

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)
DEPARTMENT OF EDUCATION, STATE)
BOARD OF EDUCATION,)

Defendants.)

_____)

DEPOSITION OF MARGARET RAYMOND, Ph.D.
San Francisco, California
Monday, June 23, 2003
VOLUME

Reported by:
TRACY L. PERRY
CSR No. 9577
JOB No. 43679

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2 COUNTY OF SAN FRANCISCO
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7 Plaintiffs,)
8 vs.) No. 312236
9)

9 STATE OF CALIFORNIA, DELAINE)
EASTON, State Superintendent)
10 of Public Instruction, STATE)
DEPARTMENT OF EDUCATION, STATE)
11 BOARD OF EDUCATION,)
12 Defendants.)

13 _____)
14
15 Deposition of MARGARET RAYMOND, Ph.D., Volume 1,
16 taken on behalf of Plaintiffs, at 425 Market Street,
17 33rd Floor, San Francisco, California, beginning at
18 9:01 a.m. and ending at 4:39 p.m., on Monday, June 23,
19 2003, before TRACY L. PERRY, Certified Shorthand Reporter
20 No. 9577.
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1 APPEARANCES:

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8 1 Document titled "The Future of California's 13
Academic Performance Index," dated April
9 2002; 70 pages
10 2 Document titled "Teach for America: An 77
Evaluation of Teacher Differences and
11 Student outcomes in Houston, Texas," dated
August 2001; 76 pages
12
13 3 Document titled "Class Size Reduction, 111
Teacher Quality, and Academic Achievement
in California Public Elementary Schools,"
14 dated 2002; 135 pages
15 4 Document titled "The Performance of 179
California Charter Schools," dated May 2003;
37 pages
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1 San Francisco, California
2 Monday, June 23, 2003
3 9:01 a.m. - 4:39 p.m.
4
5 MARGARET RAYMOND, Ph.D.,
6 having been duly sworn, was examined and testified as
7 follows:
8

9 EXAMINATION
10 BY MR. JACOBS:
11 Q How do you prefer to be addressed? Doctor?
12 Ms.? Professor?
13 A Macke.
14 Q A little too informal for this.
15 A Okay. "Doctor" is fine.
16 Q Are you on any medication for your leg that
17 would affect your testimony today?
18 A No, I'm not.
19 Q Have you been deposed before?
20 A Yes, I have.
21 Q Was that in -- that was not in CFE, correct?
22 A That's correct.
23 Q Any education-related case?
24 A No.
25 Q What was the -- under what circumstances were

1 you deposed?
 2 A I was an expert witness in a number of public
 3 utility regulatory proceedings.
 4 Q Are you still doing the public utility kind of
 5 work?
 6 A I am not.
 7 Q Is education your principal focus?
 8 A Exclusive.
 9 Q And the public utility work stopped when?
 10 A 1998.
 11 Q And the last time you were deposed?
 12 A I don't recall, but it was prior to that by
 13 several years. 1996 maybe.
 14 Q Did you -- let me give you a copy of your expert
 15 report.
 16 MR. CHOATE: Mike, do you have a copy for me, too?
 17 MR. JACOBS: Yes. Sorry.
 18 Q Did you bring anything with you today by way of,
 19 for example, additional documents that needed to be
 20 produced?
 21 A I did.
 22 Q What do you have?
 23 A I have my copies of the Mintrop and the Russell
 24 reports.
 25 Q Marked?

1 MR. CHOATE: Object; vague and ambiguous.
 2 BY MR. JACOBS:
 3 Q Marked up?
 4 A I don't understand what "marked up" means.
 5 Margin notes?
 6 Q Yes.
 7 A Yes. I had tried to go to the office this
 8 morning to copy them for you. The Xerox machine was
 9 broken. I have the originals with me. We can make
 10 copies at lunchtime or I can bring you copies tomorrow,
 11 whichever you prefer.
 12 Q Copies-Are-Us. We'll take care of that. So at
 13 a break, why don't you give those to Mr. Choate and he
 14 can give them to us.
 15 A Thank you.
 16 Q In the CFE case -- you said in your report that
 17 you did not provide testimony in that matter. Did any of
 18 your work become -- did any of your work in CFE become
 19 publicly known?
 20 A Yes.
 21 MR. CHOATE: Objection; vague and ambiguous.
 22 THE WITNESS: Sorry.
 23 BY MR. JACOBS:
 24 Q What was -- which work was that?
 25 A I prepared some distributional analyses of

1 New York State school districts that showed the
 2 distribution of funding and academic performance. And a
 3 number of those analytic results became part of
 4 testimony.
 5 Q Whose testimony?
 6 A Eric Hanushek.
 7 Q Have you been asked to assist in analysis for
 8 the defense side in any other education-related
 9 litigation?
 10 MR. CHOATE: Objection; vague and ambiguous.
 11 BY MR. JACOBS:
 12 Q Are you having trouble figuring out what's vague
 13 about it?
 14 MR. CHOATE: If you want to have the court reporter
 15 read back the question, she can read back the question.
 16 (□The record was read as follows:
 17 "Question: Have you been asked to assist in
 18 analysis for the defense side in any other
 19 education-related litigation?")
 20 THE WITNESS: Other than this case?
 21 BY MR. JACOBS:
 22 Q Correct.
 23 A No.
 24 Q So to ask it a little differently, other than
 25 CFE and the Williams case, you haven't worked on the

1 defense side of any other education cases?
 2 A That is correct.
 3 Q And same question on the Plaintiffs' side?
 4 MR. CHOATE: Objection; vague and ambiguous.
 5 THE WITNESS: That is correct.
 6 BY MR. JACOBS:
 7 Q So you haven't worked on the Plaintiffs' side
 8 for anyone?
 9 A No.
 10 Q No, you have not?
 11 A I have not.
 12 Q Have you reviewed your report in the last
 13 several days in anticipation of your deposition?
 14 A Yes, I have.
 15 Q Are you still of a mind that these represent
 16 your expert opinions today?
 17 A Yes, I am.
 18 Q Is there anything upon review that you would
 19 state differently?
 20 MR. CHOATE: Objection; vague and ambiguous.
 21 THE WITNESS: One can always turn a better phrase
 22 upon subsequent editing.
 23 BY MR. JACOBS:
 24 Q Anything that would go to the substance of your
 25 opinion?

1 A No.

2 MR. CHOATE: Objection; vague and ambiguous.

3 BY MR. JACOBS:

4 Q So with respect to the data, for example, you
5 haven't noticed anything about the data in the -- strike
6 that.

7 From -- since you submitted the report to today,
8 have you noticed anything about the report that you wish
9 you had -- that you would like to have an opportunity to
10 correct before we get into it?

11 A There's nothing substantive that I would change
12 about my testimony -- my report.

13 Q So let's start with page 2. And I particularly
14 want to focus on your sentence, "Moreover, the State
15 agrees with Plaintiffs' central argument that every
16 student deserves qualified teachers, adequate
17 instructional materials, and clean and decent facilities
18 that are conducive to learning."

19 Do you see that?

20 A I do.

21 Q What do you base your understanding of where the
22 State agrees with the plaintiff on?

23 MR. CHOATE: Objection; vague and ambiguous.

24 THE WITNESS: Based on my work in California working
25 on accountability systems, I've seen nothing that would

1 with student performance?

2 MR. CHOATE: Objection; vague and ambiguous.

3 THE WITNESS: Some of the work that I have done has
4 examined some inputs.

5 BY MR. JACOBS:

6 Q And one of the inputs you examined was condition
7 of school facilities and grounds, correct?

8 MR. CHOATE: Objection; vague and ambiguous.

9 THE WITNESS: One of the factors that was used in
10 the other states' accountability systems was the use of a
11 factor for facilities. The analysis that we did I could
12 not claim was entirely comprehensive, so I'm not able to
13 determine whether the full body of research in the field
14 is adequate to be able to base state policy.

15 BY MR. JACOBS:

16 Q So let me show you the report you did called
17 the -- that I believe you're an author on -- strike that.

18 Let me show you a report that you're an author
19 on called "The Future of California's Academic
20 Performance Index," dated April 2002.

21 A Yes.

22 Q And we'll mark this as -- what are we doing,
23 Raymond 1?

24 MS. WELCH: Yeah, I think so.

25 MR. JACOBS: So we'll mark this particular report as

1 contradict the State supporting these particular aspects
2 of the plaintiffs' central argument. And there's a lot
3 in the Education Code that encourages the pursuit of
4 these.

5 BY MR. JACOBS:

6 Q Do you believe that the State's endorsement of
7 the pursuit of these objectives is well-founded in
8 empirical research?

9 MR. CHOATE: Objection; vague and ambiguous.

10 THE WITNESS: I don't have enough information to
11 know on what basis the State has made its policy
12 recommendations in these areas.

13 BY MR. JACOBS:

14 Q Do you believe that the State's policy
15 recommendations in these areas are supportable based on
16 empirical research?

17 MR. CHOATE: Objection; vague and ambiguous.

18 THE WITNESS: I don't claim to know enough of -- or
19 the entirety of the research that exists to know if it's
20 credible and reliable, so I'm unable to answer the
21 question.

22 BY MR. JACOBS:

23 Q Haven't you done some survey work in which
24 you've analyzed the empirical research with respect to
25 particular inputs to determine whether it is correlated

1 Raymond 1.

2 MR. CHOATE: Is this being marked as Raymond 2 or 1?

3 MR. JACOBS: Raymond 1.

4 (Raymond Exhibit 1 was marked.)

5 BY MR. JACOBS:

6 Q So, Ms. Raymond, while we were distributing the
7 exhibit, I asked you to take a look at Table 9. And as I
8 understand Table 9, it is a table that shows the -- at a
9 gross level the relationship of particular variables to
10 student achievement as determined by you and your
11 co-author, based on review of the literature, correct?

12 A That is correct.

13 MR. CHOATE: Objection; vague and ambiguous.

14 BY MR. JACOBS:

15 Q And one of the variables that you found had a
16 moderate relationship to student achievement was
17 condition of school's facilities and grounds, correct?

18 A That is correct.

19 Q And do you still believe as you sit here today
20 that to be a correct association of a variable to student
21 achievement?

22 MR. CHOATE: Objection; vague and ambiguous,
23 incomplete hypothetical.

24 THE WITNESS: Based on the information that we used
25 to prepare this report, I think that that's a correct

1 conclusion.

2 BY MR. JACOBS:

3 Q So at least with respect to -- back to the
4 sentence on page 2 of your report, at least with respect
5 to clean and decent facilities that are conducive to
6 learning -- well, strike that.

7 Do you think clean and decent facilities that
8 are conducive to learning maps to condition of schools
9 facilities and grounds in Table 9?

10 MR. CHOATE: Objection; vague and ambiguous,
11 incomplete hypothetical.

12 THE WITNESS: I have not reviewed the API 2002
13 report recently, but my understanding was that the
14 construction of this particular factor in the state that
15 used it -- I'm sorry, I don't even recall which one that
16 was -- was pretty narrowly defined and that we were
17 challenged to find a large enough basis in the empirical
18 research to be able to assess the strength of the
19 association.

20 The fact that we came up with moderate tells me
21 that we found that there was a weak statistical
22 association, but that there were enough studies that met
23 the requirements of being reliable that we could say
24 there appeared to be a moderate association.

25 If that's enough -- if the question is, Is that

1 MR. CHOATE: Objection; vague and ambiguous,
2 incomplete hypothetical.

3 THE WITNESS: Yes.

4 BY MR. JACOBS:

5 Q Under what circumstances?

6 A I -- I have been asked in a few cases to help
7 design evaluations of programs that are primarily
8 instructional in nature and to establish a design that
9 would adequately allow for the quantification of whatever
10 effect those materials had on student achievement
11 outcomes.

12 Q And when you say the materials in those
13 contexts, are you including in that set both the
14 materials that are in the physical form that are
15 distributed to students and the instructional methods
16 adopted by a teacher?

17 A Yes.

18 Q So have you ever studied in a disaggregated way
19 the availability of instructional materials separate from
20 what the teacher might do standing in front of the
21 classroom?

22 MR. CHOATE: Objection; vague and ambiguous.

23 THE WITNESS: If you would repeat the part of your
24 question about disaggregating, I want to make sure I
25 understand it.

1 enough to base state policy? State policy is based -- I
2 can't determine what the basis of the state who used that
3 factor was in choosing this policy. If they used the
4 research, I don't know it. I can only tell you the
5 research that we looked at.

6 BY MR. JACOBS:

7 Q I had a narrower question, just to map the words
8 to the -- whether the words "clean and decent facilities
9 that are conducive to learning" express kind of a
10 qualitative level of "schools facilities and grounds" so
11 we can talk about those two verbal formulations together.

12 MR. CHOATE: Objection; vague and ambiguous, calls
13 for speculation, and incomplete hypothetical.

14 THE WITNESS: I'm sorry. I don't have enough
15 information at this point to be able to map those very
16 closely.

17 BY MR. JACOBS:

18 Q Now, adequate instructional materials is one
19 that you didn't examine in the future of California's
20 Academic Performance Index, correct?

21 A That's my recollection.

22 Q And have you ever studied that question, whether
23 the adequacy of the instructional materials that are
24 available to students is associated with student
25 achievement?

1 BY MR. JACOBS:

2 Q Actually, I can unpack it a little more.

3 As I understand it, the studies you're
4 describing take an instructional program and measure
5 student performance for students who have reputedly
6 benefited from the program against those that haven't; is
7 that correct?

8 MR. CHOATE: Objection; vague and ambiguous.

9 THE WITNESS: That's not entirely the case. That is
10 part of the design of these studies, but it's also a
11 question of degree of adoption, so that within the
12 experimental side as opposed to the controlled side, we
13 have in the past and are doing now a control for the
14 degree of adoption or implementation, and part of that is
15 about materials.

16 BY MR. JACOBS:

17 Q So what is the -- what are the steps in the
18 range of adoption? What's the difference between fully
19 adopted versus weakly adopted?

20 MR. CHOATE: Objection; vague and ambiguous,
21 compound question.

22 THE WITNESS: It would really depend on --
23 What did you say?

24 MR. CHOATE: If you understand his question, you can
25 answer his question.

1 THE WITNESS: I didn't hear the last of what you
 2 said. Vague and ambiguous and what?
 3 MR. CHOATE: And it was compound. I thought there
 4 were two questions there. That's why I gave the
 5 objection.
 6 BY MR. JACOBS:
 7 Q Can you give me an example?
 8 MR. CHOATE: Ms. Court Reporter, would you read back
 9 the question, please?
 10 MR. JACOBS: Let's just start over.
 11 Q Is there a current study that's underway that
 12 you have in mind as I ask you questions about -- an
 13 exemplary study?
 14 A Yes.
 15 Q In that study, what are the steps or content of
 16 the variable that maps to degree of adoption?
 17 MR. CHOATE: Objection; vague and ambiguous.
 18 THE WITNESS: I take your question to mean how do
 19 you measure incremental implementation?
 20 BY MR. JACOBS:
 21 Q Yes.
 22 A It really depends on the particular program that
 23 you're looking at. If you're looking at a technology
 24 program, it might be what proportion of classrooms in a
 25 school actually have the working technology, that

1 particular technology in question in the classroom. That
 2 may be a threshold question.
 3 There might be an additional question of if the
 4 technology is available, what are the competencies of a
 5 teacher to use that? What are the competencies of the
 6 teacher to teach students how to use the materials if
 7 those are available? Sometimes it's even if you've
 8 gotten through sort of the establishment of the
 9 technology or the establishment of the resource and the
 10 necessary training or competence of the instructor, then
 11 you have the marginal change in behavior of that
 12 individual in terms of incorporating the material.
 13 And then finally, as a final measure, you have
 14 corroborating information about the use of those
 15 materials from other sources.
 16 Q In the corroborating material -- corroborating
 17 material about use, what kind of information might that
 18 be?
 19 A Again, that depends on the particular program in
 20 question. If you're talking about a new instructional
 21 method, then there are often additional support resources
 22 that the teacher might be able to draw upon. And some of
 23 those come with not exactly an accounting system, but a
 24 counting method to see which teachers have actually used
 25 it and which ones have not.

1 And the opportunity exists then to track whether
 2 a teacher has taken advantage of any of the additional
 3 support materials as a way of gauging how completely they
 4 have adopted the new materials into their classroom.
 5 Other things. Copying, records. People have
 6 key cards for copying machines, and if you know that
 7 there's a lot of new material that isn't -- hasn't been
 8 available before, then you can look at whether there's a
 9 lot of copying going on so that they can distribute
 10 materials to students.
 11 Q Are any of the programs that you're evaluating
 12 or that you've evaluated in this category that you
 13 described a few minutes ago programs in which a textbook
 14 is a principal vehicle of instruction?
 15 MR. CHOATE: Objection; vague and ambiguous.
 16 THE WITNESS: May I assume that you mean a textbook
 17 for a student, not a textbook for a teacher?
 18 BY MR. JACOBS:
 19 Q Yes.
 20 A The answer is no.
 21 Q Is one of the projects that you have -- one of
 22 the programs that you evaluated Open Court?
 23 A No.
 24 Q Have you evaluated any of the current reading
 25 programs, such as Success For -- what's it called?

1 Success for Learning, any of the other ones that are --
 2 MS. LEACH: Success for All.
 3 THE WITNESS: Success for All.
 4 BY MR. JACOBS:
 5 Q Sorry. Let me start over again. Have you
 6 evaluated any other reading programs?
 7 MR. CHOATE: Objection; vague and ambiguous.
 8 THE WITNESS: I have not been an evaluator on any
 9 reading programs.
 10 BY MR. JACOBS:
 11 Q In the programs that you are -- that you have
 12 evaluated -- well, maybe we just need to get a little
 13 more specific.
 14 What program evaluations have you been involved
 15 in that fit into this category you've described?
 16 A I've helped to design an evaluation of the KIPP
 17 Academy's -- K-I-P-P -- Knowledge Is Power Program. I am
 18 the evaluator of the Passport Teacher Certification
 19 Program sponsored by the American Board for the
 20 Certification of Teacher Excellence, ABCTE. I am the
 21 evaluator on the Following the Leaders Program, which is
 22 the implementation program for No Child Left Behind.
 23 I am designing an evaluation for the State of
 24 Massachusetts for a random-assignment study to look at
 25 Singapore Math.

1 Q Singapore, as in the city state?
 2 A As in the city-state.
 3 I'm probably forgetting one, but I think that's
 4 it. Oh, Teach for America. Sorry.
 5 Q And that's the Houston study?
 6 A That's the Houston study.
 7 Q So let's just march through a couple of pages of
 8 this and see if we can efficiently elicit your expert
 9 opinion. If you'd turn to page 3?
 10 MR. CHOATE: Of the report, Michael?
 11 MR. JACOBS: Yes.
 12 Q The first paragraph describes the burden you
 13 believe Plaintiffs bear in this case. Do you see that?
 14 A I do.
 15 Q Did you write that?
 16 A Yes.
 17 Q So these are your -- these are, in fact, your
 18 words or are they edited words edited by counsel or
 19 counsel's words?
 20 A Counsel did not give me words. These are my
 21 words.
 22 Q So where did you -- on what basis did you decide
 23 that it rests with Plaintiffs to prove that their choice
 24 of means is superior?
 25 A Based on my earlier work in other cases, I have

1 developed my own understanding of where burden of proof
 2 sits, and it was based on my prior experience that I
 3 determined that an adequate Plaintiffs' case needed to
 4 include those things.
 5 Q And in the next sentence you say that the
 6 plaintiffs have the burden to show that the current
 7 decisions and policies relating to three issues are
 8 ineffective and completely unreasonable.
 9 Where did you get that from?
 10 A I'm sorry. I'm not finding you. Oh, right --
 11 that's the same sentence.
 12 Q Separate sentence.
 13 MR. CHOATE: I'm just going to object that it's
 14 vague and ambiguous -- the question.
 15 BY MR. JACOBS:
 16 Q The previous question was about sentence
 17 number 2 in that paragraph, and this is about sentence
 18 number 3.
 19 A Okay. I'm being really obtuse, but I'm still on
 20 sentence 3, and that's where I got those words. Could we
 21 do this again?
 22 Q Sure.
 23 A You said Plaintiffs have the burden to show that
 24 the current decisions and policies about 1, 2 and 3 --
 25 Q -- are ineffective and completely unreasonable.

1 A Right.
 2 Q We can just start over.
 3 A If you wouldn't mind. I'm sorry.
 4 Q The second sentence reads, "Accordingly, it
 5 rests with plaintiffs to prove that their choice of means
 6 is superior." And I understood your answer about
 7 previous litigation to cover that sentence.
 8 A Gotcha.
 9 Q Is that true?
 10 A That is correct.
 11 Q So now moving on to the third sentence, there
 12 you set the standard for Plaintiffs as showing that the
 13 current decisions and policies are ineffective and
 14 completely unreasonable.
 15 A Yes.
 16 Q And is that drawn from the same source?
 17 A Yes.
 18 Q So those are two different standards, aren't
 19 they? One -- in your second sentence you said that the
 20 burden is to show that the plaintiffs' choice of means is
 21 superior, and in the third sentence you said it's that
 22 Plaintiffs have the burden of showing that the current
 23 decisions and policies of the State are ineffective and
 24 completely unreasonable. Which is it?
 25 MR. CHOATE: Objection; argumentative.

1 THE WITNESS: I see those two things as being two
 2 sides of the same coin. By superior, I would expect the
 3 standard would be to demonstrate that there would be a
 4 more efficient, faster result obtained with the proposals
 5 being advanced by Plaintiff.
 6 In the following sentence, I'm suggesting that
 7 the State may have chosen a different course to the same
 8 outcome, and that it would be appropriate for Plaintiffs
 9 to show that the course chosen by the State doesn't
 10 achieve those outcomes or that they achieve those
 11 outcomes at such a substantial differential that the
 12 proposals advanced by Plaintiffs become a logical
 13 replacement for them.
 14 BY MR. JACOBS:
 15 Q So "completely unreasonable," the "completely"
 16 there is a bit of a -- is a bit of an overstatement,
 17 right?
 18 MR. CHOATE: Objection; mischaracterizes testimony.
 19 It's vague and ambiguous.
 20 THE WITNESS: There are lots of things that go into
 21 the choice of policies, and in the construction of
 22 current policies, there may be consideration of factors
 23 that are not part of the case advanced by Plaintiffs that
 24 would, in fact, if considered, make the State choices
 25 seem reasonable.

1 So the expectation here is that the standard is
2 not as narrowly defined as the three matters necessarily
3 in this case, but that there needs to be demonstrated on
4 the part of the plaintiff that the State's positions
5 aren't even reasonable, given the wider set of factors
6 that they may have considered.

7 BY MR. JACOBS:

8 Q What do you understand the essential argument of
9 Plaintiffs to be in this case?

10 A The central argument as I understand it for
11 Plaintiffs is that the State has failed in its alleged
12 obligation to ensure an adequate education opportunity
13 for California students because it has not ensured the
14 adoption of specific standards that Plaintiff believes
15 appropriate for the pursuit of those outcomes.

16 Q Do you understand one component of Plaintiffs'
17 argument to be that there are a substantial number but a
18 minority of students in the State of California who have
19 access to educational opportunities that are vastly
20 inferior to those available to the majority of California
21 students?

22 MR. CHOATE: Objection; assumes facts not in
23 evidence.

24 THE WITNESS: I'm confused by your question. Can we
25 do that again?

1 A It's my understanding that that's an aspect of
2 the case but it's not the complete case.

3 Q And have you given consideration in your expert
4 report to inequality or quality as an issue?

5 A I believe that I have.

6 Q And in what way have you done so?

7 A Within the range of schools in California
8 that -- I believe my testimony calls them educationally
9 challenged. I have taken a look at the range of
10 resources that I was able to study and their association
11 of their education outcomes and made some attempt to
12 anchor those findings in the larger set of data on
13 academic performance in California schools more
14 generally.

15 Q What was your result?

16 A Well, there are a number of different results
17 that are included in my report. My findings were that
18 the schools that were included as part of this case were
19 not as uniformly hindered in their academic achievement
20 as some of the expert witness testimony for Plaintiff
21 seemed to imply.

22 Q And when you say not as uniformly hindered in
23 academic achievement, you mean that the performance on
24 the Academic Performance Index was not as negative as was
25 suggested by Plaintiffs' expert testimony?

1 MR. JACOBS: Sure.

2 Want to just read it back?

3 (□The record was read as follows:

4 "Question: Do you understand one component
5 of Plaintiffs' argument to be that there are
6 a substantial number but a minority of
7 students in the State of California who have
8 access to educational opportunities that are
9 vastly inferior to those available to the
10 majority of California students?")

11 THE WITNESS: Yes.

12 BY MR. JACOBS:

13 Q And let's put the label -- let's put a label on
14 that so I don't have to say the same thing each time.
15 Let's just call that the "equality issue" in the case,
16 all right?

17 MR. CHOATE: Objection; if -- I mean if you have a
18 question to ask her, I think it's better to ask the
19 question instead of using labels for such kind of long
20 and drawn-out hypotheticals for what you're proposing, or
21 if that's even the case.

22 BY MR. JACOBS:

23 Q Do you understand that the plaintiffs -- I'll
24 try again. Do you understand the plaintiffs are making
25 an equality or inequality case in this litigation?

