

U.S. COMMISSION ON CIVIL RIGHTS

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COMMISSION BRIEFING

ENCOURAGING MINORITY STUDENTS TO PURSUE CAREERS IN
SCIENCE, TECHNOLOGY, ENGINEERING AND MATH

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FRIDAY, SEPTEMBER 12, 2008

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The meeting convened in Room 540 at 624
Ninth Street, N.W., Washington, D.C. at 9:30 a.m.,
Abigail Thernstrom, Vice Chairperson, presiding.

PRESENT:

ABIGAIL THERNSTROM, Vice Chairman
TODD GAZIANO, Commissioner
GAIL L. HERIOT, Commissioner
PETER N. KIRSANOW, Commissioner
ARLEN D. MELENDEZ, Commissioner
ASHLEY TAYLOR, JR., Commissioner
MICHAEL YAKI, Commissioner

MARTIN DANNENFELSER, Staff Director

STAFF PRESENT:

DAVID BLACKWOOD, General Counsel
TERESA BROOKS
CHRISTOPHER BYRNES, Chief, Programs Coordination Unit
DEMITRIA DEAS
PAMELA A. DUNSTON, Chief, Admin. Services and
Clearinghouse Division
LATRICE FOSHEE
ROBERT LERNER, Assistant Staff Director for OCRE
EMMA MONROIG, Solicitor
LENORA OSTROWSKY
VANESSA WILLIAMSON
AUDREY WRIGHT
MICHELE YORKMAN

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COMMISSIONER ASSISTANTS PRESENT:

TIM FAY
DOMINIQUE LUDVIGSON
JACK KAMMEN
KIMBERLY SCHULD
HANS VON SPAKOVSKY

PANELISTS PRESENT:

ROGERS ELLIOTT
THOMAS FORTMANN
RICHARD SANDER
RICHARD TAPIA
ROBIN WILLNER

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Careers in Science, Technology, Engineering and
Math

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Adjourn Briefing

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P R O C E E D I N G S

9:40 A.M.

I. Introductory Remarks by Vice Chair

VICE CHAIR THERNSTROM: Good morning, everybody. I am the Vice Chair, Abigail Thernstrom. Gerald Reynolds, the Chair, could not be here today.

On behalf of the U.S. Commission on Civil Rights I welcome everyone to this meeting on encouraging minority students to pursue careers in science, technology, engineering, and math.

This briefing will examine the reasons that a disproportionate number of minority students who start college intending to major in science, technology, engineering or math subsequently abandon those fields of study. Among other things, the Commission is interested in hearing whether students who are placed in an institution whose academic standards more clearly match their own academic preparation are more likely to achieve higher passage and graduation rates in those fields.

An area of special interest is the degree to which admissions policies may unintentionally result in fewer minority students receiving college degrees in science, technology, engineering, and math.

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1 This is very funny. I've got the wrong
2 script here.

3 At this briefing there will be two panels
4 of experts? No, I don't think so. You have to hold
5 on a minute. I have -- somebody has given me -- my
6 incompetent assistant --

7 COMMISSIONER YAKI: Point of order. Are
8 the mics really up for people in the back to hear?

9 (Simultaneous speaking.)

10 VICE CHAIR THERNSTROM: Was that a yes or
11 a no?

12 COMMISSIONER YAKI: The answer was a
13 resounding what did you just say? We can't hear you.

14 VICE CHAIR THERNSTROM: All right,
15 somebody has to fix the microphone.

16 COMMISSIONER YAKI: Turn the volume up.
17 Turn the volume up.

18 VICE CHAIR THERNSTROM: Can you hear me
19 now?

20 COMMISSIONER YAKI: Madam Chair, you
21 should throw your microphone up about two inches.

22 VICE CHAIR THERNSTROM: How is this?
23 People in the back row raise your hand if you can
24 hear?

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1 COMMISSIONER YAKI: No, no. I'm not
2 hearing the usual thingamajig up here.

3 (Microphone adjustments.)

4 VICE CHAIR THERNSTROM: Now with apologies
5 to people in the back row, I'm not going to start all
6 over. I'm just starting at the point of introducing
7 the panelists and I think you know what this briefing
8 is about, in any case, and I apologize to the degree
9 to which I'm coughing. I'm about to put a cough drop
10 in my mouth, but let me introduce people beforehand.

11 COMMISSIONER YAKI: Isn't that how Patrick
12 Henry learned how to speak? He put cough drops in his
13 mouth and spoke?

14 VICE CHAIR THERNSTROM: I'm sure you've
15 got the historical record right, Michael, so I will
16 accept your rendering of that historical fact.

17 Anyway, the record of this briefing will
18 be open until Tuesday, October 14, 2008, and public
19 comments may be mailed to the U.S. Commission on Civil
20 Rights, Office of Civil Rights Evaluation, Room 740,
21 624 9th Street, N.W., Washington, D.C. 20425.

22 We are pleased to welcome a panel of
23 experts that will address the topic that I've already
24 outlined and which the back row didn't hear, but I

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1 think you know what it is.

2 Our experts are to begin with Richard
3 Sander. Dr. Sander received his Bachelor's degree
4 from Harvard, a law degree, and a doctorate in
5 Economics from Northwestern. He has taught at UCLA
6 School of Law since 1989 where he does empirical
7 research on social policy. He's probably best known
8 for his research on legal education. In this area,
9 Dr. Sander has studied academic support programs,
10 class-based affirmative action, and most recently the
11 systemic effects of racial preferences in legal
12 education and law firms. And I am going to stop for a
13 minute and take a cough drop.

14 (Pause.)

15 And in case anybody was taking my
16 facetious remark seriously, I have a super-competent
17 assistant who has even given me a cough drop and a cup
18 of water, but in general, keeps me functioning in this
19 Commission and is terrific.

20 Dr. Richard Tapia -- am I pronouncing your
21 name correctly?

22 MR. TAPIA: That's fine.

23 VICE CHAIR THERNSTROM: Dr. Tapia
24 currently holds the title of university professor,

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1 Maxfield-Oshman Professor in Engineering at Rice
2 University. While at Rice he has directed or co-
3 directed more under-represented minority and women
4 doctoral recipients in science and engineering than
5 anyone in the country. He has received numerous
6 national awards including the National Science
7 Foundations Inaugural Presidential Award for
8 Excellence in Science, Mathematics and Engineering
9 Mentoring. Leading professional organizations have
10 named two conferences in Dr. Tapia's honor describing
11 him as a seminal figure who inspired a generation of
12 African-American, Native American, and Latino students
13 to pursue careers in mathematics. I am so sorry about
14 this cough.

15 Dr. Elliott has taught at Dartmouth
16 College since 1962 with a special focus on -- yes, I
17 do -- that would be fabulous. Thank you.

18 (Pause.)

19 COMMISSIONER YAKI: So are we on Dr.
20 Elliott?

21 Rogers Elliott. Dr. Elliott has taught at
22 Dartmouth College since 1962 with a special focus on
23 psychology and law and individual differences and
24 abilities. An area of special interest to Dr. Elliott

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1 has been the relatively low number of African-American
2 science graduates in spite of the apparently
3 relatively high number of such students who started
4 college to obtain a major in those fields. The basis
5 for Dr. Elliott's presentation today is a study titled
6 "The Role of Ethnicity in Choosing and Leaving Science
7 in Highly-Selective Institutions" which is co-
8 authorized with several colleagues.

9 Thomas Fortmann, our next speaker, Tom
10 Fortmann, received a B.S. in Physics from Stanford
11 University -- I went to Cal, so I have got some issues
12 there -- and a Ph.D. in Electrical Engineering from
13 MIT.

14 VICE CHAIR THERNSTROM: You're allowed to
15 read, but not ad lib.

16 (Laughter.)

17 COMMISSIONER YAKI: You gave me the paper
18 I have control of the paper.

19 He has spent a quarter century as a
20 successful technology entrepreneur and is a strong
21 advocate for improving the teaching of science and
22 math. Dr. Fortmann was appointed to the Massachusetts
23 Board of Elementary and Secondary Education in 2006.
24 He was instrumental in modifying state regulations to

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1 require a mathematics test for elementary
2 certification and he wrote the state guidelines
3 specifying college mathematics courses for elementary
4 teacher candidates.

5 Last, but not least, is Robin Willner.
6 Ms. Willner is Vice President of Global Community
7 Initiatives for the IBM Corporation. She joined IBM
8 in 1994 to design and implement re-inventing
9 education, a \$75 million initiative in K through 12
10 school reform. This program is comprised of dozens of
11 collaborative efforts across the U.S. and throughout
12 the world to develop new applications of technology,
13 to overcome common barriers of school improvement and
14 increase student achievement. Ms. Willner serves on
15 the Boards of Directors of Grantmakers for Education,
16 the Center for Education Policy, and the National
17 Academy of Engineering K through 12 Task Force.

18 I'm going to ask you all to please swear
19 or affirm that the information you have provided is
20 true and accurate to the best of your belief. Please
21 raise your right hand and just say I do.

22 (The witnesses were sworn.)

23 COMMISSIONER YAKI: Thank you very much
24 and I will now turn it back to the Vice Chair.

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1 VICE CHAIR THERNSTROM: Thank you all for
2 coming. We very much welcome your participation here
3 and I'm going to call you in the order in which --the
4 order that I've given for the record. So, Dr. Sander,
5 you're on for ten minutes and -- well, you already
6 know the order because it is the order in which you
7 are sitting and which I introduced you.

8 **II. Speakers' Presentations**

9 MR. SANDER: So I've got a PowerPoint
10 that's up before you. I'm going to pass up to the
11 Commission copies of the PowerPoint presentation.
12 I'll be writing up comments later for the record.

13 Let me just say of the outset that the
14 research I'm presenting today is preliminary in many
15 ways. Much of it is based on data that we obtained
16 from the University of California this summer. I am
17 working with several co-authors to refine these
18 analyses so I think we have interesting and solid
19 results, but they will be subject to revision as we
20 move forward in doing this analysis.

21 Next slide, please.

22 I'd like to start by just trying to lay
23 out for everyone the parameters of the issue that
24 we're talking about here by giving a few statistics.

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1 This chart shows how different races are doing in
2 achieving bachelor degrees and advanced degrees in
3 science. And what I've done is normalize everything
4 to whites where whites are indexed at one hundred so
5 that you can see the attrition or over-representation
6 of each group relative to their proportion of the
7 population as you move through the ladder.

8 So if you compare blacks and whites,
9 blacks are about 56 percent as likely as whites to get
10 a B.A. relative to their proportion of the general
11 population, and about 43 percent as likely to get a
12 Ph.D.

13 Attrition from science is even steeper.
14 Blacks are 36 percent as likely as whites to get a
15 B.A. in science and 15 percent as likely to get a
16 Ph.D. in science. If you look at the -- if you
17 exclude biological sciences, then the black number
18 falls to about eight percent.

19 Hispanics, you can see, follow a generally
20 similar pattern, while Asians are intensely over-
21 represented and extremely successful in science.

22 A very interesting pattern to notice
23 comparing blacks and Hispanics though is that the
24 Hispanic attrition really occurs in the general

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1 educational process. If you compare Hispanics in a
2 B.A. or Ph.D. population, compared with Hispanics in
3 science B.A.s or Ph.D.s, Hispanics actually are over-
4 represented in science compared to concentrations in
5 other fields. So that's an important signal that
6 something somewhat different is going on with blacks
7 and Hispanics.

8 Next slide?

9 So I think what we're discussing today, as
10 I understand it, are four possible hypotheses about
11 why the black and Hispanic numbers are lower.
12 Hypothesis 1 is that black and Hispanic students are
13 just less interested in science than whites and
14 Asians. Hypothesis 2 is that blacks and
15 Hispanics have lower achievement levels, lower
16 credentials by the time they finish high school, and
17 that subsequently influences their success rate.

18 Hypothesis 3 is that minority students
19 have worse outcomes because of factors like
20 discrimination or inadequate support in higher
21 education.

22 Hypothesis 4 is that many talented
23 minorities are interested in and go into science in
24 college, but experience mismatch effects that cause

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1 them to struggle or leave science.

2 The mismatch effect which was developed by
3 Dr. Elliott in the very important article that he'll
4 be talking about soon essentially argues that if you
5 go to an educational environment that's competitive
6 and where your credentials are much lower than those
7 of your classmates, you will struggle
8 disproportionately. You will learn less and you'll be
9 more likely to drop out or leave the science major
10 than you would be at an institution where your
11 credentials matched the rest of your class.

12 So these are four different possible
13 explanations that we'll be exploring.

14 Next slide.

15 First hypothesis is whether minorities are
16 less interested in science. And this, I think, is the
17 easiest to dispose of because clearly blacks and
18 Hispanics are interested in science.

19 Next slide.

20 If you look at this data, this is from
21 three different sets of information comparing the
22 level of interest at the end of high school between
23 different racial groups. The first two rows are from
24 data I have from the University of California. The

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1 third row is from the HERI survey conducted by
2 Alexander Astin. The fourth row is Dr. Elliott's data
3 on the four elite institutions he'll be talking about.

4 In all cases, you can see that blacks and Hispanics
5 are more interested in science as they finish high
6 school than whites are. It's not a large margin, but
7 it's a very consistent margin. So I think Hypothesis
8 1 is incorrect. That does not explain what's going
9 on.

10 Hypothesis 2, next slide.

11 Here, I think it's very clear that a major
12 part of the story, probably the largest part of the
13 story, is explained by the lower achievement levels of
14 minorities by the time they finish high school. That
15 fact has been obscured somewhat by some of the writing
16 in this area, in particular, writing by Bowen and Bok
17 in their famous work "The Shape of the River" which
18 attempted to evaluate Affirmative Action programs in
19 the '70s, '80s, and '90s.

20 Next slide.

21 If we look at a representative table from
22 Bowen and Bok, what you see here is an analysis that
23 they do of how graduation rates are affected by SAT
24 scores in the elite schools that they studied in

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1 "Shape of the River." The basic theme of Bowen and
2 Bok -- next slide -- you'll see this again is that SAT
3 scores don't matter much, that your incoming
4 credentials are largely irrelevant and what really
5 matters is where you go to school, that if you get a
6 preference into one of the elite schools to study,
7 you're very likely to be successful. That finding, I
8 think, is fundamentally wrong and I don't think it's
9 holding up to subsequent research.

10 Next slide.

11 A year ago I obtained data from the
12 University of Michigan in litigation over the
13 constitutionality of Proposition 2 and we found that
14 when you look at SAT scores, and other admissions
15 credentials that are used by Michigan in admitting
16 students and you group students according to their
17 credential levels, there were dramatic differences in
18 outcomes based on student credential level. Even more
19 interesting is that minority outcomes, although
20 generally lower in most tables, including the Bowen
21 and Bok analysis, are actually higher when you control
22 for index.

23 So here we have a chart showing the
24 percentage of students coming in and getting degrees

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1 in science and as you can see, for students who
2 receive a large preference, those with scores of under
3 660, success rates are very low, about 5 percent for
4 blacks and about 3.5 percent for whites. Whereas, if
5 you look at students who didn't receive a preference
6 with net scores of 820 or higher, about 44 percent of
7 blacks are getting science and engineering degrees,
8 compared to about 35 percent of whites.

9 Next slide, please.

10 If you look at graduation rates in four
11 years, you see a very similar story. Again, this is
12 University of Michigan, 1999 entering students.
13 Students receiving a large preference have miserable
14 graduation rates in four years. Students not
15 receiving a preference have spectacular graduation
16 rates, well, not spectacular, but very good. And the
17 black rates end up surpassing the white rates once you
18 get into the no preference range.

19 This finding holds up from a variety of
20 data sources, most recently data that I've obtained
21 through the University of California which covers
22 about a half a million students over the period 1992
23 to 2006. One finds that credential levels are
24 incredibly predictive of how successful you are within

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1 an institution. So what this means is that in general
2 because credential levels are lower for blacks and
3 Hispanics than they are for whites at the start of
4 college, we're going to have to expect somewhat lower
5 success rates. There may be things we could do, but
6 that statistical relationship is quite strong and
7 prevalent.

8 And secondly, where you end up going to
9 college is potentially highly important. It's a
10 little bit implausible, just looking at the Michigan
11 data, that students who receive a large preference at
12 Michigan, who are, after all, strong students compared
13 to the general population, are having such low success
14 rates in graduation and such incredibly low rates
15 persisting in science.

16 Go down two slides, please.

17 So to look at Hypotheses 3 and 4, that is,
18 what's causing the higher attrition rates of blacks
19 and Hispanics in college, we're really interested in
20 comparing two things. One is what's the effect of
21 being mismatched at the particular school that a
22 student attends and what's the effect of being a
23 minority when you control for other characteristics?

24 And to look at these, I'm going to present

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1 to you data mostly from the University of California,
2 as well as another dataset with which, for the first
3 time, we can effectively control for race and mismatch
4 effects separately. Next slide, please. The
5 University of California data, as I said, covers
6 almost a half a million students and it ranges across
7 eight University of California campuses. For these
8 analyses I'm just presenting some simple bar graphs
9 for the most part that show the rough relationship.

10 If you look at regressions, the story is
11 told I think much more powerfully. But basically what
12 we're looking at here is we're comparing students who
13 were mismatched at Berkeley and a little less
14 mismatched at UCLA, the most competitive UC schools
15 with students who are otherwise similar in their
16 academic credentials, but are going to less
17 competitive UC campuses. And the question is, for
18 this pool of similar matriculants, how do the success
19 rates for students at the elite campuses compare to
20 those for students at the less elite UC campuses?

21 Next slide, please.

22 So this looks at under-represented
23 minorities entering the UC system in 1992 to 1994.
24 These are general estimates of the probability that

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1 students entering the various campuses are going to
2 end up getting a bachelor's degree in science or
3 engineering.

4 What you see here is that at UC-Berkeley
5 and UCLA, the rate is about five percent. At the
6 other campuses, it's consistently higher, generally
7 it's dramatically higher. So at five of the six
8 campuses it's double the Berkeley-UCLA rate.

9 Next slide, please.

10 This looks at a similar pool of students
11 from the '95-'97 cohort, and we see a similar story.

12 Next slide.

13 Next slide, please.

14 Now this is a different cohort. Here,
15 we're looking at students who say when they come into
16 the UC system that they want to major in science. And
17 it's looking at their ultimate success rate in getting
18 a science degree. So the percentages are all higher
19 because we're excluding students who never intended to
20 go into science.

