14 A As you had pointed out, I had published it more  
15 than once.

16 Q So did I just miss it and not realize I was  
17 seeing it in the 2003 report?

18 A If you didn't see it, it was there.

19 Q So actually, let's look at Exhibit 4 for a  
20 second and just point me to that. That's the 1997  
21 version?

22 A 1997 version.

23 Q I think it's at 147 now that I understand what  
24 you were saying.

25 A It's on 148, table seven.

1 Q Right. And the text on table seven starts 147,  
2 table seven provides --

3 A Right.

4 Q -- a summary of value added results?

5 A Yes.

6 Q Can you explain this, on page 147 you say, "The  
7 only resource input faring as well as in the value added  
8 studies as in the general database is teacher  
9 experience." Do you see that?

10 A Yes.

11 Q "One would expect that inclusion of prior  
12 student achievement would reduce the importance of  
13 reverse causation so the value added studies suggests  
14 that teacher choice is not driving the relative strength  
15 of teacher experience." What does that mean?

16 A There were a number of early studies, two, that  
17 looked at whether teachers were, in fact, going to  
18 higher achieving schools when they had a chance with  
19 more experience, similar to the material that we  
20 discussed as quoted in the Christian Science Monitor.

21 In those studies you could interpret a  
22 relationship between teacher experience and achievement  
23 as being one where experience was caused by student  
24 achievement because, in fact, more experienced teachers  
25 tend to move to schools with higher achievement. That's

1 what is meant by the reverse causality phrase there.

2 The value added studies, in fact, take into  
3 account the achievement level of students before the  
4 teachers have them so they already implicitly take into  
5 account any choice of low or high achievement by the  
6 teacher and then look at the relationship of  
7 performance.

8 Q They take into account the choice of the  
9 teacher or the choice of the teachers' predecessors as  
10 to that student?

11 A The choice -- if the teachers are, in fact,  
12 motivated by looking for high achieving kids, then our  
13 measure of performance is only what that teacher adds in  
14 addition to the initial high performance that they move  
15 to. That's the impact.

16 Q Can Government Legislate Higher Teacher  
17 Quality, September 2001, a paper you delivered in  
18 Montevideo, you said, "Finally principals and  
19 superintendents can not be expected to work magic,  
20 particularly in economically disadvantaged communities.  
21 If the working conditions make it difficult to attract  
22 teachers, additional resources may be needed; however,  
23 such resources should be contingent upon the enactment  
24 of substantial changes in school management."

25 What did you mean by the last sentence, first

1 of all, about changes in school management?

2 A I mean that management ought to be rewarded for  
3 getting increased performance of students, and so that  
4 there are direct incentives for management to, in fact,  
5 make decisions based on performance.

6 Q And with that you would do what is specified in  
7 the previous sentence, which is make additional  
8 resources available to them?

9 A Yes, it might be necessary, may be needed.  
10 Precise details aren't specified, but yes.

11 Q And the predicate for all of that is the need  
12 to have those resources in order to attract high quality  
13 teachers as you define them?

14 A That's what I'm concerned about, yes.

15 Q And on that triplet of sentences, are there any  
16 systems that you regard as having those -- that  
17 combination of policies in place?

18 A Not that I know of.

19 Q In "School Resources and Student Performance,"  
20 published in 1996, you started out by a paragraph in the  
21 conclusions by saying, "The central issue in all policy  
22 discussions is usually not whether to spend more or less  
23 on school resources, but how to get the most out of  
24 marginal expenditures. Nobody would advocate zero  
25 spending on schooling, as nobody would argue for

1 infinite spending on schooling. The issue is getting  
2 productive uses from current and added spending. The  
3 existing evidence," -- and this is what I want to focus  
4 on. "The existing evidence similarly indicates that the  
5 typical school system today does not use resources  
6 well," paren, "at least if promoting student achievement  
7 is their purpose," closed paren, period.

8 "It is tautological to say that we will get  
9 good performance if he spend the money wisely. Today  
10 the existing knowledge base does not insure that any  
11 added funds on average will be spent wisely. That is  
12 true even if some schools spend their funds wisely."