1 MR. CHOATE: Objection; vague and ambiguous,
2 mischaracterizes the witness's testimony.

3 BY MR. JACOBS:

4 Q What do you mean by "not as uniformly hindered"?

5 A That there was a considerable distribution of
6 performance on the API even after we had controlled for
7 the potential factors that could influence that.

8 Q Such as SES?

9 A Such as SES.

10 Q And what do you believe the implications of that
11 result to be for the inequality claim Plaintiffs are
12 advancing?

13 MR. CHOATE: Objection; calls for speculation.

14 THE WITNESS: The degree of variation that exists
15 among the educationally challenged schools raises
16 questions about the -- suggests -- let me go back and say
17 suggests that there are factors other than fixed inputs
18 that influence the way that schools and students perform.
19 I believe I called those operational factors.

20 And we don't have specific data to measure the
21 way in which schools operate, but there does appear to
22 be -- after controlling for many other factors, there
23 does appear to be this residual variation in schools that
24 means that the marginal effects of some of the things
25 that we're looking at don't seem to tell the whole story.

1 BY MR. JACOBS:

2 Q And therefore, what, in terms of the specific
3 inputs that Plaintiffs propose, for shorthand, should be
4 more equally distributed in the State?

5 A My testimony shows that where we were able to
6 look at an input, and that was with respect to the
7 distribution of fully certified teachers, that the
8 marginal effect of advancing Plaintiffs' case in that
9 regard would not produce the magnitude of improvements in
10 API scores for a school that might be achievable with
11 focusing on other factors.

12 Q So let me understand what you're saying. Are
13 you saying that the plaintiffs are focusing on the
14 wrong -- that there is an equality issue in the State
15 that's significant enough from your standpoint as an
16 analyst of educational policy to worry about, but that
17 plaintiffs are focusing on the wrong variables, or are
18 you saying that there isn't such an issue?

19 MR. CHOATE: Objection; it's vague and ambiguous, it
20 mischaracterizes the witness's testimony.

21 THE WITNESS: I have to agree with Mr. Choate. I
22 think that you have -- you've put me into a Hobson's
23 choice that I don't buy into.

24 BY MR. JACOBS:

25 Q Hobson had to make the choice, though, didn't

1 factors presupposes that these are the 'right' things to
2 focus on and that the current programs being pursued by
3 the State are 'wrong.'"

4 Do you see that?

5 A I do.

6 Q Now, when you say the right things to focus on
7 and the current programs being pursued by the State are
8 wrong -- when you say the current programs being pursued
9 by the State are wrong, are you talking about programs
10 that pursue the factors of textbooks, certificated
11 teachers, and facilities?

12 A I was referring to the broad base of
13 programmatic initiatives pursued by the State, not
14 specifically any one or two.

15 Q And how do you reconcile your sentence, "The
16 claim that textbooks, certificated teachers, and
17 facilities are critical factors presupposes that these
18 are the 'right' things to focus on"? How do you -- and
19 stop the sentence there.

20 How do you reconcile that with your sentence
21 "The State agrees with Plaintiffs' central argument that
22 every student deserves qualified teachers, adequate
23 instructional materials, and clean and decent facilities
24 that are conducive to learning" on page 2?

25 MR. CHOATE: Objection; argumentative.

1 he?

2 A Only if he wanted to ride.

3 Q Well, are there -- in your judgment, based on
4 your studies of the school system in the State of
5 California, is there a significant equality issue worthy
6 of spending a lot of time and money on?

7 MR. CHOATE: Objection; vague and ambiguous.

8 THE WITNESS: I find the question so broad as to not
9 be able to actually answer it.

10 BY MR. JACOBS:

11 Q Well, have you ever examined the question of how
12 and of what policies any state could adopt to improve the
13 educational opportunities offered to students in schools
14 that in your judgment were the least effective
15 educationally?

16 A No, I've never done any of that work and I don't
17 feel I'm qualified to speak on it.

18 Q So, if you look at the paragraph, the second
19 full paragraph on page 4.

20 A "The single unifying theme"?

21 Q Above that. "Plaintiffs' position is
22 precarious."

23 A Yes.

24 Q You state, "The claim that textbooks,
25 certificated teachers, and facilities are critical

1 THE WITNESS: In advancing this case, the priority
2 of potential programmatic emphasis by the State could
3 change should Plaintiffs' case prevail. And those three
4 factors would rise in the hierarchy relative to other --
5 other programmatic foci. And given that that is the
6 likely outcome should Plaintiffs' case prevail, there is
7 the question about whether these are relatively the most
8 important things to focus on, i.e., the right things, and
9 whether, by reducing the priority or rank order of other
10 things, there is an expectation that those things are
11 less conducive, less important, have less of an impact
12 than the three things that are being advanced by
13 Plaintiff.

14 BY MR. JACOBS:

15 Q In the next paragraph you say, "The single
16 unifying theme of their" -- I assume you mean Plaintiffs'
17 experts -- "testimony is that the State has erred in its
18 choice to focus on outcomes rather than continuing the
19 historical attention to inputs."

20 Do you see that?

21 A I do.

22 Q So, first of all, in terms of historical
23 attention to inputs, I took your state accountability
24 studies to be suggesting that there really isn't a
25 comprehensive accountability system anywhere in the

1 country that focuses on inputs. Isn't that true?

2 MR. CHOATE: Objection; vague and ambiguous.

3 THE WITNESS: That is correct.

4 BY MR. JACOBS:

5 Q So when you said "historical attention to
6 inputs," what were you referring to?

7 A The accountability system in the United States
8 is not very old. The oldest system that we've been able
9 to identify is less than 20 years old. Prior to that,
10 almost the entire attention in education policy has been
11 on inputs. And I would consider the accountability
12 policy era to be very young with a much, much longer
13 period before that that was input-focused.

14 Q An accountability system that was input-focused?

15 A No. I just made the point that the shift to
16 accountability is a relatively new development in
17 education policy. And prior to that, the focus had been
18 almost exclusively on inputs.

19 Q But the focus was not a focus of designing an
20 accountability system on inputs, correct?

21 A I'm confused by your question.

22 Q Well, I'm confused by your sentence, so we're
23 in -- we'll stipulate to confusion.

24 You refer to "the historical attention to
25 inputs." Do you see that?

1 attention inputs?

2 A That is correct.

3 Q But just to be sure I understand your testimony,
4 based on your study of accountability systems, you're not
5 aware of a system in California or in any other state
6 that systematically held school districts accountable for
7 the quality of the educational inputs they delivered to
8 students?

9 MR. CHOATE: Objection; vague and ambiguous.

10 THE WITNESS: Let me tell you where I'm having a
11 hard time making the connection in your question. This
12 paragraph I don't believe has anything to do with
13 accountability systems. And so you keep trying to hook
14 these two things together. I'm not with you on that.

15 BY MR. JACOBS:

16 Q So your reference to outcomes wasn't a reference
17 to the State's accountability system focused on outcomes?

18 MR. CHOATE: Objection; mischaracterizes testimony.

19 THE WITNESS: I would say that the State's shift to
20 an outcomes focus results, in part, in their structure of
21 an accountability system, but I actually think it's much
22 more pervasive than that. If you look at the expectation
23 about programs that exists in legislation now, it's not
24 about we need to provide this input; it's all about we
25 need to do things to improve student outcomes.

1 A Yes.

2 Q And what you -- at least what you meant to say
3 is that historically at the State level, policy aimed at,
4 for example, ensuring rough equality and adequacy of
5 dollar inputs, that's one component of an historical
6 attention input, correct?

7 MR. CHOATE: Objection; mischaracterizes the
8 witness's testimony. It's vague and ambiguous.

9 THE WITNESS: I agree with you that there has been a
10 focus on funding levels as an input.

11 BY MR. JACOBS:

12 Q And that's one of the instances of an historical
13 attention to inputs that you had in mind in writing the
14 phrase, "Historical attention to inputs," correct?

15 A That is one of the factors I had in mind.

16 Q And another factor might be, from the policy
17 standpoint, historically making sure that school
18 buildings were built through the passage of bonds and
19 other vehicles to get buildings built, correct?

20 A I'm less comfortable with that because I'm not
21 sure that that actually was implementation at the State
22 level. So I'm not sure that I could agree with that.

23 Q Certification of teachers?

24 A There you have one.

25 Q There's another one, right, of historical

1 And yes, accountability is part of that, but it
2 is a more general shift that I actually think has its
3 roots not even necessarily in education, but in other
4 policy fields that have become -- in the last 25 years,
5 American public policy has really shifted to an outcomes
6 focus, and education is now sort of being caught in that.
7 Perhaps the last field. I don't know if there are others
8 still to go that way, but the outcomes focus actually
9 started in the '80s long before there was an
10 accountability system in any state. That focus started
11 in other fields and has come to education over time.

12 BY MR. JACOBS:

13 Q So the answer to my question, when you refer to
14 the focus on outcomes, you were not necessarily referring
15 specifically to an outcome-based quote, "accountability,"
16 unquote system, correct?

17 A That is correct.

18 Q So at the end of that paragraph you say that "by
19 focusing on outcomes, the State Board of Education and
20 the California legislature implicitly acknowledge the
21 diversity of views and leave the specific definition and
22 measurement to local school authorities."

23 Do you see that?

24 A I do.

25 Q And you endorse that?

1 A I do.

2 Q And you endorse that even if that diversity of
3 views leaves to it a matter of local discretion whether
4 in a particular school in the district the facilities
5 will be not clean, not decent, and not conducive to
6 learning?

7 MR. CHOATE: Objection; incomplete hypothetical,
8 vague and ambiguous.

9 THE WITNESS: Your question assumes that the state
10 that you have -- the state of affairs that you have
11 described is a complete end point, and my view of
12 outcomes-focused policy says that that's not an
13 outcome -- that is not a final outcome; that there are
14 additional mechanisms that are operative to remediate
15 that undesirable effect, and that the way to do that is
16 to focus exclusively on outcomes and then allow local
17 pressure to take care of the details.

18 BY MR. JACOBS:

19 Q That's an empirically testable question, isn't
20 it?

21 A Yes, I believe it is.

22 Q And are you aware of any empirical evidence on
23 the question?

24 A I know of no completed studies. I know that
25 there are some studies underway.

1 Q What do you have in mind?

2 A There is a -- hmm. Hang on just a second. I
3 need to talk to him.

4 MR. CHOATE: Why don't we take a break?

5 MR. JACOBS: I assume it's a confidentiality issue
6 you need to discuss with him?

7 THE WITNESS: Yeah.

8 MR. JACOBS: That's fine. Take a few minutes.

9 (Recess taken: 9:58 until 10:00 a.m.)

10 MR. JACOBS: Read back the two questions, please.

11 (□The record was read as follows:

12 "Question: And are you aware of any
13 empirical evidence on the question?

14 "Answer: I know of no completed studies. I
15 know that there are some studies underway.

16 "Question: What do you have in mind?

17 "Answer: There is a -- hmm. Hang on just a
18 second. I need to talk to him.")

19 THE WITNESS: I have been retained as a confidential
20 reviewer of some brand applications, and the funding
21 decisions on those have not been made public and so I'm
22 not at liberty to discuss them. I can tell you they come
23 out of large eastern universities.

24 BY MR. JACOBS:

25 Q And in a general sense, the topic -- the reason

1 you answered by referring to them in the context of
2 empirical studies about outcomes -- about our last set of
3 questions was why?

4 A Because there is an -- your earlier point was
5 that these associations about the mechanisms of
6 output-focused policy are amenable to empirical
7 verification, and I know that there are both researchers
8 who are interested in that and funders who are interested
9 in knowing more about that and that that complete
10 marriage has not happened yet.

11 Q And to be clear, though, those studies are aimed
12 at understanding how outcomes-based measurements drives
13 local decisions about, for want of a better term, inputs?

14 A I don't think that's entirely accurate. I think
15 the studies are focused on understanding the mechanisms
16 by which localities identify and create solutions to
17 perceived poor education outcomes within their
18 localities.

19 Q So the empirical proposition that I was asking
20 about is that a focus on outcomes would drive local
21 officials to address particular conditions that at some
22 level everyone knows need to be addressed: if a facility
23 is really terrible, in terrible shape, if the teaching
24 force is awful; that we all know that that has to be
25 fixed some way.

1 Your hypothesis is that an outcome focus will at
2 the end of the day, in combination with other factors,
3 drive an improvement in those conditions, correct?

4 A That's my testimony.

5 Q And that is testable?

6 A That's my testimony.

7 Q Are you aware of anything that answers directly
8 in work or --

9 A Well, I'm sure you're aware of all the work
10 that's come out of OFSTEAD in Great Britain, because they
11 walked down this road at least 15 years before we did.
12 And there is some research available out of OFSTEAD that
13 looks at your question, though none of it is as
14 rigorously empirically controlled as the studies that are
15 being considered at this time.

16 Q And by OFSTEAD, you mean?

17 A When I come in tomorrow I will have the full
18 name, but it is the -- it's the British inspectorate for
19 compulsory education.

20 Q The example you cite at the bottom of that
21 paragraph, "The single unifying theme" paragraph, "Thus,
22 one district may choose a three-year rotation of
23 textbooks while another chooses a different cycle."

24 Do you see that?

25 A I do.

1 Q And by "a different cycle," you meant one
2 potentially longer than three years or one shorter than
3 three years, correct?

4 A Whatever.

5 Q And your view is that an outcomes-based focus
6 leaves the specific definition and measurement -- I'm not
7 sure where measurement fits in. Let me ask this over
8 again.

9 Your view is that an outcomes-based focus leaves
10 it to district discretion what choice of rotation of
11 textbooks is optimal under all the circumstances?

12 MR. CHOATE: Objection; vague and ambiguous,
13 incomplete hypothetical.

14 THE WITNESS: Could you clarify your question for
15 me?

16 BY MR. JACOBS:

17 Q Well, what did you -- you said "Thus" at the
18 beginning of the sentence, the "three-year rotation of
19 textbooks" sentence. What's the link between those ideas
20 that leads you to use "Thus"?

21 MR. CHOATE: Objection; vague and ambiguous.

22 THE WITNESS: The final sentence in that paragraph
23 was intended to be an example of the effect of focusing
24 on outcomes and leaving local school authorities to
25 identify and articulate policies that are appropriate to

1 at the accountability system level to inputs, correct?

2 MR. CHOATE: Objection; that's vague and ambiguous
3 and it's an incomplete hypothetical.

4 THE WITNESS: My testimony is clear on my position
5 on this, which is that the adoption of output -- I'm
6 sorry -- outcome-focused work does, in fact, include
7 incentives that are compromised by the inclusion of input
8 factors in an accountability system.

9 So the premise that you are asking me to accept
10 goes against what I understand about the incentives
11 systems and the accountability systems, so I don't accept
12 that.

13 BY MR. JACOBS:

14 Q They are mutually exclusively?

15 A In my view, they are.

16 Q And was that something that you highlighted in
17 your future of California's Academic Performance Index?

18 A I believe that we did.

19 Q Do you recall your paper well enough to find it?

20 A My guess is you're going to find it someplace
21 around 38.

22 Q So I'm looking at the paragraph that starts,
23 "The importance of criterion L3" that's on page 38. It's
24 toward the top.

25 A Yeah, but that's not where it is.

1 their circumstance in pursuit of those outcomes.

2 This was an example of one way that that might
3 become realized.

4 BY MR. JACOBS:

5 Q Now, on the next page you talk about the issue
6 of centralization. Actually, strike that. Let me go
7 back to one other issue in "The single unifying theme"
8 paragraph.

9 In your paper on the -- on California's API
10 system, Exhibit 1, you considered APIs that include both
11 outcomes measured by tests and certain inputs as possible
12 components of a combined API, correct?

13 A That is correct.

14 Q So an accountability system based on an API that
15 considers both outcomes and certain inputs is not
16 inconceivable to you?

17 A No.

18 Q And so it's not necessarily the case -- you may
19 have read our experts this way, but it's not necessarily
20 the case that focusing on outcomes is exclusive of some
21 attention to inputs, correct? Let me rewind and start
22 that over again.

23 It's not necessarily the case in designing an
24 accountability system that it's one or the other; that
25 you focus exclusively on outcomes and give no attention

1 Q Because there you say, "Absent other criteria,
2 the new factors could range from input members -- I'm
3 sorry -- "input measures such as the proportion of
4 certified teachers in a school to process measures such
5 as the number of instructional minutes to the other
6 outcome measures just discussed."

7 A Yes. If you'll look at criterion L6, which we
8 took from the legislation, the legislation speculated
9 that a multi-factor index was going to give you a
10 superior measure of academic achievement. L6, however,
11 did not speak to whether or not those factors were input
12 process or outcome factors. It merely said there needed
13 to be a multi-factor index.

14 The paragraph that you have just alluded to
15 gives the potential decision space that those
16 multi-factors that would satisfy L6 could be of those
17 three, but the remaining criteria, A1 and -- actually,
18 A2, L1, L3, are those that make for a focus that is --
19 that is under tension if you include input factors or
20 process factors.

21 Q The L6 nomenclature, that phrase, L6, that comes
22 from what?

23 A Some part of the introduction part of --

24 Q But someone else authored these criteria,
25 correct?

1 A The legislative requirements start on page 10,
2 and our L's and A's are our extraction of the intent --
3 by doing a content analysis on the legislation, we were
4 able to extract the requirements. So the specific
5 languages of L1 through L6 and A1 through A3 maybe or
6 A2 -- A3 are our language based on our analysis of the
7 language of the legislation.

8 Q So where then comes the criteria that you
9 advanced that the system should be exclusively
10 outcome-focused?

11 A L1, L2, and A1, from my reading today.

12 Q And in your analysis of A1, you consider the
13 possibility that so long as they were, in fact, closely
14 correlated with student performance, certain input
15 measures could be included in an API consistent with the
16 legislative intent, correct?

17 A I believe the position that we took was, in
18 fact, the opposite; that you don't want to include
19 factors that don't have a strong association with student
20 outcomes.

21 Q And you're saying you were silent on those that
22 do?

23 MR. CHOATE: Objection; mischaracterizes the
24 witness's testimony.

25 BY MR. JACOBS:

1 me to where in your report you say something along the
2 lines of, "Even if it's an input variable that's closely
3 correlated with student performance, we don't think it
4 should be in the API."

5 A Well, that would be subsequent to --

6 MR. CHOATE: And if you want to go off -- we can go
7 off the record and you can read through your report and
8 try to locate what it is that Mr. Jacobs seems to be
9 asking about. Do you want to do that?

10 THE WITNESS: No, I'm fine. I have it in mind.

11 We do speak someplace in here about the dilution
12 of the incentives.

13 BY MR. JACOBS:

14 Q So let me just show you another fragment that
15 supports my interpretation of your paper and see if that
16 keys you to the part that supports yours. Turn to page
17 36, right in the middle of the text.

18 A Yes.

19 Q "Process variables have more varied
20 relationships to student achievement, suggesting that it
21 would be imprudent to reject a process measure out of
22 hand."

23 A If you will look at Table 10 on page 37, you
24 will see that we have taken all of the factors that are
25 used by any state in their accountability systems and

1 Q What's the distinction you're drawing between
2 the way you just formulated it and the way I just
3 formulated it?

4 A I don't believe we -- I may be wrong, but I do
5 not recall that we actually said satisfaction of A1 would
6 be fully realized if you included strong candidate
7 variables, which is what I understood you to just say.

8 Q Let me try it again. I understood your analysis
9 to be there are variables that the data indicates are
10 closely correlated with student performance.

11 A That's correct. And we included those in the
12 analysis.

13 Q And the line you were drawing then for which
14 variables should be included in a rigorous API was the
15 line between variables closely correlated with student
16 performance and those that aren't closely correlated with
17 student performance?

18 A In satisfaction of that single criterion,
19 correct.

20 Q And that it was that line that drove your
21 analysis rather than the line between outcomes and
22 so-called inputs?

23 A No, that's not correct.

24 Q So then you've got to point me, please -- please
25 point me -- you don't have to do anything. Please point

1 categorized them as input, process, or outcome variables,
2 and then, through a reading of the available literature,
3 characterized their association as weak, moderate, or
4 strong. And you can read in the body of the report how
5 we assigned weak, moderate, and strong.

6 The fact that no input variables made it to the
7 strong list but one process variable made it to the
8 strong list gave us the position that you could not
9 categorically eliminate process variables from
10 consideration; that you could, in fact, if the
11 relationship with outcomes was durable enough,
12 contemplate the inclusion of a process variable. I
13 believe the only one that met that criterion was student
14 mobility rate.

15 Q So at the bottom of page 38 you say,
16 "Alternatively, any number of additional factors could be
17 added as long as their collective weight in the API was
18 limited to 40 percent."

19 A That's a hypothetical. That's correct.

20 Q Well, you took criterion L3 and I believe you
21 proposed the 60 percent value, correct?

22 A No.

23 Q That's from the legislation?

24 A That's legislation.

25 Q So one way you would have said in this report

1 what I think you're saying here today is specified
2 statewide tests must constitute a hundred percent of the
3 value of the API?

4 A No, that's not my position in this paper and
5 it's not my testimony today.

6 Q So what outcome measure would you use other than
7 test?

8 A I think that there's a good argument to be made
9 for other measures of the student outcomes. I'm not
10 exclusively a test fiend, and in an ideal world we would
11 have other outcomes measures so we could have a more
12 robust outcome-focused index.

13 Q Now, in this paper you propose a shift in model
14 from sort of a snapshot view of student performance to a
15 student change model, correct?

16 A That's correct.

17 Q And do you know of any state that's using today
18 an effective student change model?

19 A I guess it would depend on what you consider to
20 be effective. But I consider North Carolina to be
21 effective. I consider Massachusetts to be effective. I
22 consider Texas to be effective. And I'm not exactly sure
23 what's happening right at this time in Tennessee, but
24 they've been using a value-added model for a long time.
25 Ohio has just adopted some legislation, Pennsylvania is

1 identifier for the State.

2 Q And to assemble the necessary outcome measures
3 on a student-by-student basis?

4 MR. CHOATE: Objection; vague and ambiguous.

5 THE WITNESS: The outcome measure that the State has
6 chosen is the STAR score, and there are efforts underway
7 to refine the quality of those assessment tools, but that
8 is the specific academic achievement score that the State
9 is interested in tracking over time.

10 BY MR. JACOBS:

11 Q And so you've cited the association of an
12 identifier with the student on a statewide basis and the
13 evolution of the STAR test as two things currently in
14 process that head toward a better, in your professional
15 judgment, API, correct?

16 MR. CHOATE: Objection; vague and ambiguous.

17 BY MR. JACOBS:

18 Q I'll just tell you where I'm going. You don't
19 even need to answer that question.

20 What else would the State of California need to
21 do to achieve an effective student change model as
22 outlined in your "The future of California's Academic
23 Performance Index" paper?

24 MR. CHOATE: Objection; vague and ambiguous.

25 THE WITNESS: We know from the other states that do

1 adopting legislation that goes to a gain score.

2 Q And by "gain score," you mean?

3 A Value-added.

4 Q And that requires measuring a particular student
5 at a particular moment in time, and then measuring the
6 degree to which education added value to that student's
7 set of abilities at a later point in time, correct?

8 MR. CHOATE: Objection; vague and ambiguous.

9 THE WITNESS: I got it.

10 BY MR. JACOBS:

11 Q It's a student-by-student measure?

12 A That is correct.

13 Q And it requires, in the case of a district-wide
14 system, a student identifier for the district, and in the
15 case of a statewide system, a student identifier for the
16 State?

17 A That is correct.

18 Q And do you see any signs that California is
19 moving in that direction?

20 A Sure. AB-1152.

21 Q And what is that AB-1152 status?

22 A Passed. It's law. It is in process. It
23 requires the State to adopt a unique student identifier.
24 And there is much effort underway at the Department of
25 Education to design and implement a unique student

1 value added that student background is a huge determinant
2 of both the nominal and the incremental change in
3 academic performance. And I believe it would help
4 localities do a better job of identifying and remediating
5 challenges in their students within their district if
6 they had better information on family background.

7 There is currently some information that is
8 collected on the header sheet of the STAR test. Do you
9 know what the header sheet is?

10 BY MR. JACOBS:

11 Q No. For purposes of the deposition, I don't --

12 A You asked the question. I will answer with --

13 Q That's okay.

14 A The header sheet is the registration page of the
15 STAR exam that is filled out either for each student or
16 by each student every year when they take the test, and
17 it includes information about their personal profile, it
18 includes some information about their longevity in the
19 school in which they are currently being tested, and it
20 includes some information about the educational
21 attainment of parents.

22 The quality of that data has gotten better since
23 the test was implemented in 1999. I believe that set of
24 information could be improved over time and it would give
25 a better opportunity to create value-added measures that

1 the schools could use so that they would understand where
2 they are actually adding value and where they are not.

3 Q Any other steps that need to be taken to achieve
4 an effective API with a design of --

5 MR. CHOATE: Objection; it's vague and ambiguous.
6 BY MR. JACOBS:

7 Q -- with a design that's in your paper?

8 A I stated earlier here that I would like to see a
9 wider range of outcomes be articulated as important to
10 track. There are many goals that public education is
11 aimed to provide to students, and while I think that
12 academic achievement is probably primary, there are
13 others I would like to see -- and I don't have any
14 specific ideas at this point, but I would like to see
15 outcome measures around understanding of civic
16 responsibility and enactment of that. I would like to
17 see some measures about future dispositions.

