

A NATIONAL DIALOGUE: THE SECRETARY OF EDUCATION'S COMMISSION ON THE FUTURE OF HIGHER EDUCATION

AGENDA

February 2 - 3, 2006

Paradise Point
1404 Vacation Road
San Diego, California

Thursday, February 2, 2006

<u>Time</u>	<u>Item</u>	
1:00 – 1:15pm	Opening Session	Sunset III Room
	Charles Miller, Chairman - Welcome and Call to Order	
1:15 – 2:30pm	Session 1 – Task Force Updates (10 minutes each w/time for Q & A) <ul style="list-style-type: none">• Accessibility• Affordability• Quality• Workforce• Accountability	
2:30 – 3:30pm	Session 2 – Innovation and the Economy <ul style="list-style-type: none">• G. Wayne Clough, President, Georgia Institute of Technology• Nick Donofrio, Executive Vice President, IBM	
3:30 – 4:45pm	Session 3 – Innovative Financing <ul style="list-style-type: none">• Trace Urdan, Senior Research Analyst, R.W. Baird• Andy Kaplan, Partner, Quad Ventures• Howard Block, Managing Director; Senior Research Analyst, Banc of America	
4:45 – 6:00pm	Session 4 – Innovative Models of Delivery <ul style="list-style-type: none">• Robert Mendenhall, President, Western Governors University• Jonathan Grayer, CEO, Kaplan Inc.• Steve Shank, CEO, Capella Education Company	

Friday, February 3, 2006

Time	Item	
8:30 – 8:45am	Opening Remarks by Chairman Miller	Sunset III Room
8:45 – 10:15am	Session 5 - Innovative Public/Private Sector Models <ul style="list-style-type: none">• Rollie Otto, Director of Education Programs, Lawrence Berkeley National Lab• Charles Reed, Chancellor, California State University System• Monica Poindexter, Associate Director, Corporate Diversity and College Programs, Genentech	
10:15 – 11:45am	Session 6 – Innovative Teaching & Learning Strategies (Course/Program Level) <ul style="list-style-type: none">• Tom Magnanti, Dean, School of Engineering, Massachusetts Institute of Technology• Joel Smith, Vice Provost and Chief Information Officer, Carnegie Mellon• Dave Wiley, Assistant Professor, Center for Open and Sustainable Learning, Utah State University	
11:45 – 12:45am	Session 7 – Student Panel Cheryl Oldham, Executive Director – Introduce Panelists and Facilitate Session <ul style="list-style-type: none">• WGU student• Kaplan student• Capella student	
12:45 – 1:00pm	Wrap Up and Adjourn	

Public Hearings:

Date – February 7, 2006

Location – Seattle Crowne Plaza, Seattle, WA

Date – March 20, 2006

Location – Boston, MA

Commission Meeting:

Date - April 6-7, 2006

Location - Hilton Indianapolis, Indianapolis, IN



A National Dialogue: The Secretary of Education's Commission On The Future Of Higher Education

FACT SHEET

"It is time to examine how we can get the most out of our national investment in higher education. We have a responsibility to make sure our higher education system continues to meet our nation's needs for an educated and competitive workforce in the 21st century." –Secretary Margaret Spellings

About the Commission

Developing a National Strategy

On September 19, 2005, United States Secretary of Education Margaret Spellings announced the establishment of A National Dialogue: The Secretary of Education's Commission on the Future of Higher Education. Its charge is to ensure that America's system of higher education remains the finest in the world and continues to meet the needs of America's diverse population by expanding opportunity, innovation, and economic growth. Composed of nineteen representatives from both public and private sectors as well as *ex officio* members from the Department of Education and other Federal agencies, the Commission will address vital questions such as:

- How can we ensure that college is affordable and accessible?
- How well are institutions of higher education preparing our students to compete in the new global economy?

The Commission will submit a final report by August 1, 2006 to the Secretary.

More information about the Commission and higher education is available at:

<http://www.ed.gov/about/bdscomm/list/hiedfuture/about.html>

<http://www.ed.gov/teachers/how/prep/higher/higher-ed.html>

Secretary Spellings' Remarks

Announcement of the Establishment of the Commission

<http://www.ed.gov/news/speeches/2005/09/09192005.html>

Webcast of Proceedings, Transcript & Testimonies

<http://www.ed.gov/about/bdscomm/list/hiedfuture/meetings.html>

Upcoming Meetings

February 2-3, 2006

Paradise Point
San Diego, CA
(Commission Meeting)

February 7, 2006

Crowne Plaza
Seattle, WA
(Field Hearing)

April 6-7, 2006

Hilton Indianapolis
Indianapolis, IN
(Commission Meeting)

To Register:

Contact Carrie Marsh
202-205-8741
carrie.marsh@ed.gov

Registration is also available upon arrival.



A NATIONAL DIALOGUE:

The **Secretary** of **Education's Commission** on the **Future** of **Higher Education**

SUMMARY OF MEETING

February 2, 2006

Strategies to keep the U.S. competitive in a global market while improving access, affordability, and accountability dominated the agenda of the February 2 hearing of A National Dialogue: The Secretary of Education's Commission on the Future of Higher Education. Innovation was the focus as the Commission, convening in San Diego, presented a public debate on America's higher education system and the socio-economic factors impacting delivery and financing. A chief goal of the session was to examine new paradigms for educational delivery, particularly online and nontraditional programs that increase access to higher education and diversify student populations.

Commission Chairman Charles Miller set the tone, alluding to the complex nature of the mission but vowing to produce a final report that features the best information available for practical use. Said Miller: "Rather than a research report, it will be the result of our combined intellectual capital. We're encouraged to produce bold ideas. As those ideas surface, we will need to be bold."

Miller also welcomed new Commission Member Catherine B. Reynolds, Chairman and CEO of EduCap, Inc., and the Catherine B. Reynolds Foundation.

Acting Undersecretary of Education David Dunn briefed members on President Bush's recent initiatives, including the \$5.9 billion Competitive Initiative, which he said "anticipates doubling the federal commitment" for research and physical sciences over the next decade and encourages more private sector investment. The President also asked Congress to provide increased funding for the Advanced Placement and International Baccalaureate Program to train 70,000 new teachers in advanced math, science and languages, Dunn said.

Session 1—Task Force Updates

- **Accessibility:** Commission Member David Ward, President of the American Council on Education, said growing access is bringing more economically challenged students into the system, creating a need for new sources and access to federal, state, institutional and private financial aid. Other key issues: Academic preparation for college and the growing numbers of adults turning to higher education to enhance job prospects or compete more effectively in existing vocations.
- **Affordability:** Among general areas identified by Commission Member Richard Vedder, Distinguished Professor of Economics at Ohio University: performance levels and the lack of incentives for efficiency, productivity advancement, and cost control. He said the task force continues to pinpoint specific issues in these areas for inclusion in the final report.
- **Quality:** Commission Member James J. Dunderstadt, Director of the Millennium Project at the University of Michigan, presented what he called a "blockbuster" goal: "That the nation should commit itself to a vision of providing all American citizens with universal access to lifelong learning opportunities, thereby creating the world's most advanced knowledge society and providing for economic prosperity, national security and social well-being in a global economy." Specifically, the task force recommendations will focus on enhancing public-private partnerships to improve quality performance and efficiency in post-secondary education; stimulate a more "innovative culture" in American higher education with new programs and activities; improve access by examining state and federal public subsidies, and increase federal support for R&D and graduate education to improve economic competitiveness and national security.

- **Workforce:** Commission Member Robert Mendenhall, President of Western Governors University, offered this bottom-line assessment: “The employers of today are clearly looking for . . . a workforce that can be trained to evolve as the job evolves and as technology provides different responsibilities in the workplace.” As life spans increase, he added, people might have a 50-year work life. Recommendations under review: Better collaboration between higher education, industry and government; more flexible financial support for licenses and credentials available outside a formal degree program; tax credit and incentive increases to low income citizens seeking higher education; greater accountability from institutions to track graduates in the labor market to ensure they are meeting workforce requirements, and development of state-by-state comparisons on the needs of adult learners and how those needs are being met.
- **Accountability:** Chairman Miller defined accountability as “measuring performance” and said the Commission will offer a briefing paper for analysis and discussion before the April meeting.

The Chairman repeated the hearing’s theme—*innovation*—declaring: “Clearly, the ability of our economy to innovate has been a competitive advantage. The contribution of higher education to that capacity is critical.”

Session 2—Innovation and the Economy: An analysis of the National Innovation Initiative report (NII), Innovate America, currently under review by policy makers and the business community.

The presentation by Dr. G. Wayne Clough, President of the Georgia Institute of Technology, Co-chairman of NII, provided a broad base from which to launch a discussion on innovation. He urged the Commission to examine: trends in higher education, changes in the global environment, and the role of the university in an innovation economy. Factors impacting these issues are science and engineering enrollments, the aging demographics of those who teach, new R&D challenges, the need to teach students how to compete globally, the continued need for IT-enhanced learning, and the reduction of the interval between university innovation and commercial placement.

Commission Member Nick Donofrio, Executive Vice President, Innovation and Technology, IBM Corporation, offered a global perspective on innovation and competition during the hearing and in submitted testimony. Donofrio pointed to collaboration between educational institutions and the government as a central element in creating an innovation economy. “America has a long and proud history of recognizing when change is required, and then rising to the challenge,” he said. “As we work to transform our rhetoric into action, innovation must be our engine and urgency must be our fuel.”

Session 3—Innovative Financing: Examining the power of capital markets and implications for higher education.

Mr. Trace Urdan, Senior Research Analyst with Robert W. Baird & Company, said contemporary corporations value not only financial assets but also intellectual capital. That shift is illustrated by current statistics that put skilled jobs at 65-75 percent of all employment and an increased demand for educated workers who are computer literate, critical thinkers, information analysts and understand the global marketplace. “Lifelong learning,” said Urdan, “has gone from being a luxury to a necessity for both employers and employees alike.” For-profit education is now embedded in the industry because it responds to consumer demand with appropriate curricula. He recommended state governments reassess funds to match higher education goals and allow institutions such as community colleges to privatize to increase efficiency while redirecting more aid to individuals.

Mr. Andy Kaplan, Partner, Quad Ventures, said there are more than 2,600 for-profit institutions in the U.S. He said the demand was created by limited job prospects for high school graduates. He outlined the strengths and weaknesses of the post-secondary market and recommended tightening controls and smoothing the approval process for buyers of new schools. Kaplan indicated private investments for schools in inner cities remains a problem because of regulations regarding retention rates and default rates.

Dr. Howard Block, an equity analyst at Banc of America Securities, outlined the role of private capital in higher education, the pros and cons of for-profit higher education programs, and incentives that might increase private investment for education and training. Block said for-profit institutions serve a higher percentage of minorities than traditional schools—34 percent versus 22 percent, a combined percentage for African Americans and Hispanic Americans. He said affordability continues to be a major issue regarding calls for better collaboration of institutions, governments and goals, Block said: “Instead of asking what incentives are needed to attract more capital, I’d like to ask what incentives are necessary in order to better align societal objectives with investor objectives.”

Session 4—Innovative Models of Delivery: Expanding access to higher education via nontraditional and innovative delivery models.

Dr. Mendenhall described the nontraditional Western Governors University as “a different model of higher education.” The school, created by 19 western governors as a private non-profit Internet-based school, receives no state money but was founded to create new paradigms. For example, there is no faculty tenure because evaluation

and compensation are primarily based on the success of students. He said explicit learning outcomes and measurements would benefit all of higher education.

With 79 campuses and 50,000 students, Kaplan University is an excellent subject for metrics and the delivery of online education. Commission Member Jonathan Grayer, Chairman and CEO of Kaplan, Inc., said the school constantly analyzes statistics to spot trends in the classroom—positive and negative.

Dr. Steve Shank, CEO of Capella Education Company, said his school serves 14,000 students in 50 states, and added that the statistical makeup points to its success in providing access: 97 percent are over the age of 25; 35 percent are Latino or African-American; 63 percent are women, and 15 percent are either active military or military family. Shank called for improved financial aid provisions that conform to students' needs and across-the-board accountability.

SUMMARY OF MEETING

February 3, 2006

Innovators in the higher education community are forging partnerships with industry and government to synthesize answers to questions of America's global fitness in science and technology.

Session 5—Innovative Public/Private Sector Models: Examining the relationship between higher education and industry.

The next few decades could reveal an explosion of technology and advances that could not be conceived of 20 years ago, said Dr. Rollie Otto, Director of Education Programs, Lawrence Berkeley National Laboratory. Otto also believes if the U.S. is to successfully “compete, prosper and be secure in the 21st century global community,” changes are needed in the preparation of students in early grades and high school and also improvement in the quality of math, science, and technology programs for students and teachers. He favored forming alliances that encourage more mentors from the private sector to partner with students and schools. Otto said greater emphasis should be placed on helping students connect what they are taught and how to apply that knowledge to the real world. He said the U.S. must increase the number of students entering the science and technology fields, promote equal access for all students (especially those in underserved groups), improve the quality of teaching in science and engineering, and encourage private sector partnerships that would give students and teachers more access to modern scientific tools and equipment.

Dr. Charles Reed, Chancellor of California State University, also referred to the effectiveness of partnerships in enhancing the scientific and technology IQs of America's underserved populations. More than half of the 405,000 students enrolled

on 23 campuses are students of color. CSU negotiated to embed the university's placement exam in the California Standards Test for 11th graders, testing them in math and English proficiency before they entered 12th grade to identify and ameliorate remediation before entering college. CSU also distributed more than a half million posters throughout ethnic communities—in English, Spanish, Korean, Vietnamese, Chinese and Mong—so information could be shared with parents. CSU also identified the eight largest industries in the state and convened a meeting of more than 100 business leaders in disciplines such as agriculture, science and technology, IT, hotel, restaurants, and entertainment and asked them to discuss how the higher education community can prepare students to work in the 21st century. Reed said under-represented minorities do not feel welcome in higher education and suggested more diversity within the teaching ranks as a solution. “We've considered asking businesses to loan us some of their professionals who look like the students we're trying to recruit,” Reed said. “The educational system needs to reshape its image to make it more inviting.”

Ms. Monica Poindexter, Associate Director of Corporate Diversity and College Programs at Genentech and a graduate of UC Davis, said her company acted quickly during the United Airlines layoffs following 9/11, and created a model that taught “academics, industry and government how to work together.” Genentech formed an alliance with Skyline Community College and developed a biotechnology recertification program based on Genentech's need for a more diverse workforce. Unemployed airline mechanics were taught Genentech's manufacturer procedures, were offered paid internships and, in some cases, employment. “You have to go where the minorities are,” Poindexter said. “And government needs to continue extending its practice of funding programs designed to help youngsters enter a higher education environment.”

Session 6— Innovative Teaching & Learning Strategies: Tapping the full potential of technology to transform teaching and learning.

Dr. Tom Magnanti, Dean, School of Engineering at MIT, discussed the school's OpenCourseWare initiative in which MIT shares course content with anyone, anywhere in the world, including lecture notes, PowerPoint slides, a syllabus and homework assignments. This program, which boasts 17 million users in three years, includes information on 1,250 courses in 34 academic disciplines offered at MIT—more than two-thirds of the institution's total offerings. “History has proven that education and discovery are best advanced when knowledge is shared openly,” said Magnanti, who wants to launch an OpenCourseWare-type program for secondary schools.

E-learning could play a critical role in the future of higher education, “but not if we're doing it the way we're doing it now,” said Dr. Joel Smith, Vice Provost and CIO at

Carnegie Mellon University. The current e-learning system has fundamental flaws, said Smith: It doesn't make use of the best information available on improving education and it fails to apply researched based theory and do scientific assessments on what works for students learning online. "How can we responsibly promote the use of educational interventions that offer no scientific evidence of their effectiveness?" said Smith, who added too many courses are designed without considering how students perceive or react to material. The same precautions should apply to the Open Learning Initiative, another teaching and learning strategy that allows students to complete an entire course without instructor intervention. It compensates for the lack of live instruction by gathering performance data that gives users an immediate assessment of their strengths and weaknesses. "You don't have to wait for midterms," Smith said. He said a team of content experts should work with cognitive scientists to ensure the development of effective and usable online courses.

Dr. David Wiley, Director of the Center for Open and Sustainable Learning at Utah State University, said higher education is failing to reinvent itself as technology advances, causing it to be detached from business, science and everyday life. He supports MIT's OpenCourseWork programs. "In order to realign itself with changes in society and in its student base, higher education must find the will to innovate in the area of openness, and then in the areas of connectedness, personalization, participation and other key areas. The open infrastructure of the Internet has enabled a huge number of innovations at a speed and scale that could never have occurred if that infrastructure had been closed. Please set a bold goal of universal access to educational opportunity. It's the right thing to do for the citizenry. It's the best thing to do for higher education."

Session 7—Student Panel: Nontraditional students share their experiences.

Dr. Carol Young is a registered nurse with a Ph.D. from Houston. Mr. Jerry L. Davis, Chief Information Security Officer for the U.S. Department of Education, is working on a second graduate degree. Both received advanced degrees from online institutions and enthusiastically support the nontraditional programs that allowed them to fulfill their educational dreams and gain career advancement.

"I chose an innovative, nontraditional school because it was the only way I could continue with my chosen career in a company where I worked for nearly 30 years," said Young, a Capella University graduate who received financial aid and now heads a research program at the hospital where she cares for newborns.

Davis, who completed his studies online with Western Governors University, said he was pleased to find a program that "increases access for those adults unable

to attend traditional programs—those with families and full time jobs." For adults "who must contend with conflicting and competing priorities and professional and personal responsibilities, online learning presents a fabled balance between life and work," said Davis. "I was able to structure my studies around my lifetime requirements and commitments instead of the reverse."

Mr. Jon Lamphier said nontraditional schooling would make a difference as America refines its higher education system and prepares its workforce for global competition in technology and jobs. The Marine veteran graduated from Kaplan University in 2003 and credits the program for a series of successful endeavors, including a scheduled May graduation from Fordham University School of Law, a position with Ernst & Young, and further studies at Fordham—this time for an MBA in finance. "I have never felt at a disadvantage to my peers," he said. "If anything, I have excelled."

A NATIONAL DIALOGUE:
THE SECRETARY OF EDUCATION'S
COMMISSION ON
THE FUTURE OF HIGHER EDUCATION

Thursday,
February 2, 2006

Paradise Point Resort
1404 Vacation Road
San Diego, California

CONTENTS

	<u>Page</u>
Opening Session	3
Session 1 - Task Force Updates	15
Session 2 - Innovation and the Economy	65
Session 3 - Innovative Financing	122
Session 4 - Innovative Models of Delivery	198

COMMISSION MEMBERS

Charles Miller, Chairman

Cheryl Oldham, Executive Director

John Bailey	Catherine Reynolds
William Berry	Arthur Rothkopf
Nicholas Donofrio	Rick Stephens
James Dudenstadt	Sally Stroup
Peter Faletra	Louis Sullivan
Jonathan Grayer	Richard Vedder
Bob Mendenhall	David Ward
Charlene Nunley	Robert Zemsky

FEDERAL STAFF

David Dunn	Mason Bishop
Vickie Schray	Eleanor Schiff

1
2
3
4

P-R-O-C-E-E-D-I-N-G-S

1
2 1:07 p.m.

3 CHAIRMAN MILLER: My name is Charles
4 Miller. As Chairman of the Secretary of Education's
5 Commission on the Future of Higher Education, I call
6 the meeting to order. Thank you.

7 I'd like to say welcome to my fellow
8 Commission members, our excellent staff, and to all
9 the public participants.

10 This is a public meeting. It will be
11 filmed. We have a wonderful agenda to go through
12 today. We're pleased to be here in the beautiful city
13 of San Diego in the great state of California. It's a
14 busy agenda. We'll work straight through this
15 afternoon. We won't take any official breaks. You're
16 encouraged to move around, come and go as you like.
17 Feel very comfortable doing that.

18 Following the scheduled presentation, we
19 can operate a question-and-answer period informally
20 and we'll have as much give-and-take as we can do
21 within the time frame that we'd like to continue.

22 Before we begin our presentations, I'd
23 like to discuss a little bit about the process of the
24 Commission, the general work plan of the Commission.
25 The task forces which have focused on the four major
26 issues outlined by the Secretary and the Workforce

1 Commission we added and the Accountability efforts are
2 drawing to a close and we'll have the work product
3 over the next few weeks. This represents the first
4 third of our time on the Commission, the timetable.
5 And as of today, February 2nd, we'll have exactly six
6 months until our report is due.

7 The first stage has allowed us to work
8 with some focus and yet with a lot of overlap. It has
9 allowed us to get to know each other, express our
10 ideas, and develop a group personality. We have done
11 this with a high level of direct involvement from
12 members of the Commission. We actually have three
13 times the members -- three times the number of members
14 of the Commission that we have full-time staff at
15 work. And we've had some input and increasing input
16 now from outside sources. We've invited input from
17 anywhere anytime and we're accepting that all the time
18 and collecting it in a way that's going to be useful
19 over time, which we'll tell you about in a minute.

20 The next stage or approximately the next
21 third will require bringing together some additional
22 policy team members, volunteer and paid, to begin to
23 distill, combine, edit, organize, draft, and develop
24 input from all the sources and interfacing with the
25 Commission's members individually or in small groups,
26 in person and in written form.

1 The last stage or the last one third will
2 be used to develop consensus, specifics of the report,
3 policies, recommendations, and action steps.

4 Because of the complexity of the subject
5 and the limited time frame in which we are working,
6 the Commission will produce a report highly dependent
7 on the collective knowledge and judgment of the
8 Commission.

9 Rather than a research report, it will be
10 the result of our combined intellectual capital.
11 We're encouraged to produce bold ideas. As those
12 ideas surface, we will need to be bold.

13 I would like to ask Cheryl Oldham to add a
14 few more operational questions -- comments and then I
15 will see if there are any questions from the
16 Commission about the work plan.

17 MS. OLDHAM: Just a couple just process
18 things. As you can see, we have a sign language
19 interpreter here. If you need to use that resource,
20 let the folks know out front at the registration desk.

21 Wanted to let you all know about some
22 documents that you'll be getting. The
23 Commissioners -- a couple matrices that will hopefully
24 be a useful tool for you all we've tried to distill
25 down from some of the major reports that are already
26 existing out there rather than reinvent the wheel on

1 some of this to look at what's already out there --
2 you know, "The Gathering Storm," "Innovate America," a
3 lot of these reports -- and put it into some sort of
4 usable format for you all so that you can see the
5 major recommendations, where there's some cost-
6 cutting, where there's some common themes, and then
7 another one that's even broader than those major
8 reports but just, you know, everything that we've been
9 able to find out there.

10 So hopefully it will be useful to you all.

11 Take a look at it. I think we need to see where
12 there's some gaps, where we need more information on
13 some things, where there's some -- maybe some ideas,
14 some things in here that we want to draw upon, so that
15 will be coming out to all of you all via e-mail
16 shortly.

17 Thank you.

18 CHAIRMAN MILLER: Thank you. Any
19 questions on the process from the Commission at this
20 stage?

21 Well, thank you. Before we begin the
22 review of our task forces and the formal program, I'd
23 like to invite David Dunn, Acting Undersecretary of
24 Education, to make some comments about some of
25 President Bush's recent initiatives.

26 MR. DUNN: Thanks, Charles. Just wanted

1 to -- thought the Commission might be interested
2 particularly in the American Competitiveness
3 Initiative that the President laid out on Tuesday.
4 Those of us in the Administration truly think that
5 this was a historic speech getting at the need to
6 maintain and -- run faster to maintain America's
7 competitive edge. And we're just thrilled to engage
8 in this effort.

9 Very -- and I'll be very brief. But, very
10 quickly, the Competitiveness Initiative includes --
11 anticipates doubling the federal commitment for the
12 most critical basic research and physical sciences
13 over the next ten years, encouraging the expansion of
14 the favorable environment for additional private
15 sector investment and innovation. I think it's
16 important to point out that the President clearly
17 views the critical need or critical role the private
18 sector plays in maintaining our competitive
19 advantages.

20 Also improving the quality of education to
21 provide American children with a strong foundation of
22 math and science. I'll say a few more words about the
23 education piece in a minute -- as well as some of the
24 others -- but supporting universities that provide
25 world-class education and research opportunities,
26 providing job training that affords more workers and

1 manufacturers the opportunity to improve their skills,
2 attracting and retaining -- emphasis on the word
3 "retaining" -- the best and brightest from around the
4 world to enhance entrepreneurship and competitiveness
5 in this country, and in fostering a business
6 environment that encourages entrepreneurship.

7 The initiative includes three broad
8 segments. In the '07 budget that the President will
9 lay out on Tuesday, there will be \$5.9 billion
10 committed to this initiative, breaking down
11 essentially that just over \$900 million in additional
12 funding for this year for research and development,
13 nearly \$400 million -- \$380 million to improve
14 math/science education in the nation's K-12 system,
15 and then \$4.6 billion in this year's budget by making
16 the R&D tax credits permanent.

17 In terms of the research dollars, John and
18 Peter may want to -- if you have questions or want a
19 little more detail, they may want to go into a little
20 more detail on that. But \$900 million targeted at the
21 National Science Foundation, the Department of
22 Energy's Office of Science, and the Department of
23 Commerce's National Institute of Standards and
24 Technology.

25 This -- the '07 budget includes \$137
26 billion for federal R&D this year, which is a 50

1 percent increase since the President took office in
2 2001.

3 And then of course, again, the President's
4 calling on Congress to make permanent the R&D tax
5 credits. Over ten years, that would be committing an
6 additional \$86 billion into research and development.

7 In terms of education, the plan focuses on
8 improving the pipeline -- K-12 pipeline, especially
9 math and science skills of our nation's students.
10 Specifically, the President's called on the Secretary
11 and has asked the Secretary to create a math panel
12 similar to the reading panel from I think 2000 to
13 really look at and lay out the specific criteria that
14 need to be included in effective educational
15 instructional techniques for teaching math and
16 science.

17 As everybody here knows, probably, the
18 state of research, scientifically-based knowledge in
19 terms of teaching reading, far exceeded the research
20 base for math and science, so the math panel will be
21 looking at what those criteria should look like.

22 The President's also calling on Congress
23 to increase the Advanced Placement and International
24 Baccalaureate Program to train over five years 70,000
25 new teachers in math, science -- AP math and science
26 and also critical languages. The President very much

1 considers this a partnership, a joint venture with the
2 states and the private sector, and the notion is for
3 every dollar that the -- that the Federal Government
4 would provide to a state, the state would match a
5 dollar and then the Federal Government -- the U.S.
6 Department of Education would work with the state to
7 also seek private funding so it would be a third, a
8 third, a third between Federal Government, the state,
9 and the private sector.

10 The President's also -- and this is
11 something that he's called for in the past -- but
12 going to be a renewed focus, his notion of an adjunct
13 teacher corps which would help states -- will provide
14 some incentives and then help states cut through some
15 of the teacher certification obstacles so that
16 professionals who wanted to teach a class in high
17 school part time or take a semester sabbatical could
18 go into the classroom providing pedagogical training
19 so that -- kind of going -- as the Secretary says, you
20 can't teach what you don't know, so finding some
21 professionals who know a lot about these specific
22 areas and get them the teacher training and get them
23 in the classroom.

24 And then the President's also called on
25 two programs, Math Now for elementary school students,
26 Math Now for middle school students, to take the best

1 knowledge that we do have in terms of teaching math,
2 promote best practices, identify best practices,
3 develop additional best practices, and then promote
4 them and try to get them much more widely spread
5 throughout the schools in the country.

6 And I guess, in part, what we think is
7 perhaps one the most important pieces of this
8 initiative from the education side -- doesn't get a
9 whole lot of attention -- but the President's called
10 on -- for an evaluation. I think many of you probably
11 have seen the GAO report identifying 207 math, science
12 education programs at the federal level across I think
13 ten different agencies and departments totaling \$2.8
14 billion. And GAO rightly noted that there was little
15 coordination, little consistency across these
16 programs, and not necessarily geared to the
17 objectives, the national standards and objectives as
18 identified in No Child Left Behind. So a big part of
19 this initiative is to take a cross-departmental look,
20 evaluation to identify effective practices, coordinate
21 those programs to the maximum extent possible, and
22 align them with No Child Left Behind.

23 Another piece of the pie is the career
24 advancement accounts. If you have more questions
25 about that, I'm sure Mason would be thrilled to answer
26 those questions. But it would provide training

1 opportunities to 800,000 workers annually. Those
2 accounts would be up to \$3,000 for persons needing
3 additional job training.

4 And then the President's also calling on
5 to work with Congress to attract and again retain the
6 best and the brightest high school workers from around
7 the country to ensure that folks from -- around the
8 world, excuse me -- that folks who come in from other
9 countries and attain Ph.D. in critical math science or
10 additional critical disciplines will be able to stay
11 in this country and continue to work and help enhance
12 the economy and our competitive edge moving forward.

13 That, I think, Charles, in a nutshell, is
14 the proposal the President's laid out. And I'm sure
15 Peter, John, Mason, myself would be happy to answer
16 any questions about any of the specifics.

17 CHAIRMAN MILLER: Thank you, David. We'd
18 like to see -- any Commission member like to address a
19 question on any of that to either David or his
20 counterparts at the other agencies?

21 Thank you. That was a big nutshell.

22 MR. DUNN: There's a lot there.

23 CHAIRMAN MILLER: Thanks very much for
24 bringing that in there. It's new and exciting.

25 I'd like -- we'd like to have a report
26 from each of the task forces and the other work we're

1 doing from the Commission. We've scheduled about a
2 ten-minute presentation from each person. And then we
3 have a good amount of questions-and-answer time. I'd
4 like to try to do that as much as we can toward the
5 end of all of the presentations. It's an efficient
6 way to do it. If there is something real critical
7 that you feel you have to ask, we can stop to do that.