21 Remember, these are students with a
22 significant degree of mismatch at Berkeley, but are
23 less mismatched at UCLA and even less mismatched at
24 the other UC schools. Their success rate at Berkeley

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1 is about 12 percent. Their success rate at UCLA is
2 about 25 percent. Their success rate at the other
3 schools ranges from the low 20s to the high 40s. So
4 again, I think all these things show very compelling
5 evidence that there really is a mismatch effect that's
6 going on.

7 Next slide, please.

8 This slide shows that the story does not
9 differ significantly for underrepresented minorities,
10 and in fact, non-mismatched minorities at campuses
11 like Santa Barbara and Irvine achieve greater success
12 rates than their similar non-mismatched white
13 counterparts.

14 Why don't we go into the next one as well?

15 One possible counter-hypothesis would be
16 that Berkeley and UCLA are just really rotten places
17 to do science, so here we look at students who are
18 positively mismatched - that is, they have credentials
19 that compare favorably with their classmates. And
20 here you see that Berkeley and UCLA's rates are as
21 high or higher than those of the schools that we've
22 been comparing them to.

23 Next slide.

24 This is a different database using the

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1 collegiate learning assessment program that has been
2 started nationwide and has about 200 participating
3 colleges. I'm looking at something very narrow here
4 which is just your likelihood of being a math major.
5 And what I've done is run a similar regression control
6 for four different factors: SAT score, your local
7 mismatch compared to your classmates at your
8 institution, your gender, and whether you're African-
9 American. And what this regression is showing is that
10 gender and race are not predicting your likelihood of
11 getting a math degree. SAT is strongly predictive,
12 but the strongest predictor here is actually the
13 mismatch. It has a stronger negative effect than the
14 SAT's positive effect.

15 This is a simple analysis, but more
16 complicated regressions that I've done with the
17 University of California data are yielding very
18 similar results. In other words, race drops out of
19 the equation in most of the analyses that I do when
20 you control for both mismatch effect and college
21 credentials. The mismatch effect I would not argue is
22 stronger than the credentials effect, in general, as
23 an overall explanatory factor. I think that my
24 preliminary assessment is that probably 60 percent or

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1 so of the story that we're looking at here in terms of
2 under-representation of minorities is due to low
3 credentials and 25 to 30 percent is due to mismatch
4 effects with a variety of other factors causing the
5 balance.

6 Thanks very much.

7 VICE CHAIR THERNSTROM: Thank you very
8 much. Sorry about that.

9 Dr. Tapia, you are up.

10 MR. TAPIA: I'm Richard Tapia. I'm a
11 mathematician.

12 VICE CHAIR THERNSTROM: Did I mispronounce
13 your name?

14 MR. TAPIA: Don't worry about it.

15 VICE CHAIR THERNSTROM: Sorry about that.

16 MR. TAPIA: I'm Richard Tapia. I'm a
17 mathematician from Rice University in Houston where I
18 hold the title University Professor, Maxfield--Oshman
19 Professor in Engineering and Director of the Center
20 for Excellence and Equity in Education. One of my
21 claims is that Rice, through my leadership, reproduced
22 a very large number, probably the largest number in
23 the country of under-represented minority doctoral
24 recipients in mathematics, science, and engineering.

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1 Rice is a very highly competitive level one research
2 university.

3 First, I'll tell you a bit about myself.
4 I was born in Los Angeles to parents who immigrated
5 from Mexico. I attended a below-average high school
6 in Los Angeles, in fact, a very poor high school. I
7 was not directed to college by school teachers or
8 counselors, although I had demonstrated strong
9 mathematical talent. I was directed to college by a
10 coworker at a muffler factory that I was working at
11 after high school. I attended community college. It
12 was a great experience.

13 I attended community college. I was
14 directed to UCLA by community college math professors,
15 very fortunate. They got a hold of me. They said
16 you've got great math talent. You should go to UCLA.

17 I was going to go to a state school and that was one
18 of the turning points of my life, going to UCLA was
19 phenomenal.

20 After a Ph.D., I was directed by UCLA math
21 professors to faculty at the University of Wisconsin
22 to faculty at Stanford and to Rice, again, very
23 fortunate for me. I have numerous awards for my
24 accomplishments, first native born Hispanic elected to

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1 the National Academy of Engineering; first minority
2 mathematician promoted to a category of University
3 Professor; was a Clinton appointee to the National
4 Science Board, on and on.

5 The need to STEM activity. STEM is of
6 great value to nations. It strengthens their economy.

7 The United States leads the world in STEM higher
8 education. The United States educates STEM leaders
9 for most of the world's industrial nations.

10 Domestic STEM leadership. Top research
11 universities choose faculty from Ph.D.s produced at
12 top research universities. That's simple. Ph.D.s
13 produced minority-serving schools or less prestigious
14 schools will not become faculty at top research
15 universities. Indeed, it's unlikely they'll become
16 faculty at minority-serving institutions.

17 The nation selects leaders from graduates
18 and faculty of U.S. universities with world-class STEM
19 research programs. If we, the under-represented
20 minorities are to be an effective component in STEM
21 leadership, then we must have an equitable presence at
22 students and faculty at the very top level research
23 universities. We will serve as role models, mentors,
24 guide and inspire the next generation.

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1 A measure of success, it's certainly not
2 numbers of degrees obtained by minorities alone,
3 that's not a good measure of success. They must be
4 degrees that are competitive with the population
5 overall. The distribution cannot be skewed towards
6 weaker schools. This type of skewing would perpetuate
7 the stereotype. Separate, but equal, is indeed always
8 separate, but never equal.

9 We need minorities who can lead and those
10 have to be produced by institutions that give
11 credibility to the scientific accomplishments of the
12 person. My educational axioms are we should not be
13 able to predict quality of education received by race
14 of ethnicity. Race and ethnicity should not dictate
15 educational destiny. Our current path will lead to a
16 permanent underclass that follows racial and ethnic
17 lines. Public education must make the nation strong,
18 not make the nation weak. An important message.

19 Under-representation endangers the health
20 of the nation more than it endangers the health of the
21 professions. Moreover, the under-represented
22 minorities' worst enemy is poor K-12 preparation and
23 for some, K-16 preparation. California and Texas are
24 majority/minority states. California and Texas have

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1 the opportunity to show the nation the path to
2 salvation or the path to destruction, the proper form
3 of affirmative action, in my view.

4 Evaluate the evaluation criteria. Is it
5 excluding individuals with talent to succeed? It's
6 not that bad individuals are accepted. It's those
7 very, very capable individuals who are excluded.

8 A fair use of standardized test scores.
9 At Rice we used the threshold approach. We have a
10 cutoff score and everybody below that score is not
11 acceptable, but we won't differentiate between a 1600,
12 a 1500, or a 1400. There's a cutoff point. I agree
13 with Professor Sander that there's much more
14 information at the bottom of the SAT than there is at
15 the top. I can tell you somebody below 800 combined
16 score at Rice will probably not be successful in any
17 engineering and science. But I can tell you that
18 someone at 1500 or 1600 or 1400 will be more
19 successful, indeed.

20 Rice last year rejected several SAT scores
21 that were perfect. Each year we reject perfect SAT
22 scores, not because of that alone, but because that's
23 not enough. The one thing that we do know about SAT
24 scores and the College Board agrees with this is a

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1 great predictor of family income and that's pretty
2 close.

3 We must promote success and retention with
4 safeguards and support programs. This has been our
5 success. We must combat isolation and lack of
6 critical mass through community building and
7 peer/faculty mentoring. Isolation, not academics, is
8 often the problem. For example, Rodrigo Banuelos, a
9 distinguished Mexican-American mathematician, probably
10 the most distinguished in the United States, chairs
11 the Math Department at Purdue, tells me the following
12 story. He was a UCLA Ph.D. student. He was isolated.
13 He wasn't sure if he could make it. He didn't see
14 other Mexican-Americans. A faculty member said
15 Rodrigo, you're not the first Mexican-American student
16 here, Richard Tapia was. He went to the library. He
17 took out my thesis. He did not read it. He said it
18 was 107 pages. He carried it around for seven days
19 and seven nights. He sat it down and he finished.

20 Admission without retention is of negative
21 value. Research universities must be responsible for
22 providing programs that promote success rather than be
23 let off the hook by saying that minority students
24 should go to minority-serving institutions or less

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1 prestigious schools.

2 STEM admissions. We value what we measure
3 because we do not know how to measure what we really
4 value, creativity. We just don't measure that. I'm
5 talking about STEM. I would have different views if
6 we're talking about a say a medical score alone.
7 Under-represented minorities can be quite creative.
8 For example, the Carl Hayden High School Robotic Team,
9 five Mexican-American students from Carl Hayden High
10 School in West Phoenix, beat MIT in the final in
11 underwater robotics. They were not star students, but
12 they were incredibly creative. They needed to be
13 nurtured and this is a huge success.

14 Minority individuals with doctorates from
15 elite schools are well positioned for national
16 leadership. To start off, Shirley Ann Jackson,
17 president of RPI, MIT Ph.D.; Ruth Simmons, president
18 of Brown University, Ph.D. from Harvard, Houston Texas
19 High School, Dillard undergraduate; William Massey,
20 Ph.D. from Stanford, Princeton Professor; Arlie
21 Petters, Ph.D. from MIT and Princeton, very successful
22 leader, Professor at Duke University; Sylvester James
23 Gates, Ph.D. from MIT, very strong leader in outreach
24 physics activity; Hector Reese, Ph.D. from Rice,

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1 recent CEO, Chairman of the Board, and President of
2 AMD, one of the top CEOs of any technology company,
3 probably the most famous under-represented minority.

4 I mentioned Rodrigo Banuelos. He's chair
5 of the Math Department at Purdue. Francisco Cigueroa,
6 young, Mexican-American from south Texas, Harvard
7 educated, today he is President of the University of
8 Texas Medical School in San Antonio and is doing great
9 things. I also mentioned Richard Tapia. I'll leave it
10 at that.

11 Do most of us have to overcome deficiency
12 in preparation? Absolutely. We talk about it.
13 Probably with the exception of Shirley Ann Jackson.
14 I'm sure she was strong from the go.

15 The system is broken. Neither component,
16 minority or majority institutions promote equitable
17 representation. As an illustration, let's consider
18 this, consider Texas Southern University, TSU, a
19 historically black college and university, and Rice
20 University, a selective, elite private university,
21 both in Houston. So here's what I want for the big
22 fix. Which national problem is easier to solve?
23 Bring TSU up to the academic excellence of Rice so
24 that capable, minority students will be competitive

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1 with Rice students in the industrial job market;
2 competitive, professional leadership positions and be
3 accepted at professional schools. That's one. Build
4 TSU up so it's competitive with Rice.

5 Two, here's a fix, too. Design and
6 implement programs at Rice so that capable, minority
7 students have the same retention rate as those at TSU
8 and are able to maintain self-confidence. Retention
9 has already been done.

10 Clearly, it's the latter. A by-product of
11 the solution is the added bonus of enhancing training
12 and opportunities and a greater likelihood for getting
13 into leadership positions. It has taken a century to
14 build this effective machine. Rice minority graduates
15 are highly sought after, highly successful. My
16 success in producing Ph.D.s has been mainly students
17 who come from research universities as undergraduates.
18 It's very hard to produce someone from a minority-
19 serving institution or a lower level preparation
20 school because with a less rigorous preparation.

21 So a student from a research school with a
22 lesser transcript is stronger than a student from a
23 minority-serving institution with all As. Rice
24 minority undergraduates are the super stars. I take

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1 them and we do great things with them.

2 A proof of feasibility, moving in the
3 direction of the solution. Look at the University of
4 Texas, Austin in their STEM program, their
5 undergraduate programs. The activity there was called
6 a Texas Top Ten Percent Rule. It was motivated by the
7 Hopwood decision which was loss of Affirmative Action.
8 Ten percent of the students in public education in
9 Texas are accepted into University of Texas,
10 automatically, the top ten percent. No board scores,
11 just are you in the top 10 percent of your class? Now
12 since Texas high schools are de facto segregated this
13 leads to parity among minorities in the freshman class
14 at UT Austin.

15 Now UT Austin, the Math Department, who
16 are a lot of them are my friends, they could have said
17 look, these students are not prepared well. They're
18 dumped at our doorstep, let's leave them. They
19 didn't. They built support programs, the most famous
20 is the Emerging Scholars Program built by Uri Treisman
21 at the University of Texas, where minorities are now
22 at the University of Texas are retained and succeed at
23 a level above the majority above the Asians, above the
24 whites. It took a realization that here they are,

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1 let's do something with them, and let's do it.

2 Okay, the UT Emerging Scholars Program, as
3 I mentioned to you is now being adopted across the
4 country. It probably has had the best impact of
5 minority retention in mathematics of any other program
6 in the country. Several of our Rice STEM graduate
7 programs are doing the same thing. Rice minority
8 graduates do extremely well and our retention is on
9 par with the majority. The retention rate at Rice is
10 the same for minority-majority.

11 Another example would be the Mathematics
12 Department at the University of Iowa, led by David
13 Manderschied. The University of Iowa said minorities
14 in math are not making it. Let's put special efforts
15 into programs which retain them. They are now being
16 competitive with our programs, i.e., Rice programs
17 that are producing under-represented minority Ph.D.s
18 in mathematics.

19 VICE CHAIR THERNSTROM: Professor Tapia, I
20 am afraid you are going to have to conclude.

21 MR. TAPIA: Okay, the consequence of doing
22 nothing. We must make opportunities available for
23 minorities at our lead schools. Anything less
24 endangers the health of the nation. Everyone must be

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1 treated well. Treating everyone the same is not good
2 enough. Sink or swim has not and will not work. It
3 pays to privilege not to talent. The so-called
4 mismatch phenomenon reinforces my statements on this
5 point of view. If we leave schools alone and don't
6 fix them, then the disaster that is happening will
7 continue.

8 Thank you.

9 VICE CHAIR THERNSTROM: Thank you very
10 much and we turn to Dr. Elliott.

11 MR. ELLIOTT: I mis-estimated what the
12 forum of this meeting was going to be like. Let me
13 say this --

14 VICE CHAIR THERNSTROM: You do understand
15 that what's missing from your oral presentation will
16 be part of the written record.

17 MR. ELLIOTT: Right, I see my paper is in
18 a book here somewhere.

19 VICE CHAIR THERNSTROM: It's a different
20 context. But it will be part of the record of this
21 briefing.

22 MR. ELLIOTT: Rick Sander has said pretty
23 much, well, what he said I agree with, of course,
24 partly because it included my data. My argument is

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1 and was when I wrote in the paper -- with my
2 colleagues -- that race preferences in admissions in
3 the service of Affirmative Action are harming the
4 aspirations particularly of blacks seeking to be
5 scientists by creating this huge mismatch that Dr.
6 Sander alluded to or has shown us.

7 It is too large to overcome or it
8 certainly was when I did this. I'll try to get to the
9 issue of what you can do about it which Professor
10 Tapia has already brought up. The differences are
11 largest at the most elite universities because they
12 have very high levels in their admission standards,
13 levels which minorities, especially again blacks,
14 don't come close to meeting. Most of their students
15 are two standard deviations above the mean of standard
16 measures of developed ability, like the SAT or the ACT
17 or achievement tests or high school grades, all of
18 those.

19 And it just -- I'll give you an example,
20 by the way, we took these data from '88 to '92 and the
21 data represent the 5300 members of four Ivy League
22 universities who started in '88 and graduated in '92,
23 most of them, about 90 percent of them graduated then.
24 The gaps that are illustrated in these data have not

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1 gotten any better. They have, in fact, gotten a
2 little bit worse, that is to say the gap in the SAT
3 scores between blacks and whites which got to its
4 smallest extent in about 1991, at about 194 points, is
5 back to 209 since then. So whatever I say about the
6 gap that existed then applies now.

7 Affirmative action in elite schools which
8 they pursue vigorously and successfully, too, leaves a
9 huge gap, probably bigger than it would be for
10 Affirmative Action at sort of an average school. And
11 that is what constitutes the problem.

12 Let me now, if you will give me slide one
13 up, I don't think we can see it very well. Try slide
14 two, which is simpler and maybe bigger. It is, but
15 it's a little harder to read unless we all lie over on
16 our left side.

17 There you go, okay. What it shows -- I
18 put the whites and Asians together for this slide,
19 although in the paper they're separate and you see
20 what you've already seen before perhaps which is that
21 about 43 or 44 percent of the students in all those
22 groups, Hispanic, black and whites/Asian, intended to
23 do science. They were asked when they came in what
24 they wanted to major in and it was very easy to

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1 categorize most of them into whether they wanted to do
2 natural science or something else.

3 And then we had measures -- we had their
4 high school transcripts and their college transcripts.
5 We knew a great deal about these students. And there
6 were differences, for example, in the number of high
7 school science courses they took, but they weren't
8 huge. The figures at the very right, for example,
9 show you that under the column, headed black, that the
10 blacks took about on average 9.5 high school science
11 courses and that 35 means they were about the 35th
12 percentile of the white/Asian distribution in terms of
13 number of science courses they took.

14 Similarly, for the Hispanics, if you can
15 see it.

16 If you look down to the next row I'll
17 direct your attention to SATM. You see that the
18 whites and white/Asian group had 715 for an average
19 for those interested in science. It would have been
20 lower for those -- it was lower -- for those not
21 interested in science. And they were, of course, at
22 the 50 -- the average one was at the 50th percentile
23 of their distribution, necessarily.

24 The Hispanics on that score, and I'll show

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1 you why that's an important signifier, were at the
2 16th percentile of the white/Asian distribution and
3 the blacks at the fourth percentile which left them in
4 a very bad competitive position.

5 The academic index sums up high school
6 standing in terms of grades and rank, achievement test
7 scores and SAT scores, all in one number. And the
8 blacks were again at the fourth percentile of the
9 white/Asian distribution, a very difficult position to
10 deal with. That's the data on how well prepared they
11 were for college. How they did in the first two years
12 of college is listed in the next row in part B of that
13 table called college performance, science grades. The
14 white/Asian group had just about 2.98, just about a B.
15 The Hispanic group, 2.46, a little bit farther down.
16 They were at the 23rd percentile of the white/Asian
17 distribution and the blacks 2.21 at the 14th
18 percentile.

19 The first two years of science -- science
20 is unlike -- it's really quite different from all
21 these other things. It is hierarchical. If you're
22 not ready for the first course, you might as well
23 forget it. You've got to get ready for it and if
24 you're not -- some of these minority kids who had

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1 mostly As, their high school grades were 3.5, for
2 example, or better, enough to get to Dartmouth or
3 Brown or Cornell or Yale, these were the four schools
4 we studied. They take their first course, let's say
5 in chemistry, and 90 percent of the students in that
6 course, at least 90 percent, are bright, motivated,
7 often pre-med, highly competitive whites and Asians.
8 And these minority kids aren't as well prepared.
9 They're just not. And they may get their first C- or
10 D in a course like that because the grading standards
11 are rigorous and you have to start getting it from day
12 one because it builds. It's not like taking English
13 Literature where you can take courses in almost any
14 order. Or Psych, you can do that too. You can't do
15 it in Chemistry. And you can't do it in Physics, in
16 Math.