18 It seems to me that a student who comes out of
19 school and is immediately tracking into higher education
20 speaks of a different kind of outcome than a student who
21 comes out of school and has absolutely no plans and has
22 no real focus.

23 I would like to see an integration of those
24 outcomes with more information about labor force
25 participation, wages, higher education, and I know that

1 I have not.

2 Q You said you could do a straight-line
3 projection, I think, was your word.

4 A Right.

5 Q Have you done that?

6 A As a thought exercise, yes, I have.

7 Q What do you mean by "thought exercise"?

8 A Well, let's take textbooks as an example. I did
9 not read all of the reports in this case, but the reports
10 that I did focus on did not articulate what was meant by
11 an adequate textbook.

12 If the decision is made in favor of Plaintiffs
13 that that particular input needs to be universally
14 adopted in California, then we have immediately an
15 opportunity to ask, "Well, how will adequacy of textbooks
16 be articulated?" What's the relationship between that
17 requirement and the current standard-setting body which
18 does not look at implementation at this point but needs
19 to be coordinated so that presumably those textbooks
20 would be aligned with State standards?

21 Once you've got that, how do you review existing
22 supply of textbooks to determine their adequacy, and then
23 how do you monitor the availability and sufficiency of
24 the supply of textbooks in individual schools to know
25 whether or not a school or a district or the state as a

1 other states are working on that. California is not
2 there yet.

3 Q On page 5 in the middle paragraph, "Plaintiffs'
4 argument is founded on a view of centralized control that
5 runs deeply counter to the current organization of
6 education in the United States and ignores many of the
7 advantages local control can offer." Plaintiffs'
8 proposals "actually would require enormous centralized
9 control and give little room for local adjustment."

10 Do you see that?

11 A I do.

12 Q What do you base that on?

13 A The -- my background in doing public policy
14 analysis has given me opportunity in the past to examine
15 implementation of various forms of legislation or various
16 regulatory decisions, and based on those prior projects
17 and work, I can do a pretty straight-line projection of
18 what would be required in order to realize the three
19 priorities that Plaintiffs have advanced in terms of the
20 mechanism for both articulating what those standards
21 would be and the mechanism for ensuring that those are
22 equivalently adopted across the roughly 10,000 public
23 schools in California.

24 Q And what is -- have you done that analysis?

25 A Have I done -- have I done a cost analysis? No,

1 whole is complying with that requirement?

2 And when I start looking at those steps, the
3 organizational processes that are associated with those
4 start to look extremely complex very quickly.

5 Q And can you explain that last piece of your
6 answer, in what way they start to look complex pretty
7 quickly? I understand the first part was sort of the
8 requirement as you saw it, and then the last fragment was
9 how you meet the requirement, right?

10 A Well, the requirement is a textbook for every
11 student to use in school and to take home.

12 Q Mm-hmm.

13 A That's the requirement. What I articulated were
14 what I would consider to be functional steps to make the
15 requirement a reality. And I think I just articulated
16 what those look like.

17 Q Then you said at the end that it starts to look
18 very complex very quickly, or something like that.

19 A Right.

20 Q Was that more to come?

21 A Pretty quickly --

22 Q It wasn't that there was more to come; it was
23 that that was a sum-up?

24 A To make those steps happen in our lifetime looks
25 like a pretty big undertaking. It looks like to me

1 centralized control and a complex undertaking.
 2 Q You're aware that the State of California has
 3 appropriated hundreds and hundreds of millions of dollars
 4 specifically for textbook purchases in the last several
 5 years, correct?
 6 A That is correct.
 7 Q Are you aware of any outcome measures that the
 8 State has applied to determine whether that has led to
 9 more effective distribution of textbooks to students?
 10 MR. CHOATE: Objection; vague and ambiguous.
 11 THE WITNESS: I believe that you're
 12 mischaracterizing the outcome.
 13 BY MR. JACOBS:
 14 Q I think I used it in a confusing way. Let me
 15 withdraw the question. As I spoke it, I realized it
 16 was -- okay.
 17 A "Bleep."
 18 Q Right.
 19 You're a proponent of the broader use of
 20 evaluation in program design, correct?
 21 A I am indeed.
 22 Q And you wrote some papers for philanthropists on
 23 evaluation in educational philanthropy, correct?
 24 A That is correct.
 25 Q But your view is not limited to charitable work,

1 correct? It would also apply to governmental programs?
 2 A That is correct.
 3 Q And so that these programs in general, you think
 4 that there is insufficient attention paid to evaluation
 5 in designing programs in that we all would be better off
 6 if more evaluation was built into programmatic design?
 7 MR. CHOATE: Objection; vague and ambiguous.
 8 THE WITNESS: Recognizing that evaluation dollars
 9 are scarce, I think one needs to be judicious about what
 10 programs one evaluates. But I believe that key programs
 11 in education could benefit from having better quality and
 12 more frequent evaluation of their effectiveness.
 13 BY MR. JACOBS:
 14 Q Have you conducted a thought experiment as to
 15 what an evaluation component for the State's substantial
 16 appropriations of textbook dollars over the last several
 17 years would look like?
 18 MR. CHOATE: Objection; vague and ambiguous.
 19 THE WITNESS: I have not.
 20 BY MR. JACOBS:
 21 Q And you're not aware of any evaluation that's
 22 been built into that program, correct?
 23 A That is correct.
 24 Q Do you think it would be -- as you sit here
 25 today, having given some thought to how hard it is to do

1 these sorts of things, would it be a challenging
 2 evaluation program or not-so-challenging one in your
 3 view?
 4 MR. CHOATE: Objection; vague and ambiguous,
 5 incomplete hypothetical.
 6 THE WITNESS: Unfortunately, I don't know enough
 7 about the details of how the textbook programs are
 8 implemented at the local level to know if it's even
 9 possible to evaluate them.
 10 BY MR. JACOBS:
 11 Q So it's possible that the State launched a
 12 program costing hundreds and hundreds of millions of
 13 dollars a year that from your standpoint may be
 14 un-evaluatable?
 15 MR. CHOATE: Objection; it's vague and ambiguous --
 16 THE WITNESS: Class size reduction is the prime
 17 example.
 18 BY MR. JACOBS:
 19 Q Of such a program that -- just the way it was
 20 designed, it can't be evaluated?
 21 A It was implemented across the state in one shot.
 22 You have no controls.
 23 Q Would -- have you given any thought to how one
 24 might evaluate -- in your general work on evaluation, how
 25 one might evaluate whether programs are implemented in a

1 way that aims at rough equality of educational
 2 opportunity?
 3 MR. CHOATE: Objection; vague and ambiguous.
 4 THE WITNESS: No, I have not.
 5 BY MR. JACOBS:
 6 Q And as you sit here today, have you conducted
 7 any kind of thought experiment to how you would measure
 8 particularly whether the hundreds of millions of dollars
 9 the State has spent on textbooks have -- has led to
 10 availability of textbooks in a roughly equal way across
 11 the state?
 12 MR. CHOATE: Objection; vague and ambiguous.
 13 THE WITNESS: I haven't done that one either.
 14 BY MR. JACOBS:
 15 Q Would that be a hard evaluation to conduct?
 16 MR. CHOATE: Objection; vague and ambiguous,
 17 incomplete hypothetical.
 18 THE WITNESS: I don't have enough information at
 19 this point to know whether it would be difficult or not.
 20 BY MR. JACOBS:
 21 Q Now, you mentioned class size reduction. We do
 22 know that one of the effects of class size reduction was
 23 increased inequality in the distribution of credentialed
 24 teachers, correct?
 25 MR. CHOATE: Objection; assumes facts not in

1 evidence, it's vague and ambiguous, and it lacks
 2 foundation.
 3 THE WITNESS: I don't remember seeing any data that
 4 show before and after distributions.
 5 BY MR. JACOBS:
 6 Q Of credentialed teachers?
 7 A That's correct.
 8 Q So you're not aware of the PPIC study on this
 9 question, for example?
 10 MR. CHOATE: Objection; assumes facts not in
 11 evidence.
 12 THE WITNESS: I'm not recalling the PPIC study.
 13 BY MR. JACOBS:
 14 Q You're thinking maybe of the Santa Cruz study
 15 that was also on this topic?
 16 A No.
 17 Q But that's evaluatable, right? You could look
 18 at before and after distribution of credential data
 19 pretty readily?
 20 MR. CHOATE: Objection; vague and ambiguous,
 21 incomplete hypothetical.
 22 BY MR. JACOBS:
 23 Q I'm sorry. I didn't even say that right.
 24 You could look at before and after data on the
 25 distribution of credentialed teachers pretty regularly --

1 pretty readily, could you not?
 2 MR. CHOATE: Same objections.
 3 THE WITNESS: You could, but it would be a crappy
 4 design.
 5 BY MR. JACOBS:
 6 Q Why is that?
 7 A There are lots of other factors that could
 8 influence the -- both the supply of fully credentialed
 9 teachers and their distribution across market areas that
 10 a simple trend analysis of those numbers would not
 11 reveal.
 12 Q Are you aware of any factors that -- wait. You
 13 haven't read the literature on this topic, right, of the
 14 effective class size reduction on distribution of
 15 credentialed teachers?
 16 A I'm not an expert on this at all.
 17 MR. CHOATE: Michael, let's just take a break for a
 18 few minutes, if you don't mind.
 19 MR. JACOBS: Sure.
 20 MR. CHOATE: We've been going for almost an hour.
 21 (Recess taken: 10:43 until 10:49 a.m.)
 22 BY MR. JACOBS:
 23 Q On page 8 of your report, first paragraph --
 24 first full paragraph, is about facilities.
 25 A Yes.

1 Q And you note that Mr. Sobol says that facilities
 2 are important. Do you see that?
 3 A I do.
 4 Q And then you say, "It simply cannot be the case
 5 that facilities are important if it is possible to
 6 identify cases where they have not influenced the outcome
 7 of students."
 8 As you sit here and read that today, is that
 9 sentence literally correct?
 10 MR. CHOATE: Objection; vague and ambiguous.
 11 THE WITNESS: My testimony states that with an
 12 outcomes focus for education policy, that we want to put
 13 our emphasis on factors that we know do influence the
 14 outcome of students. Where -- where we are able to
 15 examine groups of schools and groups of students and find
 16 a weak or insignificant relationship between a factor and
 17 outcomes, then we are less inclined as a policy matter to
 18 not want to make that a priority in crafting positive
 19 student outcomes.
 20 BY MR. JACOBS:
 21 Q You could have a factor that had a strong
 22 correlation with student outcomes and still have cases
 23 where that factor did not influence student outcomes,
 24 correct?
 25 MR. CHOATE: Objection; it's vague and ambiguous.

1 THE WITNESS: It would depend on the strength of the
 2 association.
 3 BY MR. JACOBS:
 4 Q Well, I used your word, "strong." One could
 5 have a -- this is just -- this sentence is just an
 6 overstatement, right? I mean, of course there are going
 7 to be cases where facilities don't influence an outcome,
 8 even if it should turn out on the basis of empirical
 9 research that you would consider -- that you would
 10 endorse in terms of its quality that facilities is a
 11 strong factor, right?
 12 MR. CHOATE: Objection; mischaracterizing the
 13 witness's testimony. It's argumentative and vague and
 14 ambiguous.
 15 THE WITNESS: Well, it is, in fact, part of my
 16 testimony that you can't craft policy that covers all
 17 cases. What this sentence implies, I believe, is that
 18 when you are crafting State policy, you need to go to the
 19 central tendencies. And if there are -- if the position
 20 is being taken by Plaintiffs that an element is critical,
 21 then that says to me it has to be the case that this
 22 factor is determinant of student outcomes.
 23 And my reading of Sobol was that he was saying
 24 that this is a critical factor. And my argument here is
 25 if it's critical, then it's critical in all the cases.

1 BY MR. JACOBS:

2 Q Okay.

3 MR. HAJELA: Can I just suggest something just for
4 clarification so I understand the sentence?

5 If you substituted the words "experienced
6 teachers" for "facilities," would the sentence still make
7 sense? "It simply cannot be the case that experienced
8 teachers are important if it is possible to identify
9 cases where they've not influenced the outcome of
10 students"?

11 MR. CHOATE: Objection; it's vague and ambiguous and
12 it's an incomplete hypothetical.

13 THE WITNESS: I think I would state -- stay to the
14 sentence, even if you changed the subject.

15 BY MR. JACOBS:

16 Q So just to be clear, in order for us to win
17 this case, in your judgment, and establish that a factor
18 is important enough that its grossly unequal distribution
19 rises to constitutional dimensions, we have to prove that
20 in every case that factor is determinative of student
21 outcomes?

22 A I actually don't think that I have implied that
23 with what I said, and so I would disagree with you.

24 Q All right. So what's the standard then? I
25 understood you to be making a more plausible proposition,

1 then you said they can't be important if it is possible
2 to identify cases where they -- in a nutshell, if it is
3 possible to identify cases where they were not important.
4 But, of course, that's just a statistical exercise we're
5 engaged in, right? And in some cases, any of these
6 factors could be unimportant, even if in the broad scheme
7 of things, it turns out they're strongly correlated,
8 correct?

9 MR. CHOATE: Objection; vague and ambiguous,
10 incomplete hypothetical.

11 BY MR. JACOBS:

12 Q I mean, frankly, I'm happy if you stick with
13 your hundred percent universal determinative because it's
14 utterly implausible, but I don't think that's what you're
15 saying.

16 A That wasn't my determinant. That was not my
17 determinant.

18 Q So what is yours?

19 A Mine is that -- you are correct; that we are in
20 a position of statistical tendencies, and that the
21 preponderance of -- that you want to craft State policy
22 on the preponderance of the evidence, not necessarily the
23 universality of the evidence.

24 Q So in the middle of page 8 you say, "How much
25 more effective would increasing the number of fully

1 which is that you've looked at various factors, and that
2 some are strongly correlated with student performance,
3 some are moderately correlated, and some are weakly
4 correlated.

5 And your argument was unless the plaintiffs can
6 show strong correlation, you don't think State policy
7 should be dramatically altered to ensure the much higher
8 probability of equal distribution of that factor. That's
9 what I heard you arguing. And then all of a sudden you
10 said, "By strong correlation, I mean it must be
11 determinative in every case." And I lost you.

12 MR. CHOATE: Wait.

13 THE WITNESS: Stop. Stop. Stop --

14 MR. CHOATE: Objection; mischaracterizes the
15 witness's testimony.

16 THE WITNESS: Thank you.

17 I think you have mischaracterized my testimony.
18 Your characterization of my testimony is pretty close;
19 strength of association has to be empirically proven, it
20 has to be significant and it has to be strong.

21 What this paragraph talks about is the strength
22 of position that Sobol took on the criticality of
23 facilities in his testimony.

24 BY MR. JACOBOS:

25 Q Well, you said he said they were important. And

1 credentialed teachers be than, say, banning cell phone
2 usage by students during classes or revising the
3 cafeteria menu to provide more wholesome selections?"
4 Do you see that?

5 A I do.

6 Q Were those -- did you choose those examples in
7 this report?

8 A I did.

9 Q Why did you think of banning cell phone usage?

10 A I try to spend time in schools on a regular
11 basis so I know what's going on, and the one thing that
12 has hit me like a ton of bricks in the last year is that
13 every single kid has a cell phone and that teachers are
14 not doing -- are not doing as well doing their job when
15 cell phones are going off all the time. And so it
16 occurred to me that a quiet atmosphere might, in fact,
17 have a bigger impact than any of the proposals of
18 Plaintiffs.

19 Q And that's a -- that's not something you're
20 saying is yet empirically tested, but it's something that
21 might be worth putting into the mix of empirically
22 testable propositions?

23 MR. CHOATE: Objection; vague and ambiguous.

24 THE WITNESS: I wouldn't even go that far.

25 BY MR. JACOBS:

1 Q So one does have to make some judgments about
2 what is worth evaluating empirically at the outset of an
3 empirical investigation, correct?

4 A Yes, that's consistent with my testimony.

5 Q And you wouldn't -- if you were distributing
6 scarce evaluation dollars, you wouldn't put a lot of
7 weight on the relationship between banning cell phone
8 usage by students and student performance?

9 MR. CHOATE: Objection; vague and ambiguous.

10 THE WITNESS: I would go further and say I don't
11 think that that is an area that is amenable to
12 evaluation, so it becomes rather moot.

13 BY MR. JACOBS:

14 Q In your time in classrooms that you referred to,
15 have you seen schools that are just in -- from your
16 vantage point, in utter disarray?

17 MR. CHOATE: Objection; vague and ambiguous.

18 THE WITNESS: Yes.

19 BY MR. JACOBS:

20 Q In the middle of page 9 you refer to the PPIC
21 study that Linda Darling Hammond cited.

22 A Yes.

23 Q The name of that study is "Equal Resources,
24 Equal Outcomes," et cetera. Do you see that?

25 A I do.

1 component in education.

2 BY MR. JACOBS:

3 Q Recognizing the difficulty of knowing what a
4 skilled -- what good teaching is, there have been studies
5 of various proxies for good teaching, such as length of
6 experience, correct?

7 A That's correct.

8 Q Or teacher credentialing, correct?

9 A Or teacher credentialing.

10 Q And are there any other proxies that you're
11 aware of that have been studied to --

12 A Yes; National Board certification.

13 Q Anything else?

14 MR. CHOATE: With respect to teachers?

15 MR. JACOBS: Yes.

16 THE WITNESS: Yes. There's been a proxy of wage
17 scale.

18 BY MR. JACOBS:

19 Q I.e., whether pay is associated with -- I'm
20 sorry. How does that --

21 A More highly paid teachers produce more highly --
22 higher academic results.

23 Q That's the question that --

24 A That's the hypothesis under that particular
25 analysis.

1 Q And you say these factors -- referring to
2 teacher qualifications -- you said, "These factors are
3 not statistically significant in many of the models in
4 the full PPIC study."

5 Do you see that?

6 A I do.

7 Q Do you recall what you had in mind in terms of
8 the models in which teacher qualifications were not
9 statistically significant?

10 A I don't have the study in front of me, but I did
11 read the study and read through some of the modeling
12 results, and some of the models had a statistically
13 insignificant factor on the impact of teachers.

14 Q Now, do you believe -- based on your overall
15 experience having been educated and having studied
16 educational empirical results and other kinds of
17 educational outputs, what is your judgment as to the
18 importance of skilled teaching to student performance?
19 And I deliberately used the word "skilled" teaching as
20 opposed to "credentialed" teaching or years of teaching.
21 Skilled teaching.

22 MR. CHOATE: Objection; vague and ambiguous,
23 incomplete hypothetical.

24 THE WITNESS: It's difficult to know what a good
25 teacher is, but a good teacher can be an important

1 Teacher mobility.

2 Q Meaning whether the teaching force in a school
3 is stable or highly mobile?

4 A It's the other way around: whether teachers who
5 move a lot produce good gains or worse gains.

6 Q And what's your understanding of the net of
7 those examinations of various proxies? Let's start with
8 experience.

9 MR. CHOATE: Objection; it's vague and ambiguous.

10 THE WITNESS: Teacher experience is one of the
11 stronger explanatory variables among the set of teacher
12 variables to explain outcomes.

13 BY MR. JACOBS:

14 Q Credentialing?

15 A My own work and the work of others that come out
16 in a pretty different place about teacher credentialing.

17 Going back to the Harvard studies in the early
18 '80s, there's a pretty significant body of knowledge that
19 says that credentialing in and of itself is not a strong
20 or statistically significant predictor of education
21 outcomes for kids.

22 Q And running it to the current date?

23 A All the way up through current times.

24 Q Now, in the case of -- let's just go back to
25 experience for a minute. In the case of experienced

1 teachers, the value-add or the production-function
2 contribution levels off after a certain number of years
3 of experience, correct?

4 MR. CHOATE: Vague and ambiguous.

5 THE WITNESS: That's correct. We call that
6 asymptotic.

7 BY MR. JACOBS:

8 Q At the leveling-off stage. And in the early
9 stages, in the early years of a teaching career, it's a
10 fairly steep curve, correct?

11 A Remember that we're talking here on averages,
12 and around each average point there's a lot of
13 distribution, but the average effect of experience is
14 steeper in the early years and then flattens out. And it
15 depends on whether you're talking about -- the typical
16 ways that these are measured are in reading and math.
17 And the flattening points occurs in different places for
18 those two.

19 Q What is the result of the wage examinations?

20 A I'm not remembering completely what those
21 effects were. I believe it is the case -- my
22 recollection of those results are that increases in wages
23 did not correlate strongly with strong academic
24 achievement.

25 Q And how about National Board certification?

1 we explored a few minutes ago in the first sentence of
2 the last paragraph on paragraph -- on page 9.

3 A I'm sorry. Say that again.

4 Q Last paragraph, first sentence.

5 A Yes.

6 Q "The point is reinforced by my own research
7 showing that teacher experience is important, but that
8 certification per se is not an absolute requirement for
9 successful teaching."

10 Do you see that?

11 A I do.

12 Q So your research doesn't show that experience is
13 an absolute requirement for successful teaching, correct?

14 MR. CHOATE: Objection; vague and ambiguous.

15 THE WITNESS: That experience is not an absolute
16 requirement?

17 BY MR. JACOBS:

18 Q Right. Experience is correlated with successful
19 teaching, but it's not an absolute requirement for
20 successful teaching, right?

21 MR. CHOATE: Objection; vague and ambiguous.

22 THE WITNESS: I wouldn't agree with your
23 characterization of that.

24 BY MR. JACOBS:

25 Q Experience is an absolute requirement for

1 A To my knowledge, rigorous empirical assessment
2 of that effect is only underway now, and I don't know of
3 any other studies that have been done that actually
4 control for that.

5 Q And how about teacher mobility?

6 A Teacher mobility has been studied. Ballou and
7 Podgursky has done something. Dick Murnane looked at
8 mobility in the early days about teacher effectiveness.

9 Teacher mobility is actually negatively
10 associated with student outcomes.

11 Q More mobility, less performance?

12 A That's correct.

13 MR. CHOATE: Objection; vague and ambiguous.

14 THE WITNESS: The more times a teacher moves, the
15 worse her students do.

16 BY MR. JACOBS:

17 Q And if you had to -- are you able, based on your
18 recollection of these various studies, to rank order
19 these proxies?

20 MR. CHOATE: Objection; vague and ambiguous,
21 incomplete hypothetical.

22 THE WITNESS: I wouldn't feel comfortable doing
23 that.

24 BY MR. JACOBS:

25 Q Now, there's this sort of similar duality that

1 successful teaching?

2 A The data were pretty solid on the fact that the
3 first year of teaching is pretty much a crap shoot, but
4 that there is, in fact, progression. And if you're
5 looking for the production function that delivers you a
6 solid education outcome for students, then I do think
7 that experience has to be in there.

8 Q But the data shows that certification does not
9 need to be in a solid production function; is that
10 correct?

11 A That's what my data demonstrated.

12 Q And just to get the data -- the set of data sets
13 here, the data you're referring to is your Houston study?

14 A That is correct.

15 Q So let's spend a few minutes on that.

16 MR. CHOATE: I'm sorry. I'm going to just pop in.
17 Can we just go off the record for two minutes?

18 MR. JACOBS: Sure.

19 (Recess taken: 11:12 until 11:14 a.m.)

20 BY MR. JACOBS:

21 Q Let's mark as Raymond 2 your "Teach for America:
22 An Evaluation of Teacher Differences and Student Outcomes
23 in Houston, Texas" August 2001 paper.

24 (Raymond Exhibit 2 was marked.)

25 BY MR. JACOBS:

1 Q So let's set this up, first of all. What
2 question were you answering in your Teach for America
3 study?

4 A Whether the presence of Teach for America
5 teachers in a large urban district produced different
6 academic results than other teachers in that district.

7 Q And by "other teachers in that district," what
8 do you mean?

9 A The paradigm that we used to frame the
10 evaluation question was from the point of view of a
11 district superintendent who would be contemplating the
12 use of TFA teachers in classrooms in that district. And
13 so the appropriate comparison we thought was, But for
14 TFA, what does the profile of teachers look like? And so
15 our analysis used that standard of comparison.

16 Q And what did that lead you to in terms of
17 profiling the alternatives?

18 A We looked at teachers in Houston who were new to
19 the district in the same year that the TFA teachers came
20 to the district, and we looked at the performance of TFA
21 teachers against the entire body of teachers in Houston
22 so that we did two different comparisons.

23 Q And was this a value-added measure?

24 A Yes, it was.

25 Q So you had, at least for a cohort of students,

1 A I'm not remembering exactly how we handled
2 intra-school mobility. Is that what you're asking?

3 Q Or inter-school-within-district mobility.

4 A I'm not recalling how we handled those
5 observations.

6 Q And in terms of teachers, these were -- in both
7 sets, did you have teachers who had a full period of
8 examination?

9 MR. CHOATE: Objection; vague and ambiguous.

10 BY MR. JACOBS:

11 Q Meaning -- strike that.

12 How long did you -- how long a period did you
13 use to measure the value added?

14 A There was a -- because of the design of the
15 study, we took a snapshot from -- I believe it was '96,
16 '97 through 2000. The teacher could be in the school for
17 as short as a year or as long as five years, and, in
18 fact, some of the teachers that are captured in the
19 experienced teacher had been in the district a lot
20 longer. There was one teacher, as I recall, that had
21 been there for over 40 years.