8 It's a pretty informal process.

9 We want the presentations to be the
10 opinion of the group of people working, but that's not
11 a consensus. It's not a vote. These are opinions of
12 the people working and a lot would be also the
13 opinions of the individuals making the presentation,
14 just so we'll have you say that. So there's no final
15 decision on any kind of policy or suggestion. Really,
16 this is a work in progress report.

17 Before we start that -- and I've been rude
18 not to do this first -- I'd like to introduce the new
19 member of the Commission. You've met her
20 individually. Catherine Reynolds from Washington,
21 D.C. joined us recently at the nomination of the
22 Secretary.

23 Welcome, Catherine.

24 MS. REYNOLDS: Thank you.

25 (Applause.)

26 CHAIRMAN MILLER: The first order of

1 business -- the first presenter is on accessibility,
2 and I believe I see David Ward over there. With the
3 light in my eye, I'm not sure I can see everybody and
4 I can't read the signs, but I believe I see David over
5 here to the right.

6 So please proceed, Dr. Ward.

7 MR. WARD: Okay. Thank you, Mr. Chairman.

8 I'm speaking on behalf of Sara, who is not able to be
9 with us today, the chair of the committee. We've only
10 met once and so I'm giving you a report in progress.
11 We will be having a conference call on Tuesday of next
12 week. One of the problems is that this Accessibility
13 Committee has many of its members on other committees
14 and time is not -- time doesn't permit us to meet
15 today.

16 Most of these remarks are really derived
17 from Sara and myself rather than the rest of the
18 committee, although I tried to incorporate some of the
19 testimony that we heard in Nashville and also comments
20 from other committee members, but they've not yet been
21 assembled.

22 I think the context or the issues that the
23 committee tried to frame our discussion was simply
24 that the sustained gain in accessibility paradoxically
25 has created our problem. By simply growing the
26 numbers who go to college has created in a sense the

1 problem itself, our very success. Because as we
2 deepen access, we're reaching into more and more
3 challenged individuals, particularly with respect to
4 income and, secondly, the growing cost of financial
5 aid is as much driven by the growth of numbers as it
6 is by the per capita cost that goes to any given
7 student.

8 It's challenging perhaps what was thought
9 of as the historic basis of previous support of
10 students, which was a sort of generational support
11 through taxes of the next generation, and the idea
12 that the individuals would have the lowest possible
13 cost in obtaining their education, particularly with
14 respect to tuition. Both of these, whether one looks
15 at tuition or tax support, are in fact challenged at
16 the state level and it's not something which in my
17 view is going to be easily resolved by just letting
18 current events take their course.

19 Second issue that we became conscious or
20 wanted to be conscious of was the under-representation
21 of income groups and certain "under-represented
22 groups" within higher education although that, too,
23 has grown, but it has not grown in the kind of way
24 that would argue that we're using our own native human
25 capital as effectively as we should.

26 Then there's the beginning of variation by

1 income category and by group with respect to
2 institutional type; that is, two-year, four-year, and
3 so on. And we believe that the diversity of
4 institutional types in the U.S. is the richness of our
5 higher education. But if it in fact becomes a means
6 of segregating individuals into particular stratified
7 structures of higher ed., it doesn't work.

8 We equally feel that we need to pay
9 attention to success and persistence after access has
10 been created because, clearly, if students graduated,
11 once they enter college, certainly the productivity of
12 our institutions will be far greater, quite apart from
13 increasing access. So it's not just a matter of
14 supply but also an issue of what we do when we have
15 our students.

16 The specific arenas in which we're trying
17 to develop recommendations on access are academic
18 preparation. Here is the debate that's currently
19 going on between whether funding or knowledge is the
20 -- they're obviously related issues in access
21 knowledge. Is it that there are certain categories of
22 the population that are simply uninformed and,
23 therefore, have no expectations of higher education,
24 or do we have a population with equal expectations of
25 higher education and the only problem is that there's
26 no money to get them to take advantage of higher

1 education?

2 I think it's a little bit of both. But
3 the whole issue of how we, in a sense, provide
4 transparent information on accessibility is one of the
5 areas.

6 Second one would be academic preparation;
7 that is, the need to have a better articulation
8 between high school and college. I don't know whether
9 tomorrow Chancellor Reed will talk about California
10 state university system and its own work with high
11 schools on articulation, but there is in fact a
12 classic effort to provide very, very clear information
13 with feedback even before the senior year in high
14 school on what it takes to get into college.

15 So the relationship or the interplay of
16 knowledge about what it takes to be in college and
17 high schools.

18 Financial obstacles would be a third area.

19 While we might call for increased funding, it seems
20 to me that the funding will have to be coming from a
21 variety of sources. And how do we provide a
22 simplified means by which a student can gain access to
23 federal, state, institutional, and private support?

24 And in that respect, are we in fact
25 pursuing our own rhetorical argument that even though
26 tuition rises, financial aid in fact discounts tuition

1 so that there is fact no disadvantage to those who are
2 less affluent from the rise of tuition? I think this
3 whole tradeoff between need and merit-based tuition
4 and whether in fact need-based tuition is as complete
5 and transparently available as we'd wish, we would
6 like to say something about.

7 The social obstacles, which is really
8 something I mentioned earlier as another matter, is
9 that there may well need to be a stronger marketing
10 relationship and particularly better information about
11 what would be the best option for students with
12 respect to the array of higher education that is
13 available in the U.S. And this is the sense that if
14 over two thirds, perhaps in some states as many as 75
15 percent, of the age group is going on to some form of
16 higher education, they're going on to a highly
17 differentiated expression of higher education and are
18 those decisions that they're making being made as
19 consumers effectively? Are they going to the right
20 option?

21 And as we know from recent publicity, many
22 students change after one year, not because of
23 academic reasons, but because of a poor fit between
24 the institution that they may have chosen.

25 And the final area of recommendations, of
26 course, is that, demographically speaking, our student

1 body is now almost half what we call adult, not what
2 we used to call traditional and, therefore, the whole
3 flexibility of the system to deal with adult learners
4 as a significant part of the enterprise seems to me to
5 be an area where perhaps neither financial aid nor
6 institution capabilities are currently well-tailored
7 to meet those needs.

8 So we will have some recommendations under
9 those four headings.

10 Some of the problems that we're facing --
11 if I might conclude with these observations -- is one
12 of data. That has already come up. One of the
13 problems is the data adequate, whether we're dealing
14 with graduation rates, whether we're dealing with
15 knowledge of the performance of high schools. What is
16 a rigorous curriculum, and so on?

17 We're also dealing with the problem of
18 comparisons. We are a federal system and in fact our
19 states show enormous variation on many of these
20 characteristics so that one of the dilemmas we face is
21 the national average for the U.S., very revealing, or
22 are there best practices in some states that would be
23 more revealing of where we want to go? And this is
24 particularly true with international comparisons,
25 comparing Norway or Finland with the United States.
26 It would make more sense to maybe compare Norway with

1 Wisconsin and Finland with Minnesota than in a sense
2 having these gigantic continental state being compared
3 with rather small homogenous states.

4 So even our international competitiveness
5 I think needs a little bit of work.

6 And above all, the data does need to be
7 sensitized to mission specificity.

8 I think the other issue, again, is whether
9 our purpose in access does need to pay as much
10 attention to retention as to recruitment and we are --
11 we'll try to deal with the issue of retention because,
12 clearly, retention after arrival will be as -- there's
13 no point in increasing access if the dropout rate in
14 the first year is -- remains a serious problem.

15 And, finally, I think we -- if we can be
16 brave and bold, would be to try to think about
17 alternative structures for financial aid. This is --
18 seems to me the hardest thing to do. We've moved --
19 almost drifted into a sort of grand personal
20 responsibility -- loans. We do worry a great deal
21 about the debt burden. But it is a very complicated
22 system that we've now invented, one that's not --
23 neither simple nor transparent. Are there some ways
24 that we could begin to simplify what is going on with
25 respect to financial aid but connect that financial
26 aid with, in effect, an outreach to schools, an

1 outreach to families, and certainly this is a passion
2 of Sara's, whose own foundation is about partnering
3 different kinds of financial aid, but identifying
4 students downstream with the promise of that
5 complicated package of financial aid which the
6 foundation has in fact created, but then reaching out
7 to make sure that it's not accidental whether that
8 student goes to college but there's a purposeful set
9 of connections to get there.

10 So I think that Sara, were she here, would
11 have made a great deal about how to make more
12 systematic the tying together of public institutional
13 and federal and state support and in particular the
14 outreach that is necessary if access is going to be
15 increased.

16 And that, Mr. Chairman, is about where we
17 are right now.

18 CHAIRMAN MILLER: Thank you.

19 MR. ROTHKOPF: Charles, I don't know if
20 you can hear me. It's Arthur Rothkopf.

21 MR. WARD: Oh, hello, Arthur.

22 MR. ROTHKOPF: How are you? I'm not
23 feeling very well. I'm back in Washington. But I am
24 going to be on for trying to listen to the Task Force
25 reports.

26 MR. WARD: Great.

1 MR. VEDDER: Thank you. Thank you,
2 Chairman Miller. I might add David's presentation
3 suggests that there are some commonalities of interest
4 between the Accessibility Task Force and the
5 Affordability one, which I think is promising in a
6 way, that we see some commonality of interests.

7 Our group met this morning and we made I
8 think considerable progress. We do not have a written
9 work product at this point. Much like the
10 Accessibility Task Force, we're moving towards one.
11 The co-chair, Bob Zemsky, is sitting over here and,
12 through some system that I'm not entirely sure how it
13 evolved, I was asked to make the report today.

14 We have identified three areas of concern
15 which our task force and hopefully the whole
16 Commission will consider in its final report. Our
17 task force will be reaching some recommendations or
18 options with respect to each of these three areas
19 within the next few weeks. We've set sort of an
20 internal goal of having some written product during
21 the month of February.

22 Our first concern is that the current
23 system of higher education does not support or
24 encourage the improvements of performance levels in
25 general, either in some absolute sense or, I might
26 add, and this is my own addition, cost adjusted sense.

1 Our average outcomes are not adequate and need to be
2 improved. And this -- equally important is that this
3 concerns holes for post-secondary education at all
4 levels, all types of institutions, ranging from the
5 most elite private universities to perhaps non-
6 selective institutions serving students at all ages
7 and at all levels of post-secondary training.

8 Second and related to the first point, we
9 are concerned that there are growing gaps between
10 providers of higher education, gaps that are
11 threatening in some sense in terms of student
12 activities or student outcomes, on our nation's long-
13 standing commitment to equal educational opportunity.

14 We have some significant concerns in that general
15 area.

16 Third, we are very concerned about the
17 lack of incentives for efficiency, productivity
18 advancement, control of costs, what have you, that are
19 present in our current system of educational delivery.

20 In a draft report that we plan to complete this
21 month, it is our hope that we can further elaborate on
22 each of these three concerns and, I think more
23 importantly, or additionally, at least identify some
24 possible policy outcomes that might help in addressing
25 these concerns.

26 We're not at this time, however, in a

1 position to articulate exactly what these options
2 would be. I think individual members of the group
3 have opinions. One of our task force members, Gerri
4 Elliott, was not in attendance today. But, in any
5 case, we are developing these various options amongst
6 ourselves and we will be certainly -- be able to share
7 them to the entire Commission well in advance of our
8 next meeting, hopefully in the next month.

9 I would only say at this point that we
10 continue to explore issues relating to such themes as
11 transparency, or the lack of it, in the operations of
12 educational providers, in the incentive systems
13 present, to improve outcomes and control costs, and
14 the lack of adequate measures or metrics to allow us
15 to assess performance.

16 I will -- that -- I will keep my remarks
17 short and within the time constraints that the Chair
18 has allotted me. But if other members of the group
19 wish to chime in, they are certainly welcome.

20 CHAIRMAN MILLER: Thank you, Dr. Vedder.
21 That's very kind of you. With that opening, I'd like
22 to ask Dr. Zemsky if he'd care to add to that or
23 complement any of those --

24 MR. ZEMSKY: I was just doing fine.

25 CHAIRMAN MILLER: Speechless in San Diego.
26 Are there any questions?

1 Thank you. That was a fine presentation.
2 I like the use of the term "options" and
3 "recommendations" because we -- those are not
4 decision-making bodies. These are task forces. What
5 we hope to get from those are some kind of policy
6 ideas or proposals, and that's a very good way to
7 phrase that.

8 Dr. Duderstadt, would you please talk
9 about the work you've done on Quality?

10 MR. DUDERSTADT: The Quality Subcommittee
11 has been working hard for the last two months --
12 series of teleconferences, exchange of e-mails,
13 documents, and so forth. But as fast as we ran, we
14 couldn't keep up with the President who, on Tuesday
15 night, essentially eliminated one and a half of our
16 five recommendations to you.

17 We're working through of series of
18 documents. An abbreviated form of one of these
19 documents is under Tab 1, and you might turn to that
20 for a listing of our recommendations, which I'll run
21 through very quickly and then give you some
22 background.

23 Let me state them in their briefest form.

24 Number one, utilize public-private partnerships to
25 unleash and shape market forces to drive world-class
26 quality, performance, efficiency, and public purpose

1 in post-secondary education.

2 Recommendation two, to support American
3 innovation, by stimulating a more innovative culture
4 in American colleges and universities in developing
5 new academic programs and activities. Now, this is an
6 issue that will be addressed by Nick Donofrio and
7 Wayne Clough later this afternoon, but it was also
8 addressed by the President's American Competitiveness
9 Initiative.

10 Third, to refocus public subsidies at the
11 state and federal level to better enable access and
12 success, again an issue that overlaps one of the other
13 -- a couple of the other groups.

14 Fourth, to enhance and rebalance the
15 federal support of R&D and graduate education to
16 better serve national priorities, such as economic
17 competitiveness and national security. And, of
18 course, this was one of the focal points of the
19 President's State of the Union address and it's an
20 issue that we very much support in terms of his
21 recommendations and we'll work toward putting those
22 into effect over the next year.

23 And then, finally, encouraged by Governor
24 Hunt, we decided to put a blockbuster on the table,
25 kind of to be provocative and shake things up, and
26 that blockbuster is the following: That the nation

1 should commit itself to a vision of providing all
2 American citizens with universal access to lifelong
3 learning opportunities, thereby creating the world's
4 most advanced knowledge society and providing for
5 economic prosperity, national security, and social
6 well-being in an age of knowledge in a global economy.

7 Now, this theme of a global knowledge
8 economy of course has dominated much of the dialogue
9 over the last year or so. It is clear that it demands
10 a new level of knowledge, skills, and ability on the
11 part of our citizens. Our committee believes it is
12 also clear that today the United States simply must
13 demand and be prepared to sustain a world-class system
14 of post-secondary education at all levels capable of
15 meeting the changing educational research and service
16 needs of the nation.

17 But we face many challenges. We've heard
18 earlier today that increasing stratification of access
19 to and participation in higher education based on
20 socioeconomic status, questionable achievement of
21 acceptable student learning outcomes, concerns about
22 cost containment and productivity, the ability of
23 institutions to adapt to a changing world.

24 Therefore, we framed our recommendations
25 to respond to this. Just a couple of comments about
26 them. The vision -- in the document, we lay out a

1 vision, some of the challenges, and then the
2 recommendation. The quality vision, of course, is
3 very challenging. It's our belief that you will drive
4 the post-secondary system most rapidly toward quality
5 by taking advantage of market forces but shaping them
6 to some degree through public policy and perhaps
7 public incentives to provide a somewhat more educated
8 consumer group population that can take advantage of
9 the market, removing unnecessary regulation and
10 bureaucracy to allow institutions to respond to it,
11 and to provide incentives for institutions to develop
12 or adopt best practices in areas such as cost
13 containment, productivity, assessment of student
14 learning outcomes, and innovative academic programs.

15 The innovation recommendation really has
16 two parts. One is to respond to the changing needs of
17 the nation, and particularly American industry for
18 innovation. That will require new academic programs
19 and perhaps new institutions. But, beyond that, to
20 challenge American higher education to also become
21 innovative in changing its own practices and
22 approaches in order to respond to the changing needs
23 of the nation.

24 The third is access. This in a way
25 duplicates the work of the other two committees, but
26 we thought it was so important to put out on the table

1 the concern that access to quality higher education is
2 increasingly dependent upon socioeconomic circumstance
3 and, therefore, that should be dealt with particularly
4 in terms of the priority given to the allocation of
5 public funds.

6 The fourth issue, research and graduate
7 education, once again, that's the key to a nation's
8 prosperity and security in the global knowledge driven
9 economy but, again, that was of course the purpose of
10 the President's State of the Union recommendation on
11 the American Competitive Initiative.

12 Finally, the blockbuster, there are
13 earlier points in the nation's history when federal
14 action has so expanded the opportunity for education
15 that it's had a dramatic effect on the nation. The
16 Land Grant Acts, the Civil War, the first universal
17 access and then mandatory access to secondary
18 education in the early part of the 20th century, and
19 then of course the GI Bill at the end of the Second
20 World War.

21 We believe that the time is right to take
22 another bold step and actually to complete that
23 sequence of expansion by recognizing that the needs of
24 a knowledge society will be for lifelong learning
25 opportunities at all levels. It's mandated by the
26 changing nature of our society, by lengthening life

1 span and career, by the fact that the shelf life of
2 the knowledge you receive early in your life, of the
3 knowledge you receive early in your education simply
4 cannot last through your lifetime and your career.

5 Such a bold approach by providing
6 universal access to lifelong education almost as a
7 civil right of course would transform the American
8 population in one of the most highly educated
9 workforces in the world. But, beyond that, it would
10 demand major transformation in the nature of higher
11 education.

12 It would demand new ways to finance it.
13 One might consider, and we've put out a couple of
14 ideas, some kind of transportable education savings
15 accounts, perhaps funded much like Social Security is
16 now over the life -- over a career span of earnings.

17 Another example would be to take the lead
18 from the Land Grant Acts of the 19th century, which
19 put together a partnership between the Federal
20 Government, the states, institution, and the private
21 sector, to do it again but perhaps to call it Learn
22 Grant Acts which really prioritize the development of
23 our human capital as the most valuable asset of the
24 nation.

25 There's a variety of ways to put it
26 together, but we think it's appropriate for this

1 Commission to consider such bold proposals as it moves
2 forward with its work.

3 CHAIRMAN MILLER: Thank you. That does
4 fit in that category of "Be careful what you ask for."

5 But thank you. That group has done a very, very
6 large amount of work, extensive, very busy people that
7 contributed. I watched it happen and I think it's a
8 very thoughtful document that's been produced, and I
9 encourage everybody to read it more than once and
10 focus on it because it's a very, very fine piece of
11 work.

12 And we'll have Bob Mendenhall talk about
13 the Workforce Task Force.

14 MR. MENDENHALL: Thank you. I've been
15 asked to present on behalf of Assistant Secretary
16 DeRocco, who's the chair of the Workforce Development
17 Task Force and wasn't able to be here today. We do
18 want to recognize Mason Bishop, her Deputy Assistant
19 Secretary, who is with us, and thank the members of
20 the task force that contributed to this.

21 We have developed a paper with key
22 recommendations, which I will attempt to summarize in
23 the time allotted. I think the Workforce Development
24 Task Force begins with the premise that workforce
25 development is in fact a key function of higher
26 education, one of the key functions for higher

1 education, one of those functions being to create new
2 knowledge, the other being to create a competitive
3 workforce and provide work opportunities for
4 individuals.

5 We often talk about the responsibility of
6 higher education to train citizenry. And certainly
7 preparing citizens for full involvement in both the
8 economy and society is part of the workforce
9 development mission that we looked at.

10 In talk about workforce development, I
11 think it's important to make the point that it is both
12 skills development for particular job opportunities
13 and a broader, liberal education that includes
14 critical thinking and writing, reasoning, and problem-
15 solving. The employers of today are clearly looking
16 for skills in the workforce but also a workforce that
17 can be trained to evolve as the job evolves and as
18 technology provides different responsibilities in the
19 workplace.

20 We're looking at higher education as post-
21 secondary education broadly to include trade schools,
22 technical schools, community colleges, colleges and
23 universities and that whole spectrum of post-secondary
24 education that contributes to the workforce
25 development.

26 Secondly, the workforce itself is getting

1 older and more diverse. As life spans increase,
2 people will work longer and longer into their careers.

3 As a result, we'll have the need for lifelong
4 learning and for additional educational attainment as
5 adults in order to remain competitive in the workplace
6 for what may now be a 50-year or more work life.

7 At the same time, the workforce is
8 becoming, I mentioned, more diverse. We face
9 increased international competition for many of the
10 jobs as the world becomes more flat. And 90 percent
11 of the fastest-growing occupations require some post-
12 secondary attainment. So the requirement for post-
13 secondary involvement of the workforce will
14 significantly increase -- is increasing and will
15 continue to significantly increase in the coming
16 decade.

17 As a result of that, our two principal
18 recommendations are, one, that we need to increase the
19 ability for adults to access ongoing education, a
20 lifelong learning, if you will. And, secondly, we
21 need to increase the percentage participation in post-
22 secondary education of both traditional age students
23 and obviously of adults.

24 We must close the participation and
25 completion gap of the population just in order to have
26 them be meaningful contributors in the economy and in

1 society.

2 As a result of that, we then have five
3 specific recommendations related to that. The first
4 is that we need to increase the collaboration between
5 higher education and industry, including government as
6 an industry and the government labs in particular as a
7 place that can contribute significantly to this
8 collaboration. But higher education and industry
9 needs to work more closely together to identify
10 workforce needs, again both the specific skills needed
11 but also the higher order reasoning skills that
12 industry is looking for.

13 And in particular, to do a better job in
14 higher education of developing internships and real
15 world practical experiences earlier in the educational
16 process.

17 Rick Stephens from Boeing is on our task
18 force and mentioned they hire a very small percentage
19 of applicants -- a lot of people but a small
20 percentage of college applicants to the Boeing company
21 and won't even look at college students who haven't
22 done an internship and have real work experience.

23 At the same time, to increase the linkages
24 between higher education and high school to help
25 students and teachers understand workforce needs and
26 the high school preparation that's necessary to enter

1 those fields in college.

2 The second recommendation is to encourage
3 -- do more to encourage lifelong learning
4 opportunities for adults, including providing more
5 flexible financial support that would support licenses
6 and credentials that might build to a degree but not
7 necessarily are in a formal degree program.

8 This might include things like lifelong
9 learning accounts where the employee would contribute
10 money, perhaps with a tax deduction. The employer
11 could match that contribution, perhaps also with a tax
12 deduction, and so the employee and the employer and
13 the government are collaborating to create a lifelong
14 learning account that that individual could then use
15 to pursue additional education throughout their
16 career.

17 We also mentioned the CAAs. Now I can't
18 remember, Mason, what it stands for. Help me.

19 MR. BISHOP: Career advancement accounts.

20 MR. MENDENHALL: Career advancement
21 accounts, which David had mentioned, which would
22 provide public funds to individuals to advance their
23 education.

24 And, finally, that we need to increase
25 both the supply and method of provisioning higher
26 education for adults. One of our earlier task forces

1 mentioned that we're not necessarily set up
2 infrastructure-wise to best serve adults who are
3 working full time and need to access education on
4 irregular schedules and times.

5 The third recommendation is to reduce the
6 financial burden on low-income underserved populations
7 in order to increase their participation, that we
8 might consider as a Commission recommending to
9 increase tax credits and incentives for low income,
10 including making things such as the lifetime learning
11 tax credit refundable so that it actually is of
12 benefit to the lowest-income individuals who might
13 otherwise not have a -- be paying the taxes and able
14 to take that credit.

15 And that these incentives for adults might
16 also be used to pay for adult basic education or
17 English as a second language skills, which are just
18 the entry skills required in the workforce and to
19 access higher education.

20 Fourth, that institutions must be more
21 accountable for the labor market outcomes of their
22 graduates and, indeed, should track the labor market
23 outcomes and use those principally to inform their own
24 programs for improvement as formative development of
25 their programs to ensure that they are in fact meeting
26 workforce requirements and providing the right and

1 relevant education for their students.

2 And, fifth, we would recommend the
3 development of state-by-state comparisons of how
4 states are meeting the needs of adult learners. The
5 measuring up reports for higher education look
6 principally at traditional age students and are real
7 helpful at comparing performance across states and
8 something like a measuring up for adult learners and
9 adult workers in the states would be helpful to focus
10 attention and resources on the area of adult
11 education.

12 That concludes our report, unless other
13 task force members have something to add.

14 CHAIRMAN MILLER: Thank you. Thanks.
15 We're beginning to see some very common themes, to
16 look at the higher education enterprise broadly beyond
17 the traditional four-year college or early age
18 colleges and some other things like that. And it's
19 become a powerful part of our work.

20 I'm going to make the presentation about
21 accountability, which we didn't put in the form of a
22 task force. There's been a lot of discussion about
23 that among the various task forces and members, and
24 one of the reasons we didn't put it in a task force is
25 it does overlay everything and it's more of a
26 measurement than actual policy.

1 I put out a memo last week which tried to
2 bring the Commission up to date on some of the issues.

3 I'm going to read a written presentation to explore
4 that some and add to that a little bit but mostly
5 repeat what I said. And I took the initiative to send
6 the memo because some of the public discussion things
7 that have been written about accountability and
8 testing I think at times have gotten the picture not
9 quite correctly or I haven't been able to communicate
10 some of the work we've done or some combination of
11 that. So the idea was to put forward before the work
12 was completed or even partially finished on
13 accountability. There's still a lot of work to be
14 done and segments missing, but I'm going to repeat or
15 go over some of the things that were mentioned in that
16 memo.

17 "Accountability" means measuring
18 performance, institutional performance of colleges and
19 universities. Without a transparent and accessible
20 information system, public policy is only guessing.
21 Institutions are unaccountable and students have no
22 realistic way to make educational decisions. That's
23 where we are today, in my opinion, in the information
24 age, even though new technologies are available to
25 determine and implement best practices.

26 Talk about markets or competition or

1 consumer-friendly environment is just talk unless we
2 significantly improve our information systems, and the
3 work of the various task forces in our discussion
4 publicly in Nashville affirmed that theme.

5 The goal of a transparent and accessible
6 information system for performance measurement is not
7 only essential; it's reasonably easy to attain.

8 Commission work has been proceeding on
9 three issues of accountability, which are
10 accreditation, student learning, and institutional
11 performance.

12 On accreditation, the Commission will soon
13 have a briefing paper on the subject and, before the
14 April meeting, there will be further analysis and some
15 proposals to be able to discuss and dissect. We've
16 been working on that paper on and off for the first
17 couple of -- last couple of months and so it's really
18 a matter of when we put it in everybody's purview
19 because it's hard to get everything at one time
20 studied.

21 In my opinion, this is a critical field of
22 examination for the Commission. At minimum, there's a
23 need for some highly visible informed discussion.

24 Number two, on student learning,
25 measurement of which is called testing, there are some
26 very new things to consider in full public view,

1 almost coincidental with the Commission's work. There
2 are some new things that have happened almost as the
3 Commission developed, which is part of the reason it's
4 been hard to communicate.

5 Several new testing regimes have emerged
6 which demonstrate the capacity to measure a broad
7 skill set, such as critical thinking, problem solving,
8 written communications, and analytical reasoning
9 skills. Several examples are mentioned in my recent
10 memo on accountability, all from highly reliable
11 sources, including several members of the Commission
12 that have been involved.

13 These are breakthrough events in the field
14 of measuring student learning, new breakthrough
15 events. It seems clear that the types of skills --
16 the types of skills that are covered are similar to or
17 even identical with the -- with what the employers and
18 workers of the future need and want, and that's a
19 critical element of all this. These skills that are
20 identified by some of the tests are what employers and
21 students of the future need and want. These are the
22 type of skills claimed to be enhanced by many colleges
23 and universities, and students are likely to want to
24 know if these are the skills being imparted after
25 expenditures of large amounts of life's time, energy,
26 and money.

1 We will investigate these further and
2 expose to the Commission and the public more details
3 and reviews, due diligence for those who need it. My
4 personal opinion is that these highly credible
5 instruments will provide institutions with valuable
6 information in the management of their most
7 fundamental mission and will in due time be widely
8 accepted by employers, students, and policymakers.
9 However, while this type of test has widespread
10 application for traditional colleges and universities,
11 as we talk today, this does not imply one size fits
12 all testing instrument. A fuller perspective with
13 other ideas will be brought forward as we develop our
14 work.

15 Number three, on the broader issue of
16 providing information on institutional performance,
17 we're working on some interesting ideas. We've
18 examined informally, not complete but very promising,
19 development of a search engine or regime combined with
20 a weighting system; that is, information about higher
21 education institutions could be identified, weighted,
22 and inserted into a system which could provide
23 consumer-friendly custom-built formats. The weights
24 assigned, a critical part of this concept, could be
25 individually determined or could be also predetermined
26 by a set of experts or specific groups or people with

1 certain kinds of interest, depending on consumer needs
2 and preferences.

3 These searches could be very simple or
4 very complex, the latter being especially valuable for
5 policymakers, researchers, and institutional managers.

6 The data available today would make this
7 possible. However, the impact in addition to the data
8 of a unit record system would be geometric in
9 proportion. In my opinion, it would be the adding of
10 a main step of performance measurement for
11 accountability if we produce a system like this.

12 None of these are mandatory or thought to
13 be -- this is not federalization. It might be some
14 national activity. These are best accomplished by
15 right leaders in the academy, along with strong
16 demands from the business community and encouragement,
17 in whatever form, from the Commission.