17 So they drop out. They change. Mostly,
18 they don't drop out so much although the termination
19 rate was reasonably high at 14.6 for blacks and 10.5
20 for Hispanics, just about 4 percent for the others.
21 They change. They just do something else. It's not
22 going to be science. It doesn't only occur to
23 minority students. We have a lot of kids that come to
24 Dartmouth who want to do pre-med or science and a lot

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1 of the kids I teach in Psych. started in Physics or
2 Chemistry or something like that, of any race, and
3 they just got blown away. They didn't like the
4 competitiveness just simply.

5 Okay, so that's it. Now if you'll show me
6 the next slide, please. This is -- this shows the
7 probability of majoring in science as a function of
8 the SAT math score. And you can see it goes up, but
9 there are really two branches of it, one up to about
10 650 and one beyond 650. Six fifty is an interesting
11 score because 90 percent of science majors are 650 or
12 above. And about 80 percent of the entire white/Asian
13 group are 650 or above, but only 25 percent of the
14 black group have that score or better.

15 If they do have that score, just as
16 Sander's slide showed, they do just as well in terms
17 of retention. Right away, I should have pointed out
18 the retention there, which was a better persistence in
19 science. The percentage of people who had an initial
20 interest in it who stayed in it and majored in it was
21 63 percent for the white/Asian group, but only about
22 33 percent for the black group. They did wash out in
23 pretty harsh numbers. It was very good, by the way,
24 for the Hispanic group. They had about 55 percent.

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1 Again, Sander's data indicated the same thing. The
2 Hispanics have an unusual retention in science or an
3 unusual interest in it.

4 In any case, this 650 score is, as I said,
5 a good signal and if you look at the most recent SAT
6 data from 2008, what you find is that if you take --
7 see where in the black distribution of scores, a black
8 kid would have to have a 650, he would have to at
9 about 2.5 standard deviations above the black mean or
10 2.3 standard deviations above the mean. And that
11 would leave only about 2,000 blacks in the entire
12 nation with 650 or above. It's very hard to recruit
13 for science with numbers that's low. It is very hard.

14 When I go through this with my seminar
15 each year, this sort of data, they say well, what can
16 we do? What can we do? And by the time you get to
17 college I know Professor Tapia has referred to
18 programs that seem to be succeeding, but they don't --
19 I don't know -- I would love to see the data on what
20 kind of scores these kids have coming into these
21 programs. I mean there are such programs, but mostly
22 they depend on the fact that you have to match people.
23 If you'll show me the final slide, you ought to match
24 people to the context in which they're competing and

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1 they'll do better.

2 This is 11 institutions, the top one is
3 Dartmouth. The bottom one, it's either Kenyon, Ohio
4 Wesleyan, -- these are all private institutions. And
5 what it shows us is the percent of science degrees as
6 a function of what part of the SAT math distribution
7 these kids are in at their institution. So they're in
8 the top third of the SAT math distribution, the middle
9 third, tercile 2, or the bottom third, tercile 3.

10 If you're in the top third, whatever your
11 institution is then you have slightly better than 50
12 percent chance those people get more than half the
13 science degrees from the top third of the
14 distribution. If you're in the middle third, those
15 people get about a third of the science degrees and if
16 you're in the bottom third, those people only get 15
17 percent of the science degrees. Now look at the
18 figure in the upper -- well, let's say the 581 figure
19 in the upper right corner. That applies to Dartmouth.
20 That means that people in the third, with 581, had a
21 very low chance of getting a science degree, being
22 among those who have got science degrees. But if you
23 look down at the bottom, let's say institutions J and
24 K, you would have had a better than 50 percent chance

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1 of getting a degree because you're a star at J and K,
2 and you're nothing much at A, all right?

3 And so now the bottom institutions don't
4 give as many science degrees. The function is the
5 higher the standard at the institution, the more
6 science they tend to do. But they still do science
7 and your chances of becoming a scientist are better
8 down there for you than up here. Now obviously, there
9 are differences. The higher institutions have
10 eliteness going for them. They have prestige going
11 for them and maybe getting a government degree from
12 Dartmouth when you want to be a doctor will leave you
13 better off in this world even though you're not doing
14 the thing you started with as your aspiration.

15 So I mean I can't solve that problem, but
16 I can tell you that most Ph.D.s, the biggest Ph.D.
17 granting institutions for blacks in this country, 17
18 of the top 20 are HBCUs and none of them is a prestige
19 university.

20 VICE CHAIR THERNSTROM: Thank you very
21 much.

22 Dr. Fortmann.

23 MR. FORTMANN: Good morning. The
24 Commission has posed two questions about STEM,

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1 science, technology, engineering, and math.

2 Why minority students disproportionately
3 abandon their aspirations for STEM and whether those
4 students in institutions matched to their academic
5 preparation are more likely to remain in STEM and
6 succeed and to what degree affirmative action affects
7 this.

8 So I'll attempt to answer the first
9 question based on some on-the-ground experience. I
10 don't have any data to present. And I'll comment
11 briefly on the second one.

12 My background in this is somewhat unique.
13 I have a physics degree from Stanford, a doctorate in
14 electrical engineering from MIT. I taught for four
15 years in university and then spent 24 years as a high-
16 tech engineer and executive. I retired, I started
17 teaching math as a volunteer to minority high school
18 students in Boston in two high schools, discovered
19 that the problems in math begin long before high
20 school.

21 Although I will add parenthetically that
22 the students I had in those high schools seemed to me
23 to be perfectly normal adolescents, many of them quite
24 bright, but just hopelessly behind in mathematical

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1 preparation. So I founded a math institute for
2 elementary teachers which in my opinion is where the
3 root of the problem is. And more recently, I got
4 appointed to the Massachusetts Board of Elementary and
5 Secondary Education.

6 So why do minority students avoid or
7 abandon STEM majors? I think it's largely for the
8 same reason as non-minorities, insufficient
9 preparation. Professor Elliott has mentioned this.
10 Insufficient preparation during K-12, and the
11 disproportionality is probably related to the lower
12 quality of math and science and all other instruction,
13 for that matter in minority and high poverty schools.

14 Does Affirmative Action exacerbate that in college?
15 Perhaps, but I'm here to tell you that the problem
16 begins long before college. And it's most acute in
17 math and math-related fields because math is more
18 cumulative than say history or literature.

19 I quoted Steven Pinker here because he
20 said this very eloquently. "Calculus teachers lament
21 that students find the subject difficult, not because
22 derivatives and integrals are abstruse concepts.
23 They're just rate and accumulation. But because you
24 can't do calculus unless algebraic operations are

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1 second nature. And most students enter the course
2 without having learned the algebra properly and need
3 to concentrate every drop of mental energy on that.
4 Mathematics is ruthlessly cumulative, all the way back
5 to counting to ten."

6 He's right and I would add that the same
7 is true of algebra. Students who don't understand
8 fractions, who use a calculator to divide by ten and
9 I've met many, many of them who do that, cannot make
10 progress with algebra problems because they're bogged
11 down in the arithmetic. I mean imagine trying to
12 factor a polynomial and I've watched a student try to
13 do this, if you don't have the times tables in your
14 head. And so it goes right on down to first grade.

15 Now we clearly need more students of every
16 classification, especially minorities and women in
17 STEM and we have a program in Massachusetts called the
18 STEM Pipeline Initiative that is attempting to help
19 with this. It uses outreach and summer programs and
20 internships and various marketing tactics to try to
21 entice more people into STEM, especially minorities
22 and women.

23 The problem, in my opinion, with this
24 approach, it's not -- there's no problem with it, it's

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1 a good thing to do, but if you have limited resources,
2 in my view, the place to put the resources is
3 increasing the pool of people for whom it's possible
4 to go into STEM, rather than just recruiting harder
5 from the same pool.

6 And the small proportion of students
7 entering STEM, I think, reflects the state of
8 mathematics learning in K-12, particularly among
9 minorities. If you ask the college professors, a dean
10 of engineering at a major state university told me
11 that 50 percent of the people entering engineering as
12 majors eventually switch to another major and he
13 believes that in most cases that's because of -- they
14 just don't have the math preparation to do it.

15 The math preparation in high school, ask
16 the high school teachers why this is so. You'll often
17 hear them say that the problem was in middle school
18 and if you ask the middle school teachers, they'll
19 tell you about the students' poor preparation in
20 elementary school arithmetic. As far as I know, no
21 one has yet attempted to blame the obstetricians.

22 So, this sort of cascade of blame is, in
23 fact, based in reality. The root problem, as I've
24 seen it and as I say I've been working intimately with

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1 some of these people is the dearth of mathematics
2 content knowledge among elementary teachers. It's
3 really quite appalling and it extends to many middle
4 school teachers as well. And until we solve that,
5 improvements and innovations at the high school and
6 college levels really can't have much effect. And the
7 reason they can't have much effect is the cumulative
8 nature of mathematics that I just mentioned.

9 Liping Ma was the first researcher to
10 focus attention on this and if I could have that slide
11 now. My experience shows that the problem is even
12 worse than she describes. I do recommend the
13 references there in my testimony and I do recommend, I
14 gave you a reference to a summary of her book and I
15 certainly recommend looking at it. But my experience
16 is that the problem is worse than that. And here's an
17 example from a math institute that I started from a
18 cohort of fifth and sixth grade teachers. We're not
19 talking second grade teachers. This is people,
20 veteran teachers teaching fifth and sixth grade. We
21 give them a precourse assessment before they start.
22 And these two questions, 75 is 30 percent of what
23 number? Forty-three percent of that group was able to
24 answer that question.

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1 The second question says find two numbers
2 between $1-2/5$ ths and $1-41/100$ ths, a classic fractions
3 question. Twenty-four percent of fifth and sixth
4 grade teachers were able to answer that question.

5 What I've found is their attitudes about
6 mathematics range from trepidation to full-blown math
7 phobia and let me tell you math phobia is a contagious
8 disease. You catch it from your teachers and you catch
9 it from your parents. And none of this is the fault
10 of the elementary teachers, but of the preparation
11 programs and certification systems that virtually
12 ignore mathematics. It also creates a vicious cycle.
13 Each generation of teachers is recruited from people
14 who left high school with even weaker math knowledge
15 than the previous group and it just gets worse.

16 We've begun to address this in
17 Massachusetts with new requirements which will begin
18 in the spring. To get an elementary license from now
19 on people will have to take a mathematics test and
20 three appropriate mathematics courses in college.

21 So it's well known that teacher quality is
22 the most important factor driving student achievement.

23 There's plenty of research on that and teacher
24 quality including math content knowledge is generally

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1 lower in poor, urban districts serving minorities, so
2 the disproportionality that the Commission notes is
3 really no surprise.

4 And finally, let me comment on Affirmative
5 Action. It seems self evident given the cumulative
6 nature of mathematics that Affirmative Action is going
7 to hinder some students' STEM aspirations, unless it's
8 accompanied by some pretty serious and sustained
9 efforts to remediate their math capacities as
10 Professor Tapia mentioned earlier.

11 But in the absence of that sort of
12 remediation, should those students be placed where
13 their peers' proficiency is similarly lacking? It may
14 result in more STEM majors, but I think it masks the
15 underlying problem that the math deficits began back
16 in K-12 where there was poor instruction, where there
17 were math challenged teachers, where there was low
18 standards and social promotion and too many of them
19 were allowed to reach high school and to graduate
20 without the math skills and understanding that they
21 need.

22 So in other words, Affirmative Action
23 comes into play pretty late in the game and it doesn't
24 address the underlying math deficiencies that I've

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1 described.

2 So I have a recommendation for the
3 Commission. I encourage the Commission to investigate
4 why so many minority kids arrive in college unprepared
5 for STEM majors, i.e., why they need Affirmative
6 Action at all, and what we can do about it. And I
7 recommend that you investigate that as a civil rights
8 issue and I refer you, if you haven't read Robert
9 Moses' wonderful book called Radical Equations, about
10 his civil rights experience and then his more recent
11 experience running something called the Algebra
12 Project where he says algebra is a civil right, if you
13 haven't read that, I strongly recommend it.

14 The answers will go far beyond the scope
15 of today's briefing. They'll get to the heart of
16 education reform and teaching quality. That is, as
17 you know, a can of worms, but it needs to be opened.
18 It includes things like school choice and teacher
19 preparation and certification, professionalizing
20 teaching with career ladders and differentiated pay
21 scales and incentives. It involves collective
22 bargaining and accountability and standards-based
23 testing and school leadership. So that's a tall
24 order, but it really is necessary to get beyond the

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1 symptoms that we're seeing and treat the disease.

2 Thank you.

3 VICE CHAIR THERNSTROM: Thank you very
4 much and last but not least --

5 MS. WILLNER: Bringing up the rear here.
6 Thank you.

7 Good morning. I'm Robin Willner and I'm a
8 vice president at IBM. For full disclosure, I'm not a
9 STEM professional. I'm a non-engineering IBMer, but I
10 want to talk a little bit, to step back again, I don't
11 have academic data on the specific questions that
12 you've asked, but I think I can be helpful in putting
13 this discussion in context. It's the context of IBM,
14 a global company, with huge needs for talent and while
15 I don't pretend in any way to speak for an industry or
16 to speak for the private sector, our experience tells
17 us that most of my colleagues would agree with the
18 kinds of things that I'm going to put in front of you
19 today, and the urgency to deal with this issue that
20 you've raised, which is minorities in STEM careers.

21 And we are really beginning to look at a
22 crisis in this area. We've always had widespread
23 concern about future labor needs in growing areas of
24 the economy and every major corporate leader

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1 recognizes that the U.S. labor force must continue to
2 provide the talent and leadership that we need for a
3 robust economic future and to remain competitive in
4 the global economy.

5 I want to talk a little bit more about
6 that today in terms of global trends. I also want to
7 share with you some of the work that we've done,
8 particularly around Latino students and STEM careers
9 at IBM with some activity that we began this year.

10 So let's think about some context. It's
11 always been important to nurture a workforce in the
12 U.S. with the necessary skills, as Professor Tapia
13 discussed, but profound changes in the global economy
14 that we've seen in the 21st century make this more
15 important than ever. In a global economy, the world
16 is not only smaller as we've come to learn, but it's
17 fully connected, if you will. We are networked now.
18 There will always be some businesses that don't need
19 to worry about what is happening around the world.
20 They have local customers. They have local markets.
21 They have local suppliers. But they are becoming the
22 rare situation. More and more successful businesses
23 take the form of what we at IBM call the globally
24 integrated enterprise. It's companies like IBM that

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1 create great opportunities for American workers and
2 generate important economic return in the U.S.
3 precisely because we are globally integrated and
4 functioning on a global scale.

5 But there are challenges with that.

6 And in a connected world, we have access
7 to huge new markets. This is true. We can organize
8 our business around the globe to optimize operations
9 and improve productivity. However, the challenge is
10 that when everything is connected, work flows
11 throughout the network. And most importantly, work
12 will flow where there is talent and that's where we
13 come to the urgency of this issue.

14 Localities and states and other countries
15 are realizing that they need to become places where
16 knowledge is generated and transformed into new
17 commercial and social value. And when we're talking
18 about talent and this is a very important issue I
19 think given the testimony that came before me, we're
20 talking about talent. We're not talking about basic
21 skills. We're talking about problem solvers. We're
22 talking about creativity. We're talking about
23 innovators. We're talking about creating the social
24 value of the future.

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1 It's not enough to make sure that we put
2 minority students coming from poor backgrounds in
3 elementary and secondary schools into not very
4 challenging programs where they can get a degree.
5 It's not just about getting a degree, it's not just
6 about basic skills, it's about making sure that they
7 have the skills to lead in an innovation economy. And
8 for that, we have to make sure they get the right
9 preparation; not just make sure that they get a
10 credential.

11 A knowledge-based society creates jobs.
12 It raises living standards and it generates growth
13 that competitors can't duplicate rapidly. We need to
14 be able to do that in the United States.

15 A recent report by the U.S. Labor
16 Department suggests that over the next ten years the
17 need for technical people -- innovators -- to fill
18 jobs in this country is going to grow by 50 percent.
19 STEM professionals are going to be the key to the
20 growth of our economy in creating new opportunities.

21 There are plenty of reasons that we all
22 know well and why we're all committed to make sure
23 that every child in this country has the opportunity
24 and access to be prepared to be an engineer, a

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1 scientist, a mathematician or whatever their dreams
2 dictate. That's our moral obligation to these
3 children. But for our economy in this country, it's
4 also an issue of survival. If the key to prosperity
5 is having the right talent, then we must take
6 advantage of the gifts and promise of every child. We
7 ignore any community at our peril and that's something
8 we've certainly been finding at IBM.

9 If the U.S. is to remain competitive, we
10 need children from every ethnic and economic
11 background prepared for STEM studies and potential
12 careers in STEM disciplines.

13 I mentioned before that we've begun some
14 work looking at Latino students and Latino young
15 people in the United States. You've seen some of the
16 data on the number of Latinos who are graduated from
17 high school, who are going into STEM careers and their
18 participation in STEM careers. For us, this is the
19 tyranny of large and small numbers. Now let me
20 explain.

21 In the next 40 years, the United States is
22 the only developed country that is expected to grow
23 its population. It's really an interesting piece of
24 information. We're actually going to grow our

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1 population in a developed country. Much of that
2 growth is going to come from the Latino community
3 which is estimated that it will soon be 25 percent of
4 the U.S. population, a growth rate of 30 percent.
5 Those are large numbers. If we don't find talent
6 among those large numbers, we're not going to generate
7 these STEM professionals we need.

8 Unfortunately, we have the small numbers.
9 Latinos accounted for only 4.2 percent of engineering
10 degrees awarded in 2005; only 1.5 percent of doctorate
11 degrees. The dropout rates of Latino youths are twice
12 as high as that for African-Americans and almost
13 triple that for non-Hispanic whites, meaning that
14 their graduation rates are abysmally low.

15 So how do we put these two things together
16 and pave a way in the future to have the number of
17 STEM professionals and the talent that we need for
18 robust economy.