22 So that what we did was to isolate the teacher
23 effect within an academic year, and then look at how many
24 years of experience that teacher had at that year. So
25 some teachers had large numbers of years of experience,

1 beginning and ending data? You didn't have it
2 necessarily one by one in the way that you ideally would
3 like to have it for an API, but you had group data,
4 beginning and ending?

5 A No, that's incorrect. I had individual
6 student-level data.

7 Q And you measured -- and you kept the student
8 group constant for the teacher?

9 MR. CHOATE: Objection; vague and ambiguous.
10 BY MR. JACOBS:

11 Q In other words, when you looked at Teacher A,
12 you had 25 students -- she had 25 students in her class,
13 and you looked at that same 25 students at the end of the
14 study period?

15 A That is correct.

16 Q So just to ask it a little differently, If
17 students joined the class in the middle of the year, you
18 excluded them from the study group?

19 MR. CHOATE: Objection; mischaracterizes the
20 testimony.

21 THE WITNESS: If the student had no prior test
22 scores within the district, we excluded the student.

23 BY MR. JACOBS:

24 Q But if the student moved around from teacher to
25 teacher, you didn't exclude the student?

1 some teachers had small years of experience, some people
2 had zero.

3 Q And you looked at -- at least you looked at a
4 full academic year?

5 A That is correct.

6 Q And in some cases did you look at longer periods
7 where you had that data for those teachers?

8 A Yes. I was just explaining that where -- let's
9 say a TFA teacher was in the district for the two years
10 of their commitment. We would have a year one snapshot
11 and a year two snapshot, and those would be counted as
12 two separate teacher year observations because the
13 experience variable would change from zero in the first
14 year to one year in the second year.

15 Q So to put it a little differently, you actually
16 have a pretty comprehensive set of data measuring the
17 relationship between teacher years of experience and
18 teacher value added for at least a one-year period in a
19 particular school district, correct?

20 MR. CHOATE: Objection; vague and ambiguous.

21 THE WITNESS: I'm not sure whether it's easier to
22 try to explain it to you in terms of the way the model
23 was structured or in terms of the way the database was
24 structured. So maybe we'll have to do it both ways and
25 see if that fits.

1 BY MR. JACOBS:

2 Q I think I was asking a database question, that's
3 correct.

4 A Okay. We actually have -- the record is a
5 student record, and we are able to link a student record
6 in a given year showing that student's gain score with
7 the characteristics of the teacher that that student had
8 that year.

9 The effective modeling equation panelizes
10 teacher experience. In other words, a teacher can show
11 up in the database -- let us just say she always has 25
12 students. She'll show up 25 times for every year that
13 she teaches, but her record -- there's no such thing as a
14 single teacher record.

15 Q It's rather 25 student records that are
16 associated with that teacher?

17 A That's correct.

18 Q And this -- the source of the database was what?

19 A We were allowed access to two different
20 databases that were merged for the purpose of this
21 analysis. We were given the Texas Schools Project
22 Student Level Database for Houston, and we were given a
23 database of the names and identifiers for all the TFA
24 teachers that taught in Houston over the years of study.

25 Q So that because the one slice -- additional

1 since the study was released, and my agreement is I have
2 to turn things back to them. That's -- I don't have an
3 option on that. The next time I negotiate using their
4 data, I will have a different outcome on that particular
5 factor, but --

6 Q I hear you.

7 But just to the best of your knowledge, just so
8 we don't take the wrong approach with the school
9 district, the PII, the personally identifiable
10 information has been removed from your data set, correct?

11 A That's correct.

12 Q As you understand the situation with that data,
13 do you have any concerns about it being shared?

14 A The only thing that I am a little bit concerned
15 about is that there's an aggregation problem with the TFA
16 identifying information. Because the TFA teachers are
17 distributed very widely across Houston schools, it's
18 pretty easy to figure out --

19 Q -- who is who?

20 A Yeah.

21 Q So would it affect the ability to analyze the
22 data if the school identifying information was removed?

23 A Oh, absolutely. Absolutely. We did actually
24 something called "fixed school effects" in some of the
25 analyses. This goes to the idea that there are factors

1 slice you needed to make through that data was to
2 associate TFA status with the teachers that were
3 associated with the students?

4 A That's correct. And we did not do that merge.
5 We were not allowed to do that merge. That was done by
6 the student -- Education Services Center Number 10 in
7 Texas, and then the identifying information was purged
8 and we were delivered a non-identifiable but linked data
9 set.

10 Q Now, that database, have you made that available
11 through counsel to us?

12 A No, I'm not allowed to release that data. The
13 usage requirement that I have with the University of
14 Texas, Texas Schools Project was that I was allowed to
15 use that database for the purposes of this analysis, but
16 that I was not allowed to share it beyond my usage.

17 I referred everybody back to UTD; gave you the
18 names and the telephone numbers of the people you need to
19 talk to, and -- well, I provided that to my attorneys.
20 But that information has been shared. And you're welcome
21 to go and talk to the folks at UTD.

22 Q You wouldn't have any problems if we made those
23 calls?

24 A In fact, I haven't made those calls on any of
25 this data. I've been asked for this data repeatedly

1 that are not captured in the particular variables that we
2 look at that may, in fact, influence the performance of
3 teachers in schools or students in schools.

4 And the way that you take a look at that is you
5 do something called a "fixed school effects." So you
6 exclude a dummy variable for each of the schools in the
7 district, and that tends to absorb any unique variation
8 outcomes that are attributed exactly -- if there's
9 correlation across all the students in a school, that
10 factor will capture that.

11 Q But it's a unique dummy for each school, isn't
12 it?

13 A That's correct.

14 Q So why do you need to know the name of the
15 school? Why can't the identifying information about the
16 school be masked from the researcher?

17 A I'm sorry. I didn't understand that that's what
18 you were asking. I thought you were asking if you could
19 aggregate up to groups of schools. That wasn't your
20 question?

21 Q My question was, Could we mask the identifying
22 information about the school in the way that you --

23 A It already is masked.

24 Q So how would you -- what's the concern then
25 about being able to trace back to identifying the Teach

1 for America teacher if you can't identify the school?
 2 A It's still possible --
 3 Q -- to reverse-engineer by number of students or
 4 some other data about the school?
 5 A Right.
 6 Q So when you actually ran the data then through
 7 your models, you sorted the other teacher data into two
 8 groups, correct? New teachers and all other teachers in
 9 the district regardless of years of experience? The
 10 non-TFA teachers were so sorted?
 11 A All teachers, including the TFA teachers.
 12 Q Your report says that, Roman XI, TFA teacher
 13 performance was compared against two groups: other new
 14 teachers who did not participate in TFA, and all other
 15 teachers in the district, regardless of years of
 16 experience.
 17 MR. CHOATE: Michael, where are you pointing to?
 18 What exhibit?
 19 MR. JACOBS: Roman XI of Raymond 2.
 20 THE WITNESS: I see where the confusion is. All
 21 other non-TFA teachers in the district. Were you clear
 22 on that?
 23 BY MR. JACOBS:
 24 Q That's the way I understood it.
 25 A Okay. Yes.

1 Q And by "new teacher," did you mean -- what did
 2 you mean by "new teacher"?
 3 A Someone who was in their first or second years
 4 of teaching.
 5 Q And did you match first-year TFA to first-year
 6 non-TFA, or did you aggregate first and second-year TFA
 7 and first and second-year non-TFA?
 8 A The model controls for that by years of
 9 experience. So we were going head to head by TFA -- TFA
 10 zero versus new zero, TFA one versus new one.
 11 Q So on page 10 --
 12 A I'm sorry. 10 of what?
 13 Q Sorry. Of your expert report. Actually, let me
 14 start over, so strike that.
 15 At the bottom of page 9 you summarize your
 16 research results and say, "By examining the performance
 17 of Teach for America teachers (who enter the classroom
 18 without traditional or alternative certification)
 19 compared to other new teachers in the Houston Unified
 20 School District, the study showed TFA teachers on average
 21 did as well or better than their peers."
 22 Do you see that?
 23 A I do.
 24 Q So did you mean in your expert report to
 25 summarize -- and you can look front or back just to make

1 sure I'm not missing a sentence here -- to summarize the
 2 results of the comparison against the "all other teachers
 3 in the district," meaning all non-TFA teachers in the
 4 district, regardless of years of experience?
 5 MR. CHOATE: Objection; vague and ambiguous.
 6 THE WITNESS: Could you repeat the question? I'm
 7 sorry.
 8 (□The record was read as follows:
 9 "Question: So did you mean in your expert
 10 report to summarize -- and you can look
 11 front or back just to make sure I'm not
 12 missing a sentence here -- to summarize the
 13 results of the comparison against the 'all
 14 other teachers in the district,' meaning all
 15 non-TFA teachers in the district, regardless
 16 of years of experience?")
 17 MR. CHOATE: Same objection.
 18 THE WITNESS: This sentence only speaks to new
 19 teachers.
 20 BY MR. JACOBS:
 21 Q So, in summary, what were the results against
 22 all other teachers in the district, regardless of years
 23 of experience?
 24 A You'll find those results on Table A in XIV of
 25 the TFA report, Exhibit 2.

1 Q Can you explain that table?
 2 A This table examines -- I'm sorry. This table
 3 presents the results of the modeling that we did on the
 4 affect of the -- of being a TFA teacher versus not being
 5 a TFA teacher in two separate models. Across the first
 6 row, the comparison group was new teachers. Across the
 7 bottom row, it's against all other teachers.
 8 And we examined those combinations for
 9 elementary school and for middle school.
 10 Q And can you explain the data that's presented?
 11 A The numbers that appear in the table are
 12 percentages of a standard deviation, and these numbers
 13 measure how much more positive TFA teachers were than
 14 their comparison groups on average.
 15 Q So take the first line, TFA versus other new
 16 teachers. In elementary reading, it's showing that the
 17 TFA teachers did 5.8 percent of one standard deviation
 18 better in adding value than the other new teachers?
 19 A In a year; that's correct.
 20 MR. CHOATE: I'm sorry. Could you read back the
 21 question and the answer, please?
 22 (□The record was read as follows:
 23 "Question: So take the first line, TFA
 24 versus other new teachers. In elementary
 25 reading, it's showing that the TFA teachers

1 did 5.8 percent of one standard deviation
2 better in adding value than the other new
3 teachers?

4 "Answer: In a year; that's correct.")

5 BY MR. JACOBS:

6 Q And when you use 5.8 percent or a percentage of
7 a standard deviation, explain the statistics of that.

8 Why are you using that as the measure?

9 A One, that's a standard that's used in this kind
10 of analysis. And so in order to provide a degree of
11 comparability to other similar studies, you want to be
12 able to compare on similar dimensions of measurement.

13 And two, because we were looking at gain scores,
14 it's necessary to standardize the gain score in a year.
15 Tests from year to year differ slightly but enough that
16 you want the distributions of student scores to be
17 standardized so that you can make equivalent comparisons
18 over time.

19 So the measurement of the student outcome was
20 standardized, and therefore all of the information
21 distributes along standard deviations.

22 Q Now, in your paper you noted at page 10 --
23 sorry. In your expert report at page 10 you noted that
24 there was an issue that Linda Darling Hammond focused on,
25 which was the question of whether the Houston teachers

1 Q Now, aside from Linda Darling Hammond's
2 critique, have there been any other critiques to this
3 study to which you've looked at and thought about your
4 response to?

5 A Yes, I'm aware of three.

6 Q Can you just list those first and then go
7 through them one by one?

8 A Sure. The National Board AACTE, the American
9 Academy of Colleges of Teacher Education, and then I am
10 aware of one study out of Arizona State University. I
11 don't recall who the author was.

12 Q Not Berliner?

13 A I think I would have remembered if it was
14 Berliner. I don't think it was.

15 Q That was my guess, too.

16 So Arizona State.

17 A It appears in the online journal that ASU has in
18 their school of education, and you can find it there.

19 Q What was the analysis that the National Board --
20 what was the conclusion of the National Board analysis?

21 A That you had to reject the study because of the
22 college degree issue.

23 Q Any other critiques?

24 MR. CHOATE: Vague and ambiguous.

25 THE WITNESS: No. The entire -- the entire release

1 were in substantial number without college degrees. Do
2 you see that?

3 A I do; page 10.

4 Q Can you just point me to where the -- where in
5 your Teach for America study, Raymond 2, that issue is --
6 or that data is presented?

7 A You'll find that on page 16, graphic 2.

8 MR. CHOATE: 16? I'm sorry?

9 THE WITNESS: Graphic 2.

10 BY MR. JACOBS:

11 Q And have you presented a revised Graphic 2
12 that's corrected?

13 A That's a part of this --

14 Q No; generally, anywhere.

15 A We've certainly talked about it at conferences,
16 but we have not provided or distributed a corrected
17 graph.

18 Q And what is the corrected data, do you know?

19 A It's my understanding that in '99 and 2000 that
20 the number of non-TFA teachers with at least a bachelor's
21 is 100 percent.

22 Q And for '96 and '97, is it your understanding
23 the data presented were correct?

24 A To the best of our ability to go back that far,
25 that's what we understand.

1 was about this issue, completely ignoring the fact that
2 college degree didn't factor into the model at all.

3 BY MR. JACOBS:

4 Q I assume that what they were saying, from what
5 you were saying, is that that was an explanation for the
6 difference in performance?

7 A That is probably their point, but it wasn't very
8 well made.

9 Q And was that the first time -- are these in
10 chronological order, these three?

11 A Yes.

12 Q Was that what led you to go back and figure out
13 whether there was an error in the college degree data?

14 A No. We actually spent a tremendous amount of
15 time on that variable before we released the study
16 because we triangulated the numbers that we had that
17 appear in this report. We asked the folks at UTD,
18 University of Texas at Dallas, to corroborate it. We
19 thought maybe there was a merging error on our part.

20 We went to some state-level data that exists at
21 Austin to see if we could corroborate it, and we tried to
22 verify it through contacts with Houston Independent
23 School District. And we actually got two different
24 answers out of Houston. The front office said every
25 single teacher has a bachelor, and the back office said

1 those are what our numbers are saying. And the UTD data
2 gave us the same numbers and the Texas Education Agency
3 numbers were sufficiently ambiguous that we couldn't tell
4 whether they were measuring the same thing.

5 So after some considerable debate internally, we
6 decided to go with what the numbers said. And it wasn't
7 until a former executive of Houston, who is now with the
8 Department of Education in Washington, asked for a
9 presentation on this report that she raised the
10 possibility that there could have been -- that there was
11 a change in the MIS system and that there could be a
12 possible glitch there, and that's what gave us
13 information that we could use then to go trace back what
14 really happened.

15 Q And did you, in fact, confirm to your
16 satisfaction that the data you just mentioned a few
17 minutes ago is the correct data?

18 MR. CHOATE: Objection; vague and ambiguous.

19 BY MR. JACOBS:

20 Q Or is there still a question in your mind about
21 that?

22 MR. CHOATE: I'm not sure what data we're talking
23 about. I'm sorry.

24 MR. JACOBS: The hundred percent in recent years.

25 THE WITNESS: The value of these two columns.

1 One of the toughest things about being a
2 researcher is at some point it becomes data and you have
3 to go with what you have. So if someone were telling me
4 that the data were wrong and now they're right, I have no
5 way of verifying that.

6 BY MR. JACOBS:

7 Q Did you look at the -- it would seem that this
8 would be a topic that would be covered in hiring criteria
9 for the district, whether you have a bachelor's degree or
10 not. No?

11 MR. CHOATE: Objection; calls for speculation.

12 THE WITNESS: I don't have enough information about
13 the particular hiring practices in Houston to know
14 whether that is observed rigidly or in the breach. I
15 can tell you that it's observed in the breach in many
16 other districts.

17 BY MR. JACOBS:

18 Q Now, you mentioned that the TFA teachers were in
19 the ACP program.

20 A The Alternative Certification Program operated
21 by Houston.

22 Q Was that also true for new non-TFA teachers?

23 A All teachers that are hired in Houston without
24 full certification are required to participate in ACP.

25 Q And then in addition to ACP -- I'm reading from

1 page 5 of your Teach for America study -- "All TFA
2 teachers in Houston meet together once a month to discuss
3 the practical aspects of teaching," et cetera. Do you
4 see that?

5 A Yes.

6 Q And was that meant to distinguish some program
7 for the TFA teachers from the non-TFA new teachers?

8 A That is correct.

9 Q And were there any other support structures in
10 place for TFA teachers that were not in place for non-TFA
11 teachers?

12 MR. CHOATE: Objection; vague and ambiguous, calls
13 for speculation.

14 THE WITNESS: I know of no other.

15 BY MR. JACOBS:

16 Q And how about the initial induction into TFA
17 versus the non-TFA teachers? When you start TFA, you're
18 given some training and teaching, correct?

19 A That is --

20 MR. CHOATE: Objection; compound.

21 THE WITNESS: All new TFA teachers receive an
22 induction program.

23 BY MR. JACOBS:

24 Q Did you have knowledge of what induction program
25 the non-TFA teachers went through? Non-TFA but new

1 teachers.

2 A It's my understanding that that is handled at
3 the individual school level and that some schools
4 encourage their new teachers regardless of their
5 certification status to come in starting a few weeks
6 early. And some schools are fairly organized about
7 orienting them and some are not.

8 Q Now, as to the comparison with the "all other
9 teacher group," that group did not exclude the other new
10 teachers, correct?

11 MR. CHOATE: Objection; vague and ambiguous.

12 MR. CHOATE: The other non-TFA teachers?

13 MR. JACOBS: Right. I should just ask it again.

14 Q You compared the TFA teachers against other
15 similarly experienced teachers as one comparison,
16 correct?

17 A Say that part again, please.

18 Q TFA teachers against other similarly experienced
19 teachers or similarly inexperienced.

20 A Is that what you're calling the new group?

21 Q Yes.

22 A Okay.

23 Q And then you compared it to the "all other"
24 group, you compared TFA to "all other," correct?

25 A That's correct.

1 Q And "all other" included the new non-TFA
2 teachers?

3 A Yes, I believe that's the case.

4 Q Did you run a comparison with all other teachers
5 in the district exclusive of other, quote, "new,"
6 unquote, teachers?

7 MR. CHOATE: Objection; vague and ambiguous.

8 THE WITNESS: I don't believe we did.

9 BY MR. JACOBS:

10 Q Did you run a comparison -- did you run any
11 comparisons that showed -- that sliced the "all other
12 teachers" group in any way by your -- strike that.

13 Did you construct any models in which the "all
14 other teachers in the district" group was disaggregated
15 in any way?

16 MR. CHOATE: Objection; vague and ambiguous.

17 THE WITNESS: Well, the model does disaggregate them
18 in several ways. It does disaggregate them by years of
19 experience and it does disaggregate them by school.

20 BY MR. JACOBS:

21 Q The model meaning the data model now, right?

22 A That's correct.

23 Q So did you run any analyses that showed -- that,
24 for example, took the TFA teachers and ran them against
25 five-year-experienced teachers or

1 you could do that. If you aggregated across the whole
2 district, for example, you could do that.

3 Q That's was just where I was going. The small
4 number problem is if you limited it to a school-by-school
5 analysis?

6 MR. CHOATE: Objection; incomplete hypothetical.

7 BY MR. JACOBS:

8 Q Correct?

9 A I'm just thinking. Let me check a number before
10 I answer that.

11 (□Brief pause.)

12 MR. CHOATE: Take your time.

13 THE WITNESS: I don't think it's here.

14 Well, I'll tell you what my concern is, and then
15 you can -- I don't have any number here to illustrate it,
16 but my recollection was that the middle school analysis
17 that the five years of -- that there weren't any TFA
18 teachers with five years of experience, so it would be in
19 middle schools that all of the TFA teachers who remained
20 past their two-year commitment were elementary school
21 teachers.

22 So what I'm concerned about is that you're
23 blending TFA and experience in a middle school model.

24 BY MR. JACOBS:

25 Q Meaning they may no longer be distinct as TFA's

1 five-to-ten-year-experienced teachers?

2 A You're meaning in a head to head?

3 Q Yes.

4 A No.

5 Q That could be done?

6 A I'm pretty sure you could do it at the
7 elementary level, but you'd have to -- but you'd have a
8 problem with -- you'd potentially have a problem with
9 small numbers that might mess up your results. And I
10 don't think you can do it at the middle school level.

11 Q Because?

12 A Because middle school teachers tend to bounce
13 more, and so they bounce between middle school and high
14 school and then bounce back. And so you might not get
15 five years of middle school experience, and you wouldn't
16 know from the years of experience whether it was
17 continuously middle school or not.

18 Q Would you know total years of experience in
19 teaching?

20 A I believe so. I believe so. And if you were
21 willing to eat the bias that you got --

22 Q Meaning bias from the fact that they may be
23 several years of high school experience?

24 A Right. But again, especially in the middle
25 school, you'd have some small numbers problems. But yes,

1 in the -- no, you got data so that once a TFA, always a
2 TFA for purpose of your tagging, right?

3 A That's correct.

4 Q So, let's see. We covered the National Board.

5 What was the analysis of the AACTE?

6 A Part of the recommendations of our report were
7 that schools of education had a positive market
8 opportunity to think more creatively about how to prepare
9 teachers in order to both increase the quality and
10 increase the supply of good teachers, and that there were
11 a number of different suggestions that we put into the
12 recommendations section that they took issue with.

13 Q They didn't -- to the best of your recollection,
14 they didn't take issue with the data you reported?

15 A I think they -- they also took their turn with
16 that on the college degree issue, if my memory serves,
17 but the focus of theirs was that we weren't qualified to
18 tell them how to do their business.

19 Q And the Arizona State analysis?

20 A We barely made it above the water line in that
21 study. That study took a look at Arizona public schools
22 and purported to do a case control study of the impact of
23 having a TFA teacher on the Arizona State tests.

24 And in the literature review, they cited our --
25 they cited our study and said that they had sent somebody

1 to get our data and that we had refused to provide them
2 the data set, and accordingly, they would just have to
3 dismiss the entire study because they themselves were not
4 able to replicate the results.

5 Q So that's actually a lead-in to my next
6 question, which is, Aside from re-running the Houston
7 data, have there been other studies that have attempted
8 to verify in other localities the results that you
9 reported?

10 MR. CHOATE: Objection; calls for speculation.

11 THE WITNESS: Mathematica Policy Research based in
12 Princeton and Washington, D.C. has been conducting a
13 multi-year random assignment evaluation of TFA.

14 BY MR. JACOBS:

15 Q Any initial results?

16 A Not that I've been privy to.

17 Q And --

18 A I think this is the -- I think it's this
19 spring's data that defines the end point of the testing
20 period.

21 Q Any others?

22 A Well, the Arizona State one that I just
23 mentioned.

24 Q What did it conclude?

25 A Their conclusion was that TFA had -- TFA

1 A Well, my memory isn't all that strong at this
2 point because this was several years ago, but it was
3 academic degree, teacher profile characteristics, their
4 ethnicity, and don't hold me to this last one, but I
5 think it was whether or not they went to a state
6 university -- a public university or a private
7 university. There was something about an education
8 factor there.

9 MR. CHOATE: Let's take a -- I'm sorry. Let's take
10 a quick break in a second.

11 MR. JACOBS: Actually, I can finish up in a second.

12 MR. CHOATE: I just want to take a quick break for a
13 second, and then we'll finish up.

14 THE WITNESS: Okay.

15 (Recess taken: 12:01 until 12:02 p.m.)

16 BY MR. JACOBS:

17 Q Have you published or reported publicly a
18 critique of the Arizona State study?

19 A No, I have not.

20 Q And back to Houston for a minute. Would it be
21 possible to run a comparison of the TFA teachers against
22 new credentialed teachers?

23 MR. CHOATE: Objection; incomplete hypothetical.

24 THE WITNESS: Could you read the question back,
25 please.

1 teachers were associated with lower student performance
2 on state tests by comparing those results -- TFA results
3 to a select control group.

4 Q The select control group's composition was what?

5 A Really messed up. They did a matching criteria
6 that said we will pick -- we will pick teachers in the
7 same school if we can find one that looks like a TFA
8 teacher, but if we can't find one that looks like a TFA
9 teacher, then we have this sort of hierarchical selection
10 criteria. So we then go up to the district, and if we
11 can't find anybody that looks like that teacher in the
12 district, then we go to the county. And if we can't find
13 anything in the county, then we go to the state.

14 But the criteria that they used differed by each
15 hierarchy. So if they could find somebody in the
16 district, that was a pretty -- you could still argue
17 about whether a match sample is a good way to go. But
18 let's wish that away. If they couldn't find a match
19 sample within the district, then it was just an
20 incredible latitude. They could pick anybody they wanted
21 to be the case -- to be the control. Excuse me. And if
22 you look at the distribution of the controls, it looked
23 implausible that they would have been randomly selected.

24 Q And by -- in the characteristics that were used
25 to do the match?

1 (□The record was read as follows:

2 "Question: And back to Houston for a
3 minute. Would it be possible to run a
4 comparison of the TFA teachers against new
5 credentialed teachers?")