18 We will need people with deep analytical
19 skills and the ability to manage ambiguity. That's a
20 very simple statement that I think goes to the heart
21 of what we're saying about accountability. That's
22 from a member of the commission, Nick Donofrio, and I
23 think represents the view of the business community
24 and employers at large.

25 Thank you. This is a good time -- I think
26 we've got plenty of time for questions and answers on

1 any of the task forces or the work we're doing.

2 MR. VEDDER: Mr. Chairman, --

3 CHAIRMAN MILLER: Yes.

4 MR. VEDDER: -- first of all, may I just
5 say personally I was encouraged by your remarks,
6 knowing at this point that more details will be
7 forthcoming. I think it's a promising line of
8 inquiry.

9 I have a question which I guess would be
10 best addressed to Jim Duderstadt whose committee has
11 come in -- or task force has come in with the most
12 comprehensive recommendations, roughly speaking,
13 covering all of the subcommittees of the Commission.

14 And -- and I don't say that negatively. I
15 say --

16 MR. DONOFRIO: That's what happens when
17 you do your homework, Rich.

18 MR. VEDDER: Yeah. I say it with some
19 admiration, actually. It's kind of gutsy.

20 Since -- but under the rubric of quality,
21 I was struck very much by recent Department of
22 Education evidence that was provided to us and,
23 indeed, to the general public that suggests that
24 there's been something of an alarming and
25 statistically significant decline in basic literacy
26 amongst college-educated adults.

1 Should we perhaps not be just as concerned
2 about the quality of the learning imparted to students
3 as well as the quantity of students attending? Should
4 we not be just as concerned about -- well, I share
5 your concern, by the way, about the need to improve
6 scientific education and so forth and the numbers and
7 the quality of that and the research. I'm completely
8 with you on all of that.

9 But is there not also a second area of
10 concern that we may address, is that the students are
11 simply falling behind national -- past national norms
12 with respect to basic skills, such as reading,
13 writing, knowledge of our history and our heritage,
14 matters of this nature which are critical to the
15 maintenance of Western civilization?

16 MR. DUDERSTADT: Let me respond. I think
17 that there are two aspects to this. One is actually
18 covered by our last recommendation. I think in
19 today's world, you really have to step back and look
20 at education as a lifelong need for -- for everyone.
21 Different levels, different nature, but it extends
22 over one's lifetime.

23 And once you begin to look at it from that
24 vantage point, you realize that it's very difficult to
25 decouple what we call higher education today from
26 obviously K-12 education and clearly adult education

1 throughout one's life. So you have to look at it from
2 that perspective.

3 The second thing is that, interestingly
4 enough, American higher education is almost unique in
5 the world because of the mission that we assign to our
6 universities of socializing young people, a mission
7 that is really assigned to secondary education and to
8 society through various kind of experiences --
9 military service, community service, and so forth --
10 in Asia and in Europe.

11 I think sometimes the socialization and
12 the education function tend to get a bit confused. I
13 think you could make the argument that perhaps
14 sometimes educational institutions put too much weight
15 on the socialization and not enough on the more
16 fundamental education mission that they have.

17 But I guess the point is this is all
18 coupled together, and the -- the studies that we've
19 seen, which I agree are alarming, I think have to be
20 addressed by looking at the system in totality, not in
21 any particular component of the system.

22 CHAIRMAN MILLER: Other questions or
23 comments, please? We must have done a perfect job.
24 We're ahead of time and -- good.

25 MR. WARD: Mr. Chairman, I was interested
26 in your reflections at the end of your comments on

1 accountability, which were very clear, laid out, very
2 transparent, unlike many other aspects of
3 accountability. In terms of audience or how we
4 instrumentalize the outcome of recommendations, it's
5 premature because we've not got them in a form where
6 we recommend that X happen. But when we do, do you --
7 how -- do you see a way of changing higher education
8 by means of exhorting institutional reform, by
9 encouraging Governors, the business community to
10 exhort reform, or is there in any way a sort of sense
11 of a regulatory agenda, whether we like it or not,
12 because that is in fact possibly one way of getting
13 there faster?

14 Have you -- I mean, you sort of touched on
15 it, but I was wondering as you -- do we have also a
16 sense of whether any state has currently a best
17 practice that could be a model? One of the
18 challenges, to some degree I think, is -- as I
19 listened to some of the aspects -- is there an
20 institution or a group of institutions or a state
21 currently practicing something close to this that
22 might then be the model?

23 So I was reflecting about how we might
24 sort of address -- to whom will we address it and what
25 kind of redress do we expect?

26 CHAIRMAN MILLER: Well, among other

1 things, I can add some layers to that presentation. I
2 can be very quick about it. The way I think we'll
3 begin to come up with ideas will bring some of the
4 people that are involved in some of these issues to
5 the table. We've already heard some things on
6 accountability in some of the news in Nashville wasn't
7 very good, but we heard from the head of the State
8 Higher Education Commissioners Group. They're very
9 actively involved in developing accountability systems
10 in virtually every state. There's been a state
11 movement to do that, certainly my home state and
12 others. There was a commission on accountability two
13 years ago headed by former Governor Keating and former
14 Secretary Riley, and they put some very important
15 proposals out there, so some of these things are
16 already beginning to happen.

17 There's a Select Committee of National
18 Council of State Legislators. I'm not sure I've got
19 the group right. They're heavily interested in this
20 idea and they're all going to be looking at it, as is
21 the whole education community. So I think just having
22 this dialogue and talking about it will have a great
23 impetus. Ideas carry a lot of power. And if we can
24 put forward some of these best ideas, it would be very
25 surprising to me if the business community, seeing
26 that they need these skills, don't -- and we can now

1 have a valid way of measuring them, whatever the tests
2 are -- and you can debate how many there will be and
3 what they are -- I'd love to see people competing on
4 that kind of skill set -- that if they find that and
5 see that, they're going to demand it.

6 I mean, if I were head of a big
7 corporation, I might ask my human resource person to
8 have that as part of her certificate; for example --
9 but the need's going to be there, the demand's going
10 to be there. The student's going to eventually want
11 to know that. The pressure's going to come because of
12 the cost side. We're creating a lot of pressure in
13 the system because prices -- I think that's going to
14 create a need from the students to know what they're
15 getting, besides a certificate or the number of hours
16 they sit, and we're going to hear more about that
17 today.

18 So I think there's a confluence of factors
19 that are going to drive this to the -- to the front.

20 I don't see any way to regulate or mandate
21 that. I don't propose it, don't have the idea to do
22 it. I think it's a common custom that we'll develop.

23 Whether we wanted to or not, I think we can give it a
24 lot of encouragement and notice and I expect it to
25 happen. I think almost it's going to happen if we
26 didn't have a recommendation today.

1 Please.

2 MR. DUDERSTADT: You know, I'd like to
3 draw an analogy to health care. Because when you
4 assess someone's health, you need fairly sophisticated
5 diagnostics and a -- and a clear understanding of the
6 health process itself.

7 As a nation, we have invested very, very
8 heavily in R&D aimed at ensuring public health,
9 creating instrumentation like magnetic resonance
10 imaging and positron tomography and so forth. The
11 learning process is just as complicated as any other
12 biological function, and yet -- and, furthermore, the
13 educational sector is comparable in size to the health
14 sector. And yet we invest very, very little in
15 understanding how learning occurs and how to measure
16 learning and how to set goals and so forth.

17 Whether that's within institutions that
18 try to perform their instructional and other
19 activities better or whether that's through the
20 national level, which of course has an explosion of
21 new knowledge about neuroscience, cognitive science,
22 brain function, and so forth, but none of that has
23 mapped into the education function or in learning it.

24 And so I think in order to do this and do
25 this correctly, we simply have to invest more as
26 institutions, as government, as society more broadly

1 in learning how to really do it and do it well and do
2 it right.

3 CHAIRMAN MILLER: Thank you. I think
4 that's a very important point.

5 MR. DONOFRIO: So, Mr. Chairman --

6 CHAIRMAN MILLER: Yeah, please.

7 MR. DONOFRIO: -- just -- I'm very
8 encouraged by all of this discussion and all the
9 comments that were made. I would -- I am going to
10 sound like a broken record, so I apologize for that,
11 but as we do this work, especially on accountability,
12 I mean, I really think industry has to be heard from
13 as well. They do end up consuming most of the output
14 of the higher education institutions that we have.
15 And I don't think we should let them off the hook.
16 It's too easy to listen to people wax eloquently on
17 processes or approaches or ideas that they have for
18 all of these issues of accreditation, student
19 learning, and institutional performance.

20 But, in the end, if what's coming out of
21 these institutions isn't going to do us any good,
22 isn't going to help us, you know, move the country
23 forward, we're fooling ourselves.

24 So as you consider whatever we're going to
25 see on accountability, I hope you also consider the
26 fact that this, too, is a joint stewardship issue and

1 that industry is culpable here.

2 CHAIRMAN MILLER: Thank you for saying
3 that. I've said privately that if we don't get the
4 support generally of the business or industry
5 communities, we won't be successful. That's the third
6 leg of the stool in the sense of policymakers,
7 educators, and the people who both support and need
8 the results of higher education. I believe there's an
9 enlightened self-interest, but I believe virtually
10 every business leader would want and need the things
11 we're talking about. So I believe that's right.

12 I've thought about it -- we've talked
13 internally about how to do that, so I'll say now we
14 could put recommendations or things in there for the
15 business community to do. I've started some meetings
16 with leaders of business organizations to see where we
17 would take that and who to bring in, so we've already
18 advanced that. We have members of the business
19 community on this group, which is not traditional for
20 anything to do with higher ed. or commissions. It's
21 probably one of the unique characteristics that we
22 have major business organizations, including Art
23 Rothkopf -- are you still there, Art? -- from the
24 U.S. --

25 MR. ROTHKOPF: Yeah. I'm with you.

26 CHAIRMAN MILLER: -- from the U.S. Chamber

1 of Commerce, so we have done -- we have brought that
2 into the discussion. And we would look forward to
3 finding a way to do that more actively or directly.

4 MR. ROTHKOPF: Can I make one -- since you
5 mentioned my name, Charles, there's one point -- and
6 you and I did discuss this in our conversation, but I
7 want to just share it more generally -- and I
8 appreciate that there's going to be a study done and
9 presumably that the Department will present at the
10 April meeting on the subject of accreditation, and as
11 some of us who either in past lives or current lives
12 are involved in higher education are familiar with the
13 accreditation process, I just want to be sure that the
14 members of the Commission understand how regional and
15 national accreditation works. It's a complex process.
16 Sometimes it works, in my view, very well and
17 sometimes it works pretty poorly.

18 But I do think it's important that the
19 Commission understand, and especially those who have
20 not been involved in higher education, as to just how
21 the accreditation process works and so I think they'll
22 be better able to understand what's -- what's coming
23 at us in April.

24 CHAIRMAN MILLER: Thank you. We're going
25 to do that -- we've already got it underway. We'll
26 have something out to read about the substance of how

1 the system today works, sort of a neutral document,
2 and in the next couple of weeks probably, and then
3 we'll follow that up actually with policy ideas of
4 proposals and we're going to -- I mentioned --
5 bringing other people in. We'll bring experts in,
6 including you, Art, to do that.

7 So the Commission between now and April
8 will be very well-informed and the menu for April
9 would be a lot of the A's -- affordability,
10 accountability, access, accreditation, and I've said
11 internally anxiety. That will be the other "A"
12 because that's where we'll begin to bring some of
13 these things at the policy mode.

14 I think we have some -- Jonathan and
15 Robert.

16 MR. GRAYER: I think one thing that has to
17 be said in the context of this discussion, to the
18 point about the socialization aspect of American
19 higher ed., the paradigm that we have in our heads as
20 we address these issues of the American college or
21 university is under incredible strain from outside
22 today. By the most conservative estimates, a million
23 students enrolled in online university settings, fully
24 regionally accredited, who have no social
25 infrastructure surrounding it, probably two million in
26 schools that are also regionally accredited but part

1 of what would be called broadly a trade school
2 environment.

3 As the learner becomes more and more of an
4 adult learner who doesn't need that social context to
5 learn, that entire hook is loosening on the system,
6 yet we spend enormous -- we have not changed the
7 economic equations about how we spend money against
8 those activities.

9 And in quality and in affordability, they
10 will march. As students get older, as they get a
11 second chance at getting a fully-regionally accredited
12 degree, which I think is an important distinction to
13 talk about here, we're going to have to adapt our
14 models to that changed world. And I just -- it's
15 important that be in --

16 CHAIRMAN MILLER: You keep us on that
17 track because I think we've talked about a lot of that
18 internally. If we were to extrapolate today's
19 structure, we would have failed what we're doing,
20 which is a strategic idea. We're trying to look out
21 ten years and not think about only what it is today
22 but where it's going to go and how it's going to get
23 it there the best way, and that's a very important
24 consideration to all our work.

25 MR. ZEMSKY: This is in the nature of a
26 set of cautionaries to the whole discussion. And I'm

1 not sure I'm going to agree with Nick, but I was
2 struck by his use of the word the industry is
3 "culpable" and that -- I think that one of the things
4 that we have to be aware of -- and Jonathan just
5 helped make the point even more so -- that the longer
6 higher education aid unit that can be sealed off, that
7 can't be bordered, this is increasingly an unbounded
8 activity, and in two ways at least things outside of
9 us are having increasing impact upon us. One of them
10 is today in David's and Sara's committee, and the
11 Chairman of the Commission -- our Chairman warned us
12 at the beginning that we could not say the problem on
13 access lies in the secondary schools.

14 But at least it is a joint problem. It is
15 a joint problem with the secondary schools just as
16 much as it's a joint problem with industry and that I
17 -- you know, while you all are products of personal
18 experience, I have been through test results now that
19 I've never seen before. They've been there; I just
20 didn't bother to look. And I really would encourage
21 everybody that as No Child Left Behind and other data
22 becomes available to start looking at those test
23 results. They are really scary and that they just are
24 -- they will make you change your mind about how much
25 money will buy of a product that is already not
26 capable of further learning in its present form.

1 And that's strong words. And I accept
2 that. But that's what those things say to me. But I
3 also say in equally strong words you've got to be a
4 little careful about this business link. Remember,
5 the corporations you have around the table, what I'm
6 about to say doesn't apply to them. That's one of the
7 reasons they send their representatives to these
8 tables. But we're dealing in a world where
9 corporations are getting out of the pension business,
10 where corporations are retreating as fast as they can
11 from sort of social responsibility of the kind of
12 lifelong learning that you're talking about.

13 So this makes what Jim Duderstadt is
14 talking about all the more important because we're
15 going to have less company-provided training, not by
16 IBM or not by Boeing, but in the aggregate it is going
17 to be less. And all of the trends point that way.
18 All of the trends, if you study people like Peter
19 Capelli (ph), who talks about a contingent workforce
20 where in the same way that the cost of education has
21 been shifted to the individual for higher education,
22 so is the cost of training being shifted to individual
23 workers at a very high and rapid rate.

24 So as we look at these other partners, co-
25 responsibility becomes just a major theme that I think
26 we're going to have to pay attention to.

1 CHAIRMAN MILLER: Well, thank you. You
2 may be right. On the other hand, we're going to hear
3 some innovative ideas that may begin to show that
4 there are other ways to fill the gap with corporate
5 and other innovative ideas. There is a big demand
6 there and it's not -- the increased supply is not
7 being met by -- by higher ed., which is culpable for
8 the K-12 system. That's what I've tried to take it
9 off the table.

10 We could spend our time talking about
11 that, and we should sometime if we want to. But if we
12 get into that, the problem is going to be we won't
13 address our own issues in higher education. That's
14 the point there. I think it's important to connect
15 the business community to the equation, for the reason
16 I already said and because they both employ the people
17 and that's what most people actually go to higher
18 education for, to get good jobs, the good lifestyle,
19 and they supply the money. So I think they're
20 partners and, if "culpability" is not the right word,
21 I sure liked it, though. Powerful word. But I think
22 higher education is culpable.

23 I'm not sure if I omitted somebody.
24 Charlene -- my peripheral vision is not --

25 MS. NUNLEY: I know. I'm kind of hiding
26 back here behind Jim.

1 CHAIRMAN MILLER: Yeah.

2 MS. NUNLEY: Just two quick comments. I
3 love the bold vision of the Quality Task Force. I
4 think that is really something I hope we will do, is
5 make some very bold commitments.

6 Second, I do think that there is research
7 going on on teaching and learning that people may not
8 be broadly aware of in the Vanguard Learning Colleges
9 or the innovation in community colleges. You know,
10 two-year colleges are teaching institutions and, as a
11 result of that, there's colleges like Valencia and
12 Florida and other colleges across the nation that
13 truly are doing a lot of research relating to how
14 students learn and what alternative approaches support
15 that. So I would hope as we're doing some of our
16 homework, we would look a little bit at the work going
17 on in the Vanguard Learning Colleges.

18 CHAIRMAN MILLER: Thank you. This is
19 interesting to get the Commission to talk to each
20 other and the public like this. We haven't done much
21 of it, so it's very helpful to do it. Maybe we'll add
22 that -- oh, good. Thank you.

23 MR. FALETRA: I'd like to mention a couple
24 of things that have arisen by -- indirectly from
25 Jonathan and from Nick, and the -- in our group, we
26 were talking about the confluence of the needs for --

1 that are found in industry for people who can not only
2 critically think but also that enter into that
3 workforce with the skills that they need.

4 And the difficulty that we find when we --
5 at least on our national labs and a lot of my partners
6 in the scientific and technology communities, that if
7 we look at like E-learning as a solution to the
8 problem, it's like looking at the solution to energy
9 just in ethanol. And we're not going to get it there.

10 We're going to have to have everybody playing. This
11 is a solution that is only going to come from
12 everybody in the sector -- every sector of our economy
13 and our nation playing together, whether it's
14 businesses like IBM or whether it's non-profit, non-
15 governmental organizations or whether it's the
16 national labs or higher education. It's going to take
17 everybody.

18 We really look at -- for instance, I think
19 Charlene had mentioned that E-learning in some
20 respects had created more problems, more challenges,
21 and hadn't made the system seemingly more efficient or
22 cheaper. But -- and how do they grapple with that.
23 And, at the same time, we value in our national
24 laboratories a development that we can give in skills
25 because we have some of the greatest instruments, if
26 not the best, on the planet. So when they come to our

1 national labs, they learn the instrumentation they
2 need and, therefore, the skills to go to industry
3 with.

4 And we have found, just as people have
5 mentioned here, that -- and Rick made a very, very
6 fine point of this -- that at Boeing, they will not
7 hire a student who hasn't got real world experience.
8 And we're finding that more and more in industry, and
9 industry has to do this to survive.

10 So if you don't present the skill sets --
11 and I really do mean do you know how to operate
12 certain things, do you know how to do the things you
13 need to do, they're not going to be able to, and how
14 do you do that through E-learning? I would like to
15 know how a student learns to operate an MRI over an E-
16 learning system.

17 So it's going to take everybody playing
18 together, all -- all sorts of different things under
19 this and it's like the gathering storm. The gathering
20 storm I analogize to what Charles Darwin said when he
21 talked about how systems adapt. And he used the
22 example of weather and weather drives a system. And I
23 looked at industry as the weather. They tell us what
24 they need. That's what we're supposed to be
25 delivering. They're going to force us to do it
26 because they have to have it to survive.

1 So that's --

2 CHAIRMAN MILLER: Thank you, Peter.
3 That's a good closing segment then. I think we have a
4 lot of good ideas on the table and good work from the
5 task forces.

6 I want to thank everybody for
7 contributing. I can't -- I want the public to
8 understand a lot of time and energy and effort's gone
9 into the work so far, and it's been very productive.

10 The theme of the meeting today is
11 innovation. With the help of several committee
12 members and Commission members and our very able
13 staff, we have an excellent set of presentations. You
14 can see it on the agenda. Our purpose is to explore
15 the general concept of innovation. Clearly, the
16 ability of our economy in the social system to
17 innovate has been a comparative, competitive advantage
18 for the United States. The contribution of higher
19 education to that capacity is critical, and we will
20 hear about that over the next 24 hours, including
21 examples of innovation within the higher education.

22 With that, Nick, if you could set up with
23 your guests and the floor is yours. Appreciate you
24 introducing yourselves.

25 MR. CLOUGH: Thank you, Chairman Miller.
26 I'm Wayne Clough. I'm President of Georgia Tech, and

1 it's an honor to be here. Stimulated by your earlier
2 discussion, you can always tell when you get prompted
3 internally to want to jump up and make some comment
4 that it's a good discussion. I restrained myself,
5 however.

6 It's a real pleasure to be here. I thank
7 you for inviting me to your San Diego meeting. I had
8 a wonderful chance to walk around the waterfront this
9 morning and called my Atlanta colleagues and rubbed it
10 in that the sun was shining here when it's raining in
11 Atlanta. And I have many alumni out here, and so it
12 made good use of this trip in visiting them.

13 The topic of innovation is one that's very
14 much on people's minds, for many reasons, and Nick and
15 I are going to team up on this presentation because
16 we've been a team in fact in working with the U.S.
17 Council on Competitiveness and the National Academy of
18 Engineers and other organizations in trying to bring
19 coherence to this issue of innovation.

20 Nick and his colleague, Sam Palmisano, and
21 I co-chaired the National Innovation on Initiatives
22 for the U.S. Council on Competitiveness and some 400
23 people around the country worked with us on that
24 initiative, so the thoughts of many of those folks are
25 in anything that I will say today.

26 What I will try to do, since your subject,

1 obviously, is about the future of higher education, is
2 to concentrate my comments on higher education where I
3 think we can do a great deal of work towards adapting
4 towards the innovation economy.

5 I'm going to couch my comments in terms of
6 four themes -- trends in higher education, the
7 changing global environment -- and those two pieces
8 just to provide briefly a little context -- then the
9 role of the university in the innovation economy, and
10 the changing shape of the university.

11 Trends in higher education, I will focus a
12 little bit on enrollment, particularly in science and
13 engineering enrollments, the fact -- a few of the
14 facts about our university faculty, the R&D
15 investments in science and engineering, which the
16 President spoke so eloquently to recently, and funding
17 models for public higher education and how they're
18 changing briefly.

19 U.S. engineering programs, if we use that
20 as a metaphor for sciences and other types of related
21 professions that are clearly important to innovation
22 and an innovation economy have been essentially stable
23 for a long period of time. Engineering graduates at
24 the Bachelor's level peaked in the 1980s. We're
25 gradually creeping back. We had a period of steady
26 decline. We're gradually creeping back as some

1 inroads have been made in actually getting more women
2 and minorities to participate in the engineering
3 enterprise. It took a long time for us to come around
4 to that, but the job is actually showing some good
5 results.

6 However, if we look at that type of
7 number, we know that in China and India, they are
8 producing far more engineers. I hesitate to cite a
9 number for either of those countries, because I think
10 most of the numbers that are out there are not very
11 meaningful. I've heard numbers from China ranging
12 from 300,000 to 600,000 and even more divergent
13 numbers than that. But I do think those countries are
14 outproducing us, simply because they're bigger
15 populations.

16 At the Master's level in engineering,
17 we're seeing, again, a small increase now after years
18 of decline and that's reflected I think in the fact
19 that more women and minorities are taking part in this
20 enterprise.

21 At the Doctoral level, however, we are in
22 fact dropping. In fact, we're being outstripped
23 clearly in doctoral degrees in engineering and natural
24 sciences by China and the Asian nations and by the
25 European union and that's a dramatic change because
26 the United States was far ahead of those nations as

1 late as 1990, and so that's changing dramatically.
2 That's a dynamic we have to keep our eye on and it's
3 something we should be very concerned about.

4 Another factor about the demographics of
5 the faculty who teach engineering and science is
6 they're aging. The numbers of individuals in the
7 upper 65, for example, category or over 65 category is
8 increasing and, as you go down, you can see in the
9 diagrams that you have in front of you an aging
10 profile for our faculty. Part of that can be
11 attributed to the fact that sometime back, the Federal
12 Government became active in matters of policy relative
13 to higher economy and did away with the mandatory
14 retirement and so we have no mandatory retirement in
15 higher economy today and the faculty are aging.

16 Now, why is that important? Well, if
17 we're going to discuss the subject and get into the
18 subject of teaching innovation, who's going to do it?

19 And I think Secretary Spellings has already addressed
20 that issue a little bit. Who would be able to talk
21 about innovation? Well, if the faculty are aging and
22 the faculty are staying on longer, they may not have
23 the skill sets that are necessary to get into a
24 different way of teaching and a different approach to
25 education.

26 And so that brings us into discussion of

1 issues of bringing more people in from industry, which
2 I think is a good thing, but also having opportunities
3 for faculties to stop out a little bit and relearn new
4 material so they can become more up to date.

5 Federal R&D, just a comment on that. The
6 balance of R&D funding in this country has changed
7 dramatically over the last 30 years. In the '60s, the
8 Federal Government was the dominant funder of research
9 and development. Today, industry is the dominant
10 funder of research and development.

11 The Bush Administration has been very
12 active in adding to the federal base for R&D and
13 particularly we were encouraged by the numbers -- by
14 the comments that the President made in his State of
15 the Union about beginning to address what is clearly
16 an imbalance in that funding that has left out
17 physical sciences and engineering and that will be
18 brought forward.

19 But that issue's important when we talk
20 about innovation, is who's funding the long-term
21 research that this nation needs? It has to be the
22 Federal Government. Industry simply can't do it,
23 given the push that they have towards the bottom line,
24 and we have to make sure we are in fact funding the
25 seed corn ideas, like those that came out and
26 developed the Internet for us in this nation. It's

1 something that should be of concern to us.

2 If we look again at our competition --
3 measures of our competition with other nations, we see
4 very clearly as an example of that that the numbers of
5 scientific papers and engineering papers that are
6 being published in prestigious journals by other
7 nations today are exceeding those from the United
8 States. Again, a dramatic change. Because as late as
9 the 1990s, the United States led in numbers of
10 publications. Today, other nations clearly are in the
11 lead in those publications.

12 So it simply says to us that the context
13 that we are competing -- and we are competing. This
14 is a competitive world in higher education as well as
15 obviously in the economy -- those -- the parameters
16 surrounding that competition are changing, something
17 we need to be very cautious about.

18 Higher education itself, of course, the
19 funding patterns have changed dramatically because in
20 public higher education, we're always going to lose
21 out on the battle with K-12 education, health care,
22 and prisons. As we know, the inflation rate or the
23 growth rate in those areas is significant. Higher
24 education is always seen as a bit of a discretionary
25 part of the budget, and we inevitably lose out in that
26 competition.

1 In the past, it was common to find states
2 where higher education was 20 percent of the budget.
3 Today, it's highly uncommon to come anywhere near
4 that. More like ten percent is the figure that you
5 see there.

6 As a result, public universities are
7 saying, If we're not going to be funded by the states
8 as much as we have been in the past, at least give us
9 more autonomy in order to carry out our functions and
10 our operations.

11 Now, why is that important in an
12 innovation-based economy? Universities have to be as
13 agile and as flexible and as responsive as your
14 businesses are. And you've all made changes in your
15 businesses in order to compete in the global economy.

16 Universities have to be able to do that today as
17 well.

18 Competition for outstanding faculty, of
19 course, in critical fields is not diminishing and the
20 salaries that the market demands for those kinds of
21 talents, if anything, is going up because they are not
22 only -- we are not only competing for those faculty
23 today in the United States but around the world as
24 other countries are increasing their investments in
25 higher education.

26 And I mentioned the pattern of funding of

1 public education in this country because it's
2 important because, in China and India, they are
3 investing more and more in higher education and that's
4 something that we need to take very seriously.

5 There's a statement by Daniel Yankelovich,
6 the founder and CEO of Viewpoint Learning, I think
7 that's important. He said, "To an extraordinary
8 degree, our nation's fate depends on maintaining our
9 world leadership in science and technology. Our
10 superpower status is tied to it ... Yet young people
11 in Western industrialized nations, especially the
12 United States, are not flocking to study science and
13 technology like their counterparts in other
14 countries."

15 That's an important statement. In a
16 number of the publications that you've referred to in
17 your discussions today, The Gathering Storm, Innovate
18 America, there are recommendations, for example, to
19 double the number of engineers in this country. Well,
20 you can call for a doubling but, if nobody responds to
21 the call, nothing happens. And presently we would
22 have I think serious concern about being able to do
23 that from the present K-12 mix that's coming through
24 the pipeline today.

25 I would also say there's been some very
26 good discussion about what "doubling" might mean. We

1 really don't want to double the engineer of the past.
2 And it comes back to what Nick and others have said
3 here. We need to be cognizant of what the industry
4 needs from our graduates and how those students are
5 going to be able to make lives for themselves. We say
6 at Georgia Tech we're educating engineers and
7 scientists for life, not a job. We would not be doing
8 a right job if all we did was produce an engineer or a
9 scientist who was immediately a good worker but ten
10 years later, when that company shifted, went in a
11 different direction, could not respond to that. And
12 so we have to educate our young people to understand
13 the larger world that they will live in. Because,
14 indeed, the societal forces that they will have to
15 deal with are dramatically changing in terms of
16 growing population, as we know, fresh water shortages,
17 new diseases, and global warming -- all these things
18 are evident to us every day, perhaps none more so than
19 when Katrina and Rita hit the coast off the Gulf and
20 the loss of life and the loss of property was
21 astounding.