19 At IBM, we joined with our colleagues at
20 Exxon Mobil, Lockheed Martin, and AMD -- as was
21 mentioned earlier -- at the America's Competitiveness
22 Summit; Hispanic Participation in Technology Careers
23 last May. We commissioned a number of research papers
24 from Public Agenda and the Thomas Rivera Policy

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1 Institute.

2 I think the most compelling information
3 came from Public Agenda. After conducting a series of
4 interviews with national leaders from every sector,
5 their title of the report tells the story. It's very
6 much what we heard earlier from my colleague, Mr.
7 Fortmann.

8 The title of the report is "Out Before the
9 Game Begins." And let me just read from the summary.
10 "Nearly all of the interviewees said that when it
11 comes to Hispanic and Latino students, the educational
12 pipeline is all but broken. Respondents across the
13 board believe that the current educational system is
14 not serving the Hispanic population well. This
15 failure extends to all subject areas, not just science
16 and math. Before these specific subjects can be
17 taught well, most said the nation needs to bring basic
18 education up to par. According to nearly all of those
19 we spoke with the overall poverty, Hispanic Americans
20 is perhaps the largest contributing factor to poor
21 quality education. Hispanics tend to live in areas of
22 concentrated poverty with struggling public schools
23 and a less than adequate tech space for funding them.
24 A wide swath of the Hispanic population also lacks the

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1 necessary language skills, English language skills."

2 So it's not surprising that they come to
3 college with a lack of preparation. They also have an
4 to handle the absence of role models for Latino
5 students, another major inhibitor. Parent involvement
6 is a factor as well, because immigrant parents face
7 several obstacles that include long work hours,
8 language barriers, lack of sufficient formal schooling
9 and cultural attitudes carried over from their home
10 country.

11 IBM has made a commitment along with our
12 colleagues and other companies to focus a number of
13 our philanthropic efforts on communities that are
14 serving Latino students to provide translation
15 programming software that allows English speaking
16 teachers to communicate with Spanish speaking parents.
17 We provide a series of early childhood programs
18 including reading companion for children to practice
19 reading.

20 But let me focus on the four key
21 recommendations that came out of our May meeting
22 before I conclude. The first recommendation is to
23 recruit, prepare and retain qualified math and science
24 teachers. We need to create and fund new career

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1 paths, a new way of thinking about teaching, that
2 encourages the best and brightest to leverage industry
3 experience and enhance their classroom skills and vice
4 versa while developing more competitive salaries with
5 a cross-industry career.

6 We also need more second career teachers.
7 At IBM, we provide \$15,000 to any math or science
8 professional who is prepared to teach as a second
9 career and we have 100 IBMers participating in
10 transition to teaching, 8 of them teaching, one in
11 Arlington, Texas, one in New York, one in North
12 Carolina and they're our proudest IBMers as they work
13 in the classroom. But that's a stop gap measure. We
14 need to develop financial incentives for tuition and
15 service, professional development and competitive
16 salaries. At the same time, we need to redesign
17 current teacher preparation programs, encouraging and
18 indeed demanding that university state education
19 departments, school districts and teacher unions work
20 together to prepare and support excellent teachers.

21 The second recommendation is to find ways
22 to reduce undergraduate attrition rates for Hispanics
23 in STEM majors which has gotten quite a bit of
24 attention this morning. Again, it's not just to move

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1 them to institutions where they will again succeed,
2 but not with the rigor that we need in our economy,
3 but to make sure that they can succeed at the highest
4 levels.

5 We need to focus on those young people who
6 have expressed an interest in STEM careers and made
7 it, whether it's into a community college, a college
8 or university or an elite school and surround them
9 with the necessary mentors, support services, and
10 financial aid to stay the course and succeed. Other
11 supports could include internships that expose them to
12 STEM careers, job placement services, and other
13 connections into the private sector to start their
14 careers.

15 A third recommendation is to increase the
16 popularity of STEM careers in the Hispanic community.
17 Unfortunately, there is still a great lack of
18 understanding about the power of the careers, exactly
19 what engineers do and how one can become a leader in
20 shaping our lives through STEM careers.

21 And the fourth recommendation is to
22 increase the Hispanic high school graduation rate by
23 preparing for STEM careers. We've talked quite a bit
24 about making sure that high schools have standards and

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1 not only standards for students, but standards for the
2 schools themselves in terms of the programming that
3 they provide and the standards for their performance,
4 that all high schools should have to have mentors from
5 industry that embody the best that STEM has to offer,
6 as well as internship opportunities that encourage
7 students to dream big and work hard.

8 America's goals must continue to be to
9 raise the standard of living for our children. To do
10 so we must take aggressive action. We must capture
11 more minds, more hearts and more souls, more passion
12 for the STEM disciplines if we are to retain our
13 competitiveness and attain greater heights of
14 leadership. It's an economic imperative as well as
15 our moral imperative.

16 VICE CHAIR THERNSTROM: Thank you very
17 much. This is obviously an excellent panel and I
18 would invite before we go to Commissioners' questions,
19 I would to invite any response or exchange of views.
20 I mean obviously that can't go on forever, but between
21 -- among the panelists themselves, responses to what
22 you heard, questions from your fellow panelists and so
23 forth.

24 MR. SANDER: Thank you, Commissioner. I

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1 appreciate that and if I might just go first and make
2 a couple of brief comments.

3 VICE CHAIR THERNSTROM: Go ahead.

4 MR. SANDER: I think first of all it's
5 worth emphasizing the areas in which all of us agree.
6 I think we all agree that the credentials gap across
7 racial lines that exist at the end of high school is
8 the single largest cause of problems that we're
9 discussing. I don't think there's any disagreement on
10 that.

11 And I think we also agree, Dr. Tapia might
12 disagree with this, but it seemed like his focus and
13 Dr. Fortmann's focus was to weigh how well mismatch
14 effects might be counteracted by effective academic
15 support. So the issue there might be what exactly to
16 do with -- how to handle the mismatch problem rather
17 than contending that it doesn't exist at all.

18 VICE CHAIR THERNSTROM: I think there was
19 a slight difference between --

20 MR. SANDER: So follow this train of
21 thought for a moment. Suppose if the entire science
22 gap here, 70 percent is caused by credentials gap at
23 the end of high school and say 20 to 25 percent is
24 caused by mismatch effects for our most elite minority

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1 students. Going back to that 70 percent credentials
2 gap, how much of that is caused by K-12? Well, the
3 best research that I'm familiar with is the research
4 of Fryer and Levitt on this where they've tried to
5 control for a whole range of factors, including early
6 education and understand what is the credentials gap
7 of students in first and second grade? And you know,
8 the implication of their numbers is that over half of
9 the credentials gap that we're talking about is not
10 caused by K-12. Maybe 30, 40, 50 percent is caused by
11 K-12, but a huge proportion is caused by other
12 environmental factors, not directly a part of the
13 school system. Those include everything from birth
14 weight gaps that exist across racial lines to
15 differences in parenting practices, socio-economic
16 differences, differences in television watching
17 behavior, reading behavior between parents and
18 children, all those things have been shown to be
19 statistically powerful predictors of test score gaps.

20 So if K-12 is explaining say 40 percent of
21 the 70 percent, that's about 28 percent of the total.
22 So my point is that K-12 is very important, but the
23 mismatch effect is also pretty important. If --
24 again, speaking very roughly if say 25 to 30 percent

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1 was caused by K-12, 20 and 25 percent was caused by
2 mismatch effects, and another 30 or 40 percent was
3 caused by other environmental factors, well, that
4 suggests there is a broad range of things that we
5 ought to be focusing on policy-wise.

6 The other general point that I'd like to
7 make is that we need to separate out where race
8 matters and where race doesn't matter. Fryer and
9 Levitt in their analysis of credential score gaps find
10 that race has no predictive power once you control for
11 these other environmental factors. Socio-economic
12 status, tremendously important. Race, not predictive.
13 We ought to view that as good news because that means
14 there's no intrinsic or genetic gap. So focusing in
15 on race is helpful I think in terms of sort of
16 alerting us there's a problem, but you need to look
17 beyond race in terms of actually diagnosing who needs
18 help.

19 Part of the problem with our preference
20 programs is that they just single out race. The elite
21 colleges almost universally use heavy racial
22 preferences; almost never use socio-economic
23 preferences. Well, why is that? I mean it seems to
24 me that everything that Dr. Tapia was talking about or

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1 that the other testifiers were talking about in terms
2 of the needs of the population are really socio-
3 economic needs, aren't they? Yet, if you look at the
4 beneficiaries of preferences at elite schools, the
5 degree of socio-economic eliteness among blacks
6 receiving preferences is as great as the socio-
7 economic eliteness of whites. They're coming from a
8 very elite sector of the population.

9 With Hispanics, it's somewhat different.
10 Hispanics are more representative, but even there,
11 we're very heavily drawing on preference programs from
12 the upper middle-class and upper-class Hispanics. Why
13 is that? Does that make any sense?

14 So -- well, if you put those remarks
15 together, I think there are a broad range of things we
16 need to focus on. The mismatch phenomenon itself is
17 going to be a very large part of the problem and part
18 of the reason why mismatch may exist is this focus on
19 college admissions on racial factors instead of
20 focusing on socio-economic factors and then providing
21 follow-up academic support.

22 MR. FORTMANN: Certainly, socio-economic
23 factors are important and as a couple of you observed
24 while I was speaking, parents are probably more

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1 important than obstetricians, but I would like to make
2 clear that and K-12 is not 100 percent the problem.
3 But there are many examples, a lot of them are charter
4 schools, some of them are very exceptional district
5 schools that take kids from the worst socio-economic
6 backgrounds and low birth weights and all of those
7 other factors and work miracles with them.

8 And there's a wonderful book, I should
9 have cited it in my testimony called It's Being Done,
10 a case study of 15 schools where in spite of very
11 disadvantaged demographics, the schools are succeeding
12 with those kids, so I take your point, but I think one
13 also has to realize that K-12 could, in fact, be doing
14 a whole lot more.

15 MS. WILLNER: Just to follow up on that, I
16 think that's so important because I think the question
17 here is not just -- it's not enough to be descriptive,
18 but to try to be prescriptive. I should mention that
19 before coming to IBM I spent the first half of my
20 career in education in the New York City Public
21 Schools, so I don't pretend to have answers, but I
22 have seen every problem that can happen in public
23 education.

24 And the biggest problem is when we say

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1 it's okay that schools don't make a difference. So
2 I'm not challenging the statistics as you just put
3 forward, but that to me is the major problem. It's
4 not okay that schools that bring in motivated, well-
5 prepared young people and allow them to take care of
6 themselves and come out the other end well prepared
7 and motivated. And schools that deal with a group of
8 young people who need more assistance don't make a
9 difference either.

10 That's not satisfactory and so I think
11 you're describing a situation that is, but that's not
12 the way we need to go forward. And as has been said,
13 a good public school is a public school that moves --
14 adds some value. I mean that's the power behind a lot
15 of the accountability measures today that are value-
16 added is to say how do we make a difference and a
17 school is a failure that takes kids at the top end and
18 they take care of themselves, and it's certainly a
19 failure if at the end of the day it hasn't made a
20 difference in terms of kids who have come in with
21 these host of other problems.

22 If we spend 12 years with a young person
23 and we can't make up for some of those early childhood
24 problems, we have failed. I take your description,

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1 but the question is what do we do with it.

2 MR. TAPIA: No, I don't disagree on this.
3 I think that K-12 has to be the broad spectrum, not
4 just the teacher. I agree that the teacher is
5 extremely important and in fact, I do want to mention
6 here that in "Rising Above the Gathering Storm", the
7 report that was mandated by Congress to the National
8 Academies, there were two programs, to K-12 programs
9 that were mentioned. They were both Texas programs,
10 interestingly enough, Advanced Placement Institute by
11 Peter O'Donnell and the University of Texas You Teach
12 Program led by Maryann Rankin. They're incredibly
13 effective in the state. They're doing great things,
14 so I want to make sure that we know those two programs
15 both and I'm involved a lot in both of them.

16 It's more than just a teacher, but the
17 teachers help a lot. Hispanic, Hispanic is such a
18 broad characteristic -- it's almost impossible to
19 define it. If you look within the characteristics and
20 you see if we're going to call Puerto Ricans from the
21 island, that's a homogeneous culture. They do very
22 well. Cuban Americans do very well. At the bottom
23 are effectually called New YorRicans and Mexican-
24 Americans which my wife is New YorRican and I'm

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1 Mexican-American so we get to fight about who have the
2 bottom. But a lot of it has to do with the attitude
3 and culture of the parents. I think we have to work
4 with those parents.

5 My mother did not graduate from high
6 school and neither did my father. And yet there's
7 five of us and four of us have graduate degrees and my
8 younger brother went to Yale and my sister went to
9 UCLA and I went to UCLA, so sure the culture issue is
10 a thing that needs to be dealt with and I maintain
11 that you have to show the parents the value while
12 they're in elementary school of the education and I
13 think that's incredibly important. So even though we
14 tend to stay away from culture, understanding, working
15 with the parents -- so I say K-12 is a whole broad
16 thing.

17 Now I'll go back to community college.
18 Sure I was a star in community college. I was a star.
19 And sure I enjoyed it, okay? But UCLA is what took me
20 where I wanted to go. I had to go to UCLA. One, was
21 I a star? No. Not initially for sure. I learned
22 coping mechanisms. I learned how to survive. And so
23 when I went to UCLA and they first told me well, here
24 you're supposed to take 16 to 18 hours, I said I'll be

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1 in over my head I can't do that. I'm going to take
2 12. And they said you can't do that. So I did it and
3 I took 12 and I slowly got up.

4 Happiness is being monotonically
5 increasing. Unhappiness is monotonically decreasing.
6 Okay? And all my life I was a better student each
7 successive time. Community college, UCLA, from
8 undergrad to faculty. Faculty was easiest of it all.
9 That's no problem there, I can do that. But you had
10 to survive and I learned how to do that at UCLA and I
11 really thank UCLA for the education it gave me because
12 I wouldn't be where I am without that. So I had to
13 get there.

14 VICE CHAIR THERNSTROM: Let us start with
15 Commissioner Kirsanow.

16 **III. Questions by Commissioners and Staff Director**

17 COMMISSIONER KIRSANOW: Thank you, Vice
18 Chair, and thank you panelists. Again, we have
19 another splendid array of panelists.

20 Just a couple of questions. The first is
21 with respect to the nature of prestigious schools.
22 This is at least, and Vice Chair, you can correct me
23 if I'm wrong, the third or fourth briefing that I've
24 been at where we've discussed issues that are in the

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1 orbit of this particular issue and invariably the
2 panelists come from almost invariably the panelists
3 have either taught at or graduated from prestigious
4 universities.

5 I think almost all of us here came from
6 one of the elite schools and I'm not suggesting
7 there's a certain chauvinism attached to that, but I
8 also recognize that the statistics show that eight of
9 the ten top STEM-producing schools are HBCUs. The
10 question I have is is it that important from the
11 standpoint of STEM, perhaps Ms. Willner could testify
12 to this, are the folks that are coming from the
13 Howards and the Hamptons and the Texas Southern, so
14 incompetent that they fail when they reach the private
15 sector? Or is it that important that we have people
16 coming from the Harvards and the Stanfords and the
17 Cornells?

18 MR. SANDER: Do you want to go first?
19 I'll go second.

20 MR. TAPIA: Sure. I spent a lot of time
21 on this. I work a lot with the same. It isn't that
22 they're incompetent. It's that they're not educated
23 at the level to make them competitive with the student
24 out of let's say Texas Southern University versus

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1 Rice, okay?

2 So it's not that they're incompetent, it's
3 not that. And it's a cumulative effect that Tom was
4 talking about. So you get the student and they have
5 to really catch up at the last minute and that's
6 really, really hard.

7 A big issue, a big issue that I see, and
8 in fact, in two weeks I'll report to another
9 Commission on this issue and that's the role of
10 minority-serving institutions. First of all, the
11 HBCUs are significantly different than the Hispanic-
12 serving institutions. One is regional. And
13 University of Texas-El Paso is -- I think everybody in
14 El Paso is Mexican-American.

15 But here's what I'm going to say with the
16 HBCUs. If you -- here's an extreme point. If you get
17 a Ph.D. from Jackson State or from one of these
18 schools, you will never be hired as a faculty member
19 in any of the schools including probably a lot of the
20 minority-serving institutions. Pedigree,
21 unfortunately, is an incredible issue. So are the
22 students who come from these minority-serving
23 institutions incompetent? No. There's a level of
24 them that are incredibly good and will succeed

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1 wherever they go. And usually Stanford and Berkeley
2 and Cornell will get those. Then there's a level
3 below that you can work with. I produced many Ph.D.s
4 who came from minority-serving institutions.

5 Is there a gap in training? Absolutely.
6 One of my students who came from Prairie View, her
7 name was Julia, she said Dr. Tapia, I was never taught
8 how to run above 50 percent and now you're asking me
9 to run at 100 and I don't know how to do it. So
10 usually what I'll do is I'll take extra time with it.
11 But there is pedigree and just think of it, if we're
12 going to get equitable distribution in graduate
13 schools and faculty, and the minority-serving
14 institutions have to say -- see, one of the criticisms
15 is that minority-serving institutions try to be
16 everything to everybody. You take let's take Spellman
17 or you take Morehouse or you take -- if some of them
18 would say we're going to be good prep schools and send
19 our students -- our students are going to be really
20 well-prepared to a Berkeley or a Stanford, something
21 like that, that might work. But they tend to be open
22 admissions, they let everybody in.

23 I have a friend at Texas Southern
24 University who is a chemist. And he was called down

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1 by the provost at Texas Southern University for
2 failing too many -- he's African-American, teaching
3 African-Americans -- he was called down by the provost
4 for failing too many and he said all I failed were the
5 ones that didn't come to class. I didn't fail the
6 ones who came and tried.

7 VICE CHAIR THERNSTROM: I didn't hear
8 that, the ones who came?

9 MR. TAPIA: The ones who didn't come to
10 class. So there is such a gap right now and we need
11 to deal with that issue. We need to deal with that
12 issue. What should be the role of Historically Black
13 Colleges and Universities?

14 But if you think you get a Ph.D. at a HBCU
15 and you're going to get a faculty position at
16 Wisconsin, Michigan, Illinois, no way. Down.
17 Questionable if you'll get it at an HBCU. HBCUs tend
18 to have faculty that come from majority institutions.

19 What's the synergy between the two?
20 That's the key issue. I'm going to push at the next
21 meeting that HBCUs should focus on what's their main
22 purpose. There was a time in history, as you know,
23 that that's the only place African-Americans could go.
24 Is it time to reevaluate that position? The answer is

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1 yes.