6 THE WITNESS: Not based on the data set that we
7 have.

8 BY MR. JACOBS:

9 Q And why is that?

10 A We found a lot of problems with the
11 credentialing variables in the data set. If a teacher
12 acquired credentials after they started teaching, we had
13 no way of knowing if they did or when they did, so that
14 it was a haphazard sample.

15 Q But against new credentialed -- new teachers who
16 were credentialed, the data would be reliable?

17 MR. CHOATE: Objection; vague and ambiguous.

18 THE WITNESS: I didn't look at that particular slice
19 of the data set as a stand-alone matter.

20 BY MR. JACOBS:

21 Q You don't have a problem with that, with new
22 teachers and their credentialing status as opposed to
23 teachers who got credentialed along the way?

24 A That's not correct. If the teacher had their
25 credential in hand when they applied to the school, that

1 information is reliable. There were teachers who did not
2 pass their certification test in the time between the
3 time they were hired conditionally and the time they
4 started teaching who took a subsequent test, and I don't
5 know the reliability of those data.

6 Q So what you could potentially do is compare TFA
7 teachers against the new teachers who were credentialed
8 on the start -- as of the start date, meaning they had
9 passed the test, but not against those who might have
10 become credentialed after the start date because that
11 latter data set is unreliable?

12 MR. CHOATE: Objection; compound.

13 THE WITNESS: I'm not even comfortable saying that
14 the first half of your data set is reliable.

15 BY MR. JACOBS:

16 Q Just because you just don't know?

17 A I just don't know.

18 Q On page 10 where you in your parenthetical say,
19 "Nonetheless, the erroneous figures are mentioned by
20 Dr. Darling Hammond with zeal each time she discusses the
21 report."

22 Do you see that?

23 A I do.

24 Q Were you intending to convey that before she
25 read the expert report, she should have known that the

1 college degree data was incorrectly reported in
2 Exhibit 2?

3 A That is correct.

4 Q And based on what?

5 A Based on attendance and conferences. Based on
6 conversations between her and other researchers,
7 between -- a conversation between her and her dean, and
8 a -- what I would call a level of community knowledge
9 around Stanford.

10 Q Meaning in the last -- in the last case that the
11 community is aware of the error or the community is aware
12 that Linda Darling Hammond should know of the error or
13 both?

14 A I'm going to say both. I gave a seminar at the
15 school of education in the last year where this was an
16 extended topic of conversation, and several of her
17 graduate students were in attendance at the seminar.
18 There are -- I think enough time has gone by since this
19 information was made public that it is unlikely that she
20 doesn't know about it.

21 Q And if I wanted to find the -- in your judgment,
22 the single best explanation that you've given of the data
23 error and the correction to the error, where would I find
24 that?

25 A I believe it's on the TFA website.

1 Q On the TFA website? It has the correction?

2 A Well, they did. They change their site
3 periodically, but the last that I knew of it, under the
4 study description was also the clarification.

5 Q And was that something that you had written?

6 A No. The director of research at TFA had written
7 it.

8 Q Had you approved it?

9 A That's too strong.

10 Q When you read it, did you say, "I agree with it"
11 to yourself?

12 A Yes.

13 Q And you didn't take it -- you didn't have any
14 problems with the way he characterized the issue?

15 A No.

16 Q And is there anything that you've generated in
17 writing that explains this data issue?

18 A No, I haven't written on the subject since that
19 report.

20 MR. JACOBS: Okay. Why don't we break for lunch?

21 (Recess taken: 12:08 until 1:17 p.m.)

22 BY MR. JACOBS:

23 Q Moving through pages 9 and 10 of your report
24 again --

25 MR. CHOATE: This is the expert report, Michael?

1 MR. JACOBS: Yes. Sorry. I'll try and be clearer.

2 Q The issue you are wrestling with there is the --
3 is whether credentialing is a strong factor in a
4 production function, correct?

5 MR. CHOATE: Objection; mischaracterizes the
6 witness's testimony. It's vague and ambiguous.

7 THE WITNESS: Could you rephrase the question,
8 please?

9 MR. JACOBS: Want to just read it back?

10 (The record was read as follows:

11 "Question: The issue you are wrestling with
12 there is the -- is whether credentialing is
13 a strong factor in a production function,
14 correct?")

15 MR. CHOATE: Same objections.

16 THE WITNESS: Rather, it's the lack of certification
17 and its relationship to successful teaching.

18 BY MR. JACOBS:

19 Q So I want to put it in slightly more formal
20 terms than using your production function terminology.

21 If something is a strong factor in an education
22 production function, then it is closely correlated with
23 student outcomes, correct?

24 MR. CHOATE: Objection; incomplete hypothetical,
25 vague and ambiguous.

1 THE WITNESS: The question centers on whether the
2 possession of certification correlates strongly, but it
3 also is the case that the absence of certification has
4 its own characteristics.

5 BY MR. JACOBS:

6 Q What do you mean?

7 A On a completely hypothetical level, if you find
8 that the presence of -- the holding of a certificate for
9 teaching doesn't necessarily have a strong association
10 with student outcomes, the converse, that the lack of an
11 education credential, would be expected to have the
12 inverse relationship.

13 And the policy question that was being worked in
14 the TFA study was the absence of a credential for the TFA
15 teachers. We weren't qualified to say whether all the
16 other teachers were certified or not certified. We were
17 only able to say that the TFA teachers were not.

18 Q In the paragraph on page 10 that starts,
19 "Darling Hammond ignores another study released by PPIC."

20 Do you see that?

21 A Yes, the Jepsen/Rivkin study.

22 Q So let's take a look at that study for a few
23 minutes. We'll mark this as Raymond 3. This is "Class
24 Size Reduction, Teacher Quality, and Academic Achievement
25 in California Public Elementary Schools."

1 (Raymond Exhibit 3 was marked.)

2 BY MR. JACOBS:

3 Q So you read this study?

4 A Yes.

5 Q And you understood that this study was aimed at
6 assessing the impact of class size reduction in
7 California elementary schools?

8 A That's correct.

9 Q And one of the results of the study was to show
10 that because class size reduction led to greater
11 variation in teacher quality on a school-to-school
12 comparison basis, it was in some cases hard to see the
13 degree to which class size reduction helped and reduction
14 in teacher quality hurt overall student performance,
15 correct?

16 MR. CHOATE: Objection; assumes facts not in
17 evidence, vague and ambiguous, compound.

18 THE WITNESS: I do think that you're being pretty
19 sweeping in your summary of the results. Do you want to
20 try to narrow that down a little bit?

21 BY MR. JACOBS:

22 Q What's your understanding of the summary
23 conclusions?

24 MR. CHOATE: Well, let me just interject for a
25 second. If you want to take time and look over this

1 report, familiarize yourself with what Mr. Jacobs may be
2 asking, you can take the time to look at the report if
3 you think you need to do so.

4 THE WITNESS: I guess it goes back to how -- how
5 specific he wants to go into this study. And if he's
6 going to be asking really detailed questions about
7 methodology or the data or the results, I'd probably want
8 some time to refresh my memory.

9 BY MR. JACOBS:

10 Q Well, I'm really -- you referred to it in your
11 report, so I wanted to understand your understanding of
12 the overall conclusions of the report, of the PPIC study.

13 MR. CHOATE: I'll just object that it's vague and
14 ambiguous, to the extent there's a question pending.

15 THE WITNESS: Their study wanted to look at the
16 marginal change in the number of students in a classroom
17 and see if that particular factor was significant in
18 determining student outcomes.

19 As part of their analysis, they also measured
20 teacher characteristics and included those in the model.
21 And the portion of their study that I drew upon in my
22 report focused on the relative strength of teacher
23 qualification.

24 BY MR. JACOBS:

25 Q And by "relative strength of teacher

1 qualification," you mean strength in its correlation with
2 student performance?

3 A That's correct.

4 Q Did you study and absorb the portion of the
5 report, the PPIC report that dealt with the impact of
6 class size reduction on the qualifications of teachers in
7 California public schools?

8 MR. CHOATE: Objection; compound, vague and
9 ambiguous.

10 THE WITNESS: I read the entire report at its
11 issuance and drew upon the subset that I just mentioned
12 for my report. I would not say that I'm an expert in the
13 study that they performed.

14 BY MR. JACOBS:

15 Q And if you turn to page 25 and you look at the
16 certification discussion -- I guess it really begins on
17 24, but the gist of it from our standpoint is at the
18 bottom of 25 the paragraph reads, "Within each income
19 category, the increases in non-certification rates from
20 1995-1996 to 1999-2000 for blacks and Hispanics are
21 noticeably higher than for Asians and whites. In
22 1999-2000 over 25 percent of black and Hispanic students
23 in high-poverty schools have teachers who lack full
24 certification."

25 Do you see that?

1 A I do.

2 Q And did you understand this study to be
3 documenting the relationship between the implementation
4 of class size reduction and the growing numbers of
5 teachers in black- and Hispanic-predominant schools or
6 high-poverty schools who lack full certification?

7 MR. CHOATE: Objection; it's vague and ambiguous and
8 the document speaks for itself, and it assumes facts not
9 in evidence.

10 THE WITNESS: I would have characterized their study
11 differently than you have.

12 BY MR. JACOBS:

13 Q How would you do so?

14 A I would have characterized the focus of their
15 study as analyzing the public policy of class size
16 reduction in California, and among the things that they
17 were interested in was both the impact of fewer students
18 in the classroom and attendant impacts about teacher
19 characteristics and their effects on student outcomes.

20 Q And in the latter -- if you take the second half
21 of your answer, what's your understanding of their
22 conclusions?

23 A That the certification status of teachers was
24 not as significant a factor in determining student
25 outcomes as was teacher experience.

1 Q So it's bi-variate over time? Is that the way
2 you would say that?

3 A No, I wouldn't actually call it bi-variate over
4 time.

5 Q What would you call it?

6 A Let me go to the table. This is Table 32.

7 If by "bi-variate over time" you say you have
8 four isolated snapshots, yes, you do.

9 Q And the bi-variate over time analysis shows that
10 with the implementation of CSR, at least coincidentally
11 as to time, the number of inexperienced teachers for
12 racial minority groups went up significantly, correct?

13 MR. CHOATE: Objection; vague and ambiguous, assumes
14 facts not in evidence, and the document speaks for
15 itself.

16 THE WITNESS: I am unable to put these numbers into
17 a larger context of understanding other state and local
18 decisions that may have influenced the increase in
19 non-certified teachers in the classroom, such as
20 alternative certification programs.

21 So these numbers do increase in magnitude, but I
22 don't have a context for understanding what they are.

23 BY MR. JACOBS:

24 Q You don't have a context for moving from
25 correlation to causation? Is that what you mean to say?

1 Q And as to teacher experience, did class size
2 reduction have an affect on the probability that a black
3 or Latino child or a high-poverty child would have an
4 experienced or inexperienced teacher?

5 MR. CHOATE: Objection; vague and ambiguous.

6 THE WITNESS: Could you restate the question,
7 please?

8 BY MR. JACOBS:

9 Q Let me point you to -- I'll stop asking you
10 questions where it's probably right in the report. If
11 you look at the middle of page 23, there's a paragraph
12 there about the percentage of teachers without experience
13 or with one year of experience.

14 MR. CHOATE: Take the time to read the document.

15 THE WITNESS: Mm-hmm. I'm going to read this.

16 (□Witness reviews document.)

17 THE WITNESS: What I read in this paragraph is a
18 bi-variable relationship between the distribution of
19 teachers by experience and race.

20 Q And by "bi-variate" you mean --

21 A You are doing essentially a cross-tab that shows
22 the distribution by experience by racial groups.

23 Q Isn't there also a longitudinal dimension to it
24 in terms of time?

25 A There is indeed.

1 MR. CHOATE: Objection; mischaracterizes the
2 witness's testimony.

3 THE WITNESS: If you're telling me there's a
4 correlation over time for these proportions, I would have
5 to agree with you, but I don't think that that's -- I
6 don't have a basis for understanding that that's causal.

7 BY MR. JACOBS:

8 Q And are you aware of any critiques of the aspect
9 of the PPIC study that we have just been focusing on?

10 MR. CHOATE: Objection; vague and ambiguous.

11 THE WITNESS: No, I'm not aware of any.

12 BY MR. JACOBS:

13 Q And have you personally done a thought exercise
14 of critiquing this work?

15 MR. CHOATE: Objection; vague and ambiguous.

16 THE WITNESS: I looked at this report when it was
17 initially released from the standpoint of trying to
18 understand the quality of data that's available to
19 California about teachers and students, and my initial
20 assessment of this report was in that context, not in the
21 context of assessing the methodologies that they used or
22 the conclusions that they drew.

23 BY MR. JACOBS:

24 Q What did you conclude about -- I take it that
25 you were looking at the data that they drew upon in

1 reaching a qualitative judgment as to that data; is that
 2 correct?
 3 A That is correct.
 4 Q What was your assessment?
 5 A That California needs to do a much better job of
 6 collecting consistent measures of students and teachers
 7 and performance than they are currently doing.
 8 Q And was this in the context -- just
 9 chronologically, were you at the same time thinking about
 10 the work you were doing on the API study?
 11 MR. CHOATE: Objection; vague and ambiguous.
 12 BY MR. JACOBS:
 13 Q Where you were proposing the student achievement
 14 gains method?
 15 A No.
 16 Q Just separate?
 17 A Well, it's hard to parse your brain, but one of
 18 the reasons we want better data in California is so that
 19 it would lend itself to more sophisticated analysis. So
 20 I'd have to say it's always in mind.
 21 Q Let's talk about the bottom of page 10 and top
 22 of page of -- well, through the middle of page 11.
 23 MR. CHOATE: Of her expert report?
 24 MR. JACOBS: Oh -- yes, of Dr. Raymond's expert
 25 report.

1 Q So in the middle again, there's that word,
 2 "essential." "Regardless, if the three inputs at issue
 3 in this case were essential," closed quote. Do you see
 4 that?
 5 A I'm looking for it.
 6 Q Page 11.
 7 A Page 11.
 8 Q Right in the middle of the page.
 9 A Ah. Here we go. "Regardless."
 10 MR. CHOATE: I'm sorry. Ms. Reporter, can you read
 11 back the question?
 12 THE WITNESS: There wasn't a question.
 13 BY MR. JACOBS:
 14 Q The question was, "Do you see that?"
 15 MR. CHOATE: Ah. Okay.
 16 BY MR. JACOBS:
 17 Q So, where, again, does "essential" come from?
 18 Why did you set that as the standard?
 19 A I did not review Dr. Sobol's primary -- expert
 20 report before coming here today, but my recollection was
 21 that his position had to do with criticality and that
 22 that was what I was addressing.
 23 Q So in the next paragraph you say, "There is no
 24 quibble that the three proposed solutions -- sufficient
 25 textbooks, quality teachers, and adequate facilities --

1 play a role in the production of good education."
 2 Do you see that?
 3 A I do.
 4 Q And so I take it that you are saying that they
 5 are, although the empirical evidence -- one might wish
 6 there were more empirical evidence -- for present
 7 purposes, you're prepared to agree that these three
 8 inputs play some role in the production of good
 9 education, correct?
 10 MR. CHOATE: Objection: Vague and ambiguous.
 11 THE WITNESS: Some role.
 12 BY MR. JACOBS:
 13 Q And the difference between -- analytically,
 14 there's something in between "essential" and "some role"?
 15 MR. CHOATE: Objection; vague and ambiguous.
 16 BY MR. JACOBS:
 17 Q And that's called a strong role?
 18 MR. CHOATE: Objection; vague and ambiguous.
 19 THE WITNESS: Is there a question in there?
 20 BY MR. JACOBS:
 21 Q I'm asking you if that's true.
 22 MR. CHOATE: Read back the question. I don't know
 23 what it is.
 24 MR. CHOATE: Objection; vague and ambiguous.
 25 (The record was read as follows:

1 "Question: And the difference between --
 2 analytically, there's something in between
 3 'essential' and 'some role'")
 4 THE WITNESS: I'm really sorry. I don't know where
 5 to go with that.
 6 BY MR. JACOBS:
 7 Q I guess in a way I'm not -- once again, I'm
 8 perplexed that you have -- that having read your work and
 9 having seen you be rather careful in much of your work
 10 and moderate about what you say, I'm surprised to see
 11 something so out on the fringe here, such as the idea
 12 that the standard is essentialness rather than a strong
 13 contributor to educational performance. And I don't know
 14 where you get that essentialness from.
 15 MR. CHOATE: There's no question pending.
 16 BY MR. JACOBS:
 17 Q "By logical reasoning, therefore, one cannot
 18 accept the validity of the claim that these factors are
 19 essential."
 20 And the logical reasoning that you engage in
 21 there is the fact that some students and some schools
 22 manage to overcome the odds? Do you see that in the
 23 middle paragraph?
 24 A Yes, I do.
 25 Q And I guess my real question is, Are those

1 really your words or are they a lawyer's words?
 2 MR. CHOATE: Objection; argumentative.
 3 THE WITNESS: Those are all my words.
 4 BY MR. JACOBS:
 5 Q Let's talk about your API study for the 39
 6 Plaintiff schools, starting on the bottom of page 11.
 7 A Yes.
 8 Q Let's talk first about how you selected the
 9 schools for examination.
 10 A These 39 Plaintiff schools?
 11 Q No. I'm sorry.
 12 A I'm jumping ahead a little bit.
 13 Do you know what 39 schools, though, you're
 14 examining?
 15 A These were the 39 schools that were named in the
 16 original --
 17 Q In the original complaint?
 18 A The original complaint.
 19 Q Not the first amended complaint? Does that ring
 20 a bell?
 21 A No, it does not ring a bell.
 22 Q So the reason we're looking at this question is
 23 that if you go to the table of schools --
 24 A Table 1?
 25 Q Does it have a number? Table 1. It differs

1 from the list of schools in our complaint, first amended
 2 or original. And so we're wondering where you
 3 actually -- did you get that list from counsel --
 4 A I did.
 5 Q -- or did you create it yourself?
 6 A No. I got it from counsel.
 7 Q Was that from Mr. Choate in particular?
 8 A No.
 9 Q Salvaty?
 10 A Yes, it was.
 11 Q So then what you did with this list is you
 12 analyzed their API's and you said that eight of the
 13 Plaintiff schools are above the State medians for their
 14 school type. Do you see that?
 15 A Now we're back to the body of --
 16 Q Yes, page 12.
 17 A Yes.
 18 Q So the conclusion you drew is that -- your
 19 conclusion sentence says, "This simply could not be
 20 possible if the Plaintiffs' argument were valid."
 21 Do you see that?
 22 A Mm-hmm.
 23 MR. CHOATE: I'm sorry. I don't see where that is,
 24 Mr. Jacobs.
 25 BY MR. JACOBS:

1 Q Maybe you could point it out to your counsel.
 2 MR. CHOATE: Okay.
 3 BY MR. JACOBS:
 4 Q And why is that so? Why could it not be
 5 possible for Plaintiffs' argument to be valid and for 20
 6 percent of the schools on the list to have above-median
 7 API's?
 8 MR. CHOATE: Objection; compound.
 9 THE WITNESS: Could you break that down, please?
 10 MR. JACOBS: Why don't you just read it back?
 11 (The record was read as follows:
 12 "Question: And why is that so? Why could
 13 it not be possible for Plaintiffs' argument
 14 to be valid and for 20 percent of the
 15 schools on the list to have above median
 16 API's?")
 17 MR. CHOATE: Same objection.
 18 THE WITNESS: Let's see if we can break that into
 19 pieces. My testimony -- my report is testing the idea
 20 that these three factors are significant from a
 21 statistical point of view, significant from a magnitude
 22 point of view, and higher priority than other factors.
 23 And the exercise that I did assumes that if all three of
 24 those conditions were met, that the distribution of these
 25 educationally challenged schools compared to all the

1 other schools in the State of California -- you would not
 2 find the overlap across the median that you do that is
 3 the foundation for the subsequent models that we run in
 4 the rest of my report.
 5 BY MR. JACOBS:
 6 Q So let me see if I can rephrase that in what I
 7 think are your more formal terms.
 8 First of all, you understand Plaintiffs to be
 9 arguing that, in brief, textbooks, teacher
 10 qualifications, and facilities are strong factors in the
 11 educational production function.
 12 MR. CHOATE: Objection; mischaracterizes the
 13 witness's testimony.
 14 BY MR. JACOBS:
 15 Q Correct?
 16 A I characterize their testimony as saying that
 17 they are statistically significant and of large
 18 magnitude. That doesn't mean necessarily they're
 19 strongly correlated.
 20 Q Are you quibbling with "strong" as opposed to
 21 "moderate," or are you quibbling with "correlation"?
 22 A I'm quibbling with your use of the word
 23 "strong."
 24 Q So you're saying you understand Plaintiffs'
 25 argument to be that these three characteristics are

1 contributors to the educational production function, and
2 that -- and at what level do you understand Plaintiffs to
3 be arguing they are contributors?

4 MR. CHOATE: Objection; compound.

5 THE WITNESS: I don't think that that has been
6 well-established by their argument on an empirical basis,
7 and, in fact, it's my testimony that there is little
8 basis for determining that at this point, but that they
9 are asking for the assignment of an assumption of large
10 magnitude on those factors.

11 BY MR. JACOBS:

12 Q All right. Assume with me that whether or not
13 there is empirical research to back up this assertion,
14 Plaintiffs are arguing that textbooks, teachers,
15 facilities are strong factors in the educational
16 production function. Assume that for a minute. Okay?
17 Is that an assumption you can make?

18 A Can we have another word other than "strong"?

19 Q Moderate?

20 A I'm trying to get you off of magnitude
21 dimension. You're using a word to try to imply a
22 quantity, and I'm not sure that I can go with that
23 assumption.

24 Q Well, I'm -- when we started out this morning we
25 looked at facilities and we looked at your chart, and

1 lots of cases where that relationship will not hold. I
2 don't characterize the plaintiffs' testimony as saying
3 that it's moderate.

4 BY MR. JACOBS:

5 Q But if it's moderate, then it would indeed be
6 the case that you could have 20 percent of the total of
7 the schools that I so described above the State median in
8 API, correct?

9 MR. CHOATE: Objection; incomplete hypothetical,
10 it's vague and ambiguous.

11 THE WITNESS: I don't have the data to be able to
12 speculate on that.

13 BY MR. JACOBS:

14 Q But you wouldn't say -- if I presented you with
15 that data, you wouldn't say, "This is impossible. There
16 must be something wrong"?

17 MR. CHOATE: Objection; mischaracterizes the
18 testimony.

19 THE WITNESS: There also wasn't a question there.

20 BY MR. JACOBS:

21 Q There was a question.

22 MR. CHOATE: Well, read it back.

23 BY MR. JACOBS:

24 Q I asked you what you would say.

25 A No, you told me I wouldn't say.

1 facilities, you had concluded, was a moderate factor,
2 correct?

3 MR. CHOATE: Objection; mischaracterizes's the
4 witness's testimony. It's vague and ambiguous.

5 THE WITNESS: In the context of the API study, the
6 available information about facilities suggested, at
7 best, a moderate association.

8 BY MR. JACOBS:

9 Q So assume with me for a minute that Plaintiffs
10 are proposing that facilities, textbooks, and teachers
11 are moderate in the way that you use that word in your
12 API study, and assume with me that empirical research
13 proves that to be the case.

14 Is it nonetheless possible for there to be eight
15 schools in which the value of that factor, in terms of
16 its presence in the school is low, to be above the State
17 medians for their school type on the API?

18 MR. CHOATE: Objection; it's an incomplete
19 hypothetical, it assumes facts not in evidence, it's
20 vague and ambiguous, and I think it's compound also.

21 If you understand the question, you can answer
22 it.

23 THE WITNESS: The problem gets more severe by using
24 the word "moderate," not less. If it's a moderate
25 association, then you automatically assume that there's

1 Q Am I not correct?

2 MR. CHOATE: Okay. It's vague and ambiguous. I
3 don't understand the question.

4 Could you read back the last couple questions?

5 BY MR. JACOBS:

6 Q Let's just start it over again.

7 You say, "This simply could not be possible if
8 the plaintiffs' argument were valid." Tell me again why
9 you believe it's not possible for eight of the Plaintiff
10 schools to be above the State median for their school
11 type if Plaintiffs' argument is valid?

12 A It's my understanding that the schools that were
13 chosen as these -- that the students who were the
14 plaintiffs in this case were from schools that had
15 deficits in the areas that this case advances.

16 And so I look at the 39 schools and say there
17 are deficits across this population, and 39 schools out
18 of the 10,000 schools for which we have API information
19 in California could have been expected, if those three
20 factors were -- had the importance that Plaintiffs
21 expected them to have -- would be clustered someplace not
22 around the mean, but below the mean.

23 The mean includes schools that are not included
24 in this case that have a distribution of scores that
25 reflect all of the schools in the state. And if 20

1 percent of the schools that are being described in this
2 case jump the median, then I find that pretty compelling
3 that the associations that are implied in Plaintiffs'
4 case can't be the strong -- your word -- strong
5 associations that we would be led to believe.

6 Q Did you consider alternative hypotheses that
7 would explain strong association, existence of deficits,
8 but above median APIs?