22 I had the good fortune to chair the
23 Katrina Commission for the Department of Defense and
24 have had the chance to visit New Orleans, which I have
25 some personal involvement in because of my wife's
26 family losses there. And I can tell you this is a

1 dramatic problem and it's not one simply linked to
2 these areas because these larger hurricanes can hit
3 anywhere along the Atlantic coast, not just in the
4 Gulf. More and more people are moving to the coast
5 in this country and around the world. These are
6 problems that our students are going to have to
7 address.

8 At the same time, the economy is changing.

9 They'll have to operate in the new economy, in an
10 Internet-drive economy, new markets with emergences of
11 new technology-based economies in other nations.
12 We're going to have to compete with nations like India
13 and China where indeed they have more talent in terms
14 of numbers than we will have.

15 The competition grows fiercer, as I said
16 in this particular slide. By 2010, some estimate that
17 90 percent of the world's scientists and engineers
18 will live in Asia -- 90 percent.

19 The U.S., of course, has invested and is
20 investing in key areas of new technology, such as
21 nanotechnology. We have the National Nanotechnology
22 Initiative, which Congress and the President supported
23 at \$1 billion a year. But Western Europe and Japan
24 and other nations are investing just as heavily in
25 those technologies. They expect to beat us there.
26 And so it's going to be a race to the finish.

1 Remember, too, that six of the world's 25
2 most competitive IT companies now are headquartered
3 out of this country in other nations. So the
4 competition is gearing up.

5 So our students and the United States have
6 to compete in a world where the largest technological
7 workforces will reside out of this country in other
8 nations. We'll probably generate only one to -- one
9 out of four to five of the new inventions. And our
10 wages and health care costs will continue to be higher
11 than our global competitors. And the domestic market
12 that we offer is very small in size compared to Asia.

13 By 2025, when this world adds two million more
14 people, it's estimated that 54 percent of those people
15 will live in Asia, six percent will live in this
16 country.

17 So the scientific and building blocks of
18 our economic leadership are eroding, as the gathering
19 storm report told us, as a time when other nations are
20 gathering strength. It's something we should be very
21 concerned about and discussions of these kinds I think
22 are very important.

23 A number of reports have proposed
24 solutions and ideas for us to move forward. One of
25 these was the National Innovation Initiative, which
26 Nick and I and Sam Palmisano participated in, and I'll

1 just give you one quick quote out of the Innovate
2 America report. "Innovation fosters new ideas,
3 technologies, and processes that lead to better jobs,
4 higher wages, and a higher standard of living. For
5 advanced industrial nations no longer able to compete
6 on cost, the capacity to innovate is the most critical
7 element in sustaining competitiveness."

8 So innovation we think is critical to
9 meeting all of the major goals of our nation. But the
10 bar for innovation is rising and, as was mentioned
11 earlier, multi-disciplinary activities are going to be
12 more important. They're going to have to diffuse at a
13 faster rate. Collaboration is going to be more
14 important. And it will be global in scope.

15 And finding the balance between
16 competition and collaboration, between security and
17 openness, between nationalism and globality, between
18 analysis and ambiguity will become more important and
19 more nuanced than ever before.

20 So that brings me to the universities.
21 Let's call it Universities and Innovation 101. What
22 are we supposed to be doing for this nation? Educate
23 the workforce of the future, and that's a shared
24 responsibility between industry and the universities
25 to make sure in fact we're producing the kind of young
26 people who can be successful in this economy and for

1 the institutions that hire them.

2 We also at the research universities
3 conduct the frontier research that provides the basis
4 for new discoveries and knowledge.

5 And if we're doing our job right, we
6 promote technology transfer so these ideas get out
7 into the marketplace and in fact we license them, for
8 example, to industries so they can make them
9 commercial products.

10 Now, Universities and Innovation 201, we
11 go into the next level. First, we have to focus on
12 interdisciplinary collaboration because issues such as
13 nanotechnology, sustainability, these issues are
14 interdisciplinary in nature. They cross between
15 sciences, public policy, business -- all of the
16 disciplines are involved -- health care and so forth.

17 IT networks, collaboration is very
18 important there. And if you have in front of you the
19 small diagram representing this particular slide,
20 there's a network shown on the United States. That's
21 called the National LambdaRail System. Twenty
22 universities got together about three years ago,
23 including Georgia Tech, and bought dark fiber and
24 today this is an operational network that replaces the
25 Internet for us in many ways that allow us at high
26 speeds and high capacity to interact with each other

1 and the universities around the world to do research.

2 But we have to collaborate and work together.

3 Policy. This Government needs policies
4 that encourage this type of collaboration.

5 Openness and diversity. This is a
6 continual struggle. We have something called deemed
7 exports in this country, which is a set of rules and
8 regulations about how we can discuss technologies and
9 scientific discoveries with members of other nations.

10 This is continuing to get more complicated. And
11 simply trying to keep everything to yourself is not
12 the way to work. Openness should govern our approach
13 as opposed to trying to close our borders on new
14 ideas.

15 And also creating the nexus for new ideas.

16 Now we go to what I would call
17 Universities and Innovation 301. This really gets
18 down to where I think we have to move forward in the
19 future. I believe we need innovation-based
20 experiential learning. Many of you talked about
21 Boeing, for example, looking for young people who have
22 had some sort of internship or co-op experience. We
23 emphasize that at Georgia Tech. About 40 percent of
24 our students participate in co-op or internships. We
25 think that's very important. But it needs to be
26 innovation-based, not simply looking backwards, and I

1 think this -- our universities need to work harder to
2 learn to teach innovation. We haven't done that.

3 Going global. Well, our students have to
4 learn to compete in a global economy and that means
5 more emphasis on study abroad, more emphasis on
6 bringing students from other locations to this nation
7 so they can interact with our students and helping
8 them understand the global economy.

9 IT-enhanced learning. I know you'll hear
10 on your program from some institutions that specialize
11 in IT types of learning, virtual universities and so
12 forth. But your traditional research universities
13 must incorporate these ideas and many are at the
14 forefront of doing this. I know at Georgia Tech,
15 every course we offer is supported by a web-based
16 content. It's changed dramatically in the last
17 probably seven or eight years.

18 MIT now offers open access to all of its
19 courses over its Internet and its website. These are
20 the types of things that our great research
21 universities need to do as we go forward.

22 And then accelerated commercialization of
23 new technology. We continue to work on improving this
24 at all of our research institutions. We think it's
25 important for our nation that we do that.

26 So these are some areas I think we need to

1 work on if we're really going to emphasize innovation
2 in higher education at our universities.

3 I want to comment quickly again on
4 engineering and this issue of educating a new breed of
5 engineer. We have spent considerable time working
6 with industry to try to understand from industry what
7 it is they need from our engineers. And we have a
8 list here on this particular set of -- this
9 information that was provided you under the Engineer
10 2020, which was an effort of the National Academy of
11 Engineering that many people, including Nick,
12 participated in.

13 And we have a list of what we think are
14 the important characteristics of a young person to
15 learn while they're at a university if they're going
16 to be successful in the new economy. We conclude it
17 with one statement that we didn't really hear from
18 industry, and that is to be an adaptive leader.
19 Oftentimes, industry tells us they want our graduates
20 to be team players. Well, we want them to be team
21 players. But if they're only team players, they'll
22 never be leaders. And so we think it's important for
23 them to be leaders.

24 How do we get there? We need to provide
25 new opportunities for our undergraduates, and many
26 universities are working on this. At Georgia Tech,

1 for example, our goal is to have over 50 percent of
2 our students participate in undergraduate research.
3 Many universities are ahead of us on that. Some still
4 need to work on it. But this gives the student an
5 open environment and opportunity to work with faculty.

6 International experience. More study
7 abroad, meaningful study abroad for our students are
8 important.

9 We hear repeatedly from industry our
10 students need better communication skills, and I think
11 this is a little bit of a shared responsibility for
12 industry in that we are not going to be able in four
13 years to create the perfect graduate, but we need to
14 do a better job of teaching communication skills.

15 And then the usual litany of teamwork,
16 leadership, and recognition of new learning styles.
17 That's been brought up several times here, that our
18 students indeed do learn differently than they did in
19 the past, even these very bright young people who come
20 to our institutions of technology. They aren't
21 necessarily as deep in the way of thinking about
22 physics and math and logic as they were in the past,
23 but they've learned to parallel process an awful lot
24 as opposed to think deeply about issues.

25 New IT applications will be part of this
26 innovative learning style. Web-enhanced classes,

1 information commons, interactive online classes, and
2 so forth that I described before.

3 At Georgia Tech, we have a suite now of
4 ten Master's degrees we offer on the Internet to
5 provide access to people for that next stage of
6 learning that Jim Duderstadt -- one of those methods
7 to provide that next step of access that's necessary.

8 We follow some of our companies to their
9 sites overseas. With GE Energy, they have a large
10 base in Bangalor, India. We have 40 students in
11 Bangalor, India today getting Master's degrees in
12 mechanical engineering over the Internet from Georgia
13 Tech.

14 Commercializing discoveries, again, that's
15 part of the innovative university. We must shorten
16 the cycle for getting ideas out from the universities
17 into the commercial sector. Some people use the
18 phrase "the valley of death" to describe what it takes
19 to get an idea from a university into the commercial
20 sector. It's a long process and complicated process.

21 We have the Bayh-Dole Act, which authorizes
22 universities to own intellectual properties if they
23 were developed using federal research. It's a
24 tremendous opportunity. On the other side of that
25 coin, Bayh-Dole requires us to introduce these ideas
26 to industry so they can be commercialized. If we

1 don't, those ideas can be taken away from us. And
2 there are many other things universities can do, such
3 as creating incubators and operating enterprise parks,
4 and more and more we are doing that.

5 Here in this area, UC San Diego, for
6 example, has a Center for Entrepreneurism and
7 Technology Advancement that's been very successful for
8 a number of years. One only has to ride up near the
9 University of San Diego and Scripps and see the huge
10 investment in biotechnology industries in and around
11 that university and you can see the success of that
12 approach.

13 We have tried to do the same thing at
14 Georgia Tech. In the past two years, we have created
15 25 new companies. It's a record for us and it's
16 something we're working hard on doing. But innovative
17 universities will be doing more of that.

18 I mentioned going global. We have to go
19 global as institutions through research partnerships
20 with universities across the world, and this comes
21 back to this issue of the challenge with the Deemed
22 Exports Act.

23 Dual degree arrangements -- we have dual
24 degree arrangements with universities in France, with
25 the Technical University in Munich, University of
26 Singapore, the National University -- National

1 Technical University of Singapore, and Shanghai's Xiao
2 Tung University, just to mention a few of those.
3 Because dual degrees mean you treat each other as
4 partners. Very important to have that.

5 And then using distance learning, Internet
6 learning to supplement all of those things.

7 Let me just also say that we want to speak
8 briefly to the issue of promoting global education.
9 Recently, Secretary Spellings and Secretary Rice
10 hosted a summit for University U.S. Presidents in
11 Washington in January, and I was privileged to attend
12 that, to address the issue of making our university
13 system more aware of global issues. And that means
14 it's a two-way street -- not only having more of our
15 students study abroad, but having more international
16 students come to this country and, as you know,
17 because of some of the recent problems with visas
18 after 9/11, there's been a decline, significant
19 decline in some cases, of numbers of international
20 students interested in coming to the United States.

21 And as we have seen that decline, other
22 countries have tried to take advantage of that. I'm
23 told, for example, that in one country -- I'll leave
24 the country unnamed -- that our consulate was
25 confronted with a sign in front of it that said, "If
26 students want to come to country X, you can get in in

1 one day. It will take you three weeks to get into the
2 United States." So the competition is there for these
3 very, very bright young people.

4 I'll just read you a quote from
5 Undersecretary of State Karen Hughes who made this at
6 that particular meeting. "We must work aggressively
7 to find new and effective ways to market the depth and
8 diversity of American education overseas and to engage
9 more of our schools in the international arena." And
10 this whole meeting focused on that. I hope you will
11 capture this in some way in your discussions.

12 And of course we want to see to it that
13 more of those young people in fact stay in this
14 country because this is a country of immigrants and we
15 are successful because we've been able to be
16 attractive to the best minds around the world and to
17 help drive our technology and our innovation sector.

18 Let me close by just a quick quote from
19 The Economist in September 2005. It said, "The
20 emerging global university is set to be one of the
21 transformative institutions of the current era." And
22 I think that's true and I think that global university
23 will be one that embraces innovation.

24 Thank you very much.

25 MR. DONOFRIO: So, Mr. Chairman, we'll
26 continue and then we'll open it up for questions at

1 the end, --

2 CHAIRMAN MILLER: Thank you.

3 MR. DONOFRIO: -- if that's okay with you.

4 And I'll try to keep my comments brief, focused, and
5 non-repetitive with my dear colleagues here since it's
6 so easy for us to overlap.

7 I've submitted to you all written
8 testimony, so I'm not going to read my written
9 testimony. I'd rather just talk with you about some
10 of the big ideas that I think are really going on from
11 an industry perspective and from a market perspective
12 around this whole topic of innovation.

13 So it's clear that -- it's clear that we
14 are becoming infected with this word and it's clear
15 that we are becoming infected with the fact that there
16 is something different going on in the world. It's
17 terribly important that we understand that innovation
18 in the 21st century is not what it was in the 20th
19 century. We may not exactly know what it is in the
20 21st century yet, but if all we do is practice the
21 things that we practiced in the 20th century, hoping
22 to be leaders of the world -- and of course that's
23 what the President told us he wants the American
24 Competitiveness Initiative to be all about, is leading
25 the world in innovation -- then you have to understand
26 that things are simply going to be different. It's

1 not just about invention. It's not just about
2 creation. And it's not just about discovery in the
3 21st -- those are important and we have to keep doing
4 those things because the rest of the world is going to
5 be doing those things and we do compete on a global
6 basis, but by themselves they are no assurance at all
7 of leadership here in the 21st century.

8 Value is the issue in the marketplace and
9 where real value is attained and how real value is
10 brought to the forefront in either industry or in
11 society. So there's more to be done than engineering
12 and science and technology and math. Those are all
13 terribly important.

14 Several of the things that Wayne mentioned
15 are, I would argue, just as important. This whole
16 issue of trying to deal with the ambiguities of life
17 but putting that thought not just to products but
18 putting that thought to the idea management process, a
19 new business model process, and also the whole process
20 of innovation itself.

21 We're in an economy that's quite
22 different. Everyone understands that. The Internet
23 is everybody's best friend and yet, for most of the
24 world, it's only about ten years old.

25 I step back every once in a while to look
26 at how far we've come. A million enterprises are now

1 connected. Over a billion people are now connected on
2 the Internet. And while there's not quite a trillion
3 devices connected to the Internet, there's a lot of
4 devices connected to the Internet and maybe before
5 it's all said and done, it will be a trillion. It
6 makes world ideas happen a lot faster. This whole
7 need for globalness that Wayne talked about, this
8 whole idea about openness that Wayne talked about, and
9 the fact that standards can arise anywhere in the
10 world and become the limiter for real growth create a
11 much different environment than what we were faced
12 with in the 20th century for companies, for
13 governments, and for educational institutions as well.

14 In the end, innovation, I believe, is
15 probably going to be the arbiter of real national
16 competitiveness, and we're not the only people who
17 understand that. We did a fine piece of work with the
18 National Innovation Initiative. As you can tell,
19 we're very proud of it. It's not the only piece of
20 work that's been done in the world on this topic. It
21 wasn't the only piece of work that was done here.
22 Before we started, we had them all bring us the tomes
23 of information that have been compiled on the topic of
24 innovation in this country and never acted on. And,
25 of course, as we traveled the globe, we realized
26 they're studying just as hard in Europe, probably

1 harder in China, equally as hard in India, or in
2 Shanghai, in other parts of the world.

3 How do we stay ahead then? Well, I
4 suspect it has to do with all of these other things
5 that we need to bring to bear on the topic of
6 innovation, right along with good math and good
7 science. While everybody else focuses on good math --
8 did you want us to answer this phone?

9 CHAIRMAN MILLER: No. In fact, I'd like
10 to ask everybody to turn off their phone and their
11 Blackberry and the like. We're getting a lot of
12 feedback. Sorry. We're sorry about that. That's
13 probably Art, though.

14 MR. DONOFRIO: Art, are you -- is that
15 you? Who's on this phone? Speak now or I'm going to
16 disconnect you.

17 CHAIRMAN MILLER: It's the National
18 Security Administration.

19 MR. DONOFRIO: Go on. Whoever it was,
20 they're now off the hook.

21 CHAIRMAN MILLER: They're off the hook.

22 MR. DONOFRIO: Okay. Now I have to just
23 remember where I was before -- must have been China
24 calling in.

25 So the fact of the matter is, it's not
26 ours and it's the world's, and the fact of the matter

1 is it's only ours if we do things a little
2 differently. And what I was trying to say was it's
3 perhaps several of these other elements that Wayne was
4 talking about that we need to be thinking about in the
5 context of the future of higher education.

6 You heard him say things like open,
7 collaborative, multi-disciplined. You heard him say
8 global in thinking as well. I think these are
9 terribly important skills that fundamentally engineers
10 and scientists and mathematicians and technologists
11 actually don't know very well when they come to
12 industry. And it may be there where the real
13 innovation in the world occurs.

14 I posit to you that it is not likely to
15 happen again that in an isolated laboratory, you know,
16 that the real value that we're looking for for
17 leadership is going to be created. We'll need it but,
18 by itself, it's not likely to deliver.

19 We've done other work -- we, the IBM
20 company, have done other work, right along with the
21 National Innovation Initiative, and it all points back
22 -- we've done something called the Global Innovation
23 Outlook and we're in our second year of doing that --
24 multiple countries, hundreds of people. It all comes
25 back to the same set of thinking, that innovation
26 exists at places where it's just not obvious to

1 people, where knowledge of a business, knowledge of a
2 problem, knowledge of an issue, and the intersection
3 of technology create an entirely different opportunity
4 than what anyone could have seen before.

5 You know, the paths to success are pretty
6 well programmed for most things nowadays. People know
7 how to incrementally improve things. That's not what
8 real innovation in my mind is about -- incrementally
9 improving things. It's all about getting that insight
10 and that discovery and moving on it before anybody
11 else does in the marketplace.

12 Higher education clearly needs to respond.

13 We can't simply take everything that higher education
14 gives us and then spend years trying to retool it for
15 what we think we need in the real world. We've got to
16 keep a strong base, so don't -- don't misunderstand
17 me. I'm not saying that creation and discovery are
18 not important and that invention isn't important. I'm
19 not saying that math and science isn't important. But
20 by itself, it is not the necessary and sufficient
21 issue.

22 Think about this if you don't buy into the
23 whole idea that there's something changing and value
24 is moving. Just think about this. Seventy-five
25 percent of our economy in this country is services-
26 based. By the way, half of the workforce everywhere

1 else in the world, in what we would call high wage-
2 earning countries, excluding China and India, half of
3 that workforce is employed in the services industry,
4 half of it.

5 And yet we don't really take the science
6 of services or the engineering of services or the
7 management of services seriously. We don't think of
8 it as a discipline like engineering, mechanical
9 engineering, electrical engineering, civil
10 engineering. Now, maybe it's a bit preposterous for
11 anyone to pose or posit that services needs to be
12 treated that way. But it worries me that that's
13 perhaps where a lot of the value is and that's maybe
14 where a lot of the innovation in the 21st century is
15 going to have to go on.

16 We think a lot about this. There are lots
17 of universities -- Georgia Tech, inclusive -- who
18 think right along with us about this whole issue of
19 the services of science and the management and
20 engineering of services right along with it. There's
21 got to be something here for us to worry about as we
22 go forward mapping out the future of higher education.

23 There's a lot that needs to be done. And
24 while I've used this word, and maybe I use it too
25 loosely, "joint stewardship," I honestly believe that
26 the joint stewardship between industry and higher

1 education and government is really what's required for
2 true progress to be made.

3 I'm talking about higher education, by the
4 way, at all levels, not just the fine top 100 hallmark
5 institutions of this country, but in fact Charlene
6 said earlier, you know, the local universities, the
7 local community colleges have a lot to do, and perhaps
8 more to do, with the skill base that industry prefers
9 than some of the higher and hallowed educational
10 institutions that we preserve as the top 100 in
11 this -- the local universities know what entrepreneurs
12 want. They know what small medium business is all
13 about. They understand the skill deficits a lot
14 faster.

15 So as we think forward here on this topic
16 of innovation, maybe we should take a lesson from
17 something we're learning every day, you know, that we
18 all will be led by "the underserved." There's much to
19 be learned by looking at other systems as we go
20 forward.

21 So let me conclude. Without becoming too,
22 too preachy on this topic, we are at an incredible
23 inflection point. Perhaps I put it to you this way:
24 What we did since the post-World War II boom, of which
25 I'm a victim of and member of, isn't what's going to
26 carry us forward from here on. That formula for

1 success that we created after World War II is clearly
2 going to have to be a much different and a much higher
3 valued formula for success. We are going to need
4 research. We are going to need science. We are going
5 to need math. We are going to need all of those
6 things. But, by themselves -- by themselves -- they
7 are not going to get the job done for us.

8 And while I might not have a pithy quote
9 from The Economist to close with, let me close with
10 this pithy quote from someone who means a great deal
11 to me, my father, God rest his soul. Never graduated
12 high school. They threw him out in the tenth grade.
13 He used to simply say, "If nothing changes, nothing
14 changes."

15 Thank you.

16 CHAIRMAN MILLER: That's good, Nick. You
17 could lead this discussion. You can actually see
18 people more than -- Jim raised his hand first.

19 MR. DONOFRIO: Sure. Okay. Jim.

20 MR. DUDERSTADT: You probably recall the
21 statement by Clark Kerr -- I can't remember it exactly
22 -- but of the 85 institutions in our world that have
23 existed for over a thousand years, the majority are
24 universities. So universities have some kind of
25 enduring characteristic.

26 But when you begin to talk about

1 innovation, I'm struck by a book that was published
2 several years ago by Clayton Christianson, The
3 Innovator's Dilemma, who suggested that there are
4 certain disruptive paradigms in innovation that, at
5 the outset, really don't look that competitive for
6 dealing with traditional kinds of needs, but very
7 rapidly evolve because they address new needs and
8 evolve and eventually replace older institutions.

9 It strikes me, Jonathan, that in the world
10 of lifelong learning and adult education, it could be
11 that for-profit sector, elements of higher education
12 that have taken on marketplaces that have largely not
13 been a priority of the university, may be learning
14 this innovation game much more rapidly than our
15 traditional institutions and, therefore, could be the
16 disruptive paradigm.

17 So I'd be interested in your applying what
18 you see about the innovation character of the 21st
19 century to higher education itself and the way these
20 institutions may evolve, either one of you.

21 MR. DONOFRIO: We'll both take that, I'm
22 sure.

23 MR. CLOUGH: Well, I think there's always
24 a risk that if you are not attuned to how change is
25 occurring, then you're going to fail. Peter Drucker
26 of course said many wise things, but one he said not

1 long ago was that the brick and mortar institutions
2 were dinosaurs on their way out. We're still here.
3 In fact, we're more popular than ever. We have more
4 applications to our institutions than ever before.
5 This past year, I know at my own institution we had
6 more people interviewing to hire students than ever
7 before.

8 So I think what is happening is that we
9 got that message pretty clearly and we began to
10 realize that there was a serious issue.

11 We haven't solved or addressed all of the
12 issues. But many of the universities I know of have
13 changed the way they educate their students pretty
14 dramatically. There -- a couple of places are still
15 resistant, as we know, in a few departments out of
16 every university.

17 The lifelong learning challenge I think is
18 one that remains in front of us. We haven't done a
19 terribly good job of that. We built something not
20 long ago, about three years ago, called the Global
21 Learning Center because we wanted to build a
22 continuing education center that was not your father's
23 continuing education center. And we -- you know,
24 timing says a lot. We did it just at the time when
25 the economy was down and industry was disinvesting in
26 that type of learning. But it's come back and we're

1 beginning to see strong elements of it.

2 I think we have to have lifelong learning
3 not only for the folks who are in a local area, but so
4 we can deliver it to them in an on-time basis when
5 they can do it, a synchronous type of basis, and also
6 around the world -- follow people around the world.

7 As I said, we're up to ten Internet
8 degrees now. It works much more for the Master's type
9 degree where you have a more mature student. It's
10 more difficult to do it for a young student. Now, we
11 have tried at Georgia Tech with one of our campuses --
12 we built a campus in Savannah that we are very proud
13 of and that campus was built around the 19th Ace (ph)
14 technology, and we trade courses both ways from both
15 of those campuses. When our students are engaged in a
16 project, they work with students at Georgia Tech,
17 Atlanta, Georgia Tech, Savannah, and some of the
18 surrounding community colleges and other colleges that
19 are feeders to our institution. And we think that's
20 important.

21 Others are doing it internationally and
22 globally. You can have students, if the time zone
23 doesn't get too much in the way, compete on projects
24 around the world. So I think a lot of changes have
25 been made and some schools are ahead of others, but
26 there's still a lot of work to be done. And I think

1 the issue of lifelong learning hasn't been thought
2 through as a policy matter. It's not something
3 universities can decide to do, it's not something
4 industries can decide to do, and I think Nick hit the
5 nail on the head there. It's something that we all
6 need to think about -- government, industry, and
7 universities in order to get at this issue because
8 it's very important as job requirements change so
9 fast.

10 MR. DONOFRIO: Jim, I would just add to
11 this -- and I don't mean to be disrespectful in any
12 way -- but having worked now in industry for 42 years,
13 the last place I go to to find an important industry
14 trend is colleges and universities. They don't -- the
15 seed changes don't happen there first. They happen
16 elsewhere. And this is what worries me in a more
17 global world. It may be happening in a space we can't
18 even see before we get to it here.

19 And I know I come across a little preachy
20 here on the science of services. I worry a lot about
21 that, you know. If -- we worry about -- those are
22 value-added jobs, by the way. Those are higher value-
23 added jobs. Those are the kinds of jobs you'd like to
24 be, you know, making sure that you keep. You know,
25 half of that service sector, by the way, is high tech
26 -- is high-valued service sector. You know, what if

1 India gets it right or what if China gets it righter
2 than we do sooner?

3 You know, I am -- I heard the numbers that
4 Wayne talked about. You know, maybe it's only six
5 percent but, you know, that six percent that's here in
6 this country that he talked about, that may be the
7 best six percent in the world, and that may be what
8 we're trying to do. And if it's going to be the best
9 six percent, we'd better be ahead of the power curve
10 on this and I've got to tell you I don't think
11 colleges and universities help us get ahead of the
12 power curve.

13 MR. DUDERSTADT: Let me just respond very
14 quickly by going back to 1985 or 1986 when Big Blue
15 joined together in a partnership with Mazon (ph) Blue
16 to build something called NSF Net.

17 MR. DONOFRIO: I remember it.

18 MR. DUDERSTADT: And interestingly enough,
19 it was so successful people suggested, Well, why don't
20 you add in the defense and energy. Why don't we call
21 this thing the Internet. And it seems like the U of M
22 and IBM and MCI built something that others may have
23 invented but in fact it has changed the world. So
24 that does happen every once in a while.

25 MR. DONOFRIO: Now, I hope that wasn't an
26 accident. We need a steady diet of that is all I'm

1 saying.

2 CHAIRMAN MILLER: Charlene.

3 MS. NUNLEY: Many of the diverse students
4 who study math, science, and engineering begin in
5 community colleges.

6 MR. DONOFRIO: Yes.

7 MS. NUNLEY: And one of the major barriers
8 they face comes at the time of transfer when they have
9 to pay the higher tuition and universities have used
10 most of their financial aid for their freshmen
11 classes. And I just wonder if you have any thoughts
12 on how two-year and four-year colleges can partner
13 better to try to increase the supply of people with
14 math, science, and engineering degrees and anything
15 our Commission might recommend to that effect.

16 MR. DONOFRIO: Do you want to start it?

17 MR. CLOUGH: That's a very good question.

18 MR. DONOFRIO: Good question.

19 MR. CLOUGH: And the issue that -- that
20 comes back to this issue of affordability, which is a
21 matter for entering students in the beginning. It's
22 also a matter for transfer students who come along.
23 That's one of the reasons we have a very strong co-op
24 program. If a student doesn't have the financial
25 capability, we don't have the financial aid, they can
26 work in a co-op program which is a very structured

1 work environment, work with great companies like
2 Boeing and IBM and others, and earn significant
3 dollars. I was a co-op student and paid my way
4 through school doing it.

5 Our transfer system, if I speak to my own
6 institution, has been very successful in that the
7 students who come to us from transfer institutions do
8 better actually in terms of retention than the ones
9 who come in as freshmen. Now, part of the reason is
10 we have a brokered agreement with those institutions
11 that basically states to the student, Here's what we
12 expect you to take. And if you make a grade point of
13 2.7, you're in Georgia Tech and we accept that you've
14 learned what you need to do to be successful at
15 Georgia Tech.

16 And you're exactly right. That pool tends
17 to be more diverse than our entering freshmen pool.
18 And so it's a very important component of the student
19 body that comes to my institution, and I think if you
20 work out articulation agreements that are carefully
21 structured, the students can do well. You still have
22 to wrestle with this issue of the financial aid
23 problem. And I don't have a full answer for that.

24 That's a very good question.

25 MR. DONOFRIO: So we'll move on, Jonathan,
26 to you next. Charlene, I do think as a Commission we

1 should seriously think about making recommendations
2 here. I like these articulation agreements and
3 especially if we can get business industry involved in
4 these articulation agreements. Many of those folks
5 who are in community colleges, you know, we hire as
6 technicians in IBM. Maybe we shouldn't be doing that.
7 Maybe we should actually be part of an articulation
8 agreement that lets them go on to -- you know, there's
9 a myriad of four-year schools.