2 COMMISSIONER KIRSANOW: If I could just
3 interject real quickly. I understand that there may
4 be a difference between the percentage of STEM
5 graduates from elite schools that go on to become
6 faculty versus those who come from say HBCUs.
7 Although we had a briefing here about a year ago that
8 suggested that when minority students went to elite
9 schools they very often did poorly and poor performing
10 students were less likely to become faculty members as
11 opposed to those who went to HBCUs who felt pretty
12 good about themselves because they were performing at
13 a good level at that institution and were more likely
14 to become faculty members.

15 Set that aside.

16 Faculty is important, but I'm wondering if
17 at Ms. Willner's level, if STEM students from HBCUs or
18 not even HBCUs, maybe second-tier schools that are
19 majority schools or third-tier schools, are they hired
20 by an IBM? Do they perform well? Is this simply the
21 province of those that come from the Ivies and I say
22 that because right now it appears that those that go
23 to elite schools are more subject to the mismatch
24 effect, less likely to graduate than those from other

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1 schools, so I am wondering if it's so important that
2 we siphon or just funnel people into Ivy schools where
3 they're more likely to fail or is it more important to
4 make sure people go to schools where, if Professor
5 Sander is correct, more likely to succeed at least at
6 that level, graduate, and become productive members of
7 society.

8 VICE CHAIR THERNSTROM: Can I just add a
9 sentence to that?

10 COMMISSIONER KIRSANOW: I don't think
11 those are mutually exclusive though.

12 VICE CHAIR THERNSTROM: It's the same
13 point. I mean it really boils down to are you better
14 off in terms of, for instance, employment at IBM?
15 Let's forget about faculty. If you are a top student
16 at a second tier school, are you better off than being
17 a mediocre student at a prestigious school? When IBM
18 looks at potential hires, is it taking that into
19 account? It's part of the same point.

20 MS. WILLNER: I would reframe the question
21 a little bit. And first of all, I think that the
22 question isn't HBCUs versus other schools. It's the
23 level of selectivity of the school, because HBCUs,
24 getting into Spellman is not like getting into some of

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1 the other schools, so I think we're talking about
2 selectivity.

3 And I would reframe the question. At IBM
4 we recruit from a huge number of schools as you can
5 imagine and all over the world. And we have
6 university-relations programs in more than a hundred
7 countries and all over this country. But I think the
8 question isn't it better to graduate from somewhere
9 that's less selective. Rather than frame the question
10 as, "is it better to be at the top of your class at a
11 mediocre school than in the middle of your class at a
12 selective school?" I think the issue for us is what
13 have you learned and what can you do?

14 So what we're looking for is the skill
15 level and the reason that we go to the more selective
16 schools and pedigree has something to do with it. The
17 important issue is what I refer to as innovation.
18 We're looking for the skill level, we're looking for
19 the kind of training they had. We're looking for
20 their ability to be creative and to be leaders. We
21 don't need lots of people at IBM that can put tops on
22 bottoms. That's what we used to do. We used to run
23 assembly lines and we needed people who could put tops
24 on bottoms. We don't need that now. We need people

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1 who can invent. We need people who can work at IBM
2 research. We need people who can create new software.

3 So if the less selective schools were as
4 rigorous it wouldn't matter, then admissions wouldn't
5 matter. The reason admissions matter is because the
6 training is different at these schools, the
7 preparation, the kind of courses. And that's what
8 we're looking for.

9 VICE CHAIR THERNSTROM: So you don't have
10 your own sifting out testing process or other ways of
11 sifting out?

12 MS. WILLNER: Well, we do, but we also to
13 some extent use as a proxy some of the schools because
14 we know the programs they have.

15 And I think earlier Dr. Tapia mentioned
16 you have two things you want to do. You want to make
17 all the schools better, right, and then also want to
18 make sure that those schools that are at the top are
19 places where all kinds of young people can succeed. I
20 think that's still on the table. I think that the
21 less selective schools, some of them actually offer
22 terrific training and we have to be looking at that
23 issue as well. I'm making the problem even bigger.

24 VICE CHAIR THERNSTROM: Professor Sander?

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1 MR. SANDER: Okay, so going back to
2 Commissioner Kirsanow's questions, there are some
3 complex layers here. I think the underlying pattern
4 is very clear, but let me take apart a couple of
5 different things. Is this close enough? Okay.

6 So first of all, the statistics about the
7 huge numbers of scientists coming out of the HBCUs can
8 be easily misunderstood because they're not per capita
9 figures. One reason why HBCUs produce lots of black
10 scientists is because they have lots of black
11 students. It's really important for us to try to talk
12 about per capita rates. And when you do that they
13 still have a good record, but you wouldn't get as
14 stark a contrast as we tend to in a lot of the
15 reported statistics.

16 Secondly, there's an important distinction
17 between what's going on at the bachelor degree level
18 and what's going on at the doctorate degree level. I
19 think Dr. Tapia and I would agree that in terms of
20 academic placement, your Ph.D. is far more important
21 than your bachelor's degree. If a university is
22 considering you for a scientific faculty position,
23 they care enormously about well, what they really care
24 about is who you have worked with, what eminent

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1 scientists you've worked with, both in your post-doc
2 and your doctoral program. Those -- the eminent
3 scientists they know best tend to be at very elite
4 institutions.

5 But there are others, not only
6 institutions, and if you've had those experiences,
7 then that will still be tremendously valuable. But at
8 the bachelor's level, it's incredibly important to
9 keep in mind that several things are happening at the
10 bachelor's level. First of all, a huge number of
11 minorities are dropping out of science, so they never
12 get in the pool, they never get in the job pool of
13 scientists because they never get a science degree.
14 So something we clearly have to be concerned about is
15 keeping minorities in science. And that, I think Dr.
16 Elliott's data and my data both show pretty
17 overwhelmingly that mismatch has a lot to do with
18 minority persistence in those concentrations. It may
19 be that if you got a very effective intervention of
20 the kind that our other panelists have talked about
21 you can offset that. But most schools clearly aren't
22 doing that now. So they've either got to fix -- well,
23 they've got to fix the mismatch problem one way or
24 another. I think everyone ought to agree with that.

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1 Good. Great.

2 Secondly --

3 COMMISSIONER YAKI: I don't.

4 MR. SANDER: That doesn't surprise me,
5 Commissioner Yaki.

6 (Laughter.)

7 Secondly, how are you doing in those
8 programs? What's your performance? Your GPA
9 performance is very important. Studies that have --
10 it's very hard to sort of compare doing badly at
11 Harvard and doing well at Howard, because even
12 somebody who does well at Howard may have much lower
13 credentials than the person who did badly at Harvard.
14 You've got to control for these things. You've got to
15 do something like a regression analysis or a matching
16 analysis.

17 When you do those things several social
18 scientists have found that the HCBU graduates or
19 anyone who goes to a less elite school with higher
20 performance tends to have slightly better outcomes
21 over 5, 10, 15 years than students who go to more
22 elite schools and perform badly.

23 Now I'm not aware of any studies that look
24 specifically at science careers. They've looked at

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1 earnings. They've looked at eventual degree
2 attainment, things like that. And those patterns
3 hold, and they make sense. It's much easier for
4 doctorate programs to evaluate someone, they're much
5 more interested than say a black candidate who went to
6 a second tier school and did very well than someone
7 who went to an Ivy League school and had a 2.7. So
8 the bachelor's distinction is really important.
9 That's where the mismatch effect is having its most
10 corrosive effects. At the doctoral level, it's much
11 more a factor of what is the type of intervention that
12 individual faculty members are doing?

13 Dr. Tapia's success sounds largely
14 attributable to the fact that he makes extraordinary
15 interventions with his students.

16 MR. TAPIA: And I add that UCLA used to do
17 a good job. They don't any more.

18 VICE CHAIR THERNSTROM: Commissioner
19 Gaziano.

20 COMMISSIONER GAZIANO: I want to thank the
21 panel for all your testimonies. It was very
22 interesting, so I apologize in advance that I don't
23 ask each of you several of the questions that I have
24 in mind, but I'll try to cherry pick one or two. And

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1 this relates to the -- my first one relates to the
2 last exchange.

3 Certainly understand that all else being
4 equal, it's better to get your Ph.D. and be top in the
5 class at the most prestigious institution than one at
6 the bottom, but that's not the kind of comparison that
7 I think the universities in the real world presented.
8 So I'm just going to try to put it in a hypothetical.
9 Certainly, I understand in most things Berkeley and
10 UCLA are considered better than Santa Barbara and
11 Davis, but Santa Barbara and Davis have world class
12 science programs.

13 MR. TAPIA: No, I don't agree with that.
14 You're correct, you're right. I'm agreeing with you.
15 I'm just saying compare it to Riverside --

16 COMMISSIONER GAZIANO: Okay, but I'm going
17 to take Santa Barbara and Davis and just ask the most
18 harsh hypothetical of you, Dr. Tapia, if I could. Is
19 it worth it if Berkeley graduates one more Ph.D. in
20 math, but as a result 100 Berkeley students drop out
21 of the sciences completely who would have gotten a
22 doctorate degree at Santa Barbara or Davis?

23 MR. TAPIA: No, it's not worth it,
24 absolutely.

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1 COMMISSIONER GAZIANO: Then I'll skip the
2 rest of the hypothetical

3 MR. TAPIA: No, that's okay.

4 COMMISSIONER GAZIANO: But the implication
5 is then --

6 MR. TAPIA: No --

7 COMMISSIONER GAZIANO: Go ahead, I just
8 want to finish my thought -- then the rubber hits the
9 road and how much of a mismatch we should tolerate?
10 What effect we should tolerate, if any, because I
11 think Commissioner Kirsanow's question is right that
12 maybe it doesn't even help the faculty creation
13 process if we have a lot more drop out of the Davises
14 and the Santa Barbaras. But please go ahead.

15 MR. TAPIA: It's an excellent point. I
16 want to say Johnny Guzman who I worked with as an
17 undergraduate just got a Ph.D. from Cornell in
18 mathematics, was just hired by Brown University in the
19 Math Department, the first under-represented minority
20 on the faculty of a Math Department in an Ivy.

21 I will not send -- Rice undergraduates --
22 my success, I have a lot of Ph.D. students, but I had
23 a lot of success with B students out of UCLA, B
24 students out of Berkeley, B students out of say

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1 Stanford, probably more success than A students out of
2 HBCUs.

3 But no, in fact, this is on record and I'm
4 going to say it anyway because I think it's
5 appropriate. Last year, I was asked to evaluate the
6 Math Department at Berkeley. It's clearly one of the
7 top Math Departments in the world. Okay? In terms of
8 under representation in faculty and graduate students,
9 they did a miserable job. UCLA is next in line, okay?
10 The minorities go to Davis, not to Davis, to UC-Irvine
11 or to Riverside.

12 I will not send a good Rice undergraduate
13 minority student to mathematics at Berkeley or
14 computer science at Stanford. The retention rate
15 there is 50 percent for the people who are some of the
16 best in the country. So I want to take it back and I
17 want to blame and fault universities that say we are a
18 public institution, like the University of California-
19 Berkeley who just don't care about this issue. I
20 spent eight days last year at Berkeley. I was
21 Regent's Lecturer and I can tell you about the
22 greatness of the faculty, but the mismatch and the
23 fit, I mean I don't want to know why people in
24 California allow Berkeley to do what it's doing if

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1 it's a public institution. And then second, UCLA.

2 COMMISSIONER GAZIANO: Great response. If
3 you don't mind me switching to another question or I
4 could yield to someone else, first. Since I have the
5 mic -- does someone else want to come in on this
6 question?

7 MR. ELLIOTT: Yes, on this one I do. You
8 asked to what degree of mismatch is tolerable and I
9 surveyed a lot of these data.

10 COMMISSIONER GAZIANO: Assuming it's
11 constitutional and moral and all those other things
12 anyway, which I also question.

13 MR. ELLIOTT: I think pragmatically useful
14 and socially useful. And I came to the conclusion
15 that if Harvard, instead of taking let's say 7.5
16 percent blacks which they do plus or minus most years
17 and we do too, took 3.5 percent and let the other 3 or
18 4 percent come down to Dartmouth, then we would
19 shuffle off our bottom three and send them down to
20 Rochester and they would shuffle off theirs and send
21 them down to I don't know where. You would have
22 competitive, you would have a black population not at
23 the 4th percentile, but at the 30th percentile, if you
24 just kept the top half. This is politically and

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1 entirely impossible, but it still intrigued me enough
2 to work it out.

3 And what you'd have is a competitive
4 group, 30th percentile, that's better than most of the
5 athletes there. It's probably close to many of the
6 alumni legacies and so on. And their
7 conscientiousness, ambition, and hard work can make up
8 for a lot. And so if you're the 30th percentile in
9 terms of admission variables, developed ability,
10 you've still got a shot. At the fourth, you really
11 don't have much. But if you did that, the only flaw I
12 saw in this mechanism from my point of view which I
13 saw, even I saw as a flaw which was that by the time
14 you shuffled all these people down they're going to
15 schools that aren't very wealthy and it's only wealthy
16 schools that can provide the kind of financial support
17 that many of these students need. So what you've
18 really done is take 2,000 blacks and put them in
19 schools where they're getting some aid or a lot of aid
20 and they're going to have to go to schools where they
21 don't get any, or they get a lot less. And so, I saw,
22 if I could have figured it out the financial aspect of
23 that scheme I would have pushed it a little farther,
24 at least for myself. But I could -- I still think

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1 though that cutting down just lowering the mismatch
2 stats would do wonders for everybody.

3 In the first year at Berkeley after
4 Proposition 209 was passed, the number of black
5 students at Berkeley and UCLA dropped drastically, but
6 the -- as I understand it, the Vice Chairman here has
7 done this work for us, the graduation rates have
8 improved enormously as well. If that's true, that is
9 a gain.

10 And so you're trying to balance this cost
11 of the huge mismatch we now -- and the universities
12 that do it, as somebody pointed out, they're doing it
13 -- they're not helping poor blacks or poor Hispanics
14 or poor anybody. They're certainly not helping poor
15 whites when they're doing it this way. At Harvard,
16 about half the black students at least in some years
17 are from Africa. They satisfy the blackness, but they
18 don't satisfy the Americanness.

19 I think some Affirmative Action is a good
20 thing. I think some -- that is to say race
21 preference, to use that term, that taboo term -- if
22 only because we need -- especially in public
23 institutions, we need representation of the population
24 and we need it to the degree that a higher education

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1 institute is not a theater of performance. I mean do
2 you really care if the math department is all Asian or
3 all white or all anything? If you want the best math
4 department in the world you shouldn't care about that.
5 It's a theater of performance. You want them to
6 perform.

7 But educational institutions, the lower you go
8 with them, the more they're concerned about
9 development and change. At what point in our system,
10 as you go from K-12 through the undergraduate years
11 and into graduate years does it become less
12 development and more performance. Elite institutions
13 are very performance oriented. They deliberately take
14 people at a very high level to begin with with a few
15 exceptions and then they make them perform and they do
16 a pretty good job of it. My students tell me all the
17 time every year, much of what they learn at Dartmouth
18 they learned from each other in discussion and so on.
19 And they learn from each other so much because they're
20 all pretty smart and it's performance orientation that
21 they have and not so much growth and development
22 orientation. But to the degree that there is some of
23 that left, to that degree you ease up on performance
24 criteria. You can't ease up too much or you don't

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1 have much left of your school.

2 VICE CHAIR THERNSTROM: Professor Tapia?

3 MR. TAPIA: I agree with most of what
4 you're saying. We can't have a Math Department that
5 is all Asian or is all -- IBM has a product and you
6 can measure success, you're accountable. You're held
7 accountable because you produce a product to make
8 money.

9 What happens with education, public
10 education in particular, if we forgot that we do have
11 a product. We're supposed to educate the
12 constituencies, i.e., the people in the country and
13 that's where I fall --

14 MR. SANDER: Or at least the people you
15 admit.

16 MR. TAPIA: Yes, at least the people you
17 admit, but more than that, if you said -- if we said
18 okay, Harvard can do what it wants. Stanford can,
19 they're private schools, but Berkeley can't and
20 neither can UCLA. And so what I'm saying is that if
21 we have the obligation and the moral right and I think
22 it's more than just moral to educate the people of the
23 country, then we're not going to end up with
24 departments that are just doing research only. In

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1 fact, I'll take a department like a Math Department
2 and say it is not enough just to do the research.
3 That's the way it was 40 years ago, 50 years ago. And
4 now you have to be sensitive to the needs. I ask a
5 department to be sensitive. Here they characterize a
6 Math Department. Be sensitive to a larger unit, i.e.,
7 a division, oh, okay, not just a department? No, the
8 division. How about the university? Oh yes, what a
9 big thought. How about the United States?
10 Incredible. Should we be sensitive to those issues?
11 And I'm saying if departments like Berkeley Math
12 Department would just align themselves with what the
13 presidents and the chancellors say it would be okay.
14 But they don't. The chancellors say things and then
15 say I can't micromanage a department, so I'm going to
16 let it do what it wants and that's how Math
17 Departments have become so terrible.

18 VICE CHAIR THERNSTROM: I'm sorry, I mean
19 there is an interesting question there in response to
20 you, however, which is suppose these universities were
21 to get real tough on their standards and say whatever
22 the diversity consequences, we're going to have
23 uniform standards for admission across the board,
24 whatever those standards are. What impact would it

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1 have on the Tom Fortmann problem of schools that are
2 not educating kids and teachers who are ill-equipped
3 to educate them.

4 At what point -- at what point -- how are
5 we going to create the kind of pressure on K-12
6 education that we don't have today? They pass the
7 buck on.

8 MR. SANDER: Commissioner Thernstrom?

9 VICE CHAIR THERNSTROM: Yes.

10 MR. SANDER: I want to try to address
11 that, but I wanted to add on to what Dr. Elliott said
12 in response to Commissioner Gaziano. I think this is
13 an incredibly important point. There are many issues
14 raised by Affirmative Action, but if we're talking
15 about the mismatch effect, the mismatch effect is
16 concentrated on the students who receive the largest
17 preferences. There is a range of moderate preference
18 where I haven't found strong evidence of substantial
19 mismatch effect. So it's not a linear phenomenon.

20 And it's particularly the case -- I don't
21 think this is completely nailed down, but I have found
22 a lot of evidence consistent with this and it sounds
23 like a theme other panelists have found, that socio-
24 economic preferences, in particular, are less likely

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1 to produce mismatch effects because when you give a
2 socio-economic preference (a), if it's moderate; and
3 (b) if you're finding the student who has really come
4 from a disadvantaged background that student by virtue
5 of the fact that he's gotten to that point has -- is
6 likely to have unusual drive and you know great
7 determination to succeed.