9 MR. CHOATE: Objection; it's vague and ambiguous,
10 assumes facts not in evidence.

11 MR. JACOBS: What's vague and ambiguous about it,
12 Mr. Choate?

13 MR. CHOATE: The question itself is.

14 MR. JACOBS: What's vague and ambiguous about it?

15 MR. CHOATE: Well, let's read it back.

16 MR. JACOBS: No. You can't tell me what's vague
17 without reading it back?

18 MR. CHOATE: The question that you asked is vague
19 and ambiguous. That's my objection.

20 MR. JACOBS: But you can't tell me in what way it
21 is?

22 MR. CHOATE: If you have a question, ask the witness
23 a question.

24 BY MR. JACOBS:

25 Q Did you consider alternative hypotheses?

1 THE WITNESS: Unfortunately we have no way of
2 testing the reliability of the API at this time.

3 BY MR. JACOBS:

4 Q Well, is it not true that you said on or about
5 August 11th, "I just don't think the API is accurate.
6 It's not an accounting of what they're doing with all
7 students in the school"?

8 A That is, in fact, my quote.

9 Q So, at that point you were prepared to say the
10 API is inaccurate, correct?

11 A Which is a different question than the one you
12 just asked me.

13 Q Well, did you say that and were you at that time
14 of that belief?

15 A I was at that time of that belief and I am still
16 at this time of that belief, but that wasn't the question
17 that you asked me.

18 Q Is it possible that the inaccuracies in the API
19 that you have studied explain how you could have
20 Plaintiffs' argument valid, even though 20 percent of the
21 schools in the set that you looked at are above the State
22 medians for their school type in API?

23 MR. CHOATE: Objection; assumes facts not in
24 evidence, incomplete hypothetical.

25 THE WITNESS: No. The problems that exist with the

1 A That's what the other models in my report do, is
2 to test other hypotheses.

3 Q Did you consider hypotheses that would explain
4 what you say here is not possible?

5 A I believe I just answered your question.

6 Q Is the answer no, you didn't consider
7 alternative hypotheses?

8 MR. CHOATE: Objection; assumes facts not in
9 evidence.

10 THE WITNESS: No, that's not the case.

11 BY MR. JACOBS:

12 Q Is it possible that the API is not a reliable
13 enough indicator to test whether Plaintiffs' argument
14 might be valid, even though 20 percent of the schools are
15 above the median?

16 MR. CHOATE: Objection; vague and ambiguous,
17 incomplete hypothetical.

18 THE WITNESS: Are there two questions on the table?

19 MR. JACOBS: Can you read back the question, please?

20 (□The record was read as follows:

21 "Question: Is it possible that the API is
22 not a reliable enough indicator to test
23 whether Plaintiffs' argument might be valid,
24 even though 20 percent of the schools are
25 above the median?"

1 API would not translate into the out -- situation that
2 you are describing.

3 BY MR. JACOBS:

4 Q And why is that?

5 A The numbers that appear in Table 1 in my report
6 are a single snapshot in time. They are not a measure of
7 what happens to students in any time context at all. It
8 is merely a nominal measurement of their performance at
9 one moment in time. And I happen to think that that's a
10 pretty cruddy way of taking a measurement of school
11 performance, but however fuzzy the computation of a
12 school's score is at one point in time, that doesn't make
13 any difference in terms of the analysis of where schools
14 distribute.

15 Q Did you consider the possibility that the
16 students had factors such as SES that led to the overall
17 school API being above the State median, notwithstanding
18 Plaintiffs' argument and the deficits that were alleged
19 to exist in these schools?

20 MR. CHOATE: Objection; assumes facts not in
21 evidence.

22 THE WITNESS: Those hypotheses were considered and
23 incorporated into the multi-variate models that followed
24 in my report.

25 BY MR. JACOBS:

1 Q Were they considered in this particular
2 analysis?

3 A I would be hard-pressed to call this an
4 analysis. I would call this a description of the
5 distribution of the data. I haven't explained anything.
6 I am merely making a point that they distribute
7 differently than I would anticipate.

8 Q So when you said this simply could not be
9 possible if the Plaintiffs' argument were valid -- this
10 isn't a trick question -- that was not based on analysis?

11 MR. CHOATE: Objection; mischaracterizes the
12 witness's testimony.

13 THE WITNESS: I'm saying that there is evidence on
14 the face just based on the distribution of the data that
15 perhaps the causal attributes of the Plaintiffs' factors
16 are not what creates student academic outcomes. This was
17 intended to be an appetizer to the entree of my models.
18 BY MR. JACOBS:

19 Q Okay. So let's go to the entree then. Just
20 talk about food and I'll laugh.

21 At the middle of page 12 you get into the meat
22 of your analysis, correct?

23 A Yes.

24 Q And this was analysis that you did specifically
25 for this expert report, correct?

1 A That is correct.

2 Q And in this analysis you created a sample of
3 schools that you selected for further study, correct?

4 A That is correct.

5 Q And there were 584 schools in that sample?

6 A Yes.

7 Q And it included operating charter schools?

8 A Yes, it did.

9 Q But it excluded alternative schools,
10 continuation schools, adult schools, and schools that did
11 not operate in the 2001-2002 school year?

12 A Or only operated at a part of it.

13 Q I see.

14 Now, first question is, Why did you select a
15 584-school sample? Not that I'm quibbling with 84, but
16 why a sample of that order of magnitude?

17 A I selected based on the criteria that are
18 described in the subsequent paragraph, and the resulting
19 number was 584.

20 Q And what you wanted to do was create a sample of
21 what you called "equivalently challenged," quote/unquote,
22 schools; correct?

23 A That is correct.

24 Q And you therefore took -- what did you do with
25 the entire set of California public schools in order --

1 as a mechanical matter to get this sample?

2 A Okay. Across the 39 schools, I calculated that
3 sample average on these three criteria: percent
4 minority, percent free and reduced price lunch, and
5 percentage of teachers at the school who held full
6 teaching credentials. To be clear, that means that half
7 of the 39 schools had to have done better on each of
8 those measures, although not necessarily all three of
9 those measures.

10 And I took those average magnitudes and then
11 screened across the California schools and selected any
12 school that matched or exceeded all three factors at the
13 same time.

14 Q When you say match or exceed, you mean --

15 A That they were worse schools in those regards.

16 Q From the standpoint of expected educational
17 achievement?

18 A That -- exactly. That if they had higher
19 proportions of minorities and they had higher proportions
20 of free and reduced price lunch and they had lower
21 proportions of teachers that were fully credentialed,
22 then they made it into my group. And there were 584 of
23 them.

24 Q And "educationally challenged" here is just a
25 term you adopted for purposes of this report to --

1 A Sure.

2 Q That's not something you drew on from some other
3 source?

4 A We could call them "Group X."

5 Q All right. So now you take these schools and
6 you analyze them to determine the significance in
7 magnitude of influence for fully credentialed teachers,
8 right?

9 A Within that sample, that's right.

10 Q Within that sample. But the sample has already
11 been chosen to have fairly hard numbers -- fairly large
12 numbers of non-fully credentialed teachers, right?

13 A At the moment I do not recall what the
14 proportions were in the screening sample.

15 (Witness reviews documents.)

16 THE WITNESS: I'm sorry. I don't recall. It does
17 not appear to be in here.

18 BY MR. JACOBS:

19 Q And it's not in a table somewhere?

20 A I don't think so. No.

21 Q Is that in some work papers that we have or do
22 we have work papers reporting this analysis?

23 (Discussion off the record.)

24 MR. JACOBS: Let's take a break.

25 (Recess taken: 2:04 until 2:13 p.m.)

1 BY MR. JACOBS:

2 Q One more question about Table 1. Did you look
3 at the complaint or -- well, did you look at the
4 complaint to see what conditions were being alleged about
5 any of these schools?

6 A Not specific to the schools, no.

7 Q And the same question with respect to the
8 declarations or other information that we've gathered
9 about these schools and put on that decentschools.org
10 website. Did you look at any of that information to
11 determine what the particular conditions were?

12 A I read one, and it was the San Francisco High
13 School -- and now I'm not remembering what the name is.

14 Q Any others?

15 MR. HAJELA: Balboa.

16 THE WITNESS: Balboa.

17 No.

18 BY MR. JACOBS:

19 Q So I don't think we have found the paper you
20 were pointing to that would show us the benchmarks you
21 used, the averages, so I don't know if you can check
22 tonight to see whether you have something that might not
23 have been delivered through counsel to us.

24 A Happy to.

25 Q So now let's go to Table 2. And your narrative

1 modeled results to the metrics of the particular measures
2 that you're using.

3 Q And then can you explain the results? Take
4 percentage minority, for example.

5 A Sure. This table displays actually four
6 important columns of information about the effect of each
7 of the individual independent variables that I've just
8 described. For percent minority, the coefficient
9 describes the magnitude of impact on the 2002 API school
10 for a school that would be created by a one percent
11 change in the percent minority within a school.

12 The magnitude of that coefficient is negative
13 1.34. The standard error of the estimate there is .445.

14 The two of those combine to create a T statistic of
15 negative 3.02. The T statistic is a standardized measure
16 of the deviation from zero that would be used to test a
17 hypothesis that the coefficient has no impact at all.

18 And as you can see from P, greater than T, we
19 have significant -- the coefficient is significant at a
20 very high level of significance. It's at .003. We
21 typically say that anything .05 or smaller is a
22 significant -- is something that we choose to look at as
23 significant.

24 So our coefficient of negative 1.34 says that
25 for every percentage increase in the minority status of

1 says, "The model explains the variation in 2002 API
2 scores across schools as a function of student background
3 and the availability of fully credentialed teachers."

4 So can you just walk me through the format of
5 the table here and explain what each of the results are?

6 A The model incorporates 565 of the 584 schools.
7 The fact that those numbers differ means that there were
8 some observations for whom one or more of these variables
9 had a missing value, and when that's the case, the
10 statistical program deletes that observation.

11 565 is still a pretty good number. What you see
12 here are the modeling results that test against API the
13 marginal impact of the percent of minority students in
14 the school, the percent of fully credentialed teachers in
15 the school, the percent of free and reduced price lunch
16 in the school, the percent of English language learners
17 in the school, the percent of student mobility measured
18 at the school level, and the percent of parents in the
19 school -- I'm sorry -- the percent of students in the
20 school who have a parent who did not complete high
21 school. And then a dummy variable for whether or not the
22 school was one of the schools that appear in Table 1, a
23 Plaintiff school.

24 And the final factor is a constant. This is
25 just the Y axis intercept and allows you to scale the

1 the student population, you would have a 1.34 point
2 decrease in the 2002 API score across the entire
3 population of the 565 schools.

4 Q So can you just do the same walk-through with
5 the next item, fully credentialed teachers?

6 A Fully credentialed teachers has a coefficient of
7 .584. For the sake of argument, let's round that to .6.
8 With a standard error of the estimate of .18, we can
9 round that to .2. The T statistic of 3.24, and
10 significant, again, at roughly the same level as the
11 level of significance for the percent minority of .001.

12 This means that for every percent increase in
13 the proportion of fully credentialed teachers that you
14 have in a school, you would expect .6 API points gained,
15 all other factors being equal.

16 Q So just in brief then, if you look at free and
17 reduced lunch, for every percentage -- for every one
18 percent increase in the number of students on a free and
19 reduced lunch program, you would expect a decrease in the
20 API of roughly .18 points?

21 A Actually, you wouldn't. If you go all the way
22 over to the P greater than T, you'll see that that's not
23 a statistically significant factor. That means that it
24 is indistinguishable from zero in its effect.

25 Q And the reason you can get a -- I just need a

1 statistics lesson here. The reason you can get .471
 2 under the P is greater than T column and still have a
 3 coefficient is what?
 4 A Statistics lesson. The model only generates the
 5 coefficient and the standard error. What happens in T
 6 and P greater than the absolute value of T actually
 7 happens outside the model, and this is where the
 8 statistical program is providing you a look-up service on
 9 the value of the coefficient related to its standard
 10 error. So the T statistic as calculated by the program
 11 for you is based on the model results and the coefficient
 12 of the standard error. And if you'll see, the statistic
 13 is really small. It's .72 and it's negative. We don't
 14 really care about negative for the purposes of
 15 statistical significance, but in a --
 16 Q This is happening because the standard error is
 17 actually -- even taken in absolute value, is greater than
 18 the coefficient.
 19 A You are absolutely correct. What this says is
 20 that we're able to isolate a small effect, but it's not a
 21 consistent enough effect across all the observations to
 22 be able to say that it is a reliable and consistent
 23 element and causality.
 24 Q So student mobility and parent not a high school
 25 grad, those have P is greater than T of zeros?

1 A Yes. If you look at the actual magnitude of the
 2 T statistic.
 3 Q It's high or --
 4 A Right. I don't know if you ever took high
 5 school or college-level statistics, but the number that
 6 you're looking for in the T line is someplace -- 1.96 is
 7 one standard deviation and 2.74 is two standard
 8 deviations. And so if you're anything over 2.74, you're
 9 pretty sure that you've got a really solid number,
 10 especially with the observations being as high as they
 11 are.
 12 Q So let's take the last one, percent parent not
 13 high school grad. So if the number of students in the
 14 565 schools who had at least one parent who was not a
 15 high school grad goes up by one percent, the expected API
 16 score goes down by 1.4 percent, and that's --
 17 A 1.4 points.
 18 Q Points. Sorry.
 19 A The coefficient is absolute, right.
 20 And what is interesting -- never mind.
 21 Q What's interesting?
 22 MR. CHOATE: Objection; vague and ambiguous.
 23 THE WITNESS: Life is interesting, isn't it?
 24 BY MR. JACOBS:
 25 Q What's interesting?

1 A What's interesting to me is the relative
 2 equivalent of the parent not high school graduate and the
 3 minority; that those two are very, very closely aligned
 4 in their magnitude and in the direction. So you end up
 5 with this compounding effect.
 6 Q So -- but they're not compounded here; that is,
 7 if you had a -- to find out the impact of having both
 8 high minority, high less educated parent student
 9 population, you would sum those two coefficients,
 10 correct?
 11 A That's right; they're additive.
 12 Q So the F statistic, is that the statistic under
 13 the number of observations in the upper right-hand
 14 corner?
 15 A It is.
 16 Q And the F statistic tells us that the model is
 17 useful because why?
 18 A What the F statistic explains is it tests the
 19 entire set of variables against the idea of flipping a
 20 coin. So it tests the overall model. Even if an
 21 individual coefficient is not significant, the overall
 22 model does give us explanatory power.
 23 Q And the benchmark for an F statistic that is
 24 attractive to a statistician is?
 25 A Completely a function of the number of

1 observations and the number of explanatory variables. So
 2 you don't look for a critical value in F in the same way
 3 that you look for a critical value in T because it's a
 4 function of those parameters.
 5 Q But in this case, because it's 24.35 as against
 6 those parameters, it suggests to us that the model is
 7 explanatory?
 8 A It's typed, yes.
 9 Q And then the R-squared model or R-squared
 10 statistic is at .23 as against a perfect model score of
 11 1, right?
 12 A That is correct.
 13 Q And .23 is sufficiently high to -- again, to be
 14 confirmatory of the usefulness of the model?
 15 MR. CHOATE: Objection; vague and ambiguous.
 16 THE WITNESS: Different models have different uses,
 17 and different people will look at an R-squared
 18 differently.
 19 For most of the kinds of econometric work that
 20 we do in education, the R-squares are in this
 21 neighborhood up to a value of .45, .5 on a really good
 22 day. If you have an R-squared in this field that's up in
 23 the 8's and the 9's, it's usually the case that you have
 24 a very, very highly limited model.
 25 BY MR. JACOBS:

1 Q So then you analyze -- you go on and discuss the
2 coefficient for the proportion of fully credentialed
3 teachers, and you say, "As we discussed for each
4 percentage gain in the proportion of credentialed
5 teachers, we would expect to see only .58 points at the
6 API."

7 Do you see that?

8 A I do.

9 Q And so you get a six-point gain if you had a ten
10 percent increase in credentialed teachers?

11 A Six-point gain in the API, that's correct.

12 Q And that change is roughly equal to the
13 measurement error associated with the API according to
14 some researchers, you state, correct?

15 MR. CHOATE: Objection; vague and ambiguous.

16 THE WITNESS: That is correct. That is my report.

17 BY MR. JACOBS:

18 Q On the measurement error associated with the
19 API, is that something you examined closely?

20 A Yes.

21 Q And do you endorse the view that there is a six
22 point-error associated with the API?

23 A The API that Kane and Staiger describe is a
24 measurement error on the testing. We do not have an
25 accurate -- and they attribute that straight up to the

1 up.

2 A That -- let me gather my thoughts to make sure I
3 reflect their work accurately.

4 Q Sure.

5 A Their analysis is based on an idea that no
6 measurement instrument is perfect and that there is a
7 measurement error in student test scores. That's
8 actually well known. The psychometrics show that to be
9 the case. We don't always have the opportunity to
10 measure what the measurement error is, but we can surmise
11 that it's there.

12 What they do is then aggregate directly up to a
13 school score that all of the variability from student
14 measurement error has to be captured in the API. And I'm
15 not convinced that that's true. I think the
16 computational factors of the current API make it likely
17 that you actually don't grab all of that measurement
18 error.

19 Q So that the error associated with the API would
20 be lower than their estimate?

21 A I haven't parsed the effects because you have
22 these other influences on the API that create error, so
23 all I'm trying to do is to examine whether the Kane and
24 Staiger effect exists in the magnitude that they claim it
25 does. And if you can take that part and look at the rest

1 API. Am I being clear?

2 Q I think what you're saying is that if you --
3 what they're saying is that if you gave the test on one
4 day and gave the same test on another day and assumed
5 that students don't learn from the first test, you could
6 expect a six-point variation in test -- in API scores; is
7 that right?

8 A In test scores.

9 Q Test scores that lead to the API?

10 A And they aggregate straight up from there. And
11 that's how they get to a six-point -- I'm actually not
12 completely convinced that their number is right and I'm
13 in the process of studying it, but I don't have any
14 numbers yet.

15 Q And are you looking just at the question of the
16 test score error or are you looking at broader errors in
17 the API?

18 MR. CHOATE: Objection; compound.

19 THE WITNESS: Let's break that apart.

20 BY MR. JACOBS:

21 Q So I understood you to be saying that Kane and
22 Staiger, as the article suggests, "Volatility in School
23 Test Scores" -- are looking at expected variations in the
24 API just simply attributable to the tests themselves?
25 I'm not sure what that means, but that's what I thought

1 of what I perceive to be the measurement errors of the
2 API, I'll see how they balance out.

3 Q So the next paragraph, "The third result is even
4 more striking. The model controls for differences in
5 student background. The model also controls for
6 differences in teacher force composition. After those
7 effects are restricted, the plaintiff schools still
8 appear to be performing at substantially lower levels of
9 API compared with their equivalent peer schools."

10 Can you explain that? Not explain -- I know you
11 can't explain it causally. Can you explain it
12 descriptively?

13 A Yes, I can try to do this for you, as well.

14 Okay. When we make this model -- can you guys
15 go back to Table 2? When we construct a model like this,
16 we are -- we're looking at all of the variation in the
17 outcome variable. That's API for the school. And then
18 we are looking at the variation across all of these
19 independent factors, such as student characteristics or
20 teacher characteristics. And we're making some causal
21 inferences based on the way that those factors co-vary.
22 Once you've been -- and the model does this on a -- how
23 do I want to explain this? -- a -- it does this by
24 looking across all of the variation in all of the
25 variables and continues to work that until it all settles

1 down and it's clear that some variation belongs to this
2 independent variable and some of the variation belongs to
3 this independent variable. And it doesn't really -- the
4 model doesn't really fix the values of the coefficients
5 until it has maximized as much variation as it possibly
6 can, which is measured by your R-squared.

7 So the model is noodling around -- that's a
8 technical term -- and it's looking for the influence of
9 each of these independent variables. Once those
10 coefficients have been assigned, you have isolated all of
11 the variation that's associated with these independent
12 variables, so that you can look at any other factors,
13 assuming everything else that's captured by your model is
14 held constant. So that's what it means by those factors
15 are restricted.

16 Q So -- and in particular, in this paragraph
17 you're talking about restricting student background and
18 teacher -- the teacher credentialing --

19 A That's right.

20 Q -- statistic?

21 A That's right. And student mobility. I mean,
22 essentially the value of this coefficient for Plaintiffs'
23 school -- was there a question you're asking me?

24 Q No, that's all right. We're moving very quickly
25 and that's probably in your interest, but all right.

1 I'll ask you a question. Let the record reflect that I'm
2 laughing, anyway.

3 I was asking you what you were holding constant.

4 A Everything that's in the model, and then looking
5 at the impact of Plaintiff schools.

6 Q Meaning the fact that it shows up in the -- with
7 the dummy variable Plaintiff school from the model
8 standpoint?

9 A That's correct.

10 Q And if you do that, the school performs on
11 average 32 points worse on the API in 2000 in schools
12 than other schools that, based on these factors, look
13 like them?

14 A Exactly right.

15 Q So then in the next paragraph, you note that the
16 model can't tell us what about the plaintiff schools make
17 them underperform. And then you say, "We can, however,
18 say that the variance in the API scores themselves and
19 the control of the teacher element as a possible factor
20 point to operational differences across schools."

21 And I take that to mean that since you're
22 holding that teacher credentialing factor constant and
23 the student composition constant, it must be something
24 that you've put in the category of operational -- it may
25 be something that you put in the category of operational

1 differences that explains the variation?

2 A That's correct.

3 Q So now in the last paragraph you explain
4 Table 3, where you substituted the proportion of
5 emergency credentialed teachers for the proportion of
6 fully credentialed teachers. Do you see that?

7 A Mm-hmm.

8 Q Now, why would you expect that to be -- based on
9 these categorizations that the State creates,
10 credentialed versus emergency credentialed --

11 A Yes.

12 Q -- why should it matter when you're switching
13 from one to the other?

14 A Well, when you live in a world where one of
15 those is statistically significant and positive, you
16 anticipate that the other is statistically significant
17 and negative. And so this was a test essentially not
18 about the impact of holding a credential, but about the
19 impact, as we did in the TFA study, of not having a
20 credentialing.

21 Q Why isn't that just -- if you have a school with
22 100 percent teachers and 80 percent hold a credential --
23 you have a school that has 100 teachers and 80 percent
24 hold a credential, 20 percent hold what? What can the
25 remainder hold other than emergency credentials?

1 MR. CHOATE: Objection; it's an incomplete
2 hypothetical, calls for speculation.

3 THE WITNESS: That's what you're trying to test in
4 this model.

5 BY MR. JACOBS:

6 Q But how could it possibly come out differently
7 then if it's just flipping the data from the 80 percent
8 to the 20 percent?

9 MR. CHOATE: Objection; vague and ambiguous and
10 argumentative.

11 THE WITNESS: In order for your supposition to be
12 true, you would have to have this incredibly causal
13 relationship between holding a credential and positive
14 student outcomes. And conversely, there would have to be
15 a strong and negative association between not having a
16 credential and positive student outcomes. In other
17 words, your supposition is based on -- your statement is
18 based upon a supposition that "fully credentialed" means
19 "highly qualified."

20 And the purpose of Table 3 in my report is to
21 show that that's just not the case; that we have
22 emergency credentialed teachers in schools, and in this
23 particular group of schools, while I can't exactly
24 extract the number for you on the percentage of fully
25 certified, in the average, I know it wasn't 90 percent.

1 It was someplace closer to 40 or 50. So I was testing
2 the reverse, which is, Do you have to have a credential
3 in order to push positive student gains? And the
4 coefficient value on emergency credentialed teachers in
5 Table 3 shows me that that doesn't necessarily hold.

6 BY MR. JACOBS:

7 Q I'm still missing something. It seems to me
8 that in the Table 2 you had the proportion of fully
9 credentialed teachers.

10 A That is correct.

11 Q And Table 3 you have the proportion of un-fully
12 credentialed teachers, i.e., emergency credentialed
13 teachers.

14 A That's correct.

15 Q How is it possible to have a positive
16 coefficient -- as a matter of statistics now, not as a
17 matter of educational theory -- how is it possible to
18 have a positive coefficient for the proportion of fully
19 credentialed teachers and not have a negative coefficient
20 for the proportion of un-fully credentialed teachers?

21 A I believe if you look at Table 3, it does have a
22 negative coefficient.

23 Q But --

24 A It's just not significant.

25 Q And how is that possible? How could the

1 true; that the absence of a credential does not mean
2 necessarily deficits in the ability to create positive
3 student outcomes.

4 So I believe your -- I believe I'll just leave
5 it there.

6 Q Now, a couple of questions about the way you set
7 this up.

8 First, why did you use the percentage of
9 credentialed teachers as a factor in selecting your
10 comparison schools?

11 A We had spoken a little while ago about the
12 quality level of available data in California, and while
13 there is a pile of data available, there isn't a whole
14 lot to capture -- empirical evidence or data to capture
15 differences in the use of resources within schools. And
16 so the best variable that I have been able to find is the
17 percentage of fully credentialed teachers as a measure of
18 teacher resource. It is not a good one. There are lots
19 of better ones that I'd like them to have, but it's the
20 best that's available.

21 So in the selection criteria, it was meant to be
22 a proxy for the resources available within a school.

23 Q So just let's pause on that -- on one thing you
24 said for a minute. Teacher credentialing, the data is
25 available. It's a proxy for the use of teacher -- the

1 significance vary when you're just taking the opposite
2 and inputting the opposite in?