10 I know like -- you know, I'm from RPI and
11 I'm proud of it. You know, Hudson Valley Community
12 College had such a relationship with RPI. I'm also
13 very familiar with Clark's and there's a community
14 college -- the Mohawk Community College had just such
15 an articulation agreement with them.

16 I think this is a good idea, I really do,
17 and I think industry can maybe help provide some of
18 the largesse that will allow this to happen. Very
19 good idea.

20 Jonathan.

21 MR. GRAYER: The only thing I'd add --

22 MR. DONOFRIO: Jonathan, I don't think
23 your mike is on.

24 MR. GRAYER: The fact that there's a
25 growing program at Kaplan Higher Ed. is students who
26 start in our campuses and do a two-plus-two program

1 and transfer their credits into our online regionally
2 accredited degree, so it is alive and well and --

3 MR. DONOFRIO: Great.

4 MR. GRAYER: But the point I wanted to
5 make is, Jim, you said that the for-profit
6 institutions are perhaps the paradigm shifters. And I
7 would say that it's not us at all; it's the student
8 herself, that as long as the Federal Government or our
9 society in general is willing to foot the bill that
10 we're now footing to keep our system in its current
11 status, we can go on a long time.

12 But if that ever changes, that economic
13 relationship ever changes, and the student him- or
14 herself is forced to choose the best program for the
15 outcome that will do most for them in their chosen
16 life, all hell will break loose. And our great
17 institutions are being -- won't have that problem, but
18 the next hundred, the next 500 will absolutely drift
19 into chaos if we were to step away from the way we
20 fund our education.

21 And all you have to do is go look at the
22 U.K. right now, who is struggling with this exact
23 issue, to understand what the dynamics would be. For-
24 profit education companies are booming because
25 students are choosing them, and the reason they're
26 choosing them is that they're coming to us to get

1 educated for a specific outcome that they will -- that
2 they can measure us by which is a job of their choice.

3 That is a completely foreign concept to
4 the way higher ed. is funded today. And as long as we
5 fund it as we're doing, we're okay. But that's --
6 that is the -- you know, the big question. Can we?
7 Can we as a society continue to watch our higher ed.
8 bill drift to three times the price of inflation
9 growth and end up with hundred-thousand-dollar annual
10 expenses for -- you know, ten years out?

11 And I would argue that the Commission
12 really needs to address that.

13 MR. DONOFRIO: Good point, Jonathan. Bob.

14 MR. CLOUGH: May I respond to that comment
15 quickly?

16 MR. DONOFRIO: Yeah.

17 MR. CLOUGH: Because I think public
18 education institutions are working hard to try to keep
19 their costs affordable. Part of that, of course, was
20 as a result of the reduction and a significant
21 reduction in funding for public higher education by
22 the states over the last five years.

23 Now, there is a response to that and a
24 number of institutions have said no student who is in
25 need will be denied entry into those institutions.
26 We're working hard to reach that goal at Georgia Tech.

1 But many of the public institutions do not have the
2 endowment base to be able to do that. We could do it
3 if we were able to increase our endowment. That's one
4 of our goals in our capital campaign as we speak now.

5 And I think it is incumbent on us to try to do that.

6 That would particularly allow talented young people
7 who are economically disadvantaged to have access to
8 our education. We don't want to end up just serving
9 the wealthy component of higher education. And I
10 think that's important.

11 I do believe we pay a lot of attention to
12 outcome. And I know at our institution we spend a lot
13 of time in industry asking them what they could get.
14 Every year, we reach out to a five-year profile of our
15 students who have graduated and ask them are they --
16 is their education serving them well. We take that
17 information back and we use that to revise our process
18 of education.

19 About every three years, we interview or
20 survey all of the employers, the major employers of
21 our students, ask them if they're getting the value
22 that they expect from the young people that are
23 working for them. And we take that information back
24 and we revise what we do. So there's a lot of
25 interaction that does go on. It's related to outcome.
26 Understanding that there is a difference -- if

1 someone goes after a for-profit degree, they are often
2 very targeted in what they want and what they need.
3 We have students like that that are called Master's
4 degree students and executive Master students. That's
5 what they want. They get what they need.

6 But it comes back to what Jim said
7 earlier, the socialization part. When we have a
8 freshman coming in, we figure it's part of our job to
9 let these people understand what it's like to be a
10 citizen of the world and to take the knowledge that
11 they learn and apply it to some good end. And so we
12 don't want to be so outcomes-focused that we lose that
13 part of the growth of the individual, which is a very
14 big part of what the basic university system in the
15 United States does.

16 MR. GRAYER: The only thing I'd quickly
17 add is that the original charters of technical
18 institutes were exactly that. And so your heritage
19 started exactly where we're starting, at a different
20 part of society, and you broaden from that, which is a
21 very different legacy than a liberal arts institution.

22 MR. CLOUGH: And I do think that the
23 beauty of this country is we have alternatives for
24 people, and I think the for-profit sector is very
25 important and will serve a big need, especially given
26 the growth in our population, which we can't keep up

1 with. And so our students need as many alternatives
2 as they can get -- good alternatives as they can get,
3 particularly for advanced education.

4 MR. DONOFRIO: Bob, please.

5 MR. ZEMSKY: I get confused.

6 MR. DONOFRIO: Do you want to --

7 MR. ZEMSKY: I'm sorry. I get confused in
8 this discussion -- I get -- in the following way.
9 And, Nick, it's really you more than Wayne I address
10 this to. I don't understand what you picture the
11 conversation between higher ed. and the employer
12 community looks like. I could point out that your
13 kind of comment that the last place you go for
14 innovation is really the issue I am driving at.

15 And I raised this issue before. I have no
16 doubt that we as higher education have to serve the
17 employer community. I keep having this nagging
18 feeling that the conversation really isn't being
19 engaged. And it isn't being engaged on either side is
20 the point that I'm driving at.

21 How would -- what would you change to make
22 so the next time you went somewhere, you actually came
23 to a university? What would we have to do
24 differently? What would you have to do differently?

25 MR. DONOFRIO: It's a good point, Bob, so
26 let me -- again, I'm -- everybody knows I'm in the

1 information technology industry, but let me just use
2 this very simple example.

3 Computer science and computer engineering.

4 I didn't -- I couldn't graduate with a computer
5 science degree 45 years ago. Now, somebody tells me
6 they were existing for 50 years. I'm not going to
7 argue with you about when they were created. They
8 weren't available for the bulk of the world until
9 about 30 years ago, 35 years ago.

10 Why? I mean, you know, colleges and
11 universities understood that. They knew what was
12 happening. They were teaching people like me, you
13 know, to go into industry, to go into a computer
14 industry. But yet they weren't granting those degrees
15 and there wasn't a pedagogical reformation to support
16 that. That's just one example.

17 So this whole issue of services now -- you
18 know, value in our industry -- and I'd venture to say
19 in a lot of industries in our country -- the value,
20 what clients buy, how they spend their money, is
21 moving. It's moving to other things. They don't want
22 to buy all the bits and bytes and the pieces anymore.

23 They want to buy the answer. They want to buy a
24 solution. They want to -- they want you to do
25 everything for them. They want you to be thinking
26 differently about their business. They want you to

1 know their business. They want you to be thinking
2 about it. This is what services are about, Bob.

3 And there's a discipline to this. There's
4 a -- I'm trying to articulate a science to this. So
5 we've been to Georgia Tech, we've been to MIT, we've
6 been to Berkeley. I mean, there are enlightened
7 schools that are listening to us -- Cambridge and
8 Oxford and -- there's some movement that is occurring
9 now, some movement now. We've built a services
10 business -- in IBM, if I remember correctly, in 15
11 years we've built a \$40 billion services business. So
12 15 years later, somebody's listening to us, you know,
13 and we're just one small piece of it. I mean, we
14 aren't even five percent of the services market in
15 this country for IT. Bob, that's my point.

16 So we're willing to engage any -- as an
17 industry anytime, anyplace, anywhere always.
18 Sometimes these things just don't make sense to
19 colleges. And maybe they'll make more sense in
20 Jonathan's model. You know, maybe that's where we
21 should be looking, you know, when these things are
22 moving at, you know -- at what looks like glacial
23 speeds to me from an industry perspective. They may
24 be moving at mercurial speeds, you know, to you, you
25 know, in higher education. Maybe that's the best way
26 I can articulate the difference.

1 MR. ZEMSKY: I think what I keep asking
2 you to do is ask not what we can do but what you can
3 do. What we can do is pretty clear, and I'll sign on
4 to all of it. That's not my quarrel. The question
5 is: What do you guys need to do that you're not doing
6 now to make this work?

7 MR. DONOFRIO: Well, okay. I mean, you
8 know, we've created a research practice in IBM.
9 That's how serious we think services are. We've
10 created a research practice. So we're investing of
11 the 3,000 researchers that we have, bonafide,
12 certified researchers on a global basis, probably a
13 third of them are doing research in services. None of
14 them have degrees in services, you know. I mean, I
15 don't mean to make this all about services, but this
16 is an example of what I think you're trying to poke at
17 here, where I keep saying, you know, the issue is
18 industry and academe need to get together on a more
19 frequent basis. I think that's true. I think that's
20 true. You know, it takes a while to get through.
21 It's not -- you say what more could we do. I mean, I
22 don't really know what more I could be doing. I've
23 been preaching this stuff and I know I'm preaching,
24 and I apologize for that, for almost ten years. And,
25 you know, maybe we're finally getting some people to
26 believe that, you know, we got it right. This will

1 happen to Boeing. I mean, more and more of Boeing's
2 business will be in the services side.

3 MR. CLOUGH: Can I just add one quick
4 comment to that? This has probably flown just a
5 little bit below Nick's 40,000-foot radar screen. Of
6 course IBM is funding research at Georgia Tech. Nick
7 is probably aware of that. They are looking to
8 institutions like Georgia Tech and Michigan and all
9 the other schools for ideas. But we fly down
10 different paths sometimes.

11 Now, if you're looking at nanotechnology,
12 boy, we are -- all of us are really hard at that and
13 we're all trying to develop the ideas that will serve
14 industry and serve the innovation economy.

15 Services are an interesting area. And in
16 this case, I think industry is out in front of
17 universities. We haven't really taught that. I mean,
18 that's part of what I talked about trying to teach
19 innovation to our students. But it is an area that's
20 not funded for research much. Now, Nick's folks are
21 funding some research at -- something called our
22 Transformation Institute at Georgia Tech, which really
23 does look at some of the services industry. But by
24 and large, it's not something that's supported by the
25 Federal Government in terms of research, which tends
26 to drive a lot of our interest in research. Like it

1 or not, that's the way it works.

2 I think it is an area that we need to
3 bring into our radar screen. I think it's something
4 we need to talk about as we try to learn to teach
5 innovation to our students. And it's something
6 students like, actually. They enjoy it and we need to
7 get -- we need to work harder at that.

8 MR. SULLIVAN: Mr. Chair, I'd like to ask
9 our two panelists a couple of general questions with
10 this new focus on innovation and services, and that is
11 we're engaging parts of the world that have not been
12 as active as we have been and these parts of the world
13 have not also respected intellectual property as we
14 have here. So as we are moving into this area, I
15 wonder if you'd comment what is happening there that
16 really addresses that? Because anyone investing in a
17 new technology obviously wants to get a return on that
18 investment and not have that appropriated by someone
19 who's not made that investment.

20 The second question: With the increased
21 collaboration -- and this is certainly for President
22 Clough -- with universities in other countries with
23 dual degrees, I'd be interested how that -- sounds as
24 if that's working very well and so I wondered if you
25 would comment on how that is being addressed also in
26 terms of respect for intellectual property so that one

1 either gets -- if one's a scientist, you get credit
2 for it, the investment you've made. Or if you're in
3 industry, that you have the protection of your
4 intellectual property.

5 MR. CLOUGH: Well, there are a couple of
6 ways in which there are -- there's a structure around
7 some of these concepts. Not to say it works
8 perfectly, but there's a structure.

9 One of those has to do with the Bayh-Dole
10 Act. For example, if we have intellectual properties
11 coming out of our shirts, the Bayh-Dole Act says we
12 have to go to an American-based company to work with
13 them first and very little opportunity to do anything
14 beyond that. Now, that gets a little interesting
15 because companies that may be in Atlanta, Georgia,
16 guess what? -- aren't necessarily home-based in the
17 United States in this day and age.

18 IBM has a large operation -- there's a
19 small corporation called Coca-Cola across the street
20 from Georgia Tech. Eighty percent of their products
21 are sold elsewhere. So this is a complex world that
22 we're working in.

23 But the Bayh-Dole Act very clearly states
24 -- gives a structure about that. Clearly, anything
25 that has to do with classified research, there's a
26 structure around that that we could never have

1 discussions about that and that's very understood.

2 Then there's the -- this is a business
3 about openness -- that Nick talked about openness and
4 trying to be restrictive on some of these things.
5 What do you do with a subject like nanotechnology?
6 Nanotechnology is being pursued all over the world.
7 It is a subject that has very clear implications for
8 defense in the future, for security issues, and for
9 commerce. But we can't stop that flow of ideas in any
10 way. If we tried to stop it, in fact we would be the
11 ones who would lose because we wouldn't be
12 beneficiaries of the information flow that comes the
13 other way.

14 As I mentioned, other countries are
15 investing as much, in total far more than we are
16 investing, in nanotechnology research. So when you
17 get into those kind of spaces, that gets to be tricky.

18 In the joint degree areas, those aren't
19 necessarily research agreements. Those have to do
20 with educational programs. And, again, we have to
21 respect the structure that I just referred to upon the
22 other two subjects and, in addition, there's another
23 one that's out there called a deemed export policy.
24 And deemed exports have been sitting around sort of
25 like a ticking time bomb for a long time. It has to
26 do particularly with certain nations that are

1 designated that we should not share certain kinds of
2 ideas with, and that would be -- China would be one of
3 those nations.

4 For example, when we signed the agreement
5 with Shanghai Xiao Tung University, we had to sit down
6 with our lawyers before I went over to sign the
7 agreement and make sure that this agreement would work
8 within the deemed export law, and it would, because it
9 did not involve joint research per se on certain
10 subjects.

11 Deemed export is a moving target because
12 both defense, commerce, and state are in the process
13 of looking at perhaps even making it stronger. And
14 that was part of the discussion that we had, a very
15 positive discussion, at this recent meeting that
16 Condoleeza Rice and Secretary Margaret Spellings
17 hosted with commerce and with the defense.

18 Chuck Vest gave a very eloquent summary of
19 the state of affairs when he took us back to the Cold
20 War and said, We tried to restrict our idea flows at
21 that time and found it didn't work. It's better to
22 have an open approach.

23 His comment I think was very appropriate:
24 "Use high fences for small areas." We need to know
25 from our Government what it is you want to protect.
26 We can do that. As I said, with classified research

1 and other areas, we can do it. But don't try to
2 restrict the flow of ideas in other areas. If you do,
3 you'll simply -- even though there may be a few leaks
4 here or there, you're going to have -- you're going to
5 lose ultimately if you don't have free flow of ideas
6 in the broad sense of education.

7 So it is a tricky world. As I say, before
8 I go overseas now, I consult with my lawyers to make
9 sure that the agreements that we go into are
10 agreements that are acceptable to our Government.

11 MR. DONOFRIO: So let me just finish this
12 up, and I think we should stop after this, Mr.
13 Chairman. On the IP lay of the land in general, we
14 think there needs to be a reformation in intellectual
15 property in general. The NNI studied that. There's a
16 whole section in the NNI about it, rebalancing what's
17 called proprietary intellectual property with open
18 standards.

19 This open movement at least, you know, as
20 we see it is a very powerful movement. There's an
21 open movement, for instance, in our business, in the
22 information and technology business, where people are
23 just, you know, they work for nothing -- nobody owns
24 it, everybody owns it. You know, it's just free for
25 everybody to kind of build on and to use on.

26 And, therefore, there needs to be

1 something done here to re-rationalize the world. You
2 asked specifically, though, about some of these new
3 and emerging countries. So there is no IP system in
4 China. There is no IP system in India. There's no IP
5 system in Russia. But they're building them. And the
6 one that's building it the fastest, believe it or not,
7 is China. China is preparing to accept two million
8 patent applications a year.

9 Now, you know, you may not worry about
10 that because they don't have a trial court, you know,
11 to adjudicate them and they have no way to enforce
12 them. But whoever was given the responsibility, you
13 know, to build the intellectual property system and,
14 by the way, I mean, we struggle in this country
15 processing 200,000 a year, just to calibrate you -- so
16 they have this on their map, Louis, is all I'm saying.

17 They're thinking about this and they're thinking
18 about some kind of tetanic shift here, you know. They
19 know that all that will be relegated to them are safe
20 haven thoughts, you know, where you really can't
21 destroy the intellectual property where it's more or
22 less commoditized, you know, as opposed to a very high
23 level innovation thought. They all desire the same
24 thing. They all want to move up the value chain.
25 They want higher value jobs, not just low-value jobs,
26 and they know they can't have that without, you know,

1 a system that will protect people's intellectual
2 property.

3 So I think there's a whole -- there's a
4 whole history to be written here, to be honest with
5 you, and it will change in the next ten or 15 years.
6 We will have to change our system. We'll have to re-
7 rationalize it with the rest of the world, you know,
8 through various treaties that are in place and various
9 arrangements that we have. We don't have the same
10 system here that we have in Europe. They don't have
11 the same system there that we have here. You know, we
12 respect different things and patent different things.

13 So it's a -- it's a very exciting time to watch how
14 this will all play out.

15 In the meantime, you just have to be very
16 careful. With that, I think we should end this
17 session and I thank you very much for your attention.

18 CHAIRMAN MILLER: Thank you. I'd like to
19 take a moment to thank you all for the Council on
20 Competitiveness report. I know IBM contributed with a
21 large panel of business and academic leaders. I know
22 the Secretary looked at that before this Commission
23 was formed. It's one of the most insightful reports,
24 very complicated to follow and understand that's been
25 produced by as strong a group as I think we've ever
26 put together in this country. And so we're looking

1 for advice like that.

2 If the Council would like to submit
3 something in the way of condensed specific policy
4 recommendations with some kind of ranking so we can
5 give some priority to it, we'd be glad to take a look
6 at that. And I want --

7 MR. DONOFRIO: We'll take that
8 recommendation.

9 CHAIRMAN MILLER: -- to compliment you all
10 on that work.

11 MR. DONOFRIO: Thank you.

12 CHAIRMAN MILLER: Thank you for the
13 presentation, for what you're doing.

14 MR. CLOUGH: Thank you.

15 MR. DONOFRIO: Thank you.

16 (Pause.)

17 CHAIRMAN MILLER: Innovative financing.

18 MR. URDAN: Good afternoon, Mr. Chairman.

19 I think I have the honor of kicking off this panel.

20 CHAIRMAN MILLER: Great.

21 MR. URDAN: My name is Trace Urdan. I
22 work as a senior research analyst for the investment
23 banking firm of Robert W. Baird & Company.

24 I'll start off with a few disclaimers.
25 Mr. Elliot Spitzer would have me refer you to pages
26 nine and ten's single-spaced disclosure language.

1 Just to summarize, what that says is that I may or may
2 not know what I'm talking about, I may or may not be
3 honest, and you should assume at all times that my
4 firm is brazenly trying to secure investment banking
5 business from every company that I might care to
6 mention.

7 The other thing I'll tell you is that Dr.
8 Block and myself basically do the same thing, and we
9 spoke ahead of time and tried to sort of divvy up the
10 topics that we were going to address in our testimony.

11 So I'm going to speak a little bit to the investment
12 climate right now for the for-profit post-secondary
13 sector, which is the area that I cover. I'm going to
14 talk about the pros and cons of investing in that
15 space and address to some extent easing barriers to
16 capital entry into that sector. And Howard's going to
17 talk about some other areas.

18 And then the final disclosure is to say
19 that in my job, I'm accustomed to being the great
20 expert in knowing more than most of the people that I
21 talk to about the subject area that I'm speaking
22 about. This is a rare exception where I'm speaking to
23 people who actually know more about the topic that I'm
24 addressing than I do, so I apologize in advance.

25 Since 1994, when Apollo Group joined
26 DeVry, Inc. as the second publicly-traded for-profit

1 degree-granting university, public equity investment
2 in this sector has grown at a compounded rate of 37
3 percent to more than \$26 billion today, and the list
4 of public companies in the space now totals 12. In
5 fact, a dollar invested in Apollo's 1994 IPO today is
6 worth more than \$71. And there are few, if any, large
7 mutual funds that do not have some exposure to this
8 sector.

9 At the same time, private equity
10 investors, including some of the largest and best-
11 respected firms in the financial services industry,
12 have invested additional billions in grooming
13 prospective acquisitions for the public companies as
14 well as potential IPO candidates.

15 The phenomenal success of the proprietary
16 college market as an investable sector over a period
17 of years is a result of the group's nearly perfect
18 complement of attributes that are highly prized by
19 growth investors. These include market size and
20 potential for future growth, a unique or otherwise
21 differentiated product, a recurring or predictable
22 stream of revenue, and a leveragable profit model in
23 which margins expand as the enterprise grows.

24 Over the past two years, increased
25 regulatory scrutiny, as well as some deceleration in
26 the pace of enrollment growth experienced by the

1 leading players has dampened investor enthusiasm,
2 resulting in a contraction in the average share price.

3 However, the strength of the business model -- in
4 particular, its ability to convert a high percentage
5 of earnings into free cash flow -- remains undisputed
6 and investor interest remains healthy, even if more
7 muted, than the highs that the sector reached in 2004.

8 So I'm going to talk about each of these
9 attributes in turn and then make some modest
10 recommendations.

11 First of all, in terms of market
12 potential, we've heard from some others today about
13 knowledge and its increasingly important role in the
14 U.S. economy. Over the last four decades, economic
15 and technological forces have transformed the economy
16 from one in which corporate value is understood
17 primarily as a function of physical and financial
18 assets to one that places a growing premium on
19 intellectual capital.

20 Today, skilled jobs comprise 65 percent of
21 all employment, although I heard in the earlier
22 testimony that that number may be closer to 75
23 percent, which is a dramatic increase from 1950, when
24 the number was understood to be 20 percent.

25 Demand for educated workers has
26 outstripped supply. Workers are faced with more

1 complex challenges. They require higher levels of
2 education, computer literacy, critical thinking,
3 information analysis, and synthesizing skills. In the
4 midst of globalization and technological revolution,
5 lifelong learning has gone from being a luxury to a
6 necessity for both employers and employees alike.

7 And as this shift in the economy has taken
8 place, employers' requirements have increased,
9 resulting in a salary premium for education. The pay
10 gap between males who have a college education and
11 those who hold only a high school diploma has widened
12 in the last decade, from 45 percent in 1990 to an
13 estimate 65 percent by 2000.

14 Not surprisingly, participation rates in
15 post-secondary education have increased. Growth in
16 college attendance has outpaced the general growth of
17 the population of 18- to 22-year-olds, suggesting, as
18 we've heard from others, that a greater percentage of
19 the population is going to college.

20 In 1995, 65 percent of high school
21 graduates enrolled in a post-secondary institution,
22 which was up from 49 percent in 1980. In addition, a
23 large number of adults are returning to college in
24 some capacity after their teenage years, and today
25 adults age 25 and over represent 43 percent of all
26 post-secondary enrollments.

1 It's our view, in looking at this space as
2 an investable sector, that basically any kind of
3 paradigm shift in a very large market can create
4 enormous opportunity. The broadly-defined education
5 market, as Wall Street understands it, which
6 encompasses everything from pre-K education through
7 adult vocational and corporate training, represents
8 more than \$900 billion in annual spending, second only
9 to health care in terms of its role and importance in
10 the U.S. economy.

11 Post-secondary education makes up roughly
12 one third of this total. The Federal Government
13 conservatively projects that enrollment in higher
14 education will reach 16 million by 2008. That's up
15 approximately 15 million over a ten-year -- from 15
16 million, rather, over a ten-year period.

17 And our view is that the changes that
18 we've described are part of what creates the
19 opportunity for value creation in this large and
20 dynamic market. The growing demand for higher
21 education among the non-traditional student population
22 is one of these paradigm shifts that has contributed
23 to the rapid rise of proprietary institutions. For-
24 profit growth should continue to be fueled by growth
25 in the overall population of 18- to 22-year-olds as
26 well as continued expansion of the market through

1 greater participation by adults, and I would say by
2 continued share gains from what our less responsive
3 and/or resource constrained public and not for profit
4 institutions.

5 In addressing the product, what it is that
6 these institutions do differently, I'd say that
7 broader participation in the higher education market,
8 combined with rapidly rising costs, has resulted in a
9 more discriminating consumer with a new socio-graphic
10 (ph) profile. Both high school graduates who might
11 have alternatively pursued a craft or blue collar
12 vocation, as well as adults going back to school, are
13 approaching the college experience with a very
14 practical cost benefit orientation. They want to
15 acquire skills that are going to be immediately
16 relevant in the workplace and are increasingly
17 pragmatic and demanding of the experience that they
18 have. While brand image remains extremely important
19 in the purchase decision, it matters only so much as
20 it carries weight with potential employers.

21 Consumer influence has grown as well
22 during this period, as the Web has empowered buyers
23 through improved access to information as well as more
24 flexible delivery options. Traditional regional
25 monopolies held by state and community colleges have
26 been disrupted not only by Internet-delivered programs

1 but by the greater ease with which students can learn
2 about and apply to competing colleges.

3 Finally, the rise in various
4 certifications and standardized tests has resulted in
5 greater accountability for the quality of various
6 degrees, holding degree-granting institutions more
7 accountable, although maybe not as accountable as they
8 could be -- to corporate employers for the very first
9 time.

10 The rise in significance of this new
11 consumer attitude has been missed to a large extent by
12 the traditional education establishment.
13 Historically, colleges and universities were immune
14 from outside forces. They enjoyed regional
15 monopolies. As accreditation, state and federal
16 approvals created high barriers to entries. Consumers
17 were fragmented, with little buying power, as their
18 tuition revenue was often incidental to the operating
19 budgets of large institutions. As a result, academic
20 institutions had no real accountability to
21 stakeholders.

22 In addition, the paternalistic culture of
23 most traditional educational institutions places
24 students at the bottom of an elaborate hierarchy in
25 which expert professors rather than consumers or
26 prospective employers determine curriculum.

1 Beyond this, state subsidies, inefficient
2 governance, and a general attitude of self-importance
3 have left state and community colleges open to the
4 rise of for-profit competition. The growth of for-
5 profit competitors far faster than the overall market
6 points to the remarkable share shift that has taken
7 place. Even today, as advocates for publicly-funded
8 institutions lobby for greater subsidies, their
9 rhetoric ignores completely the growing role of
10 proprietary schools in addressing unmet needs.

11 I should insert here the notion that what
12 -- what passes on Wall Street may seem brash by the
13 standards of the Commission, so I apologize if I'm
14 insulting your --

15 CHAIRMAN MILLER: I think Elliot Spitzer
16 may be your second problem after the education
17 establishment. Please go ahead.

18 MR. URDAN: Yeah. Sure.

19 CHAIRMAN MILLER: We want you to tell us.

20 MR. URDAN: For-profit education has
21 really become a permanent part of the education
22 landscape. High-quality operators in the space have
23 been responsive to this new consumer demand, adapting
24 curricula to suit both student desires and the
25 requirements of prospective employers, I would say
26 meeting on a quarterly basis with prospective

1 employers, rather than every two years, as we heard in
2 the case of Georgia Tech, developing programs in areas
3 such as information technology, allied health and
4 education, where major demand for skilled graduates
5 outstrip supply, responding to the needs of working
6 adults with innovative scheduling options, liberal
7 recognition of prior college attendance, and online
8 education, and working diligently to ensure that
9 students stay in school and secure attractive
10 employment opportunities after graduation.

11 While it's not impossible for traditional
12 public and not for-profit educational establishment
13 become more competitive over time, anecdotal evidence
14 suggests that institutional barriers to change remain
15 very high.

16 The for-profit players face extra
17 regulation that's designed to ensure that product
18 quality remains high and appropriate to the public
19 investment represented by state and federal aid and
20 loan programs. Unfortunately, however, it's also
21 contributed to a culture at some for-profit companies
22 to operate as aggressively as possible within the
23 strictly legal scope of the requirements, rather than
24 being ruled by customer requirements. As a result,
25 both regulators and the press have rightly accused
26 some institutions of losing sight of the fundamental

1 value proposition offered by their programs.

2 While mediocre program quality may be
3 tolerated by students at state-subsidized community
4 colleges, where prices and expectations are low, many
5 proprietary schools have learned hard lessons over the
6 past two years about elasticity of demand.

7 That said, we expect the regulatory
8 pressures to ease over the coming years as fines are
9 levied, abuses are checked, and student growth at
10 these institutions continues.

11 Moving on more quickly, I would say that
12 the final two points -- the qualities that make this
13 sector a favorite of investors -- include
14 predictability, you have secular trends that govern
15 demand for -- in the proprietary sector remain
16 relatively stable and predictable, as does the basic
17 momentum behind the growth of individual brands.
18 Because revenue is a function of enrollment,
19 enrollment is typically a two- to four-year decision.
20 Providers can generally budget their costs quite
21 accurately.

22 Furthermore, new student enrollment can be
23 predicted with a fair degree of accuracy based on
24 capacity, seasonal patterns, advertising, spending
25 levels, and of course lead flow.

26 An orderly pace of new campus openings and

1 new markets contributes to the predictability of
2 growth as well.

3 However, over the past two years,
4 regulatory actions and an improving economic cycle
5 have tested some investor assumptions about secular
6 demand. Revenue performance remains predictable,
7 given known truths regarding student population and
8 tuition levels. Enrollment trends have proven more
9 volatile than investors and I would add many analysts
10 had really understood.