13 And then you go on to say that the problem lies in the  
14 lack of incentive to improve student performance.

15 So my question is, first of all, would you say  
16 the same thing today?

17 A Yes.

18 Q And is it not the case that the decisions that  
19 school districts are making are essentially professional  
20 judgments? The quality of the empirical data hasn't  
21 changed since you wrote that in 1996 -- let me strike  
22 that.

23 Let me clarify my question. We distinguished  
24 between two bases for decision-making in this area  
25 earlier on, that which was driven by econometric

1 morphed together two discussions of econometrics in ways  
2 that I don't think are correct.

3 Q But let's take the discussion of whether a new  
4 school should have at the margin an additional science  
5 lab. The econometric literature will never, in your  
6 judgment, drive the analysis of that question, correct?

7 A Yes, that is true.

8 Q That will have to be made on the basis of  
9 professional judgment?

10 A That is correct.

11 Q And you can imagine I won't -- you can imagine  
12 a whole raft of decisions that have to be made about the  
13 allocation of resources at the local level that will not  
14 therefore be driven by econometric analysis, correct?

15 A That is true.

16 Q Whether to clean the rooms once a week or three  
17 times a week or five times a week will not be driven by  
18 econometric analysis?

19 A That is absolutely true.

20 Q And whether to have a college counselor for 100  
21 kids or 500 kids or 1,000 kids won't be driven by  
22 econometric analysis?

23 A Probably not.

24 Q So what you're positing is that incentives for  
25 improved student performance will drive better

1 analysis and that which was a matter of professional  
2 judgment. And your view before, to summarize, was that  
3 at the end of the day we're going to have to rely on  
4 professional judgment to make these decisions because  
5 you don't expect the econometric literature to be able  
6 to give substantial prescriptive guidance to  
7 decision-makers; is that a fair summary of your  
8 viewpoint?

9 A I think it's getting late in the day. That  
10 would not be my summary of what we discussed before.

11 Q Where did I get it wrong?

12 A I think that my view is that we have to have  
13 substantial professional guidance among any system  
14 that's going to improve. My parallel view is that we  
15 cannot rely entirely upon mechanical systems that  
16 estimate value added to in fact provide information on  
17 who is doing well and who isn't, but do we need to have  
18 some of that information along with information on  
19 professional judgment.

20 That is a different discussion than the  
21 discussion of whether econometric analysis will provide  
22 us with information about the elements of good teaching,  
23 good schools, and what have you, and allow us to make  
24 policy judgments more or less mechanically on the basis  
25 of the inputs to hire than we can get outputs. So it

1 professional judgments on those questions?

2 A That is correct.

3 Q Better in the sense that they will be driven  
4 more by a desire for improved student performance than,  
5 say, competing considerations such as bureaucratic  
6 imperatives, the lobbying of interest groups, et cetera?

7 A That is correct.

8 Q But absent an understanding of the relationship  
9 between an econometrically based relationship between  
10 any of those choices and improved student performance,  
11 why will the professional judgments be better than than  
12 they are now?

13 A In the same way that your judgment as a partner  
14 in this firm about how to produce a good report, legal  
15 report on some issue are not driven by professional  
16 judgment -- by econometric analysis but by professional  
17 judgment. I think you can mobilize that in the case of  
18 schools. I think that there are two key ingredients  
19 missing currently to making good professional  
20 judgments. One is information on the outcomes of  
21 current decisions and how they impact on performance of  
22 students. And the second is a set of incentives that  
23 link performance in those outcomes to their actions. So  
24 that right now missing those two bits of judgment, just  
25 saying that decisions made in schools are made by

1 professional judgment doesn't characterize what I think  
2 is the system that I would like to see in the future.

3 Q But what precisely will vary with the addition  
4 of those two added characteristics?

5 A Information and motivation.

6 Q And how will information and motivation affect  
7 a decision, setting up the decision-making model  
8 currently versus the decision-making model in the  
9 educational environment that you envision?