3 MR. CHOATE: Objection; compound, vague and
4 ambiguous.

5 BY MR. JACOBS:

6 Q If I say I have 50 percent boys and 50 percent
7 girls and I use in some data set the number of boys and
8 not boys, that's the same as using the number of girls
9 and not girls, isn't it?

10 MR. CHOATE: Objection; incomplete hypothetical.

11 BY MR. JACOBS:

12 Q Something basic I'm missing.

13 A You would expect, if there was a completely pure
14 association between the holding of a credential and
15 performance, to see the reverse as you are describing.
16 But what these -- both of these coefficients show is that
17 the association is less than perfect. And, in fact, in
18 the case of fully credentialed teachers, the association,
19 while significant, is fairly weak, and in the case of
20 emergency credentials, it's not even significant, and
21 that's because there's a lot of fuzziness.

22 What that says is that while having a credential
23 may be an assist in the production function, it's not a
24 strong, it's not even necessarily a moderate. It's just
25 an assist. But that the converse is not necessarily

1 use of resources in a school. And you indicated that as
2 you thought about what data would be useful, you would
3 like to have some other data elements, correct?

4 A Yes.

5 Q And what does that thinking lead you to desire?

6 A I'd love there to be a good measure of
7 leadership within a school. I'd love for there to be a
8 measurement of cohesion to the curriculum plan for the
9 school. I'd like there to be measures of the enrichment
10 resources that were available for students. I would like
11 there to be a measure of professional development
12 opportunities utilized by teachers.

13 Q The -- so I understand what you said about why
14 you chose credentialed teachers, but I guess to put a
15 finer point on my question, since one of our allegations
16 is that the percentage of credentialed teachers is an
17 important factor in educational opportunity, why didn't
18 your set include schools that have mostly -- a high
19 proportion of credentialed teachers as opposed to
20 restricting your set to those that have no more than the
21 average number of credentialed teachers of the 39 schools
22 in Exhibit 1?

23 MR. CHOATE: Objection; vague and ambiguous.

24 THE WITNESS: One could have created the data set in
25 lots of different ways. The one that I was looking for

1 was an attempt to create a peer group of schools that
2 were in the same ballpark as the schools that were
3 covered in this case.

4 BY MR. JACOBS:

5 Q Have you run it with a broader set?

6 MR. CHOATE: Objection; vague and ambiguous.

7 BY MR. JACOBS:

8 Q Have you run the analysis with a broader set of
9 schools than reported here?

10 A I have not. Except for the -- for this report,
11 I did not do any wider analysis. There is a wider
12 analysis implicit in the charter school study that I
13 released two weeks ago.

14 Q I'm just going to ask you this one other time.
15 At the top of page 14 you say that the data indicates
16 that if a school was to increase its share of fully
17 credentialed teachers by ten percent, it could expect
18 only a six-point gain in its API. Do you see that?

19 A I do.

20 Q And is the inverse of that also true based on
21 the data; that if a school were to decrease its share of
22 fully credentialed teachers by ten percent, it could
23 expect a six-point decrease in its API?

24 A It does mean that.

25 Q And if you were to decrease the share of fully

1 MR. CHOATE: Objection; mischaracterizes the
2 testimony. It's an incomplete hypothetical.

3 THE WITNESS: You are performing one of the cardinal
4 sins of statistical interpretation, and that is that
5 you're trying to take coefficients from different models
6 and link them together.

7 Let me explain that when the model settles down
8 in coefficients, it does that completely as a result of
9 the particular factors that are in that model at that
10 time. So, in essence, if you look at the magnitudes of
11 the other variables in the model, you'll notice that
12 they're not identical. And they're not identical because
13 the way that these variables co-vary with each other,
14 which is one of the things that you have to analyze in
15 order to create the -- to calculate the coefficient, is
16 entirely a matter of the independent variables that you
17 have at one time.

18 So we're in the ballpark between percent of
19 minority students, between Table 3 and Table 2, but it's
20 not identical. However, the direction is the same and so
21 forth.

22 So it would not be a good thing for you to try
23 to link these two factors together because they don't.

24 BY MR. JACOBS:

25 Q Okay. But I think the reason they don't -- I

1 credentialed teachers by ten percent, wouldn't you be
2 increasing the share of emergency credentials by ten
3 percent? Well -- oh. Now I think I see what's going on.

4 Is what's happening here that the -- that we're
5 taking a percent of a larger number when we talk about
6 fully credentialed teachers versus emergency credentialed
7 teachers and try and do a percent-to-performance gain
8 analysis?

9 MR. CHOATE: Objection; compound.

10 THE WITNESS: I don't understand your question.
11 Could you go over that again?

12 BY MR. JACOBS:

13 Q Well, if we were to decrease the share of fully
14 credentialed teachers by some percent, then we would
15 necessarily be increasing the share of emergency
16 credentialed teachers, correct?

17 MR. CHOATE: Objection; incomplete hypothetical.

18 THE WITNESS: Presumably you would.

19 BY MR. JACOBS:

20 Q And so if decreasing the share of fully
21 credentialed teachers by ten percent would lead to a
22 decrease in -- by six points in the API, then you could
23 say that it's the corresponding increase in the share of
24 emergency credentialed teachers that led to the six-point
25 decrease in the API, correct?

1 think the only reason they could possibly not relate is
2 that a percent of a -- let's say that the average of
3 fully credentialed teachers was 70 in the plaintiff
4 schools. Then the average emergency credentialed
5 teachers would be 30. And so a percentage increase in
6 fully credentialed teachers is seven and a percentage
7 increase in emergency credentialed teachers is only
8 three. That seems to me the only possible explanation
9 when emergency credentialed teachers are correctly
10 inversely correlated with fully credentialed teachers to
11 have a different outcome impact from a percentage
12 increase in one versus a percentage decrease in the
13 other?

14 MR. CHOATE: Okay. That's vague and ambiguous, it's
15 compound, it's an incomplete hypothetical.

16 If you understand it, you can answer it.

17 THE WITNESS: Well, what you continue to try to do
18 is to create a 1.0 correlation between percentage of
19 fully credentialed and percentage of emergency
20 credentialed in their impact on student achievement. And
21 what these models tell us is that that's not a good thing
22 to do. That we can believe that there is a gain in
23 student outcomes with a fully credentialed teacher, with
24 an additional percentage point of credentialed teachers,
25 but that we cannot believe, statistically different than

1 zero, that having an emergency credentialed teacher makes
2 a difference in terms of its effect on API. It's like
3 almost indistinguishable from zero. That's the way you
4 interpret the coefficient.

5 Q So what you're saying is when you gain -- when
6 you gain teachers that are fully credentialed, you do get
7 this -- for ten percentage points' gain in the
8 proportion, you do get the six-point gain in the API.
9 But that when you swap off, you're not necessarily
10 getting the same effect by increasing the magnitude. You
11 don't know what you're getting. It's not statistically
12 different from zero. That means it could be large on any
13 particular day or bad on any particular other day.

14 BY MR. JACOBS:

15 Q So let me just ask this one more time because I
16 just want to make sure that we understand how this could
17 be and so we can analyze it.

18 A If we have what the -- what the top of page 14
19 suggests is that if you have 100 teachers in the school
20 and 70 percent of them are fully credentialed and you
21 increase that number to 77, you would expect a six-point
22 gain in API?

23 MR. CHOATE: Objection; incomplete hypothetical,
24 asked and answered.

25 THE WITNESS: I did explain that before. Yes, that

1 proportion of emergency credentialed teachers you don't
2 have the same effect. I can only tell you that you do.

3 BY MR. JACOBS:

4 Q And there's nothing that we haven't explored
5 that explains the -- strike that.

6 A So you're looking at school characteristics and
7 it has a report and it says, "Percent fully credentialed
8 teachers," and it says, "Percent emergency credentialed
9 teachers." Is that where that data element is coming
10 from?

11 A Yes.

12 Q And they're both reported?

13 A For 2002.

14 Q So you didn't actually -- you don't calculate
15 emergency credentialed teachers by taking the percentage
16 of fully credentialed teachers and subtracting it from
17 100?

18 A "Full" is the fully credentialed variable, and
19 "Emer" is the percentage of emergency credentialed
20 teachers.

21 Q And there is no third category, teacher
22 qualification category reported?

23 A Not in data report.

24 MR. HAJELA: Is the data set complete then? So
25 we're dealing with fully credentialed and emergency

1 is what a ten percent increase would be.

2 BY MR. JACOBS:

3 Q And that is a -- that means that the number of
4 emergency credentialed teachers in the school, because we
5 held student population constant and teacher overall
6 population constant, is now 23?

7 A That's correct.

8 Q And that turns out to be about a two percent or
9 more drop in the number of emergency credentialed
10 teachers?

11 A That is correct. But the shift in emergency
12 credentialed teachers has no discernible impact on
13 changing the API.

14 Q And so how can that be if going from 70 to 77
15 meant going from 30 to 23?

16 MR. CHOATE: Objection; asked and answered, vague
17 and ambiguous.

18 THE WITNESS: I can't explain the mechanics of why
19 that is the case. It could be that there is a
20 concentration effect within a school. It could be that
21 there is a difference in the way in which emergency
22 credentialed teachers are managed within a school. It
23 could be that there is a culture of credentialing in a
24 school that creates an us/them atmosphere. I can't
25 explain to you why it is the case that when you move the

1 credentialed, but there happens to be others? So what's
2 happening with that data? I'm missing something.

3 MR. CHOATE: Objection; vague and ambiguous. I.

4 MR. HAJELA: I mean there's interns, pre-interns.

5 THE WITNESS: I believe the way the State measures
6 those isn't reflected in the calculation of credentialing
7 status. The pre-intern students are not counted as full
8 teachers yet.

9 MR. HAJELA: I agree with that.

10 THE WITNESS: So they're not counted in these
11 statistics. They are excluded.

12 A If you add full and emergency together, you
13 don't always get to a hundred percent, but you get close.
14 And the reason for that is because there's sometimes --
15 the vagaries of measurement that sometimes the
16 proportions are off by a few percentage points. Somebody
17 doesn't know or they're in the process of transition and
18 so they don't report or whatever.

19 A But I have added those two together and have
20 been satisfied that that describes the credentialing
21 status of the teachers in the school.

22 MR. CHOATE: Let's take a break.

23 (Recess taken: 2:57 until 3:02 p.m.)

24 BY MR. JACOBS:

25 Q So let's turn to the model that's discussed in

1 Table 4. You built this model by including in the model
 2 a data element for number of core academic courses,
 3 correct?
 4 A Yes.
 5 Q Where did you get that data from?
 6 A From the API data set.
 7 Q And what's the actual data element in the API
 8 data set? Do you remember what it's called?
 9 A No.
 10 I remember that it has the word "core" in it,
 11 but I don't know whether it's number core or core course.
 12 Q Do you recall how it's built or collected?
 13 A No, not at this moment.
 14 Q And do you recall what -- I take it then you
 15 don't know today what a core course -- what falls within
 16 the set of core academic courses as opposed to other
 17 courses?
 18 MR. CHOATE: Objection; mischaracterizes the
 19 witness's testimony.
 20 THE WITNESS: That's not accurate. The definition
 21 of the variable is available in the coding sheets that I
 22 provided to you, and I looked at it so that I could be
 23 confident that it was asking the number of courses that
 24 align with the State curricular standards. But I don't
 25 remember exactly how they went and measured that or how

1 they collected it.
 2 BY MR. JACOBS:
 3 Q But you did so confirm?
 4 A I did -- what?
 5 Q That it is aligned. That core academic courses
 6 concept is a concept as to courses that are aligned with
 7 the State's academic standards?
 8 A That's correct.
 9 MR. CHOATE: Can you read back the question, please.
 10 (□The record was read as follows:
 11 "Question: That it is aligned. That core
 12 academic courses concept is a concept as to
 13 courses that are aligned with the State's
 14 academic standards?")
 15 MR. CHOATE: Mr. Jacobs, were you asking if she
 16 verified whether the courses offered by the schools were
 17 aligned to the State's core content standards?
 18 MR. JACOBS: No.
 19 Q You didn't understand me to be asking that, did
 20 you?
 21 A I didn't.
 22 Q The point you're making in the second half of
 23 page 17 is that there are alternative choices for the use
 24 of education dollars, and the data indicates that number
 25 of core academic courses would be more worthwhile

1 investing in than percent of fully credentialed teachers,
 2 correct?
 3 MR. CHOATE: Objection; the document speaks for
 4 itself.
 5 THE WITNESS: That is a component of my report, yes.
 6 BY MR. JACOBS:
 7 Q And is it your belief that the two are -- well,
 8 is it your belief that increasing the number of core
 9 academic courses is education-dollar consumptive?
 10 MR. CHOATE: Objection; vague and ambiguous.
 11 BY MR. JACOBS:
 12 Q That it would cost a district money to do that?
 13 MR. CHOATE: Objection; compound, vague and
 14 ambiguous.
 15 THE WITNESS: Districts organize in different ways,
 16 and I don't have any information at this point about
 17 whether an additional course at the margin could be
 18 absorbed with existing faculty or not.
 19 I would imagine across all districts on a
 20 hypothetical basis that there would be -- that this is a
 21 pretty lumpy function; that you don't get a lot of
 22 expansion of core courses before you need to make some
 23 changes in your -- in the organization of your school. I
 24 think that schools try pretty hard to be maximally
 25 employed in terms of the way that they employ teacher

1 resources. And so I can't imagine that there's a lot of
 2 latitude to add courses without having to add bodies.
 3 BY MR. JACOBS:
 4 Q So it's your -- the inference you draw from the
 5 information available to you is not that this is a matter
 6 of substituting core academic courses for non-core
 7 academic courses, but rather adding to the total net
 8 offering?
 9 A I'm not in a position to know what this means in
 10 terms of every school in California. My inclination was
 11 that it wasn't entirely reallocative.
 12 Q And the data on Table 4 shows that the API is in
 13 some way correlated with the number of core courses,
 14 correct?
 15 MR. CHOATE: Objection; vague and ambiguous. The
 16 document speaks for itself.
 17 THE WITNESS: The coefficient is positive.
 18 BY MR. JACOBS:
 19 Q And .030 is?
 20 A Significant.
 21 Q And so we're talking about the units for number
 22 of core courses is literally -- when we talk about
 23 increasing it, are we talking about adding one course?
 24 A The increment here is one.
 25 Q What does that mean across the school? That

1 doesn't mean one classroom full of students, does it?

2 A I'm sure it depends on the course and the
3 schooling.

4 Q So what does the data element mean then when it
5 says "number of core courses"?

6 A In some schools, in order to offer a core
7 course, they have to offer multiple sections, but in
8 other schools they don't. So this is the changing to the
9 offering of new course material in whatever form it's
10 required by that school to implement it.

11 MR. HAJELA: Can I ask probably a dumb question?
12 I'm really confused here. In elementary school, how do
13 you add a core academic course, or can you? I'm not sure
14 how it works. And maybe I'm just not understanding
15 something, but I thought elementary schools would have by
16 definition the same number of core academic courses.

17 THE WITNESS: I don't think that's right. I think
18 that there is variation across elementary schools in the
19 number of courses that they offer. I know that there
20 are -- and I don't know what the magnitude of variation
21 is, but I do know that there is variation.

22 MR. HAJELA: I guess maybe it was Michael's
23 question, as well. So are we adding a new subject matter
24 and that's a course, or are you adding a classroom, or do
25 we not really know what we're adding?

1 THE WITNESS: I don't know the mechanics of this
2 variable.

3 BY MR. JACOBS:

4 Q Now, you're using beta coefficients for number
5 of courses versus, for example, percentage of fully
6 credentialed teachers, right? The coefficient there is a
7 beta coefficient?

8 A Yes.

9 Q And is that appropriate to use a beta
10 coefficient for something that's measured by a percentage
11 increase -- fully credentialed teachers -- versus
12 something that's measured by a numerical increase?

13 MR. CHOATE: Objection; vague and ambiguous,
14 compound.

15 THE WITNESS: The coefficient adjusts to the metric
16 of the independent variable.

17 BY MR. JACOBS:

18 Q So you believe it is proper to do it that way?

19 MR. CHOATE: Objection; vague and ambiguous.

20 THE WITNESS: I think I already answered that
21 question.

22 BY MR. JACOBS:

23 Q And as compared with measuring it by standard
24 deviations, what -- why did you choose a beta coefficient
25 as opposed to standard deviations where there are two

1 MR. CHOATE: Objection; compound, vague and
2 ambiguous.

3 THE WITNESS: I don't know what you mean by
4 "classroom."

5 MR. HAJELA: I'm just trying to think of how you
6 could add a core course to an elementary school. And I
7 could think of examples, which is you could have a
8 classroom that does music and only music, and the kids
9 get to walk over there for a few minutes every day or
10 whatever or once a week, or you could say in every
11 classroom we're going to teach science, and that could be
12 a core course. And I'm not really sure how you measure
13 something like that, whether you measure in classrooms or
14 subject matter or how many students do it or -- it's just
15 not clear to me how you measure it.

16 MR. CHOATE: There's no question pending.

17 BY MR. JACOBS:

18 Q And you don't know how the data element
19 differentiated between simply adding the availability of
20 a course to some number of students versus taking the
21 whole school and now changing them from, say, a
22 non-standards aligned course to a standards aligned
23 course? As far as you know, the data element doesn't
24 differentiate between those two cases?

25 MR. CHOATE: Objection; vague and ambiguous.

1 different units of measurement?

2 A By standardizing the data, you lose the metric
3 underlying the independent variable. You merely
4 distributed them from one to a hundred, let's say,
5 percentiles around the sample mean. And so you lose the
6 value of the metric.

7 For the purposes of this analysis, I was trying
8 to show what the impact of the individual, independent
9 variables were in their own native metrics. And so I did
10 not standardize the data.

11 Q And do you have a judgment as to what would have
12 happened to your results if you had standardized the
13 data?

14 A I don't.

15 Q It's not easy -- you actually have to run the
16 model doing it that way to know; you can't predict from
17 what you've seen in your output so far?

18 MR. CHOATE: Objection; mischaracterizes testimony.

19 THE WITNESS: You could anticipate results that were
20 in the neighborhood of your current results, but if the
21 distribution of values on one of your independent
22 variables is skewed around the sample mean, then you
23 don't get a fair interpretation of the relative weights
24 of those when you try to get back to the initial -- the
25 original variables.

1 BY MR. JACOBS:

2 Q So then you critique the Plaintiffs' proposals
3 on page 18, saying that other programs would have to be
4 terminated to, quote, "make room for this unproven and
5 open-ended enterprise."

6 Do you see that?

7 A I do.

8 Q Take the issue of textbooks. You don't actually
9 know whether it would require more aggregate funding to
10 ensure that textbooks are more equally distributed to
11 students across the state, do you?

12 A No, I do not.

13 Q It could be that it's administrative
14 inefficiencies that are giving rise to that problem,
15 right?

16 MR. CHOATE: Objection; incomplete hypothetical,
17 it's vague and ambiguous, assumes facts not in evidence.

18 THE WITNESS: I need the question repeated.

19 (□The record was read as follows:

20 "Question: It could be that it's
21 administrative inefficiencies that are
22 giving rise to that problem, right?")

23 MR. CHOATE: Calls for speculation.

24 THE WITNESS: That's completely speculative.

25 BY MR. JACOBS:

1 unlikely to have this be an open-ended funding
2 relationship, ergo, in a zero-sum world, we would have to
3 expect cuts in other areas.

4 BY MR. JACOBS:

5 Q In the next paragraph you say, "Plaintiffs'
6 proposals would disenfranchise parents."

7 Do you see that?

8 A I do.

9 Q And the basis for that is your view that the
10 Plaintiffs' proposal removes options for parents and
11 dictates rigid practices and requirements, correct?

12 MR. CHOATE: Objection; vague and ambiguous.

13 THE WITNESS: Those are the reasons that I list.

14 BY MR. JACOBS:

15 Q And so let's take facilities, for example.
16 Plaintiffs propose that the State assume greater
17 accountability for redressing the facilities conditions
18 in the worst-off schools in the state.

19 Do you believe that that would, in a meaningful
20 sense, remove options for parents?

21 MR. CHOATE: Objection; vague and ambiguous, it's an
22 incomplete hypothetical.

23 THE WITNESS: I don't know enough about the way in
24 which that proposal would be implemented to be able to
25 speak to that.

1 Q But it's possible? You don't know?

2 MR. CHOATE: Same objections.

3 THE WITNESS: Right; I don't know.

4 BY MR. JACOBS:

5 Q And the State doesn't have any data available to
6 allow us to test that proposition, does it?

7 MR. CHOATE: Same objections. Assumes facts not in
8 evidence.

9 THE WITNESS: There are 157 different data
10 collections that the State requires of schools, and I am
11 not an expert on all 157. It could be that there are
12 data out there somewhere in CDE about this particular
13 matter, but I'm not aware that there is.

14 BY MR. JACOBS:

15 Q And did you look at that when you opined that
16 many other programs that are underway would have to be
17 terminated to make room for this "unproven and open-ended
18 enterprise," quote/unquote?

19 MR. CHOATE: Objection; asked and answered.

20 THE WITNESS: Earlier in my testimony I said that I
21 thought that this was complex and costly as an
22 enterprise, and I was examining the potential impact on
23 the existing budget of the costs of compliance with this.
24 And my judgment was that because it would be costly and
25 complex, that in the current budget environment, we were

1 BY MR. JACOBS:

2 Q Now, as compared with -- strike that.

3 There's a substantial direction from Sacramento
4 to school districts now in terms of what school districts
5 should teach, is there not?

6 MR. CHOATE: Objection; it's vague and ambiguous,
7 assumes facts not in evidence.

8 THE WITNESS: Would you explain what you mean by
9 what teachers should teach?

10 BY MR. JACOBS:

11 Q The -- I can be more specific. The State
12 developed content standards in the last several years
13 that are -- that give a substantial amount of direction
14 to school districts about the content of the program they
15 should deliver, correct?

16 A Yes.

17 Q And the State has instituted tests that, over
18 time, are measuring to a greater degree whether districts
19 are delivering the contents set by the standards,
20 correct?

21 A Barring criticism that the State tests don't
22 align to the State standards, your point is correct.

23 Q And that's a major shift in authority from
24 districts to the State in terms of the -- just the sheer
25 volume of the direction given to school districts, is it

1 not?

2 MR. CHOATE: Objection; vague and ambiguous.

3 THE WITNESS: I have not been a party to California
4 education long enough to be able to say that. I'm a
5 relatively new person here.

6 BY MR. JACOBS:

7 Q So when you say in the last sentence, "So, as a
8 policy position, the proposal" -- that is, Plaintiffs'
9 proposals -- is politically untenable" -- do you see
10 that?

11 A I do.

12 Q What do you base that on?

13 A The idea of giving localities latitude over the
14 means by which they achieve specific education goals as
15 reflected in the standards seems to be a pretty pervasive
16 element of State policy. It seems that alternatives that
17 would reverse that trend would find a difficult reception
18 in legislature and also at the local level with school
19 boards and parents.

20 Q Let's talk about your charter school study. I
21 think I gave you a copy of that before, but maybe we
22 better mark it.

23 MR. CHOATE: Yeah, I think I need a copy too,
24 Michael.

25 MR. JACOBS: We will mark "The Performance of

1 in the same way that we were trying to isolate other
2 factors in the report that we have been discussing all
3 day.

4 Charter schools are shown in this study to be --
5 to have lower nominal levels of Academic Performance
6 Index scores. The school score was the unit of analysis.
7 And across all three schools, the three kinds of schools,
8 elementary schools, middle schools and high schools,
9 charter schools, looking just at raw scores, are behind
10 regular traditional schools, where the comparison group
11 is the sort of typical, average elementary school,
12 typical average middle school, and high school.

13 This is not a particularly surprising finding
14 given where charter schools tend to locate and where
15 charter schools tend to crop up because of interest in
16 providing educational alternatives.

17 If you look at the rate of change in API scores,
18 to the extent that the data permit us to do that, we find
19 that the rate of change in elementary schools and high
20 schools is faster than it is for traditional schools.
21 And in middle schools that's not the case. The high
22 school effect is strongly significant. The rate of
23 change in charter high schools is roughly twice that of
24 traditional high schools. And we -- since we have
25 isolated other effects, many of which we've discussed

1 California Charter Schools, Margaret E. Raymond, May
2 2003" as Raymond 4.

3 (Raymond Exhibit 4 was marked.)

4 BY MR. JACOBS:

5 Q I'm sorry, but because we just found this --
6 maybe we weren't searching in the right place before -- I
7 haven't had a chance to study it. So if you could
8 summarize, first of all, what question you were
9 answering, and then what answer you came up with, that
10 would help us get started.

11 A Sure. The purpose of this study was to examine
12 the academic performance of charter schools over the last
13 several years in a manner that allowed us to test whether
14 the charter school status was a material factor in
15 academic achievement.

16 And the study is organized in such a way as to
17 use traditional elementary middle and high schools as the
18 control group. And in this regard, this is the first
19 study of its kind in California. Other charter school
20 studies have been issued in the last several years, but
21 none of them have used a control group and none of them
22 have attempted to examine the range of factors that could
23 potentially account for variations in student
24 achievement. In other words, we're running econometric
25 models here to try to isolate the charter school factor

1 today, the interest here was to find out was it just
2 differences in the populations that were being served
3 that created the differences that we observed, or was it
4 something statistically significant about charter
5 schools?