8 And if they're coming in at the 25th or
9 30th percentile rather than the 5th or 10th percentile
10 they can reap more of that benefit from going to an
11 institution that has all the special advantages that
12 more elite institutions have. So I really think there
13 is kind of consensus emerging here on many aspects of
14 where this problem lies.

15 MS. WILLNER: If I could just raise two
16 quick points. I think that you raised a really
17 important issue which is the level of preference.
18 Letting somebody -- accepting somebody in who is so
19 far different, so far lacking in preparation is
20 different from having some leeway. It goes back to
21 what Professor Tapia said. We know somebody with an
22 800 SAT is not going to succeed, but the difference
23 between 1400, 1450 and 1500, we're pretending that
24 there's a difference. So that's a really important

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1 issue there as how wide you cast the net.

2 But I think the second issue and it's
3 exactly what I said about K-12 and it's what Dr. Tapia
4 said about public universities. It's not enough just
5 to let somebody in. You have to say we brought you
6 into our community and we have some commitment and we
7 have to start thinking about why these schools only
8 work for certain kinds of young people and they don't
9 work for others. And that's part of the
10 responsibility and I think that it's not just at
11 admissions. We can't stop there. That is -- when we
12 talk about solving the mismatch, part of solving it is
13 coming up with the kinds of interventions that we've
14 both been talking about and that's very, very
15 critical.

16 And the last thing I would say and this
17 may not apply to every career. Perhaps you can sit in
18 a biology lab and maybe it doesn't matter what your
19 experience is around the rest of the world. But I
20 will tell you for engineering, which is part of the
21 STEM careers, I'll tell you for engineering that if
22 all of our engineers look the same, come from the same
23 culture, come from the same kind of families, live in
24 the same kind of communities, think the same way, IBM

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1 will go into the toilet immediately because we won't
2 be able to create products for our customers. And one
3 of the reasons why places like -- IBM take diversity
4 so seriously is that we understand that we want
5 everyone to be our customer. And if we want everyone
6 to be our customer, we have to know what they need.
7 We have to know what they're looking for. We have to
8 know how they're thinking. We have to -- they have to
9 feel comfortable buying from us.

10 So there are other economic pressures that
11 make it really important that we have diverse learning
12 experiences and we have the highest level of education
13 and encouragement for everybody in this country.

14 MR. TAPIA: There's another issue here.
15 We're not just -- we are statistics in a sense. We're
16 people. How many of my students, undergraduates,
17 graduates, come to me and say I really feel good
18 seeing somebody just like me, okay? How many come and
19 say somebody who has been successful, it can be done.
20 It's a feasibility point.

21 It's really hard when I was at UCLA to say
22 okay, there's no faculty like me. There's no graduate
23 students like me. Just the point of saying ah,
24 feasibility has been established. There are people

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1 that look like me and act like me and feel like me.
2 We can't minimize that. I told you -- Rodrigo
3 Banuelos was probably the best Mexican-American
4 mathematician in the country was having problems at
5 UCLA, not academic problems. He just didn't feel he
6 belonged until someone told him, you're not the first.
7 Go look at Tapia. And he has.

8 I'm saying it's more to it than just
9 numbers. There's more to it than just academic
10 preparation. It's about people and I think that's
11 why.

12 COMMISSIONER GAZIANO: I had a second
13 question, if I could -- to the right side of the table
14 and this is maybe the take to partial remedy on the
15 credentials issue. I was sort of moved and saddened
16 by Mr. Fortmann's comment about math phobia is a
17 contagious disease. And it seems like certainly at
18 small, or at least transitional part of the solution
19 to get those math-phobic teachers teaching something
20 else, I don't know, is this second career teacher
21 program, but as you know many states and this is what
22 I'd like you to kind of elaborate on, require teaching
23 degrees or similar before someone can -- with just a
24 mere Ph.D. can come in and teach a math or science

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1 course in the K-12 level.

2 So what kind of minimum certifications do
3 you think is required, you know, what do you think is
4 more important that teaching the kids that the teacher
5 not have math phobia or the teacher have a math
6 certification or math degree. How do we solve that
7 transition? What has your experience been in that
8 regard?

9 MR. FORTMANN: Your question about career
10 changers is an important one.

11 COMMISSIONER GAZIANO: Or second careers.

12 MR. FORTMANN: Second careers --

13 COMMISSIONER GAZIANO: Who are taking on
14 something extra.

15 MR. FORTMANN: And I would add to that
16 people who go to college in some arts and sciences
17 area and then decide in their junior year that they
18 might be interested in teaching. That's another
19 category of person that it's difficult to get in.

20 Those are all people who are going to end
21 up teaching mostly in high schools and middle schools.
22 And that's a good thing. It varies a lot from state
23 to state how you can do it. In Massachusetts, you can
24 come in. There are various programs in districts and

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1 there are various ways for those people to get into
2 teaching, not always -- the most common way is to go
3 and take a year education program, but in fact, there
4 are ways --

5 COMMISSIONER GAZIANO: That's difficult
6 for a lot of people.

7 MR. FORTMANN: That's true and --

8 COMMISSIONER GAZIANO: If they have to
9 support a family, especially.

10 MR. FORTMANN: And ed. schools, in
11 general, would like to keep it that way, but there are
12 other alternatives. You can get a provisional license
13 in Massachusetts and start teaching immediately. It's
14 not easy. You talk to people who do it and they say I
15 really needed a course in classroom management and
16 things like that, but we do have programs where people
17 can learn on the job. They're not well enough
18 advertised, in my opinion. And I can't speak for
19 other states. It varies all over the map.

20 On the math phobia, I was really referring
21 mostly to elementary teachers, although I've met some
22 middle school teachers in the same category and that's
23 a little bit different problem. You don't get too
24 many career changers or second career people going

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1 into elementary. You do get some. But you really
2 have to solve this problem with the teaching force
3 that we have.

4 Now another solution that's often proposed
5 is let's have math specialists in elementary schools.
6 That's a good idea in theory, but it is expensive and
7 finding people qualified to do that is extremely
8 difficult and what I have learned from working with
9 elementary teachers is that most of them, given the
10 opportunity, in a summer course or some other format,
11 will really step up and work very hard and be happy
12 for the opportunity because they know that they're
13 weak in math. They know that their students are
14 suffering and when given the opportunity they will
15 seize it and make some serious changes in that. I can
16 supply you with more information about that off line
17 if you like.

18 COMMISSIONER GAZIANO: Thank you. I
19 would.

20 Ms. Willner?

21 MS. WILLNER: As I had mentioned we have a
22 program called Transition to Teaching and based on the
23 research we had done going into it, retention rates of
24 people who go through alternate route programs and our

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1 own work with professional development and with
2 IBMers, it's clear that it's not enough to know your
3 content area. It's not enough to be brilliant in your
4 content area. There are real skills. People talk
5 about being born to be a teacher, but you can learn to
6 be a good teacher. And even if you were born to be a
7 teacher, I strongly believe that before you are the
8 only adult in that classroom and you are responsible
9 and there are 25 kids who whether they learn math this
10 year is going to be dependent on you, you should have
11 been in a classroom before. This should not be your
12 first day walking in to be the only teacher, the only
13 adult in the classroom.

14 We need to give people the opportunity to
15 learn to be comfortable teaching. That's why at IBM
16 we provided them \$15,000 and a special leave of
17 absence so they can do student teaching before they
18 leave. Not every company can do that. There are a
19 lot of very interesting programs that have sprouted
20 up. There's a great program in Boston that's run by
21 The Boston Plan that prepares second career teachers.
22 In California, there's a program that Sherry Lansing
23 started called EnCorps, where they provide the support
24 for math and science professionals during the first

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1 year as they're moving into teaching.

2 I don't think that anybody needs to go
3 through a 60-credit School of Education master's
4 degree, but I think we have to come up with that core
5 of what is everything I need to do to be prepared.
6 Nothing more, I don't want to waste an extra day, but
7 nothing less because those are real kids and they only
8 get to go through the 9th grade or the 8th grade or
9 whatever.

10 VICE CHAIR THERNSTROM: Well, but the
11 Teach for America students who are basically after
12 summer program plunged not the classroom, you know a
13 lot of them are teaching in the most successful
14 charter schools. On the other hand those charter
15 schools are headed by really superb principals who are
16 in the classroom all the time and they've got
17 therefore a lot of on-the-job training. I mean what
18 you're talking about can take a lot of forms.

19 MS. WILLNER: It certainly can. And Teach
20 for America, a lot of them are wonderful teachers and
21 almost to a one they will all tell you that their
22 first year was hell and incredibly difficult and it
23 doesn't have to be hell for the teacher and not as
24 terrific for their students as for those students

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1 lucky enough to have them in their second year. So we
2 have to figure out how to do that. And they have an
3 incredible summer program, ten weeks is a good start,
4 but it comes back to figuring out what is everything I
5 need to know to prepare to be ready to teach? I don't
6 want to waste an extra day getting ready, but I don't
7 want to miss out on anything before I walk in the
8 classroom.

9 VICE CHAIR THERNSTROM: But those TFA
10 participants are not going to spend a year in an Ed.
11 school.

12 MS. WILLNER: It doesn't have to be an Ed.
13 school, but I think we have to figure out how to make
14 their first year successful for everybody. And we
15 haven't quite gotten that formula yet.

16 VICE CHAIR THERNSTROM: Other people?

17 MR. FORTMANN: I just want to agree with
18 what Robin said. People, and I've met some of these
19 people who get dropped directly into a classroom, have
20 a problem, but there is an enormous amount of room
21 between that and spending a year and taking 15
22 pedagogy courses and it's very healthy that we have
23 things like Teach for America and UTeach and Math for
24 America and there are many other examples that are

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1 sort of filling in this spectrum in between.

2 The unfortunate thing is that in many
3 states the certification requirements are so tight
4 that many of those possibilities don't exist.

5 VICE CHAIR THERNSTROM: Commissioner
6 Kirsanow?

7 COMMISSIONER KIRSANOW: This question goes
8 to something Professor Tapia said in terms of I think
9 it is a desirable thing for many minority students to
10 go to a school where faculty kind of looks like them.
11 But that strikes -- my daughter says if that was my
12 criteria I would go to a school with a helluva scary-
13 looking faculty. But that goes, bumps up against the
14 legal requirements with respect to Affirmative Action.
15 We've been just talking kind of for lack of a better
16 term cavalierly as if the mismatch effect is something
17 that we can tolerate within the context of the law and
18 we've got the Grutter decision which is very specific
19 about the extent to which racial and ethnic
20 preferences can be implemented.

21 That was in law school and there were four
22 components justifying why you could have a preference.
23 One of them goes to something that Ms. Willner talked
24 about and that is preparing students for a global

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1 marketplace. An institution like IBM wants people who
2 can be facile with all types of cultures. One was
3 breaking down stereotypes. Another one was that it
4 was gaining perspectives from different students,
5 different perspectives, the presumption being that a
6 student who comes from say inner-city Cleveland may
7 have a different perspective than somebody who come
8 from some place in the middle of Indiana.

9 But that had to do with law school where
10 you might say yes, the inner-city black student in
11 criminal law class might have a different perspective
12 than the guy who came from French Lick, Indiana. When
13 it comes to STEM, I'm not sure there's a black
14 perspective on gradient derivatives, the Heisenberg
15 Uncertainty Principle, or the speed of light. So the
16 question is and this goes to something Professor
17 Elliott said a while ago that students were learning
18 from one another. To what extent does race per se or
19 ethnicity per se have a salutary effect on the
20 learning process when it comes to STEM?

21 MR. TAPIA: I had a class, a graduate
22 class last year at Rice. It was 24 people, 12 of the
23 24 were under represented minorities. It probably
24 never happened before, okay? What did they learn

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1 about it?

2 They broke the stereotype of what a
3 minority student might be like. They found that
4 minority students sit in the front row. They sit in
5 the back row. They ask good questions. They ask bad
6 questions. They do well on the exam. They don't do
7 well on the exam.

8 A significant number, and Rice students
9 are very good at this, the white Rice students who
10 said wow, African-Americans, Hispanic-Americans are
11 kind of like me. We come in all different flavors and
12 we do different things. So that means when they go
13 off and they become -- let's say they go to IBM and
14 became a manager, or they go someplace else and get
15 hired, how many students have I had come back and say
16 that in my managerial position I've learned so much
17 about how to deal with women and minorities at Rice
18 and when I went to this company it was all white and
19 I'm trying -- and these are white people I'm talking
20 about. One of them went to the University of Michigan
21 as a professor and said wow.

22 So no, I'm not going to argue that -- in
23 fact, in my talks I'm not going to argue that
24 mathematics is going to be unhealthy or it's

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1 endangered because there's not blacks and there's not
2 women, no. But the community that you build which
3 will last you a lifetime in how you work with people
4 and how you respect and how you learn. When I was on
5 the National Science Board I had two roles, okay? One
6 of them was to say to young people in Houston, oh,
7 President Clinton appointed Richard Tapia to the
8 National Science Board, but my more important role was
9 to have all the white people on the Board say Richard
10 Tapia, as a Mexican-American, is an extremely
11 important member of this Board. That's what I had to
12 do and that's what I did.

13 The other thing, in fact, Professor Sander
14 referred to this recently. On my web page, if you
15 just Google Richard Tapia and look at my web page, I
16 have an op-ed piece that just appeared in the
17 Chronicle of Higher Education saying diversity does
18 not come from aboard. Now what's happening is
19 Affirmative Action is dying. If you look at the
20 history of the Courts, you'll see they've been cutting
21 back and back and back; Affirmative Action in the
22 sense of trying to improve the situation for under
23 represented minorities. Diversity is the in word.
24 Affirmative Action is the bad word. And universities

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1 are implementing diversity in the way they always have
2 and do very well. That's how many people can we get
3 from China and how many from India and how many from
4 Colombia and how many from Bolivia. I have faculty
5 that are very knowledgeable who know no difference
6 between a New YoRican raised in the Bronx, a Mexican-
7 American raised in the barrios of LA or somebody with
8 an elitist from Argentina or Colombia. That's my big
9 part right now.

10 So diversity has replaced Affirmative
11 Action and that's the concern. I want us to live and
12 be educated in that world that we were working and the
13 world that we can promote.

14 No, I just want everybody to see that we
15 can be representative in all places and that's been an
16 important part of my life. I'm on all kinds of boards
17 where I'm the only under represented minority so I
18 want everybody to see that aspect of it.

19 So that's what I say. My answer to your
20 question is it is really nice to see, like one of the
21 faculties in our department is African-American and
22 pretty soon all Rice students will just say they don't
23 think about it any more after the first week. He's
24 really good. I like him. He's a good teacher.

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1 That's all I want to see. That's the same with me.

2 My success hasn't just been with minority
3 students. I have foreign students come back and just
4 love me. And they say oh yeah, Tapia, under
5 represented minority. No problem.

6 MR. SANDER: I'm sorry. I want to add
7 some comments to that. Thank you.

8 I just want to say three things. One is
9 that I would put a different gloss on Dr. Tapia's
10 statements about Affirmative Action dying. I think
11 what's dying is sort of the knowledge to use
12 Affirmative Action per se and the substitution of
13 diversity lingo. And it may well be true that in some
14 Science Departments there's now so many foreign
15 students that I think there is frequently in these
16 science programs a lack of focus on recruiting blacks
17 and Hispanics, but in terms of broad undergraduate
18 education which is a lot of our focus here,
19 preferences do not change materially.

20 Private schools use them exactly the way
21 they always have. Grutter preference bans have not
22 had any impact on practices aside from maybe the way
23 that they're described. Even in states like
24 California that have passed preference bans, diversity

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1 efforts are still very aggressive and the use of race
2 does not disappear.

3 COMMISSIONER YAKI: Do you have a stat for
4 that?

5 MR. SANDER: Yes, I do. Can I come back
6 to that one? I want to say my two points and then we
7 can go exclusively into that, is that all right?

8 COMMISSIONER YAKI: We can do whatever you
9 want to do.

10 MR. SANDER: Okay, so on the question of
11 the issues Commissioner Kirsanow is raising, I just
12 want to emphasize that the use of preference is an
13 extremely sharp-edged double-edged sword. There are
14 two things that are often raised. One is this issue
15 of combatting negative stereotypes by having
16 diversity. You can combat negative stereotypes with
17 diversity, but if you have aggressive preferences you
18 run a tremendous danger of reinforcing negative
19 stereotypes. If students -- if there's a two standard
20 deviation gap between your one black student in a
21 class, students are going to notice that.

22 Secondly, what's the peer effect?
23 Undoubtedly, there are very important things to be
24 achieved in terms of increasing the comfort level of

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1 minority students or low SES students in a college
2 environment. But you can also have the reverse
3 effect. Peter Arcidiacono who is an Economics
4 Professor at Duke has done a study with the College
5 and Beyond data from Bowen and Bok where he's looked
6 at the socializing effects of large preferences. He
7 finds again if preferences go beyond a certain point
8 then what happens is you start having greater racial
9 segregation than you do when preferences are smaller.

10 I've done a study of study groups in law
11 school which kind of fleshes out why that is. What
12 happens is that if you have a large preference gap,
13 whites and Asians tend to avoid study groups with
14 blacks and Hispanics because they want to get the
15 strongest students they can in their study group and
16 they don't go around and ask everyone what their
17 credentials are. They just assume that race is going
18 to be a good correlate of how strong their study group
19 will be.

20 And the consequence is that minorities end
21 up overwhelmingly in minority study groups. They're
22 getting the benefit from integration and they're not
23 getting a benefit from the study groups. Study groups
24 for whites and Asians improve their law school GPA.

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1 Study groups for blacks and Hispanics don't improve
2 their GPA. So positive things can happen, but it's
3 very treacherous ground.

4 Do you want to go back to the 209 issue,
5 Commissioner?

6 VICE CHAIR THERNSTROM: I actually have a
7 Commissioner that wants to speak, but let me just -- I
8 think the point made before, sorry -- I think a point
9 made before I think it was by Ms. Willner, there are
10 preferences and preferences. There's some that are
11 large, some that are small. In the Bakke decision
12 held up Harvard as some sort of model. Harvard gives
13 negligible preferences it's not a model for anything.

14 (Off the record comments.)

15 VICE CHAIR THERNSTROM: In the college,
16 yes. Sorry about that.

17 (Off the record comments.)