10 MS. DAVIS: Calls for speculation.

11 THE WITNESS: We don't know the precise details  
12 about how to set up the incentive structure. But  
13 imagine that I am buying lunch for us at this meeting,  
14 and in one case no one cares what I spend on it and  
15 there's no feedback, no budget constraint, I can imagine  
16 that I would get -- buy a very different lunch than if I  
17 said that there were incentives related to how much I  
18 spend and how my decisions were made.

19 BY MR. GROSSMAN:

20 Q I want to insist that you focus on an  
21 educational system because you posited a model of  
22 educational decision-making in your reports in which  
23 decision-makers made tradeoffs among competing demands  
24 on their resources, and you posited that there's no  
25 reason to think that school boards currently are not

1 MS. DAVIS: Same objection.

2 THE WITNESS: Let me ponder the last of that  
3 first. I think that we are unlikely to find econometric  
4 answers that substitute for decision-making by school  
5 personnel in local decision-making. I think we are  
6 unlikely to find simple generalizations, for example, of  
7 the reading program that will solve California's reading  
8 program. I think that we will have information  
9 available, for example, on the reading programs where  
10 there are a range of reading programs that are proved  
11 effective in various circumstances, and we will have  
12 local judgments to talk about when and where to enact  
13 different kinds of programs.

14 So that's how I see information developing. I  
15 think we'll have similar kinds of information about  
16 other programs. I think that -- further that a number  
17 of people in schools have an understanding of the kinds  
18 of professional developing programs that are effective  
19 in terms of improving student performance and the kinds  
20 that are not. Right now there's little incentive, to  
21 make it very clear, distinct decisions on keeping those  
22 that affect student performance and those that don't.

23 Those are kinds of examples that when  
24 information is available they might be done better. I  
25 think it's also true that a lot of parents, school

1 looking out for the best interests of their school  
2 boards and other decision-makers are not to be trusted.  
3 Do you recall a review of that?

4 A I see there's a line in there that there's no  
5 reason to believe that local districts have to be  
6 malevolent and centralized, and much of centralized  
7 decision-making seems to be designed under that idea.  
8 We are operating in a system where there are not strong  
9 incentives for either the decision-makers or the  
10 teachers. And so if you say we will not have such a  
11 system, then you might want to consider another system,  
12 but how you do it, I don't know.

13 Q I'm not sure we were -- maybe it is getting  
14 late, but let me try it again. You said there's no  
15 reason to believe that local districts which include  
16 locally elected school boards and parental involvement  
17 do not have the interests of their children at heart?

18 A Yes.

19 Q And you're positing that with additional  
20 longitudinal value added data and incentives those  
21 decisions will improve, and you're positing that  
22 improvement even though you predict that there won't be  
23 econometric quality data on which to base  
24 generalizations about particular inputs. And so  
25 precisely how will the decision-making improve?

1 boards, and I think local school personnel are  
2 mistaken about the quality of their program vis a vis  
3 other programs, and that providing information about  
4 that will mobilize a number of schools and school  
5 districts to in fact seek better ways to do what they're  
6 doing. Those are the kinds of things that I think go  
7 into that.

8 Q You wrote an article called Moving Beyond  
9 Spending Fetishes in a journal called "Educational  
10 Leadership," November 1995. You wrote, "While  
11 certification perhaps insures that truly incompetent  
12 teachers are less likely to reach the classroom, it is  
13 little to insure that really top notch teachers  
14 populated the schools." This was on page 62.

15 Would you still posit that certification,  
16 "Perhaps insures that truly incompetent teachers are  
17 less likely to reach the classroom"?

18 A That was the speculative part of that  
19 sentence. I don't know whether that's true or not. I  
20 don't see strong evidence in it, because what we're  
21 looking at in the econometric studies is people who have  
22 the credentials versus those that don't, and there we  
23 don't see much difference. Now maybe it helps to  
24 eliminate some truly incompetent, I don't know.

25 Q Have you looked at any data among the

1 uncredentialed or not fully credentialed category, that  
2 is data about teachers that are not fully credentialed,  
3 to analyze whether there is any characteristic within  
4 that group that is correlated with student performance?