11 That said, unit volume and pricing growth
12 in this sector remains superior to most other cyclical
13 consumer-based businesses and many corporate service
14 businesses as well, and they're aided in large part by
15 the federal programs that subsidize student expenses
16 and remove some dependence on the economic cycle that
17 characterizes other consumer businesses.

18 So, again, in thinking about Wall Street's
19 take on this industry, that difference from other
20 types of consumer businesses is all-important in how
21 the sector is viewed.

22 Finally, profitability. The proprietary
23 schools, because they focus on high demand career
24 training in areas of peak interest, they can quickly
25 fold programs that are not proving attractive. They
26 operate far more profitably than traditional

1 institutions where such decisions can often take years
2 and involve multiple stakeholders in an effort to
3 reach consensus. Proprietary schools are not burdened
4 by having to subsidize intellectually valid but wildly
5 unpopular programs or compensate unproductive but
6 tenured faculty.

7 Most proprietary schools operate from
8 standardized curriculum that allows for consistent and
9 more responsive instructional product, as changes can
10 be made definitively system-wide. It also allows for
11 greater reliance on part-time and practitioner faculty
12 which, though often cited as a negative by
13 accreditors, are generally favored by students, even
14 in instances where they may be -- the students, that
15 is -- critical of other aspects of a particular
16 program.

17 Both practices contribute to efficient
18 scheduling in year-round frequent starts, and whether
19 the class is being offered online or on ground
20 contribute to more efficient capacity utilization
21 which in turn drives margins in the sector.

22 Because tuition revenue is generally
23 collected in advance of the semester, as it is in the
24 case of traditional institutions, particularly a
25 portion that comes as a result of a government subsidy
26 or a sponsored loan, working capital requirements for

1 proprietary schools are minimal. In addition, low
2 capital expenditures that result from minimal extra
3 classroom campus amenities contribute to a strong
4 return on invested capital.

5 And, finally, the schools are operated as
6 reasonably efficient businesses, where every marketing
7 dollar is evaluated in terms of lead flow and
8 enrollment and very little is spent on image-oriented
9 advertising or on attractive but inefficient
10 brochures. In fact, every expense can be looked on on
11 an ROI basis and multi-million-dollar cost overruns
12 for expensive software, installations that we've read
13 about at some state institutions, just simply aren't
14 an issue at proprietary schools.

15 I've already dug a hole here, I suspect,
16 for myself, but I'm going to go ahead and make a few
17 recommendations, in all modesty. These just stem from
18 the perspective that I've had over the last eight
19 years in looking at proprietary schools and having had
20 the experience of attending traditional institutions.

21 And I'll say again that these -- I
22 understand the impracticality of some of these, but
23 I'm throwing them out there in the spirit of -- that
24 we were invited to make bold recommendations.

25 The first would be to encourage state
26 lawmakers to really articulate what taxpayer support

1 of higher education is meant to accomplish, and then
2 take a look at the existing often baroque network of
3 two- and four-year offerings, tune out stakeholder
4 complaints, and assign funds where they will best
5 further those goals that have been identified, and
6 require other institutions that don't necessarily
7 serve those goals to survive in the market on their
8 own merits.

9 For states with shrinking populations, to
10 subsidize state institutions so that they can
11 aggressively market to students from other states
12 might be a strategy to support a football program but
13 I would say it disserves the taxpayers that are
14 footing the bill for that activity.

15 Second, I'd encourage state lawmakers to
16 allow institutions to privatize while directing
17 greater resources to individual aid. State colleges
18 and universities, particularly community college
19 systems, amount to state-run enterprises and suffer
20 from all of the inefficiency and poor decisionmaking
21 of Soviet-style factories.

22 A community college true to its mission
23 and focused on the pragmatic ought to be able to put
24 proprietary schools out of business by virtue of the
25 subsidies it receives. The fact that this has not
26 happened suggests a problem with governance.

1 Though the process of relying more on
2 student tuition and rationalizing costs is painful for
3 state schools, it is healthy. Placing state funds in
4 the hands of students as need requires and making them
5 pay what the education actually costs to produce
6 empowers students to support effective institutions
7 and allow redundant institutions to wither.

8 Rationalize federal and, where possible --
9 and this is now -- directly addresses the question of
10 investment in the space -- rationalizing federal and,
11 where possible, state change of control laws. What
12 regulators view as investor speculation can actually
13 represent a healthy and necessary injection of
14 capital, sensible management, and industry
15 consolidation. Yet the rules throw up multiple
16 hurdles and roadblocks to private equity
17 participation. They likewise discourage what could
18 actually be a healthy consolidation of brands.

19 Right now, the rules would maintain a
20 network of family-owned schools in the for-profit
21 space that are really operated as cash cows and serve
22 no quality or public policy goal but is the effect of
23 the formal discouraging of professional investors from
24 the sector.

25 And again in that vein, update financial
26 viability rules to allow for the realities of the

1 marketplace. Well-run institutions can generally
2 support higher levels of leverage than the current
3 rules allow. Better informed rule-making and
4 administration in this area could have a significant
5 impact on the ability of private capital to invest in
6 the sector.

7 So it's a mouthful. I appreciate your
8 attention.

9 CHAIRMAN MILLER: Well, it is. And strong
10 language. And we appreciate that. Straight from Wall
11 Street. Thank you.

12 MR. KAPLAN: Thank you, Mr. Chairman. I'm
13 Andy Kaplan from Quad Partners, and where I think
14 Trace talked at a bit higher level, I'm going to
15 present somewhat of a case study. Maybe the --
16 instead of the 10,000-foot view, kind of the -- maybe
17 the two-foot view of the private side, investing in
18 private education companies using private equity.

19 Quad was founded in 2000, just to focus on
20 the education industry. We are the most active
21 investor in private education companies today. And we
22 focus on finding high-quality businesses that we can
23 add value to through operating expertise and to grow
24 them. Our first fund was a hundred million dollars of
25 capital from mostly institutional investors. We're
26 currently raising our second fund, which is targeted

1 at \$200 million.

2 The partners in Quad have a very diverse
3 background which, you know, we think is important for
4 success in this industry. It's a complicated one in
5 which to operate. You know, we have private equity
6 experience, government experience, technology
7 experience, and over a hundred years' combined
8 education experience.

9 Myself, I've been in the education
10 industry for my whole career. Prior to founding Quad,
11 I had been founding, running, and building businesses,
12 education businesses, both on my own and for some of
13 the big brand names, including Scholastic and Kaplan,
14 to which I must tell you I am sadly not related.

15 So the overall -- we invest broadly across
16 education. We -- and define that to include -- we
17 think of it as an over a trillion dollar industry. I
18 think Trace said 900 billion. What's a few hundred
19 million between friends? We -- it is certainly the
20 second largest sector of the economy behind health
21 care, as I'm sure you're well aware. And we define it
22 broadly to extend from early education through K-12,
23 post-secondary, corporate training, and then consumer
24 education and services.

25 The overall market's characterized by very
26 stable spending patterns and stable growth in those

1 spending patterns, and is essentially resistant to
2 economic cycles to some portions but appear to be
3 acyclic or countercyclic but certainly not -- not
4 tremendously different through various economic
5 cycles.

6 And the dominant characteristic, from an
7 investor perspective, is its huge amount of
8 fragmentation. There are thousands of companies in
9 every one of these subsectors and not a single company
10 has even a one percent share of its marketplace, and
11 so there's tremendous fragmentation and inefficiency
12 from that.

13 As many of us have cited, the global
14 knowledge economy and the requirements for increasing
15 knowledge have really driven demand in education, and
16 that's true across all these areas.

17 And the spending in these areas -- and
18 this is I think a newer trend -- has been increasingly
19 directed to companies that are delivering measurable
20 results. It's really focused on results,
21 accountability and really measurable outcomes.

22 To focus in on the post-secondary industry
23 itself from a private equity perspective for
24 investing, there are definitely some strengths about
25 it as an investment opportunity and also what I would
26 call some barriers or perhaps some opportunities, if

1 you look at it a different way.

2 On the strengths side, it certainly shares
3 those characteristics with the overall market. It's
4 very fragmented. There are over 2600 for-profit
5 institutions in the United States alone.

6 The limited job opportunities for high
7 school graduates are really driving demand and, as
8 Trace said, there's, you know, continuing to be a
9 large gap in income for those with higher levels of
10 education.

11 And the overall business model is
12 attractive. The same things that drive the public
13 companies also drive the private companies. Their
14 models are predictable, they're highly visible, the
15 programs are long and so you have good visibility on
16 what's going to happen. There's Title IV and private
17 loans which provide some of the crucial funding.
18 There's very limited working capital requirements for
19 these businesses, which is very attractive to
20 investors. And although there is an up-front
21 investment and a high fixed cost base for most of
22 these businesses, there's very low marginal costs and
23 so it really helps you to be efficient and you become
24 more profitable as you scale.

25 There are things that make it more
26 challenging to invest from a private equity

1 perspective. These can be seen as barriers or, you
2 know, one -- barriers to new investors are also
3 opportunities to investors that understand those
4 barriers. And specialized expertise helps you do
5 that.

6 You know, certainly highly regulated. We
7 talked about that a lot. It's federally regulated,
8 state, accrediting agencies.

9 Another interesting issue is it's
10 essentially -- there's no new supply of schools. It's
11 very difficult to start a new school, takes a long
12 time until you become accredited and can accept Title
13 IV funding, and so there's not a huge influx of new
14 schools, new availability there.

15 Many of the schools in the marketplace, of
16 those 2600 for-profits, many, many, many are very
17 small. They don't employ best practices. They're run
18 by essentially mom-and-pop operators. They have
19 limited access to capital.

20 And there's characteristics about the
21 market. You know, you really need to adhere to your
22 educational values. There's the regulatory approval
23 for growth. There's limited use of debt. And these
24 tend to self-select for patient investors and provide
25 opportunities, you know, for those who are focused.

26 We currently have 33 schools in four

1 groups, one -- a group in New York, a group in
2 Detroit, a group in the South, and a group in Southern
3 California here -- focusing on a variety of programs
4 of study, including allied health, massage therapy,
5 criminal justice, cosmetology, commercial cooking,
6 hotel management, and business.

7 This year, we'll serve over 5,000 new
8 students, over 75 percent of which will be placed in -
9 - in their field of study in jobs.

10 So when we think about investment in the
11 post-secondary schools, we should start with what our
12 investors, investors in private equity funds, expect
13 of us. Investors in private equity need to receive a
14 premium to the returns they could get in the public
15 markets because there's a number of factors that make
16 it more difficult as an investment climate.

17 The investments in private equity are
18 illiquid, can't sell them easily. You have a long
19 lockup. You know, people who commit to our private
20 equity funds typically commit to ten-year investment
21 and management period.

22 And you're investing in smaller companies
23 and that also carries risk. And this translates
24 essentially into private equity investors, those who
25 invest in private equity funds, looking for
26 essentially a three-times return over about a five-

1 year period of time. So that's -- that's a little bit
2 of the framework that we use to evaluate our
3 investments.

4 We focus on smaller schools because we
5 think there's more opportunity there for us as
6 investors with five to \$15 million of revenues. They
7 have to have a clean regulatory history and ideally
8 some strong regulatory processes to keep that
9 regulatory history clean.

10 We perform very intensive due diligence,
11 way beyond what the auditors might do. We look at,
12 you know, every aspect of the school -- their history,
13 their performance, their management team. We bring in
14 other top experts to help us, you know, be very
15 careful as we diligence the schools and do our
16 evaluations.

17 And we look for places where we can drive
18 value. We don't want to just buy the schools and run
19 them. We want to find places where we can really
20 meaningfully change their impact, grow them, help them
21 to serve unmet market needs. And these schools focus
22 on what has been described as the non-traditional
23 learner -- adults in underserved markets. Students
24 coming right out of high school are a very small
25 minority of the students that we serve.

26 And we spell higher education H-I-R-E.

1 It's kind of a funny way for us to remember that the
2 students are there for jobs. We are focusing on
3 changing our students' lives by helping them get a
4 career that has a future, and that's the focus of the
5 schools. And I think to some earlier points, most of
6 these jobs are services industry jobs.

7 The schools themselves, because of that
8 mission, are very focused on the job market and, in
9 fact, in a very rapid cycle they start by looking at
10 the job market. They try and figure out where the
11 jobs are and where they're going to be. And then they
12 identify some key employers in those markets. These
13 are mostly locally done -- key employers in those
14 markets. And they talk to the employers and they find
15 out what skills and what knowledge is going to be
16 necessary to be attractive to those jobs and to be
17 successful in those jobs in the long run, what it will
18 take to get hired and to succeed.

19 We then design the programs to meet those
20 outcomes. We form an advisory board from those
21 employers to make sure we get it right. Many of those
22 programs include extensive externships to make sure
23 that they're getting on-the-job experience that's
24 mentored and supported and guided but practical.

25 And then, lastly, we look for students who
26 we think can be successful in those programs and who

1 have some passion for those fields to be successful in
2 those programs.

3 And, for us, accountability has many
4 forms, but the key portion of accountability is that
5 we have to place our students in jobs in their field
6 and we place well over 75 percent of our graduates in
7 jobs in their field of study.

8 We're constantly adapting the programs to
9 the changes in the job world. I would say quarterly
10 at least we evaluate them. And the process of
11 designing new programs can also be very quick.
12 Certainly within a few months or a year, probably
13 closer to a few months, you can design a new program,
14 have it accredited, and begin to accept students into
15 it so you can be very reactive to changes in the
16 marketplace.

17 It's very important that we take our
18 schools and move them from small businesses to
19 professionally run organizations. There are three key
20 areas there. Really first is top quality management.

21 You know, different from a locally run school, we can
22 recruit nationally. We have relationships with strong
23 managers with proven track records across the country
24 who have run schools successfully before and who look
25 to work in a private equity environment where they can
26 innovate and succeed themselves financially.

1 We try to implement best practices across
2 the board. Most of these schools have been around for
3 a while. They are probably doing things the way
4 they've always done them. It's important to drive
5 change across education, across admissions, across
6 finance, across all the operations of the school and
7 really, most importantly, to have to stay customer-
8 focused. We really focus on an adult population and
9 we need to serve their needs, which are somewhat
10 unique, and be responsive to it.

11 You know, at the end of the day, to be
12 successful, our schools have to first drive
13 educational outcomes. We can't be successful unless
14 the students are successful in getting jobs and
15 getting careers.

16 Some measures of that are that our schools
17 experience a very high referral rate, and I think this
18 is true across the for-profit industry, where over 35
19 percent of our students are direct referrals from
20 existing students, and probably another chunk equally
21 large are basing it on the reputation of those schools
22 in their industry recommended by employers.

23 It's also important that we reinvest the
24 profits of these schools directly into new innovations
25 -- other school improvements and enhancements, in
26 programs, in methods, in technologies, in equipment

1 that help continue the growth to serve broader student
2 population.

3 So because we've been asked to make some
4 suggestions, I've made some also. I would say mine
5 are not the kinds of sweeping suggestions and broad
6 suggestions, but I think a pickup on some of Trace's
7 suggestions, to focus specifically on some of the
8 issues that affect private equity investment in the
9 post-secondary industry.

10 The first is around the change of control
11 approval process. When a new buyer buys a school, the
12 Department of Ed. subjects them to scrutiny on -- as
13 to their fitness as a buyer. And that process is a
14 good one and an important one to make sure that the
15 people who buy schools make sense and know what
16 they're getting into. But the way the process is
17 structured, there's no way to fully get preapproved
18 before you do your acquisition. So you don't actually
19 know, once you've done your deal, if you're going to
20 actually be allowed to operate the school. And,
21 actually more importantly, conditions are imposed on
22 the growth of newly-acquired schools. It could be in
23 the form of new branches, new programs, limitations,
24 or perhaps a letter of credit that might be imposed.
25 These are very important issues to investors. They
26 might be imposed for a period of time -- a year, two

1 years. But for an investor with a time horizon like
2 we have, that's a critical period of time and there's
3 no way to find out what those conditions might be
4 prior to making your investment.

5 And those kinds of uncertainty and that
6 lack of predictability I think makes it difficult for
7 investors.

8 You know, I should step back and say that
9 we have a very good relationship with the Department
10 of Education and with the accrediting agencies. And
11 so some of the things I'm going to raise are less
12 issues for us and broader issues for the private
13 equity industry as a whole.

14 Another factor is, again, because the
15 rules are not tuned to the needs of investors, success
16 of investment funds, even if they have the same
17 principles, are considered new entrants. So the way
18 private equity funds work is we periodically raise
19 pools of capital and then we invest that capital and
20 we go out and raise another pool of capital.

21 So even if an established firm with a good
22 school track record -- we've run schools before or
23 others have run schools before -- and the same
24 principles raises a new fund, from the Department of
25 Ed. perspective, that's considered a brand new entity,
26 a brand new group and, therefore, subject to a lot of

1 these growth restrictions, a lot more scrutiny, and
2 really makes it -- it really discourages new investors
3 and certainly restricts even proven and established
4 investors that have been successful owners.

5 And I don't think that enhances the safety
6 of the process from the Department's perspective.

7 The capital structures you're allowed to
8 employ are fairly limited as an investor. Something
9 maybe a little different about the schools that we
10 focus on is very few of them own their own real
11 estate. They lease it like other businesses might do.

12 And every school is required to pass a fiscal
13 responsibility test and there's a composite score that
14 every school has got to post. The composite score is
15 structured such that debt for purchase counts very
16 negatively against that score unless it's against hard
17 assets, and many of these schools don't have hard
18 assets. And so that really limits the amount of
19 leverage you can use. You can't even really employ
20 what would be considered very moderate amounts of
21 leverage in other industries against the purchase and,
22 again, that inhibits the use of private capital very
23 significantly in the post-secondary world.

24 The last point is it's difficult from a
25 private equity perspective to invest in schools that
26 serve inner city populations. Inner city population

1 schools are at somewhat of a risk of triggering some
2 regulatory requirements, most notably the retention
3 rules and default rate rules. Now, it is possible
4 after the fact to get a waiver against these -- the
5 tripping of these conditions. But you can't get that
6 in advance and, again, lack of predictability
7 essentially inhibits investment here.

8 So, you know, I think these are some
9 modest and focused recommendations but, you know,
10 applicable to the private equity world. I will say
11 that post-secondary education does really offer a
12 unique opportunity from a private equity perspective
13 to specialized investors like ourselves to be able to
14 do well by doing good.

15 Thank you.

16 CHAIRMAN MILLER: Thank you, Andy.

17 MR. BLOCK: Thank you, Mr. Chairman. Good
18 afternoon, everyone. My name is Howard Block and I
19 work as an equity analyst at Banc of America
20 Securities in San Francisco. My employer had been
21 Montgomery Securities, which was one of the more
22 distinguished boutique investment firms years ago,
23 founded in San Francisco in the '70s. And we were
24 acquired by Montgomery in 1999.

25 As an equity analyst, I am responsible, as
26 is Trace, obviously, for covering companies in the

1 education services sector and writing frequent brief
2 analyses on individual companies, the sector and
3 industry sub-groups. I try to describe the businesses
4 and the companies' investment potential usually from a
5 fundamental analysis standpoint. I get my information
6 by studying public records of the companies and by
7 participating in public conference calls where I can
8 ask direct questions to the management.

9 Previously, you may recall analysts were
10 said to obtain lots of information via exclusive
11 meetings with upper management. Clearly, I never did
12 that. Regulation FD, fair disclosure, is said to
13 prevent most of this from happening at present. I
14 attempt to maintain independent sources of information
15 and contacts, and naturally I'm obliged to respond
16 timely to breaking news developments on companies
17 throughout the sector.

18 I became an equity analyst, however, after
19 following a somewhat circuitous path that was somewhat
20 uncommon but certainly not unfortunate. I offer this
21 background, by the way, only to help you understand my
22 frame of reference.

23 I began studies at Stanford University
24 after graduating from Dr. Duderstadt's university
25 years before he was president, by the way.

26 I began studies at Stanford University in

1 education policy in 1992. I was extremely fortunate
2 as Professor Michael Kirst (ph), who some of you
3 certainly know, took me under his wing and enabled me
4 to complete my doctorate by 1996. My Ph.D. work was
5 clearly not about equity analysis, but it was about
6 state and federal policymaking, and I studied the
7 effects of state law on the creation of charter
8 schools in an attempt to see if variation in policy
9 across the states was affecting the supply of charter
10 schools in those states.

11 Now, my research question at Stanford was
12 far different from the one presented to this
13 distinguished Commission, yet it was a research
14 question where the conceptual framework, I believe, is
15 not that different. Government policy can have a
16 material effect on supply, and it is that conclusion
17 with which I'd like to begin my comments.

18 Bob Mendenhall was kind enough to provide
19 the focus of my comments and the Commissioner --
20 Chairman, I'm sorry -- blessed his guidance, although
21 I would certainly not hold either one of them
22 responsible if I digress or fail to meet your
23 expectations. And I would hope that the Commission
24 would put me back on task should my comments be of
25 little value.

26 The three components of my comments today

1 are, one, the role of private capital in higher
2 education. Some of these early comments, by the way,
3 may be a little bit redundant with Trace's. I'll try
4 to speak quickly when I come to those redundancies.

5 Two, the pros and cons of for-profit
6 higher education from an educational and societal
7 point of view.

8 And, three, incentives which might
9 encourage the commitment of private capital for
10 educational and training purposes.

11 So point one, the role of private capital
12 in higher education. Let me begin with a brief
13 definition that was sort of tortured to help expedite
14 my comments. I consider the term "private capital" as
15 one that is used primarily to distinguish it from
16 public capital, meaning public funds or government
17 support.

18 In referring to private capital throughout
19 my comments, I focus primarily on the "private
20 capital" that has been transformed into "public
21 equity." In other words, private investors once
22 funded Apollo Group, which owns the University of
23 Phoenix brand, and that private capital is now
24 "public" as a result of an equity event known as an
25 IPO or initial public offering. There have been
26 dozens of other equity events in higher education,

1 many of which have transformed what we loosely call
2 "private capital" into what we now consider "public
3 equity."

4 Again, in my comments, all references to
5 private capital are about companies which are now
6 "public" companies. It is my contention that those
7 companies are valid and appropriate proxies for
8 private capital and, in addition, studying those
9 companies will enable me to speak to the three points
10 on the agenda that I was asked to speak to.

11 My testimony was provided to you in a
12 separate document, of course, and there also is
13 another separate document which has several charts and
14 graphs which I will refer to. As can be seen on page
15 one, what is numbered as page one of your handout,
16 private capital's role in higher education manifests
17 within the buckets under Title IV degree granting and
18 Title IV non-degree granting. And, clearly, the
19 buckets there have runneth over since 1991 when DeVry
20 went public. You can see the number of for-profit
21 students and the number of for-profit schools in those
22 buckets.

23 The market has seen the addition of
24 roughly one equity per year since DeVry's IPO, to
25 where we now have 12 publicly-traded equities. That
26 can be seen on page three of your handout, the growth

1 in the number of equities and the growth in the equity
2 value of those companies has been dramatic. Today,
3 their equity value is \$27 billion. On that point,
4 Trace and I clearly agree.

5 This data again is clearly laid out in
6 your handouts.

7 Now, the equity value, by the way --
8 sometimes we tend to mention these terms, it might be
9 esoteric -- it's calculated by multiplying the total
10 shares of stock equity outstanding by the market price
11 for each share. The combined equity value has
12 ballooned, as you can see in your handout, because the
13 student enrollment at those schools owned by those
14 companies has ballooned. From DeVry's initial
15 enrollment of 20,000 students when they went public in
16 1991 as the pioneer, these companies now enroll
17 roughly one million students. These equates to
18 roughly 30,000 of equity value per student, as you can
19 see on page four of your handout. There's been some
20 volatility in that equity value over the years but it
21 is now a 30,000 of equity value per student which,
22 with some exceptions, is about twice the average
23 tuition on an annual basis paid by those students.
24 And it's also three times the average annual tuition
25 paid by students in this country.

26 While the role of private capital has been

1 growing, it remains a minority share as, again, you
2 can see back on page two where we outline the market
3 share. I believe, however, that it is a market share
4 that will grow significantly for the foreseeable
5 future. In fact, if we extrapolate from the trends
6 described here, by 2015 or '16, the equity value of
7 these companies would be nearly \$80 billion, their
8 enrollment would be about 1.6 million students, and
9 their market share would be about eight percent.
10 Those trends are also shown on page two.

11 Now, moving quickly to point two, the pros
12 and cons of for-profit higher education from an
13 educational societal point of view. Again, I think
14 it's helpful to understand my bias. I have been
15 writing equity research on this sector since January
16 1997 and, in the past nine years, I have been somewhat
17 resolute in my recommendation to invest in the stocks.

18 That bias has been wise for nearly all those years
19 but not right now and not in 1999 and not in 2005.
20 Yet my bullishness has never suggested that I
21 necessarily cheer for these companies, so please don't
22 think that is the case.

23 In fact, as a citizen, I harbor great
24 concerns about these companies -- not Jonathan's, of
25 course -- and their burgeoning share of this.

26 MR. GRAYER: He's not part of this.

1 MR. BLOCK: That's true. Nevertheless, I
2 recognize the attractiveness of the business models to
3 investors and I've been able to insulate my equity
4 analysis from my personal concern. I group the pros
5 into three categories -- scale, access, and
6 innovation.

7 By "scale," I mean size, the number of
8 schools and the student body. Each company's pursuit
9 of scale was initially funded by the capital provided
10 by the respective primary equity event, in many cases
11 the IPO. These companies are not necessarily the
12 darlings of Wall Street bankers just because they had
13 an IPO. The reason is the companies do not usually
14 need bankers to raise additional cash for them after
15 the IPO has been completed, the reason being that the
16 business operations generate more than enough cash
17 flow to enable the companies to execute a panoply of
18 growth initiatives, each of which help them achieve
19 more scale; in other words, once scale has been
20 achieved, perhaps by the initial funding, growth
21 should be self-funding and no longer in need of Wall
22 Street bankers.

23 I will touch on some of the various growth
24 initiatives briefly in the final half of my
25 presentation but, in summary, they are, one,
26 acquisitions; two, new locations or what we often call

1 green field activity; three, new programs; and, four,
2 online campuses.

3 The cash flow that is generated by
4 operations has funded the growth in the number of
5 locations against scale that can be seen again on page
6 five of your handout. Obviously, in terms of looking
7 at the number of annual new campus openings, these
8 locations have been a driving force in enrollment
9 growth, which we also saw in a previous slide and, as
10 a result, these new locations in total have enabled
11 tremendous growth in the market share.

12 On the second point in terms of pros,
13 access I'd like to speak to. Secretary Spellings
14 asked the Commission to address issues of access,
15 affordability, accountability, and quality. And as
16 can be seen on page six -- five and six -- the number
17 of locations has grown dramatically and the surge in
18 locations has been disproportionate to areas with high
19 percentages of minorities. For instance, the five
20 cities in blue on the handouts represent five of the
21 top seven metropolitan areas in terms of African-
22 American enrollment. Each of these cities has become
23 a home to more than ten new for-profit campuses in the
24 last ten years, and that is arguably -- that is
25 arguable that private capital has increased
26 accessibility for minorities. Note the word

1 "arguable."

2 On a broader level, irrespective of
3 address, our data analysis, which can be seen on pages
4 seven and eight of the handout, confirms that for-
5 profit schools serve a higher percentage of minorities
6 than do their peers in the traditional market. For
7 example, the combined percentage of blacks and
8 Hispanics at for-profit schools is 34 percent versus
9 22 percent at all degree-granting institutions.

10 Now, I believe access and affordability
11 are deeply interwoven, for an accessible location may
12 not necessarily be an affordable school. And while I
13 believe private capital has done an admirable job of
14 building locations and increasing accessible
15 locations, I am less impressed by what private capital
16 has meant for affordability.

17 As can be seen on page ten of the
18 attachment, the average price point is \$15,000 at the
19 schools operated by these companies, and that
20 certainly is no bargain. We believe that consumers
21 are not nearly -- however, we believe consumers are
22 not nearly as price-sensitive as perhaps they should
23 be and, as a consequence, the gains in market share by
24 the for-profits have not been stunted by the
25 inexorable upward trend in price.

26 Number third -- the third pro I'd like to

1 speak to is innovation, and it's innovation that's
2 been provided by private capital and for the for-
3 profits. And it may not be fair, of course, in all
4 cases to suggest or to fully attribute these
5 innovations to the "for-profit companies" as I did not
6 take the pains that would be necessary to confirm that
7 the attribution is completely valid. Nonetheless, I
8 am confident that most of the innovations discussed by
9 me in these comments, as well as those listed on page
10 11, are sufficiently unique and of sufficient scale to
11 argue that the attribution is fair.

12 I will split the innovations between, one,
13 the use of Internet technologies and, two, other.

14 Use of Internet technologies. We believe
15 or I believe, I guess, that the use of Internet
16 technologies is far more pervasive within the business
17 processes of private capital than within the
18 traditional market. We believe student application,
19 financial aid processing, overall communication, and
20 student placement are highly dependent on Internet
21 technologies. Without question, however, the for-
22 profits have made far more use of the Internet than
23 their traditional brethren when it comes to student
24 acquisition and instruction. In fact, few industries,
25 if any, has been as aggressive as these education
26 companies when it comes to using the Internet to

1 identify "leads" or prospective students.

2 We estimate the companies may spend more
3 than \$500 million annually to acquire leads that were
4 generated by the Internet. And, if time permits, we
5 can revisit this specific and troubling trend, that
6 this citizen finds troubling and specific.