18 VICE CHAIR THERNSTROM: Someone rudely
19 interrupting from the audience who just happens to
20 have my last name.

21 But before the ban on preferences in
22 California, that is as Professor Sander said not quite
23 working as advertised in terms of the disappearance of
24 preferences, the gap between SAT scores -- for

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1 instance, for Berkeley undergraduates, between the
2 under represented minorities and Asians and whites was
3 enormous. So I just wanted to second to your point.
4 Yes, you've got to make distinctions.

5 But one of the consequences, of course, is
6 of the small pool of minority students, blacks and
7 Hispanic students who have high SAT scores and so
8 forth. One of the consequences is such a large number
9 of them are taken by a very few schools. I mean
10 Harvard takes an enormous percentage of those with SAT
11 scores, I don't know what the cutoff is, but you know,
12 top SAT scores. That school alone, which has an
13 effect, of course, all the way down the line.

14 Commissioner Taylor?

15 COMMISSIONER TAYLOR: Thank you, Madam
16 Vice Chair.

17 I've got to be honest with you, I
18 appreciate everything you all have said, but, frankly,
19 I am really disturbed. From my perspective, there
20 seems to be a lack of an appreciation of the
21 importance of my fundamental question and purpose of
22 joining this Commission: What is in the best interest
23 of, in my case, black folks?

24 I appreciate the importance of the

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1 academic institutions and the faculty, and I
2 appreciate the importance of the world view and I
3 appreciate the importance of the commercial view. And
4 Lord knows, I love the invisible hand.

5 But if you are at a picnic and you were to
6 present this panel discussion to black folks at the
7 picnic, the black folks would say this mismatch issue
8 -- what I hear is, you need to tell me whether or not
9 I'm within that range before I go to school. If I'm
10 outside that range, no additional support is going to
11 help me. No additional support is really going to
12 help me if I'm outside that range. That's what I
13 hear. But if I'm within that range, some additional
14 support may help me.

15 But what I don't hear is an emphasis on
16 informing the communities about the decisions that are
17 being made. Because if the communities collectively,
18 I think, were in the position to have this information
19 and make a decision as to what is in the best interest
20 of our community over a 20-year period, when you are
21 sitting down with your child and you say, "Where
22 should you go to school? Where is it most likely you
23 will succeed? Do we want to take that risk as a
24 community?" -- I hear that lacking in this discussion.

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1 From a public policy perspective, to me
2 that's what is important. I want to focus on what it
3 is going to take for the communities that are at risk
4 to move forward.

5 MR. SANDER: Commissioner Taylor, can I --

6 COMMISSIONER TAYLOR: Please.

7 MR. SANDER: I think there are four
8 policies at the college-level that would serve the
9 public well, and I believe there is consensus for them
10 on this panel.

11 No. 1 is transparency. African-American
12 students and any other minority ought to know going
13 into college what are the ultimate outcomes for
14 students at that college who have their profile.

15 COMMISSIONER TAYLOR: Is that something
16 folks can all agree with?

17 MR. TAPIA: Absolutely.

18 COMMISSIONER TAYLOR: Yes, okay.

19 MR. SANDER: No. 2 --

20 COMMISSIONER TAYLOR: Which seems to be
21 lacking. It's completely lacking.

22 MS. WILLNER: And you should know if this
23 school has no intention of helping you.

24 COMMISSIONER TAYLOR: That's right. I

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1 will tell you, Professor Tapia --

2 VICE CHAIR THERNSTROM: Hold on,
3 everybody. The court reporter is having a problem.

4 MS. WILLNER: I'm sorry. A piece of
5 important information is, is there evidence that this
6 school will help you to succeed if they accept you?

7 COMMISSIONER TAYLOR: And before you go on
8 to your second point, Professor Tapia, what you said
9 is no different than recruiting in sports. I don't
10 care what the name of the school is; show me the
11 coach, and in your situation you're the coach.

12 So if I have a child and I'm deciding
13 where I am going to send my child, and they want an
14 advanced degree in this area, I am looking at the
15 coach and what the coach has produced over the past 10
16 years. I don't, frankly, care what the name of the
17 school is because you show me the coach and the
18 product, and then I can back-track into the name of
19 the school.

20 So telling me Berkeley doesn't tell me
21 anything. You show me the coach. That's the
22 information that I don't hear at the community level
23 when black folks are trying to make these decisions.
24 If you have a smart B student at a very good school,

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1 they are not in the position today to have this
2 discussion and to make these decisions.

3 What troubles me is I don't feel a sense
4 of urgency to make sure that we have an open process
5 where these issues are discussed and a way where that
6 kid and the parents can make good, sound decisions.
7 We are more concerned about emphasizing policies and
8 how many black faces and how many Hispanic names we
9 have in the entering class than whether or not that
10 student is able to make a good decision.

11 I apologize.

12 VICE CHAIR THERNSTROM: I think Professor
13 Sander had more to say.

14 MR. SANDER: So there certainly seems to
15 be urgency among the panelists on this idea of
16 transparency. So that is No. 1.

17 No. 2, accountability, and accountability
18 follows transparency. If schools have to start
19 disclosing that they have a miserable track record in
20 retaining scientists, then they will either change
21 their admission practices or they will take ownership
22 of the students they admit, or both.

23 COMMISSIONER TAYLOR: Or both.

24 MR. SANDER: And that's all to the good.

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1 So accountability is No. 2.

2 No. 3 is let's emphasize socioeconomic
3 preferences more. We need to look at individual
4 circumstances and try to make sure that that is an
5 important driving factor in deciding where we're going
6 to reach out helping hands.

7 No. 4 is trying to curtail mismatch at a
8 point where it is so extreme that it is clearly going
9 to have negative effects.

10 I think those are all things that would
11 clearly benefit outcomes.

12 COMMISSIONER KIRSANOW: Professor Sander,
13 to what extent is there currently transparency and
14 accountability?

15 VICE CHAIR THERNSTROM: Hold on a minute.

16 MR. SANDER: Vice Chair, shall I address
17 that?

18 VICE CHAIR THERNSTROM: Well, that's fine.
19 Professor Tapia wanted to make a comment.

20 MR. SANDER: Okay. On a scale of zero to
21 100, I would say we are at about three.

22 COMMISSIONER KIRSANOW: Zero to 100, it's
23 now at a three in terms of transparency and
24 accountability.

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1 MR. TAPIA: What does this scale measure?

2 COMMISSIONER KIRSANOW: Commissioner
3 Taylor is talking about, what are the probabilities
4 that somebody with my SATs, grade point average, and
5 other extracurriculars is going to graduate from
6 Berkeley if I attend. Getting that information from
7 Berkeley is like pulling teeth.

8 MR. TAPIA: That's a good point. I want
9 to agree with you. I say your point is excellent.
10 Then I want to give two little anecdotes.

11 I had an African-American woman who
12 visited us last year into our Department. It doesn't
13 matter; her name was Pam.

14 "I don't want to go to school in Texas."

15 "Okay, Pam, I'll show you what we have."

16 Goes away.

17 A month later, "I've accepted Rice"
18 because of what she saw.

19 I let the students recruit. I don't just
20 do it. She saw.

21 "I'm coming to Rice." She did very well.

22 I had another student -- this is a Rice
23 undergraduate who was valedictorian at a local
24 minority school. His name was Cesar. He said to me,

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1 he said, "When I came here and I was valedictorian, I
2 thought I would be competitive across the board, but
3 I'm not, but that doesn't bother me as much as the
4 fact that my teachers didn't know it." See, "My
5 teachers thought...." "So right now I'm really upset,
6 but I'm more upset that my teachers didn't tell me
7 what to expect."

8 I had a student that I was recruiting in
9 San Antonio who had a 940 SAT and he was going to
10 Princeton.

11 I said, "Do you know what the average at
12 Princeton is?"

13 He said, "Well, my teachers told me it was
14 about 950."

15 I said, "Well, I think you'd better check
16 it out."

17 COMMISSIONER TAYLOR: I am going to pick
18 up on this point. I oppose any public policy which
19 masks this discussion. I think there are a lot of
20 public policies and the discussion about those public
21 policies that mask -- and I think intentionally mask
22 -- this discussion.

23 MR. ELLIOTT: I think you're right.
24 Look --

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1 VICE CHAIR THERNSTROM: Hold on. Somebody
2 didn't have their microphone on.

3 MR. ELLIOTT: Oh, sorry.

4 No, I mean it's hard to get a school to
5 look at the data that we've seen, particularly from
6 Professor Sander, about mismatch effects. The school
7 knows that they are there, but the school has another
8 agenda, which is to suit what are implicit, never
9 really explicit anymore, affirmative action goals,
10 usually almost numerical -- or call them at least
11 guidelines.

12 You can't be transparent about what you're
13 doing to some of these kids -- but that's a good goal;
14 I agree with it -- and still satisfy the other one
15 because it makes everybody see the terrible
16 inconsistency of your goals.

17 VICE CHAIR THERNSTROM: And would you be
18 willing to add another sentence to that, which is
19 that, in general, when you're talking about
20 undergraduate admissions at least, that what these
21 schools care about is having a freshman class look
22 right and being able to advertise the diversity of the
23 freshman class, and they care very little about what
24 the senior class looks like and what happens to the

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1 students when they're at the college in terms of
2 percentage of minorities who concentrate in math, and
3 so forth?

4 MS. WILLNER: But that is the most
5 critical issue because they are not doing the hard
6 work. Letting a kid in, sending them an acceptance
7 letter, that's not hard to do. It is being willing,
8 if you bring this kid in, if you bring this young
9 person in, and whether they are at an extreme deficit
10 or a moderate deficit -- or maybe they're not at any
11 academic deficit; they just look different because
12 there's only three people like them.

13 Dr. Elliott talked about the social
14 environment and learning from their friends. Those
15 are all things that need to be attended to, and we
16 have to defend that.

17 I think this K-12 link is absolutely
18 essential. We have to be telling 10th-graders and
19 11th-graders and 12th-graders and their parents, "This
20 is what it requires to get into these schools. This
21 is what it requires to get these jobs."

22 MR. TAPIA: I visit Berkeley a lot and
23 UCLA a lot. I'm not only saddened, it's more than
24 that, to see the impact that Proposition 209 has had.

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1 Essentially, I think it has killed -- you know I agree
2 with you on this thing.

3 I had meetings with the Chancellor at
4 Berkeley and he says, "Well, I really feel bad about
5 this, but our hands are tied. There's nothing that we
6 can do."

7 I was commencement speaker at UCLA. I
8 said the UCLA that I grew up with was not the UCLA of
9 today, I'm very disappointed to think.

10 But I want to turn the coin over. So when
11 the Hopwood decision, the Fifth Circuit Hopwood
12 decision came into Texas, Louisiana, and Mississippi,
13 our politicians, not our academics -- if you had asked
14 any academic, would the top 10 percent rule work, we
15 would all say no -- no, because they're not prepared.
16 But the politicians did it, and it was mostly the
17 minority politicians out of Houston.

18 The top 10 percent, anybody that graduates
19 in the top 10 percent of a public school in Texas is
20 accepted automatically at the University of Texas.
21 The University of Texas is 30 percent underrepresented
22 in minority math majors. It's the highest of any
23 research one in the United States, and it's working.

24 Now why is it working? Because they came

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1 to the door? No, because the mathematicians there all
2 said, "What are we going to do with all these people
3 who are not properly prepared? Let's build some
4 support programs."

5 I go back to Professor Sander about study
6 groups. Uri Treisman, who was first at Berkeley and
7 then wasn't treated well enough to stay at Berkeley --
8 they came to UT Austin -- has a thing called Emerging
9 Scholars Program. It's legendary, and UT success
10 rates are legendary, and they're retaining minorities
11 with a lot of extra effort.

12 So there's an example of we academics
13 would never have supported that, but it's working. It
14 is working so well that it is going to have to be
15 dismantled, because what is happening is that you have
16 a legacy, mother, father, grandparents who went to UT
17 Austin, they go to Bel Air High School, which is one
18 of the top high schools in the State of Texas, and
19 you're 11 percent; you don't get into UT.

20 VICE CHAIR THERNSTROM: Uri Treisman was
21 supposed to be here, by the way, and ended up not
22 being able to make it. We did want to hear from him.

23 I have a question for Professor Sander. I
24 don't understand quite why we're ahead with

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1 socioeconomic preferences. That is, if you are
2 admitting students who are not prepared and the source
3 of their under-preparation, inadequate preparation, is
4 because the deck was stacked against them in terms of
5 family background, and so forth, the bottom line is
6 you're still admitting students who are inadequately
7 prepared to do the rigorous work demanded at the most
8 competitive colleges.

9 MR. SANDER: Okay. Here's how I think it
10 works:

11 First of all, if you use socioeconomic
12 preferences instead of racial preferences -- or I'm
13 sorry -- if you use socioeconomic preferences in
14 combination with racial preferences, that means that
15 the size of preference that you need in either
16 category to achieve a fair amount of diversity is
17 smaller because you're creating a broader definition
18 of diversity.

19 VICE CHAIR THERNSTROM: And giving Asians,
20 of course, a lot of Asians, who are --

21 MR. SANDER: Some Asians.

22 VICE CHAIR THERNSTROM: -- bumping into an
23 Asian ceiling, giving --

24 MR. SANDER: Some Asians benefit; some

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1 whites benefit, yes. That kind of goes with the logic
2 of the whole thing.

3 But you're broadening the definition of
4 diversity. Therefore, the size of preferences that
5 you give generally will be smaller. That's No. 1.

6 No. 2 is the factor I mentioned before,
7 which is that a lot of the data I am looking at
8 indicates that credentials are most likely to
9 understate potential when you're dealing with someone
10 with low socioeconomic status. That's not terribly
11 surprising.

12 Dr. Tapia will point out the correlation
13 between SAT scores and family income, and so on.
14 There are partly sensible, valid reasons for that, but
15 there are also disadvantaged reasons for that. So
16 those students receiving that kind of preference are
17 most likely to perform.

18 Third, we're talking about a range where
19 preferences are not from a social standpoint, a social
20 science standpoint, not having demonstrably bad
21 effects. So after Prop 209 passed, my law school,
22 UCLA Law School, adopted a very aggressive set of
23 socioeconomic preferences. We totally eliminated the
24 use of race during that first year of experimentation.

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1 We produced the most diverse class of any
2 law school in the country, whether you looked at it
3 socioeconomically or racially. The preferences, the
4 average preference that we gave was about a third the
5 size of the preferences we had been using before.

6 MR. ELLIOTT: Are you still doing that?

7 MR. SANDER: No. No. The program was
8 gutted because it was not thought to produce enough
9 African-Americans.

10 So we went to a variety of subterfuges
11 that actually produced even fewer African-Americans,
12 but made some faculty feel better.

13 COMMISSIONER GAZIANO: What kind of
14 subterfuges?

15 MR. SANDER: Well, most notoriously, we
16 started a program on critical race studies, where we
17 admitted students to a track where they could major in
18 critical race studies. The first year of that program
19 we had 30 white applicants with a median LSAT score of
20 about 163, and none of them got admitted. We had 30
21 black applicants with a median LSAT of 154, and eight
22 of them got admitted. I would call that a subterfuge.

23 COMMISSIONER GAZIANO: Not just the
24 program, but how the program operated, right?

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1 MR. SANDER: Yes, yes.

2 MR. TAPIA: But you did produce Johnny
3 Cochran, right?

4 MR. SANDER: We did produce Johnny Cochran
5 in a race-neutral area. Our preference programs of
6 all types have had many spectacular successes. You
7 could point to a lot of individual successes.

8 But using very large preferences -- well,
9 I'm not really here to talk about law schools anyway.
10 I have another hearing for that.

11 But really large preferences clearly have
12 counterproductive effects for all graduates.

13 VICE CHAIR THERNSTROM: Well, wouldn't you
14 want to add that, look, you look at the Bok and Bowen
15 Study, it's colleges only; it's not professional
16 schools, but about half the underrepresented minority
17 students did not need preferences. It is important to
18 remember that, sure, you've got very successful
19 minority students and a lot of them, most of them
20 probably, came in not needing preferences.

21 MR. SANDER: Right, Barack Obama being a
22 notable example.

23 VICE CHAIR THERNSTROM: Yes, right.

24 MR. TAPIA: In fact, Bowen and Bok was

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1 only African-American, no Hispanics.

2 VICE CHAIR THERNSTROM: Right. That's
3 correct.

4 MR. TAPIA: And Rice was in the study, I
5 think.

6 VICE CHAIR THERNSTROM: Yes. Yes.

7 Commissioner Yaki, you still don't want to
8 come in on this? I'm about to call on Commissioner
9 Kirsanow, but he, of course, has spoken before.

10 COMMISSIONER KIRSANOW: We've been talking
11 about efforts to get more Hispanics and blacks in STEM
12 programs. In your second slide, Professor Sander, it
13 appears as if PhDs in science, Asians are seven times
14 more likely to obtain than whites and forty-two times
15 more likely than blacks to obtain them, and twenty-
16 eight times more likely than Hispanics to obtain them.

17 Have you seen in any work that you have
18 done any indication that schools, as opposed to taking
19 efforts to increase the representation of blacks and
20 minorities, are either overtly or inadvertently
21 discouraging the participation of Asians in STEM
22 programs?

23 MR. SANDER: No, although I think that is
24 an interesting issue, and I hope to study that in the

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1 future.

2 MR. TAPIA: On the Asian, if you look at
3 domestic Asians, they are starting to get more and
4 more underrepresented. If you look at the graduate
5 student population in science and engineering, and if
6 you look at faculty in particular, Donna Nelson,
7 University of Oklahoma, has just done a study on
8 faculty representation at the top 50 schools in the
9 particular discipline and distribution.

10 Her point is, yes, women are on the short
11 end, African-Americans, Hispanic-Americans, and she
12 shows that Asian-Americans are also there; that what
13 faculty are doing and graduate schools are doing is
14 bringing in Asians from Asia.

15 I walked into my class the other day. I
16 had 22 people. Over half were Asians from Asia.

17 So Asian-Americans are notably declining
18 in terms of graduate representation. The University
19 of California, Berkeley, which I visited and evaluated
20 their Math Department, depending on the discipline,
21 between 50 and 55 percent Asian-Americans
22 undergraduate, not one Asian-American faculty in the
23 Math Department at Berkeley. Of course, no blacks
24 and, of course, no browns, but also no yellow.

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1 COMMISSIONER KIRSANOW: What do you think
2 is the reason? If there is a decline among Asian-
3 Americans, what's propelling that?

4 MR. TAPIA: Well, I could do a funny
5 answer. The funny answer is go to east LA, and that's
6 where I grew up. The Asians that came into east LA --
7 now this is funny, but it is not supposed to be
8 completely funny -- they started to sort of emulate
9 the Mexican-Americans and the African-Americans, of
10 course, you know, going to schools that had large
11 percentages, because they saw that that was the
12 component that was accepted as sort of the leadership
13 of the school.