5 MS. DAVIS: Vague and ambiguous.

6 THE WITNESS: Not specifically.

7 BY MR. GROSSMAN:

8 Q Is there any data in mind that you're aware of  
9 in that connection?

10 A Sure.

11 Q What would you --

12 A I mean there's information on credentials,  
13 those who have credentials and those that don't in terms  
14 of the amount of education they have, and in some  
15 instances their scores and certification tests. I  
16 presume in some cases -- I haven't -- I don't actually  
17 have any of it. There's information about what  
18 particular teacher training schools they went to.

19 Q And we're in the uncredentialed or not fully  
20 credentialed category, right?

21 A Yeah, we're presumably in all categories. We  
22 have that information about credentials and  
23 uncredentialed and not fully credentialed.

24 Q And we have information about the type of  
25 provisional credential that the teacher might be

1 A They are certainly -- what we find is that in  
2 the first couple of years, everything else being equal,  
3 teachers seem to get better for the first couple of  
4 years. After that there seems to be no systematic  
5 changes one way or another. We have also said at the  
6 same time that those differences are small relative to  
7 the overall differences in quality of teachers.

8 So yes, it is true that this is important.

9 This was largely an argument for people who wanted to  
10 preclude or argue against having any short-term  
11 teachers, those that weren't willing to commit to  
12 30-year careers but were only willing to commit to five  
13 years, which we thought was an undue restriction.

14 Q But the reason it's not -- you wouldn't go  
15 along with steep is that although it may not be as flat  
16 as in the latter years, because teacher quality some  
17 other way is so much greater a contributory, that's  
18 really where the steep part of the curb is?

19 A No. What I wanted to do is avoid conversations  
20 being on the flat of the curve, which I didn't think was  
21 very productive, and so I was trying to distinguish from  
22 that. It is true if you want to say that the big gains  
23 that come from experience come early. Yes, that is  
24 true, of all the gains that come from experience, the  
25 big ones come early.

1 operating on?

2 A We could. It depends on the system, of  
3 course. Each state has its own credentialing system.

4 Q You and Steve Rifkin wrote a paper, Teacher  
5 Quality and School Reform in New York, October 2000.  
6 And you wrote, "The results show that teachers improve  
7 markedly in the first and second years on the job, but  
8 there are no significant gains or losses in teacher  
9 effectiveness from additional experience. Students who  
10 attend schools with substantial teacher turnover and  
11 large numbers of new teachers undoubtedly suffer. At  
12 the same time gains from experience occur over a short  
13 period of time, meaning those intending to teach for  
14 four or five years can become quite proficient." This  
15 is page 5 of that study.

16 My questions for you is, would you say the same  
17 thing today?

18 A That's what we've been talking about all along.  
19 Yes, I've been saying it, I think, consistently  
20 throughout the day.

21 Q Another way of saying that, that teachers in  
22 the first few years are on the steep part of the  
23 production function curve?

24 A Well, I wouldn't -- I wouldn't say it that way.

25 Q Why not?

1 MR. GROSSMAN: Okay. Why don't we break. We'll  
2 see you at 9:00. I think my original estimate is  
3 valid. I think I'll go to 10:30 or 11:00 and then turn  
4 it over to Mr. Hajela.

5 MR. HAJELA: Well, I'm going to go over to talk to  
6 Jeff right now to ask any questions for L.A. Unified, so  
7 depending on how much Jeff has, we'll have an early day  
8 tomorrow.

9 MS. DAVIS: Okay. Can't complain.

10 MR. GROSSMAN: Thank you.

11 MS. DAVIS: Thank you.

12 THE WITNESS: Thanks.

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I, ERIC A. HANUSHEK, PH.D., do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made such corrections as noted herein, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this \_\_\_ day of \_\_\_\_\_, 2003, at \_\_\_\_\_, \_\_\_\_\_.  
(City) (State)

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ERIC A. HANUSHEK, PH.D.

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I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney of any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

Dated: \_\_\_\_\_

\_\_\_\_\_  
JODI L. BOSETTI  
CSR No. 11316