7 Yet instruction via the Internet is the
8 innovation most readily identified with the "for-
9 profits." Online campuses have blossomed throughout
10 the sector. Please refer to page 12 of the handouts
11 for more details.

12 Each of the public companies we cover
13 offer some variant of an online campus, and certainly
14 the University of Phoenix is the most well-known, with
15 150,000 online students. Furthermore, the methods of
16 online delivery are mixed. Some of the schools have
17 enrollment that is exclusively online, while others
18 use online to complement the basic classroom
19 instruction.

20 Moving to the other set of innovations,
21 also labeled as "Other," I will mention only a few. I
22 mention these as I believe each one has contributed to
23 the growth of the companies and, if traditional
24 schools would copy these techniques, I am certain that
25 they would be able to protect their dwindling market
26 share.

1 First I would like to mention frequent
2 starts or enrollment periods. Now, education
3 consumers, particularly the non-traditional ones we've
4 heard quite a bit about today, are often impulsive.
5 One such consumer may be, if you'll indulge this
6 description for a moment, may be a tired and
7 frustrated wage-earner collapsed on a couch watching a
8 sporting event. Sounds like most of us, I assume.
9 That wage-earner's attention may be grabbed by an
10 intriguing TV commercial that promises a fresh start
11 and a new career. The frustrated wage-earner grabs
12 the phone, calls the (800) number, and within a few
13 days finds himself enrolled at ITT, DeVry, the
14 University of Phoenix, maybe all three.

15 What would have happened had that student
16 called a traditional school, in most cases he would
17 have been asked to fill out applications for the next
18 academic period, which begins in perhaps several
19 months. Imagine if you wanted to buy a television in
20 February and a store owner said, That's great. We'd
21 love to have your business. Place your order today
22 and we'll deliver the television right after Labor Day
23 when television season begins.

24 Frequent starts give the "for-profits" a
25 significant competitive advantage over traditional
26 schools. And as you can see on page 13 of your

1 handouts, almost every company within this group of
2 schools starts programs and students nearly every
3 month and, in some cases, far more often.

4 Frequent starts are enabled by another
5 innovation which I would like to discuss briefly,
6 which is what I called the "wheeled curricula." In
7 the wheeled system, the curriculum is broken into
8 modules that are delivered in sequence. However,
9 under many circumstances, students can jump onto the
10 wheel, if you will, at any module and thereby complete
11 the program after one full rotation of the wheel.
12 Thus, starting periods are not limited to that one
13 particular module.

14 The second I'd like to mention in terms of
15 the "others," I guess, is multiple storefronts.
16 Frequent starts speak to the core of the operating
17 mantra for private capital and public education. The
18 operating mantra being, Make it convenience.
19 Convenience is a word that's driven the University of
20 Phoenix from zero to 300,000 students in 30 years,
21 much of which was witnessed firsthand by Sally Stroup,
22 by the way. Convenience sells. It offers multiple
23 starts. Offering multiple starts is all about
24 convenience. Online learning is about convenience,
25 although some day we hope it may be more about
26 learning efficacy. And multiple locations are about

1 convenience. I live in Marin County, which is just
2 north of San Francisco. The University of Phoenix --
3 Phoenix is in Arizona, by the way -- the University of
4 Phoenix, however, enrolls about 400 students in
5 Novato, which is deep inside Marin County. What is
6 the appeal of the brand "University of Phoenix" in
7 Novato, California, a bedroom community outside of San
8 Francisco? San Francisco is home to distinguished
9 brands, such as San Francisco State, University of San
10 Francisco, City College, Golden Gate University, and
11 University of California. The appeal of the
12 University of Phoenix in Novato must be its
13 convenience.

14 Not that it was necessary, as it seems
15 highly intuitive to me, but David Card actually
16 conducted an extensive social experiment from which he
17 concluded that having a college or university near
18 one's home substantially affects one's probability of
19 enrollment. His study was cited in Daniel Hamermesh's
20 (ph) presentation to this Commission. Few working
21 adults would have the stomach to drive across the
22 Golden Gate Bridge, which connects Marin to San
23 Francisco, after work for classes. So why doesn't San
24 Francisco State or USF or Golden Gate or UC offer
25 classes in Marin? That is not a rhetorical question,
26 if any of you can answer that. I don't know why. I

1 suppose it's inertia.

2 Much of the innovation that I have
3 described and listed on page 11 is just common sense,
4 but it is this common business sense is something that
5 may not be as pervasive at traditional schools as one
6 would hope.

7 The third "other" that I wanted to mention
8 quickly is retention practices. A final example of
9 innovation was driven by necessity, which we know is
10 the mother of both invention and perhaps innovation.
11 Because of the time lapse between the application date
12 and the first day of classes, all colleges are at risk
13 of losing previously committed students, particularly
14 those that may have been somewhat impulsive. Thus,
15 the for-profit companies work fervently to improve
16 their "show rate," which is the percentage of enrolled
17 students who actually show up for class.

18 Career Education, which is now one of the
19 more notorious companies in the group, they use
20 something that's called their "stitch-in program."
21 The company's enrollment advisors "stitch in" the
22 accepted student so that his or her commitment doesn't
23 unravel before classes begin. The company's extra
24 effort may include frequent e-mails, occasional phone
25 calls, and possibly invitations to school events.

26 Now, moving on to the cons, Secretary

1 Spellings' mandate for the Commission is to focus on
2 accessibility, affordability, accountability, and
3 quality, and I only repeated that for myself. There
4 is a growing body of evidence that the for-profits are
5 not in general enhancing the quality of education nor
6 are they sufficiently accountable for their
7 transgressions. The instances and allegations of
8 fraud and malfeasance are sufficiently known to this
9 Commission that I need not reiterate them.

10 However, I provided a nearly comprehensive
11 list of them on page 16 of your handout. Now, in
12 flying down here, I happened to notice that the
13 Chronicle of Higher Education did a much better job in
14 terms of graphically representing those transgressions
15 in their January 13th issue on page A25 that's called
16 "For-Profit Higher Education Under Scrutiny," which is
17 not part of your handout.

18 MR. URDAN: It's becoming a weekly piece
19 for them.

20 MR. BLOCK: To many of the companies --
21 too many of the companies -- I'm sorry -- continue to,
22 as we say, sacrifice the integrity of our higher
23 education system at the altar of earnings growth. And
24 I suspect that those sacrificial practices will
25 continue until deterrents are more common, more
26 readily enforced, and more severe. The temptation is

1 too great. The rewards are plentiful.

2 But what troubles me more than the
3 transgressions is something far more insidious and
4 ubiquitous. It's what I call the "silent sufferers,"
5 the students who did their work, finished their
6 programs, and left burdened by disappointment and
7 student debt. They entered into a contract in which
8 they thought a brighter future was a certainty were
9 they to complete the terms of their contract, which
10 were their studies.

11 In reality, their lot in life is no better
12 and perhaps worse. And for this disenfranchised and
13 silent contingent of education consumers, we are all
14 to blame for we constantly tout these so-called wage
15 premium for higher education. We plaster the media
16 and scream from the rooftops about the wage premium,
17 the one that says in 2003 the average full-time year-
18 round worker in the United States with a four-year
19 college degree earned \$50,000, 60 percent -- 62
20 percent more than the 31,000 earned by the average
21 full-time year-round worker with only a high school
22 diploma.

23 I recently Googled "wage premium" and was
24 offered 2.8 million results in .43 seconds. I will
25 not share each of those references now, but I did
26 attach a sampling of them on page 14 of this handout.

1 We have irresponsibly failed to include the following
2 caveat emptor with a promise of the wage premium,
3 being you are not guaranteed to earn this premium,
4 even if you finish your studies. In fact, we lack the
5 evidence to even suggest that your chances are pretty
6 good. Quite simply, we have failed to offer any
7 empirical evidence to establish education as being
8 causal, not merely coincidental, in relation to the
9 security of the wage premium.

10 Too often, degrees provide career
11 opportunities because of the presumption of
12 proficiency, not because of the evidence of
13 proficiency.

14 Colleges lack the instruments needed to
15 demonstrate that a student's investment has enhanced
16 his or her productivity, his or her proficiency. And
17 this was written before I heard the articulation of
18 this argument earlier this afternoon.

19 We believe that competency-based approach
20 at Commission Member Mendenhall's Western Governors
21 University may be worth further review, but it is
22 truly an exception. There are too few examples of
23 assessment instruments being used by schools in order
24 to determine whether their student is obtaining the
25 proficiency that is needed to earn the "wage premium."

26 There is far too little transparency regarding "value

1 added" or "value received." Instruments like that are
2 sorely needed.

3 No enrollment advisor at any school of
4 which I am aware would describe the harsh realities of
5 the workplace. There are no disclosures regarding the
6 turnover, the work conditions, the harsher facts
7 regarding whether the wage premium is either relevant
8 or attainable, let alone truthful for the job outcome
9 to be secure by that student.

10 Reg. FD, full disclosure, may exist on
11 Wall Street, but it is irresponsibly absent in
12 admission and placement offices.

13 The for-profits are overselling the
14 promise of education because society is irresponsibly
15 selling it for them. Thus, the for-profits are
16 delighted beneficiaries of the intoxication of the
17 wage premium and, as a consequence, they're attractive
18 business models, generate very compelling returns for
19 shareholders and managers alike.

20 This provides me with a segue to my final
21 point, the one that was provided actually by the
22 Commissioner, which is incentives which might
23 encourage the commitment of private capital for
24 educational and training purposes. I do not believe
25 that any additional incentives are needed to encourage
26 the commitment of private capital. The business is

1 appealing enough.

2 I recall something that Robert Silberman,
3 the CEO of Strayer Education, said to me shortly after
4 taking the helm of Strayer Education and not long
5 after leaving his position as president and chief
6 operating officer of Cal Energy. Silberman said, "Any
7 smart manager would give their thumbs to run a company
8 in this industry." Mr. Silberman still has his thumbs
9 and he is considered to be the best CEO in this
10 sector, which adds credibility to his comment.

11 Few businesses offer returns as measured
12 by returns on invested capital that can compete with
13 this group. Please see the table on page nine of your
14 handout and you'll see that the returns on invested
15 capital in this group are extraordinary, better than
16 nearly any other sector on Wall Street. In fact, I
17 doubt that there is another sector that exists which
18 offer the returns on invested capital of this level.

19 When compiling the list that you see, my
20 team, my huge team of three back in San Francisco,
21 struggled to find a company whose returns exceeded the
22 best that my group had to offer, and I think they put
23 some little market cap company on there that has about
24 \$300 million just so that it would be number one.
25 With returns of that level, no incentives should be
26 necessary. And, furthermore, the opportunity to

1 become a millionaire is well-documented, as can be
2 seen by the perhaps stunning list of insider
3 transactions also in your handouts on page 15.

4 However, if capital from the private
5 sector is needed to boost accessible capacity in
6 higher education, what can be done to attract more
7 private capital? I have two ideas and a closing
8 point.

9 Number one, the stimulus to cultivate
10 management. First, I would recommend that
11 policymakers craft the stimulus for the cultivation of
12 management to operate the schools. Nearly every CEO
13 within the for-profit companies has at some point
14 lamented the shortage of capable managers. That was
15 lamented to me after I'd written this at lunch today
16 by Jonathan Grayer as well. They have stated in
17 perhaps only slightly different terms that the most
18 significant gating factor to faster growth is the
19 absence of management capacity. With returns on
20 invested capital that easily exceed the cost of that
21 capital, any wise manager would surely choose to
22 deploy more capital as quickly as possible but not
23 without stewardship.

24 Who would run the schools if they were to
25 accelerate the rate of openings? Thus, what stimulus
26 could government provide that would generate more

1 management capacity? I cannot propose a sweeping
2 policy that would address the problem of inadequate
3 management capacity, but I did offer a small idea or
4 initiative to Robert Silberman of Strayer a few years
5 ago.

6 I recommended that his schools offer an
7 MBA with an emphasis on management of for-profit post-
8 secondary institutions. Thus, he could turn a problem
9 into a profit center that would generate his own -- a
10 profit center that would generate his own managers. I
11 have no idea as to what happened to my idea, but I
12 still have my thumbs.

13 Traditional education programs do not
14 cultivate enough business savvy leadership that is
15 needed to run higher education institutions in this
16 increasingly competitive landscape.

17 The second proposal I would mention is
18 fast-track licensure and accreditation. Higher
19 education needs to become more responsive to the needs
20 and demands of employers and students, especially
21 involving non-traditional students. If skilled labor
22 is needed, initiatives should not be met with
23 obstruction. The DOE should fast-track licensure and
24 accreditation in order for responsive educators to
25 begin generating skilled labor for where it is needed.

26 Again, I encourage the Commission to read

1 "Forging Tomorrow's Artisans" in The Chronicle of
2 Higher Education and, no, I am not selling
3 subscriptions to the magazine. You'll have to take
4 care of that on your own. But the story describes the
5 American College of the Building Arts. The school is
6 generating output, skilled tradespeople, to address a
7 workplace need that right now is being addressed by
8 importing artisans from Europe. What other jobs are
9 being filled by imports because of the shortcomings of
10 our own education capacity? Yet until the American
11 College of the Building Arts earns accreditation, its
12 own students are not eligible for federal student aid
13 programs and, furthermore, most accrediting agencies
14 are ill-equipped to evaluate the unique program.

15 My final point. I would like to close by
16 reorienting Chairman Miller's question. Instead of
17 asking what incentives are needed to attract more
18 capital, I'd like to ask what incentives are necessary
19 in order to better align societal objectives with
20 investor objectives?

21 My former advisor at Stanford, Michael
22 Kirst, has written extensively about the misalignment
23 between the K-12 years and the college years in his
24 report entitled "Betraying the College Dream: How
25 Disconnected K-12 and Post-Secondary Education
26 Institutions Undermine Student Aspirations."

1 According to Kirst, states have created unnecessary
2 barriers between high school and college, barriers
3 that are undermining student aspiration. The current
4 fractured system sends students, their parents, and
5 educators conflicting messages about what students
6 need to know and be able to do to enter and succeed in
7 college.

8 For example, his research found that high
9 school assessments often stress different knowledge
10 and skills than do college entrance and placement
11 requirements. Similarly, the coursework between high
12 school and college is not connected. Students
13 graduate from high school under one set of standards
14 and three months later are required to meet a whole
15 new set of standards in college.

16 I believe Kirst and his associates should
17 write the sequel, "Betraying the College Dream: How
18 Disconnected Post-Secondary Education Systems in the
19 Workplace Undermine Student Aspirations, the U.S.
20 Economy, and Investors." I believe Kirst would find
21 the schools have obfuscated the connection between
22 college and the workplace, thereby undermining student
23 aspirations. The current system sends students
24 conflicting messages or hyperbole about what students
25 need to know in order to succeed in the workplace and
26 secure that wage premium. I think his research would

1 find that college exams stress different knowledge and
2 skills than are required by our economy. I think his
3 research would find that the coursework in college is
4 not connected and that students graduate from college
5 under one set of standards and three months later are
6 required to meet a whole new set of standards in the
7 workplace.

8 Kirst laments the resources spent in
9 colleges remediating high school graduates so that
10 they can begin taking courses for credit. How about
11 lamenting the resources spent in corporate America
12 remediating college graduates so that they can begin
13 working productively? The prescription for change or
14 remedy already exists in private capital as a core
15 component to the business model of Universal Technical
16 Institute.

17 UTI is aligned with the workplace because
18 the company solicits the input of the workplace.

19 I will not read the next two paragraphs
20 because I may be testing the patience of everyone in
21 the room. But let me just conclude by saying that the
22 alignment of the workplace and the schoolhouse is
23 dearly needed in higher education. If all this,
24 however, does sound eerily reminiscent of
25 apprenticeships and Chaucer and Canterbury Tales, then
26 perhaps it is, absent the Draconian work conditions

1 and child labor, of course.

2 I wish to conclude my comments at this
3 time and I thank you for your interest in my insight
4 on this compelling subject and sincerely the
5 opportunity was a great honor to me.

6 CHAIRMAN MILLER: Thank you. Thank all of
7 you. I want everybody to notice how modest and
8 unassuming Wall Street people are compared to the
9 higher education establishment. You all are busy and
10 very valuable time.

11 We have a few minutes to ask penetrating
12 and sophisticated questions, of course, so please.

13 MR. VEDDER: I just loved this
14 presentation. I wanted to just echo what Charles
15 says. If there's one difference between the
16 traditional higher education community and this group
17 is their great candor and so forth, which I appreciate
18 very much.

19 And lest I be misunderstood, and I have
20 written a good bit in this area myself and am
21 generally sympathetic to the industry and I agree with
22 the first presenter in general with his absolutely
23 outrageous comments, which I subscribe to, so, in the
24 interest of improving your self-esteem, you don't have
25 20 enemies in this group, only 19.

26 However, I would like to ask a technical

1 question, as one who has studied this industry a good
2 bit. Everyone -- I have always believed that the for-
3 profit sector may be one of the solutions rather than
4 the problems relating to higher education. And in
5 spite of the problems which Mr. Block mentioned, which
6 I think are probably -- do need to be addressed, and I
7 don't disagree with what you said there either, but
8 let me ask you about two of your graphs, Trace, if I
9 may.

10 The first one is, is that the market
11 capitalization -- on the very first page, Market
12 Capitalization 2004, 31.3; to date, '06, 26.1 -- in a
13 period where markets in general have not shown
14 decline, you're showing us 17 percent in market
15 capitalization in the higher ed. -- in the for-profit
16 higher ed. business. Is this because of some of the
17 well-publicized irregularities and so forth that Mr.
18 Block spoke about, or is it for some other reason?
19 Has Wall Street sort of downgraded the expectations of
20 future growth of this industry?

21 MR. URDAN: I would say there are two
22 components to it. One, certainly initially the
23 catalyst was the regulatory concerns, and those
24 persist, particularly with a couple of names. But I
25 would say that the bigger issue that Wall Street has
26 has been that we've been seeing decelerating

1 enrollment growth, particularly at ground-based
2 campuses among a number of these institutions, and
3 most notably the largest company in this space, Apollo
4 Group.

5 So a lot of this is -- these are
6 institutions that have continued to grow and I would
7 argue even faster than traditional schools still, but
8 they're not growing as fast as they used to, and
9 that's something that Wall Street continues to see.

10 MR. VEDDER: So we're getting to your page
11 five graph, which shows that while enrollments are
12 still far exceeding the growth in the not-for-profit
13 sector, that that gap has sort of narrowed somewhat,
14 although it's still large, but it has narrowed.

15 MR. URDAN: Yes.

16 MR. VEDDER: Does this suggest that Wall
17 Street is saying that, Well, maybe this industry is
18 going to grow, but it's going to reach some sort of
19 natural plateau, that we're dealing with non-
20 traditional students? Does it mean that, for example,
21 the notion that this sector may move more into the
22 traditional higher ed. business of competing for 18-
23 to 22-year-old students, for example, that that sort
24 of -- keep our thinking, that's not likely to happen?

25 Would you want to opine on that?

26 CHAIRMAN MILLER: Or any of you to do

1 that.

2 MR. VEDDER: That's right. This
3 applies -- thank you, Charles -- to any member.

4 MR. URDAN: I'll speak very quickly and
5 then give my colleagues a shot at it. There are all
6 kinds of things that are going on right now that are
7 probably contributing to the slowing growth. What --
8 Wall Street abhors uncertainty, and I would argue that
9 the biggest amount of pressure is simply that nobody
10 really feels comfortable knowing what that stasis
11 number is. Is it four percent growth, is it two
12 percent growth, is it six percent? There's a great
13 deal of uncertainty about where these -- where the
14 enrollments level off, and that's what Wall Street
15 hates the most. I think once you see some
16 stabilization, you'll see some recovery in the prices
17 that investors are willing to pay for these stocks.

18 The other major part of that is the fact
19 that after several years of really extraordinary
20 growth in online education -- I mean, we're talking
21 year after year of 60 percent plus enrollment growth
22 for companies like University of Phoenix online, that
23 number is starting to slow and it's starting to slow
24 simply as the law of large numbers. It simply can't
25 sustain the pace of growth.

26 But, again, nobody knows where that number

1 is going to level off. Is it going to stay at 20
2 percent for a few years, is it going to go down to
3 ten? And as it's declining, without knowing where
4 it's going to end makes investors very jittery and
5 that's what I think a lot of what we're seeing here,
6 in addition to the regulatory concerns which still
7 persist.

8 Howard, do you want to --

9 CHAIRMAN MILLER: Any additions to that?

10 MR. BLOCK: I would agree with the answer.
11 I'd also suggest that, Richard, there's a future for
12 you in equity analysis because your insight is exact.

13 It's the second --

14 MR. VEDDER: I like a tenured job,
15 frankly.

16 MR. BLOCK: But it's that second
17 derivative that's dangerous, to speak to some of the
18 engineers. It's that rate, the uncertainty about the
19 rate of change in the growth rate that is leaving
20 investors -- and I think that your point about
21 traditional markets is true. Investors are concerned
22 that -- not that this group would grow at a comparable
23 rate but that the landscape has gotten far more
24 competitive and that's what's weighing on the overall
25 growth.

26 CHAIRMAN MILLER: Jonathan. Thank you.

1 MR. GRAYER: I'm compelled say something
2 here. And I will start with --

3 CHAIRMAN MILLER: Yikes.

4 MR. GRAYER: -- and point to a few very
5 relevant kind of touchstones for the Commission.

6 What wasn't addressed here is the problem
7 that exists with education as it matches up against
8 the way our capital market system works.

9 To give you just evidence of that, at that
10 same lunch today, Howard Block asked me if I was a
11 professor. He had no idea who I was. I run the
12 second or third largest education company -- because
13 we're not public. That the notion of what they are
14 describing is an opportunity to buy into a dream,
15 assign a multiple that you hope will grow in the
16 future, and momentum investors in our marketplace have
17 driven education stocks through a period of tremendous
18 wealth creation.

19 That the issue that's being described is
20 really the applicability of for-profits as publicly-
21 traded companies, not so much the for-profit mechanism
22 in itself. And all of the abuses and the concerns,
23 many of which I agree with, are driven by an
24 insatiable need to have a higher stock price tomorrow,
25 a higher stock price tomorrow in a short period of
26 time.

1 And the sector has responded, like all
2 sectors do, trying to maximize their gain. The
3 problem for this Commission and the problem for
4 everyone in our industry is that the education
5 business model sets itself up well to be abused. And
6 that -- the only protection that we can have for that
7 is what was asked for early on, which is a better
8 accreditation system that has higher standards and
9 punishes in much greater -- to a much greater degree
10 those that abuse it.

11 But the capital market system that we have
12 today looks to create momentum around growth
13 businesses. Education is a growth business. And,
14 therefore, you have seen a lot of the problems
15 described here.

16 We happen to operate Kaplan in an unreal
17 world where we're neither private nor public and that
18 really isn't reproducible, so it's not really relevant
19 for the solutions. But if you wanted to encourage
20 investment, you have to address with what the panel
21 accurately described, which is the potential abuses
22 that come when wealth creation in the public markets
23 is the goal.

24 CHAIRMAN MILLER: Thank you. Please, Bob.

25 MR. MENDENHALL: I was impressed, Trace in
26 particular, with some of the advantages, competitive

1 advantages, that you outlined for the for-profits vis-
2 a-vis publicly-funded education. Having said that, is
3 there any reason that non-profit education couldn't
4 adopt and emulate many of those practices and compete
5 -- as you said at one point, if the community colleges
6 adopted the practices with the built-in advantages
7 they have, they ought to put the for-profits out of
8 business. What keeps the non-profit publicly-funded
9 institutions from adopting some of the best practices
10 from the for-profits?

11 MR. URDAN: I would argue first and
12 foremost that it's governance. You have in
13 traditional institutions a system of decisionmaking
14 that equally weighs a number of different stakeholders
15 with I would say the faculty probably number one. So
16 this notion of what the for-profit schools do in terms
17 of standardizing a curriculum -- I mean, if you go to
18 University of Phoenix and all of their campuses in
19 Novato and Phoenix and everywhere else, the same
20 classes are being taught in exactly the same way with
21 the same material. Now, they're not being taught by
22 the same professors, but the professors that are
23 teaching those classes had very little to do, if
24 anything, in influencing what that curriculum was all
25 about. That curriculum was prepared based on employer
26 feedback and, you know, arguably is effective.

1 I don't -- you know, it may or may not be
2 effective. It is certainly efficient, and I would say
3 that that -- that's a stunning example of how
4 traditional schools differ. And I think that the
5 speed of decisionmaking, the ability to respond to the
6 market and create new programs quickly, all of those
7 things are impacted by the traditional hierarchies of
8 schools, whether they be, you know, not-for-profit
9 private institutions or public institutions. They all
10 operate under that same paradigm.

11 And I'm not sure how, you know, the
12 Commission affects that. I mean, I don't know that
13 it's possible to. But I would say that that's a big
14 difference, not that they're -- you know, not that
15 they're bad or they're not smart or they don't have
16 that ambition, but just that it's just very difficult
17 to run an institution like a business when it's not a
18 business. That was my -- you know, the obnoxious
19 comment about the Soviet style factories, was just to
20 suggest that it's -- you're not set up to compete.

21 MR. KAPLAN: Yeah. I think there's a
22 specific example of that, just to follow up. You
23 know, one particular area that a lot of for-profit
24 schools focus on is retention, and there's many
25 systems and mechanisms operational in place to try and
26 maintain retention down to the student level because

1 the unique needs and circumstances of a lot of the
2 adult learners.

3 If you compare them in some of the markets
4 that we're in to the local community colleges, which
5 are in some ways the best alternative for some of
6 these students, you know, the graduation rates there
7 might be something like ten percent, 15 percent for
8 some sub-groups. Minorities could be as low as five
9 percent. You know, our schools, you know, have 60, 70
10 percent, you know, graduation rates.

11 CHAIRMAN MILLER: You're plugging in that
12 that's some direct competition or comparison, so that
13 may not be the mission of the schools. But Charlene
14 wants to make a comment, so I'd like -- thank you.

15 MS. NUNLEY: I've got to talk to this.
16 Strauss Vutay (ph), as president of a Soviet factory,
17 I'd like to say hello.

18 I don't know a single community college
19 that has the goal of putting the for-profits out of
20 business. And perhaps if we set it, we maybe could
21 get on a mission to do that. I don't know.

22 I also would say that community colleges
23 in our nation have gone from nowhere to educating half
24 of the undergraduates in the country. You're also
25 completely ignoring the continuing education aspect of
26 community colleges, which is where many of the adults

1 are educated in the much more flexible formats that
2 you talk about in the for-profit sector.

3 So I guess I would have to say that I
4 think that your criticism is unduly harsh and perhaps
5 unsubstantiated by some evidence, and I'm trying hard
6 to rise above, not reacting to it the way I am.

7 CHAIRMAN MILLER: I thought that was
8 pretty modest, too. And they're willing to take it.
9 Anybody that tries to sell to capitalists are very
10 good at taking the feedback. They can handle it.
11 Don't worry about that.

12 Rick, go ahead.

13 MR. STEPHENS: Just an observation, and I
14 know there's people who are on both kind of both sides
15 of this aisle relative to the public versus private
16 education. Just an observation from Boeing's
17 standpoint.

18 I think I've shared with you before we
19 spend about a hundred million dollars a year sending
20 our employees back to school. Fifteen percent of
21 those go to private for-profit schools. That's five
22 times higher than any other educational institution
23 and we deal with 252. So that's a metric about
24 meeting our needs for our employees going back for
25 additional education and/or degrees to be able to meet
26 their long-term individual needs.

1 I will tell you as schools number two and
2 three, going back to your comment, though, Bob, have
3 in fact -- are schools that we work directly with that
4 have responded to meeting our curriculum needs,
5 particularly in the higher education levels -- what I
6 call system engineering, system architecture, which
7 are skills that are critical to our long-term
8 development.

9 So I think my comment and observation
10 would be I think there is a place for the for-profit
11 schools. Clearly, they are meeting a need and it's
12 not at the expense of the community colleges. It's
13 not at the expense of the four-year institutions. And
14 there are a number of four-year institutions who are
15 doing a marvelous job working back and forth with
16 industry to be able to meet our needs, and there are
17 some good examples.

18 And so, you know, I just want to kind of
19 offer that. It's not one or the other. I think, you
20 know, those -- the for-profit schools have a place,
21 and the challenge is how do we figure out how to
22 maximize that, given I think the number one constraint
23 that we have is resources. And I think that's one of
24 the elements that we have to look at as a Commission.

25 If in fact we look long-term, what are our needs for
26 higher education if we define that as a technical

1 curriculum, a certificate curriculum, a baccalaureate
2 degree, you know, an A.A., whatever. And if in fact
3 we believe that everyone needs to have the opportunity
4 for continuing education, what's the best way to go
5 balance that? And I just believe the for-profits have
6 a place in there but it's not a hundred percent for-
7 profit.

8 CHAIRMAN MILLER: Thank you.

9 MR. MENDENHALL: Just a follow-up
10 question. I think the for-profits have demonstrated
11 that tuition can in fact cover the costs of an
12 education and, in fact, it's pretty good business and
13 it's a positive cash flow business.

14 And yet the public institutions I think
15 feel very strongly that without substantial subsidy
16 from the state and others, that education's
17 unaffordable, that they can't -- they can't compete on
18 a tuition basis. Would we get more market-driven
19 behavior if we required institutions to charge real
20 tuition and gave the aid to the students to enable
21 them to attend -- I'm not -- I'm not supposing that we
22 don't need the aid to fund education. But what would
23 happen if we competed on real tuition and students got
24 aid directly?