6 And the place that charter schools tend to be
7 statistically significant is at the high school level and
8 not in the other levels. After you've taken out student
9 population, after you've taken out parental background,
10 after you've taken out other factors, you come down to
11 charter schools doing about as well as their comparison
12 group, which we actually considered to be a pretty good
13 outcome considering that new school -- new charter
14 schools are coming in every single year, so that you're
15 looking at new schools compared to existing schools in
16 every single snapshot that you take.

17 MR. CHOATE: That answers his question.

18 THE WITNESS: Good.

19 BY MR. JACOBS:

20 Q So let me unpack a few of the components of
21 that. You said that the charter schools started off --
22 strike that.

23 You said that charter schools have nominal API
24 scores that are lower than the comparison schools they
25 used.

1 A On average.

2 Q And in this comparison that you're talking
3 about, the comparison schools were selected how?

4 A All other California schools. We eliminated
5 continuation schools, alternative schools, K-through-12
6 schools, and schools that are operated in the juvenile
7 justice setting.

8 Q So just to ask it -- about a way you could have
9 done it differently, you could have taken charter schools
10 and comparison schools that had the same nominal API
11 scores on average, correct?

12 MR. CHOATE: Objection; vague and ambiguous.

13 THE WITNESS: It would have been a different study,
14 but we could have done that.

15 BY MR. JACOBS:

16 Q And then you would have been measuring the rate
17 of change from a similar average starting point in APIs
18 if you had done that, would you not?

19 A Without any ability to control for any of the
20 explanatory factors that might help understand what that
21 starting point was and how they may have contributed.
22 The model that we run essentially does what you're asking
23 for without having to be restrictive in its application.

24 Q And how does it do that?

25 A The -- because we cannot track individual

1 school status, core courses, number of AP courses in the
2 high school, use of ancillary teachers aides because
3 those data are not universally reported, and the quality
4 was so low that -- we lost so many observations because
5 of missing data that we decided it was better to try to
6 increase the number of observations and run the model
7 without.

8 We did a correlation of those factors and found
9 that the proxy of teacher credentialing worked about as
10 well as any of the other variables that we would have
11 wanted to include, and so we weren't -- in the
12 observations where those data weren't complete, we
13 weren't buying that much additional explanatory power by
14 including them, so we elected instead to increase the
15 number of observations and delete those variables from
16 the analysis.

17 Q And was the problem with the reporting of those
18 variables present in both the charter and the traditional
19 schools or one or the other?

20 MR. CHOATE: Objection; compound, vague and
21 ambiguous.

22 THE WITNESS: I'm not sure I ever stratified the
23 missing variables to know where they came from. There
24 was just a high rate of them.

25 BY MR. JACOBS:

1 students over time, we are left with a school
2 year-over-year analysis, and the annual impact models
3 that we calculate do, in fact, include the starting
4 point. So that all schools with starting point X are
5 compared on a constant footing across these factors. So
6 it does control for starting point in the way that you're
7 asking, but it doesn't restrict us in the use of other
8 explanatory variables.

9 Q And the variables that you included in the
10 analysis in order to determine whether you could isolate
11 charter schoolness included what?

12 MR. CHOATE: Objection; vague and ambiguous.

13 BY MR. JACOBS:

14 Q Charter school status was I think your -- the
15 phrase you used.

16 A We used the same types of variables that appear
17 in my report. We used student characteristics. We used
18 parental education background. We used a variety of
19 school operating factors where possible, and we used a
20 dummy variable for the charter school itself.

21 Q The operating variables, which ones were you
22 able to use in this study?

23 A Well, in the final analysis that we presented in
24 the report, we were able to look at the effect of teacher
25 credentialing. We were unable to work with year-round

1 Q In this report you analyzed the impact of
2 teacher credentialing as a factor in API improvement,
3 correct?

4 MR. CHOATE: Mike, are you referring to Exhibit 4?

5 MR. JACOBS: Yes. Exhibit 4.

6 MR. CHOATE: The charter school study?

7 MR. JACOBS: Yes.

8 MR. CHOATE: I'm sorry. Will you repeat back the
9 question again?

10 MR. JACOBS: I'll start again.

11 Q In the charter school study, Raymond Exhibit 4,
12 you analyzed the impact of the proportion of fully
13 credentialed teachers on API scores?

14 A I did.

15 Q And what were your results?

16 A They paralleled those of the report in this case
17 that the magnitude was statistically -- that the
18 coefficient was statistically significant but the
19 magnitude was very small.

20 Q And did you do the inverse analysis in this
21 report of emergency credentialed teachers?

22 A I did. Those results do not appear in the
23 report. They appeared in the draft report, and there
24 were viewers that I asked to take a look at it and said
25 it was too complicated. We were into much of the same

1 discussion that we've had today.
 2 Q So it was familiar to you.
 3 A Been there, done that.
 4 Q But -- and was it similarly --
 5 A And the results were exactly parallel; that the
 6 emergency credentialed coefficient was not statistically
 7 significant.
 8 Q So let me see if I understand what you did on
 9 fully credentialed teachers. In the case of the charter
 10 school study, you looked at the proportion of fully
 11 credentialed teachers in all California schools
 12 reporting -- that are in your data set?
 13 A Except for the categories of schools that I
 14 excluded.
 15 Q The ones that you described before the -- let's
 16 call them "the exceptional schools" --
 17 A Fine.
 18 Q -- for present purposes.
 19 And the data set here is all 8,000 California
 20 public schools or a sample?
 21 A You can see in Appendix A, B, C, D what the
 22 numbers are that we're working with. We stratified the
 23 models so that we had approximately 4,500 elementary
 24 schools, approximately 1,000, 1,100 middle schools, and
 25 someplace in the neighborhood of 900 high schools.

1 Q And I think that's lower than the total number
 2 of schools in the state, so did you do some sampling
 3 or --
 4 A No. Remember that any time a school is missing
 5 any one of the factors that we wanted to look at, the
 6 observation is deleted by the model. Perhaps I haven't
 7 mentioned anything about data quality in California yet
 8 today, but we have a problem.
 9 MR. CHOATE: Let's take a break.
 10 THE WITNESS: We're taking a break.
 11 MR. JACOBS: Well, I mean, you can't --
 12 MR. CHOATE: No, I'm taking a break. She just
 13 answered the question, and I'm taking a break.
 14 MR. JACOBS: I don't think so. I think it's my
 15 deposition.
 16 MR. CHOATE: Yeah. She answered the question and
 17 there's no question pending and we're taking a break.
 18 MR. JACOBS: Well, I don't think you get to control
 19 that, Mr. Choate.
 20 MR. CHOATE: Yes, I do, Mr. Jacobs.
 21 MR. JACOBS: I think we actually have some
 22 deposition guidelines that cover this very topic.
 23 MR. CHOATE: She answered the question. We're
 24 taking a break.
 25 (Recess taken: 3:34 until 3:39 p.m.)

1 BY MR. JACOBS:
 2 Q At the break, Mr. Choate discussed with you your
 3 answer to the last question?
 4 A No. He told me I was getting tired.
 5 Q What else did he tell you?
 6 A Take a deep breath.
 7 Q What else?
 8 A If I get really tired, to let him know.
 9 Q And what substance of your testimony did you
 10 discuss?
 11 A None.
 12 MR. CHOATE: She just -- asked and answered,
 13 Michael. You just asked that question and she just told
 14 you that she didn't talk about any testimony.
 15 BY MR. JACOBS:
 16 Q Do you feel like you're getting tired?
 17 A A little.
 18 Q Because I'm sure we can finish up tomorrow
 19 midday if we resume tomorrow. Otherwise, if -- I mean we
 20 may still have to go tomorrow a little bit, but otherwise
 21 we can press on till 5:00. I'll leave it at your call.
 22 A I'm prepared to go forward this afternoon and
 23 see how much of this we can retire.
 24 MR. CHOATE: Why don't we go a little more? And we
 25 don't have to go until 5:00. We'll do what we can do and

1 we'll see where we are.
 2 THE WITNESS: Okay.
 3 BY MR. JACOBS:
 4 Q I'm not supposed to make it easy on you, but
 5 it's not supposed to be torture.
 6 A It's not torture yet, but I'll let you know.
 7 Q So you said this was the first -- you mentioned
 8 something about your study on charter schools being the
 9 first of a type. Could you repeat what you said and
 10 explain it?
 11 A I believe the point that I was making earlier
 12 was that there are prior studies about the performance of
 13 charter schools in California and they're cited here in
 14 the paper, but they lack what I consider to be the
 15 minimum standards for rigorous research, and that is that
 16 they don't possess a control group.
 17 So it's very easy to talk about trends in
 18 charter schools, but outside of the context of what
 19 happens with their peers, it doesn't have a lot of
 20 meaning. And so the study that I did tried to expand on
 21 earlier work by bringing in the dimension of control
 22 comparison.
 23 Q And one of the things you said you focused on
 24 was year-over-year improvements, right?
 25 A That's correct.

1 Q And is that -- I'm looking at page 20 of your
 2 report. This is being --
 3 MR. CHOATE: Exhibit 4?
 4 MR. JACOBS: Exhibit 4, yes.
 5 THE WITNESS: Yes.
 6 BY MR. JACOBS:
 7 Q So what's the difference between annual API
 8 change and longitudinal API change? The length of the
 9 period in question? Is that the difference?
 10 A Also the number of schools that are included.
 11 One of the challenges of looking at a highly dynamic
 12 policy area such as charter schools is that the number of
 13 schools that have been added in the recent years is very
 14 large. So any particular year that you take a snapshot,
 15 if you just look at a one-year change, you're only
 16 looking at the schools that came in in the previous year
 17 primarily. But if you're able to do a longitudinal
 18 analysis, you get a more stable measure. You don't get
 19 that churn effect of new schools coming on line.
 20 So the longitudinal API change actually has the
 21 same cohort of schools, and it's the group that was able
 22 to come on line and be operational in time for the 1999
 23 API scores. So they tend to be a little bit older than
 24 the newer schools that are captured in the annual change
 25 models.

1 Q So now I'm looking at page 22 to 23, where
 2 there's a discussion of, as you say, "a deeper insight to
 3 the effect of teacher qualifications on student
 4 learning."
 5 Do you see that at the top of the page? Top of
 6 23. Sorry.
 7 A Deeper insight? Here we are. Yes.
 8 Q And are you reporting there a similar
 9 year-over-year analysis in the relationship between
 10 teacher qualifications and student learning?
 11 MR. CHOATE: Objection; vague and ambiguous.
 12 BY MR. JACOBS:
 13 Q Meaning an improvement -- a school-by-school
 14 improvement analysis?
 15 MR. CHOATE: Objection; it's vague and ambiguous.
 16 THE WITNESS: Could you ask your question just one
 17 more time?
 18 BY MR. JACOBS:
 19 Q Sure. I'll set the context. In your expert
 20 report, my understanding of what you did in testing for
 21 the relationship between teacher credentialing and
 22 student performance was look at a one-year snapshot,
 23 correct?
 24 A That is correct.
 25 Q Now in this study you have a bigger data set and

1 you're looking at more years, so that's one difference in
 2 the teacher credentialing component of the charter school
 3 study as compared with your expert report, correct?
 4 A That is correct.
 5 Q And so my next question is, Does it also differ
 6 in that you looked at the contribution of the proportion
 7 of teacher qualifications to -- I think the right phrase
 8 is year-over-year improvement within a school?
 9 MR. CHOATE: Objection; vague and ambiguous.
 10 THE WITNESS: If we could agree to call it "school
 11 level gain score."
 12 BY MR. JACOBS:
 13 Q And by "school level gain score," you mean the
 14 improvement at the school level in the API year over
 15 year?
 16 A That's correct.
 17 Q As opposed to the nominal API score itself?
 18 A That's correct. So it's the delta of API in a
 19 particular school and associating that with the
 20 proportion of fully credentialed teachers in the school.
 21 Q That's exactly my question. Did you do that
 22 analysis?
 23 A I did.
 24 Q And where is that reported?
 25 A You'll find those results in Appendix C.

1 Q So Appendix C is entitled, "Longitudinal
 2 Analysis - All Schools." And you defined a longitudinal
 3 analysis as including the delta that you just referred
 4 to?
 5 A The dependent variable in these models is the
 6 change in the API score from 1999 to 2001. So it's a
 7 two-year gain, but it's the same group of schools.
 8 Q So it is -- the dependent variable is the delta
 9 over a two-year period on a same-school basis?
 10 A That's correct.
 11 Q So as we did with your expert report, can you
 12 walk us through some of these reported data and tell us
 13 what they're showing?
 14 MR. CHOATE: Objection; what some of the reported
 15 data -- where, in Appendix C?
 16 MR. JACOBS: Yes.
 17 MR. CHOATE: Do you have a specific example that you
 18 want her to walk through? Looks like there's a lot of
 19 different elements reported in this.
 20 BY MR. JACOBS:
 21 Q Can you pick a few that you thought in the
 22 context of your report were interesting?
 23 A Why don't we just take a look at the high school
 24 change model, which is the final column?
 25 Q Okay.

1 A And I think the interpretation of the
2 coefficients is similar regardless of what model you look
3 at. But in the same way that we modeled for the report
4 for this case, I have regressed a number of independent
5 factors, and those are the percentage of minority
6 students in the school, the percent of school mobility,
7 the percent of students with a parent not completing high
8 school. Here I also included the percent of students
9 that had a parent that was at least a college graduate or
10 had additional graduate work, the proportion of students
11 with free or reduced price lunch, last year's API score,
12 and percent of fully credentialed teachers in the school,
13 and then two additional factors: In the same way that we
14 had Plaintiffs' schools in the report models, here we
15 have a binary variable that's coded one if the school has
16 charter school status, and zero otherwise. And then the
17 final variable is school size, and that is the --
18 measured by the enrollment of the school in 2001.

19 The results of the model for the high school are
20 displayed a little bit differently than you saw them in
21 the report. If the number that appears in the final
22 column is bold, it means that it had a statistically
23 significant coefficient at the .05 level. And here we
24 find, consistent with the variables that we looked at
25 before, that minority status turns out to be a

1 significant negative factor, and we find that the
2 magnitude of the fully credentialed teachers variable is
3 significant but small at .24. Charter schools have a
4 positive impact at 14.9 or nearly 15 API points, and
5 school size is negatively but statistically significant
6 in its association with API scores. That means that the
7 smaller the school, all other factors being equal, the
8 higher the API gain will be.

9 Q Oh, because the way school size is used as a
10 variable, an increase in school size results in a small
11 reduction in predicted API; is that correct?

12 A Right. But remember that the school size is in
13 units of students. So a one-student increase in your
14 school size will decrease you by this magnitude.

15 Q So it's -- I see. So the unit is number of
16 students, one by one?

17 A One by one by one, that's right.

18 Q So just to draw some comparisons here, if we go
19 up a percent in minority students, the predicted API
20 is -- at the high school level is down by point --

21 A .1. A 10th of a point.

22 Q A 10th of an API point.

23 And if we go up a percent of fully credentialed
24 teachers, the predicted API at the high school level is
25 up by .25 points?

1 A Roughly, that's correct.

2 Q And just to be clear, this is not that the API
3 goes up; it's that the change in API goes up that amount?

4 A That is correct. That's why the magnitudes of
5 these coefficients differ in size from the magnitudes of
6 the report for my testimony. Because this is delta and
7 that's raw.

8 Q Absolutely. And the average change in API
9 across the entire data set in the longitudinal analysis
10 was what?

11 A You can find those numbers on page 17 in
12 graphic 6.

13 Q So if I'm reading the graph right, at the high
14 school level --

15 A Yes.

16 Q -- the traditional schools had a two-year gain
17 of 18 or 19-point --

18 A It's 17.

19 Q It's 17 points?

20 A Right.

21 Q Okay. And that's -- the high school change
22 column on Appendix C is the predicted difference in
23 two-year gains?

24 A That is correct. These two numbers identically
25 go together. We're looking at the same outcome variable

1 in graphic 6 as we use in the model in Appendix C.

2 Q And you might have already referred to this, but
3 the local competitor category?

4 A I did not actually refer to that. We're never
5 happy to do just one model. We have to do lots of
6 models, and this one was, okay, maybe the comparison
7 group of the typical profile school of an elementary
8 school doesn't give us the close comparison of who the
9 real competitor school is that the charter goes head to
10 head with.

11 So we identified a subsequent pool of schools,
12 and those are called the competitor schools, and they are
13 defined and selected on the basis of being in the same
14 district where a charter school operates.

15 Q And otherwise, had they matched?

16 MR. CHOATE: Objection; vague and ambiguous.

17 THE WITNESS: Could you repeat your question?

18 BY MR. JACOBS:

19 Q How do you otherwise select a particular school
20 as the competitor school within that district?

21 A If a district had a charter school in its
22 district, then all of its like schools were facing
23 competition.

24 Q And by "like schools," you mean --

25 A Okay. An elementary school charter starts.

1 Then all of the elementary schools in that district are
 2 identified as competitor schools.
 3 Q I see. So if a district didn't have any
 4 charters -- and I imagine there are still some in the
 5 state that don't.
 6 A There are tons.
 7 Q That don't have any charter schools?
 8 A (Witness nodding head.)
 9 Q So, in effect, the competitor school category
 10 takes out of the data set, number one, the districts that
 11 don't have any charters, and number two, as between high
 12 school, middle school, and elementary school, they take
 13 out -- if there is no elementary school charter, then the
 14 elementary schools are out of the data set also?
 15 MR. CHOATE: Objection; compound.
 16 BY MR. JACOBS:
 17 Q Is that right?
 18 A Let's take that in two piles. The data set
 19 excludes districts that have no charters because there
 20 could be lots of reasons why there are no charters, and
 21 so it's not a fair comparison.
 22 Q Arguably.
 23 A Arguably.
 24 The second part is that the market is
 25 contestable as soon as there is a single charter school.

1 And so we looked at the effect on all of the schools in a
 2 district where a charter operates because that market has
 3 been declared contestable. We only analyze the effect
 4 against similar schools.
 5 Q "Similar," meaning if it's an elementary
 6 charter, elementary schools of a traditional variety in
 7 that district?
 8 A Get modeled. Exactly.
 9 Q And creating that set had different effects in
 10 elementary, middle, and high school, didn't it?
 11 MR. CHOATE: Objection; vague and ambiguous.
 12 THE WITNESS: Would you rephrase your question,
 13 please?
 14 BY MR. JACOBS:
 15 Q I'll just withdraw it.
 16 This is -- what you just described it looks like
 17 is discussed on page 14.
 18 MR. CHOATE: Objection; the document speaks for
 19 itself.
 20 THE WITNESS: That's correct.
 21 BY MR. JACOBS:
 22 Q So back to graphic 6, which shows that the
 23 traditional high schools had an 18 -- did you say 18 was
 24 the value?
 25 A 17.

1 Q 17. Sorry. 17.2 year gain in API scores. And
 2 now if we go to high school change, 1999 to 2001, we see
 3 that out of that 18 points, .25 of it could be
 4 attributable to a percentage variance in fully
 5 credentialed teachers?
 6 MR. CHOATE: Objection; compound, mischaracterizes
 7 the witness's testimony, it's an incomplete hypothetical.
 8 BY MR. JACOBS:
 9 Q Am I reading your report correctly?
 10 A The model that appears in Appendix C explains
 11 what causes the change in school scores. So all other
 12 factors being equal, if you compare two schools who
 13 differed by their percentage of fully credentialed
 14 teachers by one percent, you would expect the school with
 15 the higher proportion to have .24 gain points higher.
 16 Q And I'm just trying to get a point of
 17 comparison. That's .24 gain points against, on average,
 18 total gain points in that period for high schools of 17
 19 points?
 20 A 17. That's correct.
 21 Q So just on the charter school point for a
 22 minute, the middle schools -- it indicates that middle
 23 school charter school status was inversely correlated
 24 with positive API gains, correct?
 25 MR. CHOATE: Objection; the document speaks for

1 itself.
 2 THE WITNESS: You will note that that figure in the
 3 middle school change model is not bold, which means it's
 4 not statistically significant even though it's a large
 5 number, the variance around it was even bigger, and
 6 therefore it's not statistically significant.
 7 BY MR. JACOBS:
 8 Q And the implication of that is that you can't
 9 yet predict for middle school or elementary school
 10 whether a charter school will or will not lead to more
 11 gains in year-over-year API scores?
 12 A You have it.
 13 Q And the number of high school charter schools
 14 that you looked at was what?
 15 A If you look on page 8, Table 1, you see that as
 16 of the spring there are 105 charter high schools. And
 17 you'll see that there are only 32 middle schools, which
 18 is one of the reasons why this number is not
 19 statistically significant.
 20 Q And then it turn -- it turned out that the
 21 charter schools on average had fewer fully credentialed
 22 teachers or a lower percentage of fewer -- I'm sorry -- a
 23 lower percentage of fully credentialed teachers than the
 24 traditional schools?
 25 MR. CHOATE: Objection; compound, document speaks

1 for itself.
 2 Can you read back the question, please?
 3 (The record was read as follows:
 4 "Question: And then it turn -- it turned
 5 out that the charter schools on average had
 6 fewer fully credentialed teachers or a lower
 7 percentage of fewer -- I'm sorry -- a lower
 8 percentage of fully credentialed teachers
 9 than the traditional schools?")
 10 THE WITNESS: On page 23 at the bottom of the first
 11 full paragraph you'll see that we did a T test that
 12 showed that that relationship was statistically
 13 significant. Charter schools have smaller proportions of
 14 fully credentialed teachers.
 15 BY MR. JACOBS:
 16 Q So when you look at the -- I'm sorry. Strike
 17 that.
 18 That's true in high schools also?
 19 MR. CHOATE: Objection; vague and ambiguous.
 20 What...
 21 THE WITNESS: I don't remember what the breakouts
 22 are by school level.
 23 BY MR. JACOBS:
 24 Q And by looking at -- or but by looking at
 25 Appendix C, one can compare the expected results of going

1 to a charter school with a low number of fully
 2 credentialed teachers to a charter school with a higher
 3 number of fully credentialed teachers, correct?
 4 MR. CHOATE: Objection; vague and ambiguous.
 5 THE WITNESS: The model holds all other factors
 6 constant, so it is an analysis of the marginal effect of
 7 the element in question.
 8 BY MR. JACOBS:
 9 Q And I guess that if you do the math, if you went
 10 to a charter school that had -- you'd have to have 70
 11 percent fewer credentialed teachers to match charter
 12 school status in effect on API change; is that what this
 13 is showing?
 14 MR. CHOATE: Objection; calls for speculation, it's
 15 vague and ambiguous.
 16 BY MR. JACOBS:
 17 Q In high school. Did I do the math right?
 18 A I don't know if you did the math right.
 19 BY MR. JACOBS:
 20 Q Conceptually do I have it?
 21 A Why don't you walk me through the model and I'll
 22 tell you if you get it right.
 23 Q Let's say .25 as against 15 in those two
 24 results. And in order to -- 15 divided by .25 is about
 25 six. So a 60 percent --

1 A Right.
 2 Q -- reduction in the number of fully credentialed
 3 teachers would, if you will, counterbalance the charter
 4 schoolness of the school of a charter school in its
 5 predicted API change year over year?
 6 MR. CHOATE: Objection; vague and ambiguous,
 7 compound.
 8 THE WITNESS: All other factors being equal, your
 9 math is correct.
 10 MR. JACOBS: All right. Can we take a break?
 11 MR. CHOATE: Yes.
 12 (Recess taken: 4:07 until 4:41 p.m.)
 13 MR. JACOBS: So we're going to break this afternoon
 14 and resume tomorrow morning. You have the name of the
 15 Houston contact for the -- to determine whether Houston
 16 might release the data set for your TFA study?
 17 A That's correct. The director of the UTD Texas
 18 Schools Project is John Kain, K-a-i-n, and he's at the
 19 University of Texas at Dallas, at the Cecil Green Center.
 20 Q So, see you tomorrow?
 21 MR. CHOATE: And just let me clarify. We're coming
 22 back tomorrow. Mr. Jacobs has approximately 40 minutes
 23 of questioning, although that's not entirely set in
 24 stone. Mr. Hajela will ask his questions, and he'll ask
 25 whatever questions Mr. Ross may have tomorrow.

1 MR. HAJELA: Sounds good.
 2 THE REPORTER: For the record, Mr. Hajela, would you
 3 like a copy of the transcript?
 4 MR. HAJELA: Yes.
 5 THE REPORTER: Counsel, for you?
 6 MR. CHOATE: Yes.
 7 THE REPORTER: Counsel, for you?
 8 MR. JACOBS: Yes, thank you.
 9 THE REPORTER: Are there time constraints on this
 10 transcript?
 11 MR. JACOBS: None in particular.
 12 THE REPORTER: Thank you.
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I, Margaret Raymond, Ph.D., do hereby
declare under penalty of perjury that I have read the
foregoing transcript of my deposition; 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 _____,
20__, at _____,

(City) (State)

Margaret Raymond, Ph.D.

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STATE OF CALIFORNIA)
: ss
COUNTY OF CONTRA COSTA)

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: _____

TRACY L. PERRY
CSR No. 9577