14 So there's two things that happen. The
15 longer they are in this country, the less chance you
16 have of being well-represented.

17 There was a study done by Angela
18 Valenzuela, faculty at Rice, and it's called,
19 "Subtractive Education". She studied Austin High
20 School in Houston, Texas. She showed that the
21 individuals whose parents were born in Mexico and they
22 were born in Mexico did the best. Next was the next
23 generation. The longer you were in Houston, which
24 I've generalized to the United States, or at least to

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1 Texas, the poorer you did.

2 So Asian-Americans are assimilating. They
3 are acting like the general population. It is harder
4 for them to maintain the culture that their parents
5 brought with them and want.

6 My best friend/colleague is from China.
7 His son went to Rice undergraduate, went to UT Austin,
8 and got a job at a master's degree level. He is
9 working for Apple. He's doing very well. Both the
10 parents are very upset that he didn't get a PhD. He
11 chose not to get it. He wanted to go to work at the
12 master's degree level. They feel that he has
13 embarrassed them.

14 So if you say culture isn't an issue, it
15 is. I say that the fact is that there is a
16 correlation that the Asian-Americans are assimilating
17 more. I think the longer they stay in this country,
18 the more they lose the traditional value system, as
19 happens with Mexican-Americans and Cuban-Americans.

20 You referred to the Nigerian thing. There
21 were times when Harvard, if you looked at the African-
22 American, significantly, the number of Nigerians.

23 I'll tell you this: If you look at
24 Hispanics at elite schools, Cuban-Americans, Puerto

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1 Ricans from the island, and Salvadoreans. If you want
2 to say, what's common about them, it's a political
3 reason. We, the Mexican-American and the New Yorkican
4 came for economic reasons. We were so poor, we needed
5 jobs -- not for the Cubans, not for the Salvadoreans,
6 for political reasons, and you will see that split.

7 The longer you are in this country, the
8 harder it is for you.

9 MR. SANDER: Let me just throw one quick
10 thing in. I just want to partly agree and partly
11 disagree with Professor Tapia on this, which is that
12 those data up there on the chart are just for U.S.
13 residents.

14 It is true, it is absolutely true that
15 something like 30 percent of all PhDs in science in
16 America are being granted to non-resident aliens, but
17 those data are for U.S. residents. As you can see,
18 Asians are still very healthily represented in that.

19 That data is from a 2003 survey done by
20 the Census Bureau, college graduates, and it is
21 restricted -- I'm only looking at population that I
22 think is born in 1960 or later. So this is all
23 capturing the current cohort.

24 I'm not sure if you are suggesting this,

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1 but there is not a crisis in Asians in science.

2 COMMISSIONER KIRSANOW: Is there any data
3 that would --

4 MR. SANDER: And on the immigrant issue, I
5 think we both agree that ivy league undergraduate
6 admissions of blacks include about 30 percent non-
7 native blacks.

8 VICE CHAIR THERNSTROM: Well, but also,
9 two things: one, the College Board -- we just got in
10 the mail yesterday -- just came out with students
11 taking AP courses broken down by race and ethnicity,
12 and there's a huge up-tick in the percentage of
13 Hispanics taking --

14 MR. TAPIA: That's correct.

15 VICE CHAIR THERNSTROM: -- AP courses.

16 MR. ELLIOTT: But not in science.

17 VICE CHAIR THERNSTROM: Not in science?
18 Okay. I didn't look carefully enough at that.

19 But, also, I'm a little puzzled, Professor
20 Tapia, at one of your answers. Am I correct to say at
21 Berkeley and UCLA the undergraduates are approximately
22 half Asian, maybe a little under, but close to it, in
23 any case? Couldn't you explain the paucity of Asians
24 in graduate schools by simply saying they are not

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1 choosing to go ahead with academic careers; they are
2 going into business? I mean many of them come from
3 families that have no wealth. They are fairly recent
4 immigrants to this country. They are going for other
5 professions, as blacks are.

6 MR. TAPIA: Sure. Commissioner, sure.
7 That's always used about blacks, about Hispanics.
8 There is a component there, without a doubt.

9 But I think if it were more attractive, if
10 faculty positions were more attractive, if graduate
11 school were more attractive, and they saw more people
12 liked to go into it, then it wouldn't be that bad.

13 I often have an African-American or, say,
14 there's a Mexican-American student, undergraduate, I
15 say, "Have you considered going to graduate school?"

16 VICE CHAIR THERNSTROM: Are you including
17 medical school in that?

18 MR. TAPIA: No.

19 VICE CHAIR THERNSTROM: No, but the
20 numbers in medical school are very, very high.

21 MR. TAPIA: Sure, but I don't deal with
22 those people.

23 (Laughter.)

24 But what I say -- and the person will say

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1 to me, "No one has ever suggested that to me ever.
2 You're the first person." Then they say, "But I had
3 two C's."

4 "When? It doesn't matter. Go."

5 I had one student recently who got a PhD
6 in three years who is now at Texas Instruments. He
7 did very well. He said, "Everybody else but you told
8 me that I couldn't go to graduate school because of my
9 grades." He was Mexican-American from San Antonio.

10 Yes, that's an issue. I don't think that
11 accounts for it.

12 If you look at the way the Math Department
13 at Berkeley hires, the way they hire, I mean, I'll
14 tell you, and I know I'm talking too long, but I want
15 to say something. The Math Department at the four top
16 schools in mathematics, which would be probably
17 Harvard, Princeton, Berkeley, and maybe Stanford, they
18 just hire the best person they can find independent of
19 position. They don't say, well, let's hire an
20 assistant professor. They say, here's the person who
21 is the very best in any area; let's go.

22 So they hire people who are considered the
23 best in the country. So what happens? They don't get
24 women. They don't get Asians, I mean Asian-Americans.

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1 They don't get Hispanic-Americans, and they don't get
2 African-Americans. That kind of a model.

3 So what I suggested to Berkeley was that
4 they bring in -- because they have a lot of post-
5 docs -- they bring in these individuals in their post-
6 doctoral positions and then evaluate and see if they
7 move in, and they just hired two women.

8 VICE CHAIR THERNSTROM: But, look, if
9 you're an Asian undergraduate and you don't come from
10 a family with any particular wealth, you're really
11 first-generation that has a chance to climb the ladder
12 of social mobility in America, why wouldn't you go to
13 medical school? Why wouldn't you go into a profession
14 where you would earn more money and is more
15 prestigious?

16 COMMISSIONER YAKI: Professor Tapia,
17 before you answer that, let me interject just slightly
18 on this. That is, it is somewhat misleading and a
19 misnomer to just sort of toss out the word "Asian".
20 There are any number of different groups within that.
21 There are great disparities within the Asian-American
22 community among the new immigrant population, the more
23 first-generation that you're talking about,
24 Commissioner Thernstrom, versus the Japanese/Chinese-

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1 American populations, which have been here two, three,
2 four, in my case four generations.

3 So I think we have to be very careful when
4 we toss that out in terms of who's going where or what
5 because it doesn't really capture the very distinct
6 differences in terms of which of the subpopulations
7 within the term "Asian" track toward which profession,
8 which degree, scoring, et cetera. I just want to
9 throw that out there because it bugs me.

10 MR. TAPIA: I agree with you.

11 VICE CHAIR THERNSTROM: Well, I agree with
12 that.

13 MR. TAPIA: But what I want to say to you
14 is I agree with you, but just think how much more
15 terrible it is the way we talk about Hispanics.
16 They're the extremes. I mean that's the extreme
17 situation, you know, from the Chicano in the barrios
18 of LA to the aristocratic Argentine. What do they
19 have in common? Not even the language.

20 COMMISSIONER YAKI: Right.

21 VICE CHAIR THERNSTROM: They count for
22 diversity. That's what they have in common.

23 MR. TAPIA: Yes, that's correct. I
24 understand that. I understand that point.

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1 But I go back to the story of my colleague
2 whose son decided to go to work at the master's degree
3 level, and my colleague and his wife are very, very
4 disappointed that their son did not go for the PhD,
5 that he went to work for Apple. It wasn't a money
6 issue with the parents. So there's a culture there --

7 VICE CHAIR THERNSTROM: Why is that a bad
8 decision?

9 MR. TAPIA: I'm not saying it's bad.

10 VICE CHAIR THERNSTROM: I mean, your
11 parents --

12 MR. TAPIA: I'm not telling you that it is
13 bad.

14 VICE CHAIR THERNSTROM: We have one versus
15 another.

16 MR. TAPIA: I'm relating to you the
17 culture.

18 Now my daughter, who is now in her early
19 twenties, but who was not long ago a teenager, all her
20 friends -- she's Hispanic -- their parents were quite
21 happy when they went to work and didn't even go to
22 college, or got married or had kids. "Now we're going
23 to be grandparents. Wow, that's the greatest thing
24 that could ever happen to us."

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1 VICE CHAIR THERNSTROM: No, I understand
2 that, but I just was addressing the question of the
3 very high percentage of Asian undergraduates. I agree
4 that these umbrella terms are awful, and it's a
5 particularly --

6 COMMISSIONER YAKI: In particular, since
7 Prop 209, the number of foreign Asian students who pay
8 full tuition and are there for a much more attractive
9 financial commodity to the UC system has greatly
10 increased. So that is another point to make in terms
11 of what is Asian in terms of the UC system because the
12 fact that you can bring people in who are going to pay
13 full board is a whole different calculus in terms of
14 admitting someone who you essentially have to
15 subsidize through the UC system.

16 MR. SANDER: I would like to just seize
17 the opportunity to agree with Commissioner Yaki on
18 both his point about the UC system with maximizing its
19 tuition revenue and with the diversity of the Asian
20 population.

21 The poorest and most segregated population
22 in metropolitan Los Angeles is neither the black
23 population nor the Hispanic population nor the
24 Mexican-American population, but the Cambodian

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1 population.

2 VICE CHAIR THERNSTROM: Sure.

3 MR. SANDER: We are reduced to using
4 generalizations, but we should always keep in mind
5 their limitations.

6 VICE CHAIR THERNSTROM: Right. Right.
7 But my only point before was, look, it is not clearly
8 more in the public interest that undergraduates,
9 whatever their color, go into the academy than go work
10 for Apple or IBM or whatever.

11 MR. TAPIA: Right. Everyone agrees with
12 that.

13 My only point is this: there's millions
14 of reasons why people go, but I see, if I say, okay,
15 African-American mathematicians, and I take all the
16 branches of the University of California, and I take
17 all the ivy leagues, and I look at only math
18 departments, how many African-American faculty do I
19 have? I have zero. I'm saying zeroes are bad.

20 Earlier we were talking about percentage
21 improvements. One thing as a mathematician that I see
22 people use is, what's the improvement from zero to
23 one? It is infinite improvement. You can never do
24 better than that. Okay? You can never do better than

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1 that.

2 So here's what a department will do: zero
3 to one, infinite improvement. "We have ours; we have
4 our one; now you go get yours." And I say one is not
5 enough.

6 VICE CHAIR THERNSTROM: Commissioner
7 Kirsanow.

8 COMMISSIONER KIRSANOW: Professor Sander,
9 are there any mismatch -- or how does the mismatch
10 differential in STEM among minorities differ, if at
11 all, from the mismatch differentials in other
12 disciplines such as law?

13 MR. SANDER: Well, I think, you know, the
14 STEM issues at the undergraduate level are probably
15 uniquely severe. In other words, the statistics that
16 we have looked at for attrition and switching out are
17 going to be worse for science and engineering majors,
18 especially those in the physical sciences, than they
19 would be if we looked at, say, political science
20 majors because of all the reasons that we have talked
21 about: the linearity of science curricula and the
22 fact that you've got to get past threshold A to get to
23 threshold B, and the merciless weeding out, and the
24 curved grading, all those things.

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1 All those things militate against being
2 able to sort of flexibly adjust the curricula to
3 permit --

4 COMMISSIONER GAZIANO: "Flexibly adjust",
5 that's a good euphemism.

6 MR. SANDER: -- yes -- to permit
7 graduation. It is much more rigid. Therefore, it is
8 much less within general administrative discretion to
9 sort of gloss over the issue of learning.

10 Law school I think is similar to science
11 because it's got this bar exam that has to be passed
12 to become a practicing lawyer. The bar exam, for all
13 its imperfections, is a serious attempt to measure
14 one's learning and one's proficiency as a lawyer.

15 So that, too, kind of provides something
16 analogous to science curricula in terms of creating a
17 very clear barrier and threshold that sort of can't be
18 glossed over.

19 So if you try to look at mismatch effects,
20 say, among English majors, it is very hard to measure
21 because we don't have very good outcome measures aside
22 from graduation rates, which are considerably under
23 the control of the undergraduate presidents.

24 So, in that sense, I think science and law

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1 are both good analogies to each other. There are
2 other areas, like science PhDs or medical schools,
3 where you have other mismatch problems, but there is
4 either the potential to use mentoring or the actual
5 use, and at medical schools it is much more aggressive
6 mentoring, that ameliorates the problem.

7 VICE CHAIR THERNSTROM: I want to make
8 Commissioner Yaki the last -- we really are out of
9 time.

10 MR. TAPIA: Can I comment on what he just
11 said?

12 VICE CHAIR THERNSTROM: Very quickly.

13 MR. TAPIA: Okay, quickly. I work a lot
14 with lawyers. I do a lot of expert witness in federal
15 court. Here's what I was going to say:

16 Recently, a lawyer defined the following
17 thing: a lawyer is an intelligent person with no
18 talent. Now a scientist is an inarticulate person
19 with considerable creativity.

20 So when I deal with the two, I could see,
21 when I first read your thing on law, I said, yes, I
22 can see it there, but science there's another
23 component. I have had so many successful scientists
24 who were probably, if you had seen them in a class,

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1 they would be inarticulate or wouldn't handle
2 themselves well or don't handle themselves well, but
3 they had a creativity component.

4 I maintain I have that. I have been a
5 very creative mathematician. Yet, it was never
6 measured correctly. It was never measured. Only in
7 my later career did I show it.

8 I go back to the story about the Hayden
9 High School students, the ones who won this robotics
10 thing. So I see it as there's another component there
11 to look for, but, anyway, I don't know. Law, I don't
12 know. I don't know.

13 VICE CHAIR THERNSTROM: We need to move on
14 to the last question because we really are out of time
15 here. Last, but not least ever, Commissioner Yaki.

16 COMMISSIONER YAKI: Thank you very much,
17 Madam Vice Chair.

18 I guess I have far too many comments to
19 talk about. So I am just going to briefly state, as
20 Professor Sander and I agreed early on, he and I don't
21 agree with each other on even the impact of whether
22 the mismatch as alleged exists or not, simply because,
23 as I was watching what he was saying earlier, he seems
24 to have now narrowed what he defines as mismatch to a

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1 large gradient of differential that may be
2 attributable to factors other than what we were
3 talking about here.

4 Then when Professor Sander said that
5 affirmative action is dying, I thought that was a
6 rather interesting statement, given that it is not
7 dying of its own; it's dying because people are
8 passing initiatives left and right across this country
9 to kill affirmative action as a component of higher
10 education.

11 I think one thing that Professor Tapia
12 said, and I do want to make this one statement: I
13 have said it before, and I'll say it again for the
14 record, that I am so alarmed at the fact that -- and
15 this is not a criticism of any of you people here, but
16 just that I do not see a real sense of balance in
17 terms of the witnesses here with regard to the issue
18 of mismatch, with regard to some of the other issues.

19 I know that former Secretary O'Leary
20 canceled from the HBCU, but I am actually kind of glad
21 she did because one of the things that I saw early on,
22 and have seen throughout my tenure at this Commission,
23 has been a usage of the HBCUs as sort of the -- well,
24 using the HBCUs as an excuse as to why we can do away

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1 with all affirmative action, because, of course, any
2 person who could not get in under their own criteria
3 could, of course, go to an HBCU. But then,
4 interestingly enough, we heard what Professor Tapia
5 has said about what the realities are in terms of the
6 success in STEM with regard to the HBCUs.

7 I think we needed more of that. I think
8 we needed more of that kind of balance. I think that,
9 as a country, we should and do care about what our
10 faculties look like, who are our role models.

11 I have now been, unfortunately, around
12 long enough on this earth that I once heard someone
13 say, and I am sure that they were probably on some
14 hallucinogenic medicine, that I was a role model in
15 terms of just the fact that when I was in college, I
16 was one of the few Asian-Americans who was not in Chem
17 1A, I was not in Math 1A at Cal, and went resolutely
18 toward a career in politics, which was what I had
19 always wanted to be. Now many others are coming up
20 along those ranks.

21 But I just say, for the record, I am
22 concerned about balance in these hearings. I hear a
23 statement about how there may be general agreement on
24 this panel about the existence of mismatch. I don't

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1 know if it is all on the same definition of mismatch.
2 But I also know that there are many people out there
3 who are not part of this panel who would not agree
4 that mismatch does occur, who would not agree that the
5 HBCUs are sort of the catch ground for the folks who
6 would not otherwise be in there.

7 I think that Professor Sander and I will
8 have to agree to discuss at some other time our
9 probably very differing, wildly different data, on the
10 student makeup of the UC system since Prop 209 and
11 what that has meant to the educational aspirations and
12 careers.

13 Ultimately, part of what we are talking
14 about here is the potentiality of human beings. That
15 is not something you can really measure. You can
16 capture bits of it in standardized tests. You can
17 capture bits of it in terms of how someone stands out
18 in an innercity classroom, that maybe they have the
19 ability to go on to the next level.

20 But, to me, affirmative action has never
21 been about giving someone a place that someone else
22 deserved. It is more about how do you measure
23 potentiality in human beings and their potential and
24 their ability to grow and succeed. By forever closing

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1 that door, or using statistics to close that door, we
2 close off potentiality to so many deserving people of
3 color in this country that it is just something that I
4 fear for and one that continues to be why, despite all
5 the difficulties, I sit here once a month at this
6 Commission.

7 But, again, for what you brought to the
8 discussion, thank you very much. It was enlightening.
9 It was very interesting. I enjoyed the debate back
10 and forth, but there are other voices that could also
11 have been at this table, and those voices need to be
12 heard as well.

13 VICE CHAIR THERNSTROM: Thank you very
14 much.

15 I am going to cut off discussion at this
16 point. We need to go to lunch.

17 Thank you so much for really a great
18 panel.

19 (Whereupon, at 12:44 p.m., the briefing
20 was concluded.)

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