25 MR. BLOCK: I think the premise might be a
26 little bit naive only because when I look at that

1 picture there, there aren't any for-profit
2 institutions that offer campuses like that, facilities
3 like that, socialization as a traditional school
4 would, so it's a question about mission. And I think
5 the mission right now as defined makes the cost
6 structure far more prohibitive for traditional schools
7 so that's why they can't operate the same as the for-
8 profits.

9 If you want to change the mission, then
10 you could find a very, very competitive landscape and
11 I would suggest the intellectual capacity that would
12 run those traditional schools is probably as great and
13 could run as fast, but they have a different mission,
14 not that I'm necessarily suggesting they all have to
15 have that mission. Maybe few of them have to have
16 that mission. But it's a little bit naive to compare.

17 It's what we would just say the old apples versus
18 oranges.

19 MR. URDAN: Can I just -- I would say it's
20 also a matter of defining the mission, which I would
21 argue a lot of state institutions, you know, have very
22 fuzzy definitions when it comes to allocating funds to
23 state-run institutions. You know, for instance, what
24 kind of conversation would we have as the -- in the
25 State of California if the University of California
26 system were challenged with a question of saying, Okay

1 -- and I'm stealing from Andy here, so thank you for
2 that -- but how many anthropologists does the State of
3 California need to generate within the next 25 years
4 and what resources should the taxpayers of California
5 devote towards encouraging the creation of more
6 anthropologists in the State of California?

7 Anthropology is a wonderful science. We
8 need anthropologists. But when you come to talking
9 about subsidies from taxpayers, there I think needs to
10 be a better connection point between what it is --
11 what is it that those funds are aiming to do? And I
12 would still posit that there's a lot of fuzzy thinking
13 around, you know, supporting institutions and it comes
14 down much more to football teams and maintaining the
15 status quo than it does saying, Okay, --

16 CHAIRMAN MILLER: Well, it's called
17 mission creep and we have that --

18 MR. URDAN: Mission creep, yes.

19 CHAIRMAN MILLER: -- in the private sector
20 also. I want -- we need, from a time standpoint, to
21 bring it to a close. Is there anybody else that's got
22 a pertinent question? Go ahead -- or speech.

23 MR. ZEMSKY: Just a quick observation
24 about what non-profits -- what the for-profits can do.

25 It's what they've been doing. If you spend your life
26 in institutions, from institution to institution,

1 probably the most frequent story now told is the
2 University of Phoenix, and it's interesting that they
3 don't talk about the things that you talk about,
4 although they will eventually, that they essentially
5 say, you know, They came and they ate our cash cows
6 and it was -- actually, the University of Phoenix
7 provided an enormous service by essentially forcing
8 the issue of internal cash cow because it wasn't the
9 anthropology. It was the ed. school summer programs
10 or it was the business school no capital or it was
11 computer programming and the like.

12 So that just watching what a very
13 successful, Phoenix being the most obvious of this,
14 what they have done has had enormous impact and it's
15 worth thinking about, that we may not need a lot of it
16 but we certainly need some of it.

17 CHAIRMAN MILLER: Let me finish a comment
18 so people might understand where we like to take the
19 private capital discussion. When we talk about
20 private capital, this is one element of it and it's a
21 very powerful one. I'd add to the reason the stocks
22 haven't done as well as an analyst, because they did
23 so very well during the worst of the bubble years.
24 Those were exponential returns that probably
25 outperformed every group in the market during the
26 early part of the decade and still on a relative basis

1 would be among the best performers. So there's sort
2 of a catch-up period.

3 Private capital could be in many forms.
4 We don't know what this industry is going to be like
5 in ten years, although you'd like it to just be an
6 extrapolation of your forecasts because it isn't like
7 it was ten years ago. And if there's a need that's
8 being created because of other growth in demographics
9 or educational needs that aren't being provided by the
10 people, I haven't any doubt that there will be some
11 entrepreneurial people to provide the capital to do
12 something even more than what's been done, as long as
13 the barriers to entry -- regulation and the like that
14 you talked about -- are relatively low.

15 The hardest way to get the right kind of
16 expansion of this or innovation or whatever would be
17 that we don't let that happen because we're afraid or
18 we don't want to take risks or we're afraid of
19 failure. And we need -- which we don't have in
20 traditional institutions. We don't have the ability
21 even under accreditation or anything else for almost
22 anybody to ever fail. We have a reduction in quality
23 typically for ones who don't perform, but we never let
24 those go out of business. So the fact that we've had
25 failures or problems is one of the best signs that
26 this will eventually work in the market.

1 But the concept of private capital I still
2 have in mind is that we have huge amounts of profits
3 in today's business world. It's not across every
4 sector. It's not even. But it's record level of
5 profits, record level of profit margins, record level
6 as a share of GDP, lowest that I can measure in 50
7 years of the effective tax rate in corporate America
8 and they're investing less than their cash flow and
9 the needs for dividends; in other words, there's not
10 even a place that people can find to invest. And yet
11 we hear consistently that the need for an educated
12 workforce, what they want is lacking.

13 So I'm convinced that sooner or later
14 we're going to find a way to match the two. We
15 haven't necessarily, you know, reached the perfect way
16 to find that connection. We do a lot of it already --
17 private industry does train a lot of people.

18 So the idea of private capital for
19 everybody's benefit I think what we're looking for --
20 what we're seeing here and you've done a great job of
21 outlining it and putting us our best alert to think
22 about it -- but we're going to look for other things
23 as well as these kind of stocks.

24 MR. URDAN: I think Boeing's tuition
25 reimbursement program is a good example of where
26 you're starting to see some of that connection.

1 That's one way in which, you know -- a very simple way
2 in which that connection is --

3 CHAIRMAN MILLER: That's an excellent --

4 MR. URDAN: -- increasingly being used.

5 CHAIRMAN MILLER: -- example and there are
6 others like that that we may try to bring to the table
7 that from that corporate profit margin benefits it as
8 one of the easiest ways to think about it because it's
9 the benefit of everybody usually when we provide it.
10 And if it's not provided somewhere else, it's highly
11 likely we're going to find a way to do that and maybe
12 we can bring that forward.

13 Thank you all very much. We're going to
14 the next panel. And I know your time was very
15 valuable and I appreciate you taking it.

16 MR. DUDERSTADT: Bob, would you want to
17 take the lead and start this panel discussion? We can
18 catch Charles when he comes back to keep us on track.

19 MR. MENDENHALL: I can do that. He's
20 heard some of this already. I appreciate the
21 opportunity to share with fellow Commissioners what
22 we're doing at Western Governors University. It is a
23 different model of higher education. It's certainly
24 not a model that applies to all students or all
25 situations.

26 But to give you a brief background, it was

1 created by 19 governors, 19 western governors, as a
2 private non-profit university. So even though it was
3 created by governors, it doesn't receive state money.

4 And today, essentially, the tuition covers the costs
5 at the university.

6 A couple of preliminary remarks. It was
7 set up by the governors essentially to rethink higher
8 education paradigm and to create a new paradigm in
9 higher education in a number of ways.

10 One, at the time that it was set up, it
11 was set up to be an Internet-based university and all
12 of our degrees are delivered online, which is not
13 particularly innovative anymore.

14 Secondly, from the very beginning, we
15 determined that we would not develop or teach our own
16 courses. There's now over 800,000 courses on the
17 Internet. It would be tough to argue that no matter
18 how much time or money you spent, that you would have
19 the best courses available.

20 And so our faculty are tasked with finding
21 the best available courses and we acquire the rights
22 to use those with our students. Therefore, because
23 our faculty don't develop or teach courses, they are
24 essentially mentors of students and their full-time
25 role is to mentor students through their degree
26 programs.

1 And, finally, and probably most
2 importantly, the university was set up to grant
3 degrees based on the measuring and demonstration of
4 competencies rather than the accumulation of credit
5 hours or time. So we define up front the competencies
6 expected of graduates. We have a variety of measures
7 to measure those competencies. And we grant degrees
8 when students can demonstrate that they have indeed
9 mastered the competencies.

10 I thought what I would do briefly -- I've
11 been impressed as we've gone through our work as a
12 Commission that how many of the issues that have been
13 raised we at least have a response to. Again, in some
14 cases, a response that might be replicable across a
15 large swath of higher education and in some cases
16 perhaps a response that's more unique to us. But I
17 thought I would take our issues of accountability and
18 accessibility and affordability and quality and
19 address at least how one university, ours, addresses
20 those issues.

21 So first in terms of program
22 accountability, I mentioned this briefly. But
23 accountability for learning results essentially is
24 provided by directly measuring learning rather than
25 measuring time or credit hours. We define the
26 competencies a student must know and be able to do.

1 We use a variety of assessments -- a combination of
2 objective tests, performance tasks, projects,
3 portfolios -- which the student must demonstrate that
4 they have mastered in order to pass those assessments
5 and then be granted a degree.

6 We link that to the needs of industry in
7 that the competencies are actually developed by an
8 external program council to the university made up of
9 experts from both the industry and from academia to
10 ensure that the degrees meet comparable academic
11 standards to similar degrees at traditional
12 institutions and meet the existing needs of employers.

13 So together, this program council defines
14 what they would expect the graduate to know and be
15 able to do.

16 And they then have ongoing responsibility
17 to review that on an ongoing basis and update and
18 modify those competencies as the technology changes,
19 the workforce changes, and so on.

20 Obviously, in degree areas like IT, those
21 competencies are changing more rapidly than they are,
22 for example, in elementary education.

23 Similarly, the WGU assessments are defined
24 and approved by an external national assessment
25 council of experts in measurement and evaluation and
26 the assessments are developed by experts in test

1 development. Most of the professors who create exams
2 and give grades in traditional higher education are of
3 course trained in their field but not in measurement
4 and evaluation. And their tests probably would not
5 stand up to very rigorous standards of testing on
6 reliability and validity.

7 Where possible, we use existing national
8 exams that test competency, that lead to industry
9 certifications, the SHRM (ph) exam in human resources,
10 the Praxis exams from ETS in teacher education,
11 industry certification exams, and IT, which add
12 credibility to the exams and accountability to the
13 industry for educating the graduates on the skills and
14 knowledge that industry is looking for.

15 Again, the assessment council has ongoing
16 responsibility to monitor the assessments and keep
17 them current.

18 I mentioned that we do not develop or
19 teach our own courses. This allows us to go find the
20 very best learning resources that are available and
21 map them back to our competencies. Because it is the
22 competencies and assessments that fundamentally are
23 accredited that represent the quality of our
24 education, we're able to use courses and learning
25 resources from a variety of sources. So we not only
26 use courses from other universities, but we also

1 commonly will use training modules, learning objects,
2 textbooks, and in many cases commercial courses from
3 commercial organizations that are doing corporate
4 training already.

5 For example, in our IT degrees, we have
6 found that the materials from Net G, which is a large
7 corporate provider of IT training, are both more
8 modular, higher quality, more current, and less
9 expensive than traditional university courses. And
10 their unit of instruction tends to be a day or two as
11 opposed to four months and can be much more related to
12 individual competencies.

13 Again, this reflects the needs of industry
14 in ensuring that students have been trained in some of
15 the requirements for the current industry.

16 In terms of our faculty and staff
17 accountability for student success, our faculty, as I
18 mentioned, essentially serve as mentors to students,
19 and every student is assigned a faculty mentor when
20 beginning at WGU. That mentor stays with them until
21 graduation. So even though it's online, they develop
22 a very deep, meaningful, personal relationship with a
23 senior faculty member.

24 We do not have faculty tenure. All of our
25 mentors are evaluated and compensated primarily on the
26 success of their students. In fact, we actually

1 produce a monthly report for each faculty member, for
2 each mentor, that has their own individual student
3 retention rates, student progress rates, student
4 satisfaction rate, and student graduation rate versus
5 the average for the university and the average for
6 their programs. And it is on the basis of those
7 criteria principally that their performance is
8 evaluated.

9 I should add that our performance plan for
10 the -- for everyone else in the university is based on
11 the same four measures of student success, including
12 mine.

13 We also then seek to measure our graduate
14 performance and success, including most institutions
15 do that. Where possible, we have our students take,
16 as I mentioned earlier, national exams used to measure
17 competencies so we can compare the performance of our
18 students on industry standards to other graduates from
19 other institutions. We also conduct an annual survey
20 of graduates asking the relevance and importance of
21 the competencies they learned at WGU and modify our
22 competencies based on the feedback of what they're
23 finding most helpful to them in the workplace.

24 Let me move quickly to accessibility. I
25 think perhaps the most important contribution of
26 online education may be its ability to expand access

1 to higher education, particularly to rural populations
2 and working adults.

3 You clearly do not get the same level of
4 socialization for traditional-age students that you
5 get in a campus environment. But it's not true that
6 you don't get a great deal of collaboration and
7 interaction in an online environment.

8 I mentioned the close relationship between
9 mentors and students, faculty and students. All of
10 our students as well are members of one or more
11 learning communities and interact regularly within
12 that learning community in learning together and
13 studying together, albeit electronically.

14 The advantage of online education, as I
15 mentioned, is obvious for rural populations that don't
16 live in close proximity to a campus, but we've found
17 it's an equal issue for working adults who live ten
18 minutes from a university but can't get time off work
19 or have travel obligations or family obligations and
20 there are not a lot of campus-based classes offered at
21 ten o'clock at night when our students traditionally
22 do most of their studying.

23 Access is also clearly a financial issue.

24 I think online education has a clear potential,
25 although not yet fully realized, at providing high
26 quality education at a lower cost, which I'll address

1 in a minute under affordability.

2 But while WGU is approved to offer federal
3 financial aid and VA benefits and DOD and corporate
4 tuition assistance, the same cannot be said for some
5 online programs and I believe more needs to be done to
6 provide the same levels of financial aid and
7 acceptance of online education as is currently
8 provided for traditional education.

9 The truth is there's both good and poor
10 quality campus education and good and poor quality
11 online education and the difference in quality really
12 isn't the delivery mechanism; it's really the
13 pedagogy behind the delivery of the education.

14 Just a word about affordability. In an
15 era of rapidly rising tuition costs, as a private non-
16 profit university, our tuition for a 12-month year is
17 about \$5600. We do, by the way, offer a start date
18 every month, as was mentioned with some of the for-
19 profit universities. We start a new term each month.

20 Our terms are six months long. But for a 12-month
21 year, it's about \$5600, which is comparable to tuition
22 for three semesters at many publicly-subsidized
23 universities where tuition covers less than half the
24 cost of education. That tuition, by the way, covers
25 essentially the entire cost of the WGU education.

26 So the question is how we achieve those

1 kinds of costs while still delivering a high quality
2 education. First of all, we obviously do not have the
3 cost of buildings, residence halls, athletics, and
4 other activities that are important to traditional age
5 students but are expensive extras for adult students.

6 Second, the faculty is focused on working
7 with students essentially full time. The reward
8 structure rewards student success rather than research
9 or publications and the faculty who join us understand
10 that coming in and essentially focus their effort on
11 helping their students succeed.

12 Because they aren't teaching courses or
13 grading assessments, mentors at full load handle 80
14 students at a time, and we have a protocol that says
15 mentors interact with each of those students at least
16 once every two weeks.

17 Third, rather than develop, deliver,
18 teach, and maintain its own courses, we utilize
19 courses developed and delivered by others who have
20 already made the investments in those courses.

21 We represent incremental income and profit
22 to those course providers, but it is a substantially
23 lower cost to us than developing and maintaining
24 everything ourselves.

25 At the same time, many of the courses and
26 learning resources we use are self-paced and computer-

1 mediated. And by letting technology carry the
2 majority of the instruction rather than live
3 instructors, the instruction is of consistent high
4 quality and is scaleable to large numbers of students
5 at low incremental cost.

6 At the same time, the human side of
7 instruction is in the personal mentoring that each
8 student receives and their involvement in active
9 learning communities.

10 Finally, we outsource other functions,
11 essentially whatever we can, including financial aid
12 processing, an online library bookstore, and our
13 assessments are delivered in existing testing centers
14 around the United States, many of them university
15 testing centers, some of them commercial testing
16 centers. The objective tests are scored by computer.

17 Other assessments are scored by professional graders
18 that are separate from the mentors.

19 The quality of the program then rests with
20 the quality of the competencies, the effectiveness of
21 the assessments in measuring the competencies, and the
22 success of students in completing the requirements in.
23 graduating.

24 It was a different process for
25 accreditation in that we focused the discussion on
26 whether the competencies were the right ones and

1 whether in fact we accurately measured the attainment
2 of those competencies. That made the input less
3 important because we could directly measure the
4 outputs in the form of learning competencies.

5 The quality of the courses is always
6 measured because we do not accept the course grade.
7 Students are required to take the learning resources
8 but then pass WGU assessments to demonstrate their
9 mastery of the competencies. Those resources that
10 don't adequately prepare students to pass -- to master
11 and pass the competencies and the assessments are
12 replaced with other resources from other providers
13 that are more effective, so the quality is in some
14 ways measured by the system itself.

15 In summary, it's clear that our model
16 works best for working adults who have competencies.
17 Our average student is age 38. Seventy percent of
18 them work full time. Most traditional-age students
19 probably require the structured environment of
20 traditional campus-based programs. But increasing
21 numbers of adults require the flexibility and can be
22 served at lower costs by non-traditional programs.

23 At the same time, we think all of higher
24 education could benefit by being more explicit about
25 expected learning outcomes and measuring them
26 directly. Access can be improved with more flexible

1 online and lower cost programs for at least a segment
2 of higher education needs.

3 And significant cost savings can be
4 attained by focusing on the teaching function,
5 outsourcing other functions, and sharing courses
6 between institutions.

7 Most of all, I think WGU was created and
8 exists to demonstrate that if we started with a blank
9 slate and thought differently about how we would set
10 up higher education, we might come to a very different
11 solution than the one that we have inherited from past
12 generations.

13 Thank you.

14 CHAIRMAN MILLER: Thank you.

15 MR. GRAYER Thank you, Mr. Chairman, for
16 inviting me to speak to you about the Kaplan story. I
17 am going to try to move through this quickly so that
18 my fellow Commissioners can hear from Steve, who has
19 built the highest-end online university and has a lot
20 to add.

21 I'm going to talk about metrics and the
22 delivery of online education today, and I thought I'd
23 start by putting Kaplan in some context. We are
24 approaching half the revenues of The Washington Post
25 Company. We are -- online and campus division is
26 about 40 percent of our revenue. It would make us

1 probably the fifth or sixth largest higher ed. company
2 if we were only that. We have 79 campuses, 50,000
3 students on those campuses, and 22,000 students
4 getting fully-accredited, regionally-accredited
5 degrees online at Kaplan University.

6 I changed my talk a little bit in
7 reference to some of the issues that were brought up
8 in the previous panel. And I thought I'd start by
9 saying -- by comparing the traditional campus
10 university to us. And I'd start by asking: How does
11 a traditional college know how good its economics
12 department is? Well, clearly, its reputation, the
13 reputation of the faculty, the publications of that
14 faculty, the grad school acceptance rate, the student
15 surveys, the way its alumni feels about it, and more
16 and more what U.S. News might say. In essence, that
17 economics department is a brand. It's a sub-brand
18 within a larger brand of the college or university in
19 which it is housed. That brand could be portrayed by
20 the poster behind for some lucky universities and, in
21 the end, the students come because they believe that
22 the attributes of that brand will help them do better
23 in life and indeed it often is the case.

24 But that self-evaluation does not really
25 get at the drivers of what makes a good economics
26 department. What has been learned by the collective

1 group of students who have gone through it? Is there
2 any evaluation, any third party view about how well
3 economics is being taught now versus how it was taught
4 in the past?

5 In most universities and colleges that
6 have done well over time, this self-evaluation does
7 not exist. And in the end, it's okay that it does not
8 exist because, while it's not perfect, those students
9 were self-selected because of the skills that they
10 demonstrated before. They then go on to do many
11 things that have third party evaluations that will
12 determine if they're good enough to practice -- a CPA
13 for an accountant, a bar review -- a bar test for a
14 law -- for a lawyer, medical fields have all types of
15 licensure.

16 So while there isn't a very good
17 evaluation of how their undergraduate program might
18 have taught them, later in life and before they got
19 there they were very closely evaluated.

20 That's not good enough for us. In large
21 part, for-profit education companies have grown
22 because they're serving a population that is
23 increasingly coming back as a second chance, who might
24 not have had a great preparation before they got
25 there, who needs to go to school along with providing
26 for their family for the job they hold, and to deliver

1 an excellent value, we have to know not only do our
2 students do well when they leave but that in fact we
3 teach them what we say we're going to teach them when
4 they're there.

5 So it becomes very important for us to
6 evaluate ourselves, and the way we do that is very
7 simple -- through data. We crunch data of all kinds
8 about our students. We look at how much time they
9 spend online, how often they actually post messages to
10 the boards that their community is a part of. We give
11 them many more tests and quizzes than a normal college
12 environment would give. We subject them to a
13 standardized curriculum across subject matter that all
14 of our faculty have to endorse and in fact use that is
15 norm to outcomes that we believe are important for a
16 student to have in the program that they've enrolled
17 in.

18 Which brings us to the notion of outcomes
19 generally. All of our programs have between six and
20 nine outcomes that are required for graduation. They
21 are skill-based generally and they are informed by the
22 regulations, the opportunities, and most importantly
23 the requirements of the fields that they're going
24 into. And, again, our students are coming to us to
25 learn a set of skills that will enable them to do
26 better at a job that they have chosen.

1 So every assignment in every course is
2 designed to map up to the development of a program --
3 a type of skill that will be measured at the end of
4 the program.

5 The outcomes have all been put together
6 with a matched curriculum and a matched examination to
7 see how the development of that skill occurs over
8 time.

9 We then take those metrics and we use
10 regressions to figure out if there's any trends that
11 we should be watching; for instance, do all students
12 of an individual teacher have problem with a certain
13 outcome? Are -- is a certain outcome generally not
14 met across all of our instructors? Does it matter
15 what time of year a student starts for how they'll do
16 against one of the outcomes in their program? The
17 correlations that we attempt to make are endless.
18 Many of them are worthless and do not matter, but some
19 of them lead to great breakthroughs.

20 For instance, we know that students who
21 are enrolling in criminal justice programs are better
22 off if they start at the beginning of the year. Why
23 is that? Well, we can go into a long discussion about
24 why that is. Our students who start at the beginning
25 of the year end up staying longer and doing better.
26 So we encourage criminal justice students to start at

1 the beginning of the year.

2 This type of review is all driven towards
3 the notion that for the Kaplan University online
4 program to do well, it must teach what it sets out to
5 teach because our students will only get the jobs that
6 they want and do well at those jobs if they acquire
7 those skills.

8 We believe that in doing that, for-profit
9 education companies will thrive. The reality is, much
10 to the view on Wall Street, is that online education
11 is not a high margin business when done well. Online
12 education is very expensive to deliver well, and the
13 reason for that is to create a real community online,
14 to really make sure your students stay with the
15 program, they need a lot of student help, a lot of
16 student services, a lot of advisory help, and in our
17 case our students are often having struggles outside
18 of their academic life.

19 To get them through the program requires a
20 ratio of professionals on the school side that in our
21 estimate dwarfs what is now going on. And we attempt
22 to run our business at lower margins than the rest of
23 our industry, and we're proud of it. I think that
24 there are others. Steve certainly is -- is one such
25 case that feels similarly.

26 But, again, to the comment that I made

1 earlier, the capital markets wouldn't like to hear the
2 message I just gave you. And I operate within a world
3 where we don't need to worry about that. And,
4 unfortunately, that world doesn't exist for many --
5 for many companies. It is a growth business and
6 operating income will grow dramatically because more
7 and more students will make access -- will make an
8 attempt to gain access to an education that meets
9 their needs when they need it and delivers the skills
10 and holds itself accountable for delivering those
11 skills. But it will -- if it's done right, it will
12 grow well and be profitable without taking advantage
13 of the high margin opportunities that exist by doing
14 it expeditiously today.

15 One final point. The role of online
16 education generally is not ubiquitous. The comment
17 was made earlier, How can a student who wants to
18 operate an MRI get an education online? And the
19 answer is, While obviously parts of that education can
20 happen online, most of it can't and shouldn't. And
21 that's okay. Some of what Boeing does can be done
22 online with its employees. Some of it can't. The
23 market -- the buyers of educational product need to
24 decide what the best match for the delivery of
25 educational skills and content against desired income.

26 And I do believe that, in the end, the

1 solution comes from -- I think it was in the first
2 panel -- the point everyone has to do what it is best
3 able to do. The highest and best use of each asset
4 within our landscape will get us the end result. We
5 can teach skills that are mapped to normed outcomes
6 efficiently, effectively, and flexibly, and that's
7 what we should be doing.

8 There are other types of educational
9 processes that we can't do well and we shouldn't be
10 doing them. And the marketplace, when fully able to
11 exercise its will, will choose correctly.

12 Thank you.

13 CHAIRMAN MILLER: Thank you, Jonathan.
14 Steve.

15 MR. SHANK: Mr. Chairman and Members of
16 the Commission, I recognize that I'm the last
17 speaker --

18 CHAIRMAN MILLER: We saved the best for
19 the last.

20 MR. SHANK: I was going to say the last
21 speaker to try your endurance or the case may be
22 patience today, so I'll try to be quick.

23 I'm Steve Shank, Chancellor and founder of
24 Capella University, and I'd like to talk about two
25 topic areas related primarily to your issue of access,
26 a bit to accountability also.

1 The first topic -- I was asked to talk
2 about Capella University as a model of an innovative
3 for-profit institution extending access through online
4 education. And the second topic, probably a more
5 mundane one than some of the provocative subjects I've
6 heard discussed today, is the issue of access to
7 funding for adult students. That is an issue which is
8 a -- an issue which is immediately actionable and very
9 important to access to students like the ones we
10 serve.

11 We were established in 1993. We're based
12 on Minneapolis, Minnesota. We are one of those
13 focused institutions that we talked about. We are
14 exclusively online. We exclusively serve students.
15 Our students, well over 90 percent are working full-
16 time adults.

17 Our mission is to serve those adults who
18 seek to advance their education but who might
19 otherwise not be able to do so except for a facility
20 like we provide because of lots of issues of access.

21 Today, we serve 14,000 degree-seeking
22 students from all 50 states. Non-traditional working
23 adults, depending on the numbers you look at, account
24 for somewhere between 39 to 43 percent of all students
25 enrolled in higher education. It's a very important
26 population. Our population may be typical of adult-

1 serving institutions. Ninety-seven percent of our
2 learners are over the age of 25 years. Thirty-five
3 percent are ethnic minority, and that means Latin
4 or -- Latino or African-American. Sixty-three percent
5 are women. Fifteen percent are either active military
6 or military family. I think that is a story of
7 access.

8 We are an institution that very seriously
9 focuses on cooperation with employers -- major
10 business employers around the United States, but other
11 employers. We are big fans of the community college
12 system. We're a major educator of community college
13 faculty and community college administrators.

14 Our faculty is selected based on their
15 academic achievement and also their teacher and
16 practitioner experience. Fifteen percent of the
17 faculty are full-time. The balance hold adjunct
18 appointments. Seventy-seven percent of our faculty
19 hold doctoral degrees in their respective fields.

20 With respect to our instructional costs,
21 I'd agree with Jonathan that we do not see our
22 instructional costs as being cheaper than a site-based
23 institution. Our costs would look pretty similar to
24 what you might see, obviously in somewhat different
25 forms.

26 The operating model, however, is quite

1 different than a public or a private non-profit. The
2 initial development of our university was funded by
3 private equity, as we've heard today. Today, our
4 operations are profitable. Tuition revenues fund all
5 of our operating expenses and all of our investment
6 expenses. And we do invest heavily in upgrading our
7 educational technology and in a program of continuous
8 academic improvement.

9 Our operating strategy -- and, again, I'd
10 echo some philosophies that both Jonathan and Bob
11 talked about -- focuses on two objectives: Extending
12 access and achieving educational -- quality
13 educational outcomes. We explicitly recognize that
14 these are a bit oxymoronic as objectives, and our job
15 is to figure out how you balance the two.

16 To ensure quality in accountability, we
17 rely heavily on management tools, such as data and
18 measurement, ongoing quality improvement processes and
19 performance management, including performance
20 management of our faculty. I think that's probably
21 enough about that.

22 I would state that we are very interested
23 in issues of institutional accountability. We believe
24 that Capella's educational outcomes are comparable to
25 the outcomes of public institutions that we can look
26 at data for and who serve comparable populations.

1 I would say, however, that it's a
2 tremendous frustration to us that, due to weaknesses
3 in the public data reporting systems, it's really not
4 possible for us to realistically benchmark comparable
5 educational outcomes. And that is one area where we
6 think the Commission could provide great help in
7 improving quality management systems across the higher
8 education spectrum.

9 We believe that Capella University
10 provides a successful example of the use of private
11 capital to create new educational access. I would add
12 my two cents to the recognition that there have been
13 allegations of issues of regulatory noncompliance with
14 some for-profit institutions. I would say my
15 perspective is that this really isn't an issue where
16 more regulation is needed. We are subject to so many
17 regulations, it's almost beyond belief. But,
18 obviously, issues of enforcement are important.

19 I'd also say that I believe that everyone
20 is going to learn a lesson, that this is extremely
21 damaging to any value that is created when you get
22 highly-publicized incidents.

23 I would say that, as we work through these
24 issues, it is essential that public policy maintains a
25 balance between necessary safeguards and appropriate
26 flexibility to accommodate innovation.

1 So turning now to a few words about
2 affordability, or really accessibility to funding for
3 the working adult. There are a number of issues with
4 the current Title IV system which negatively affect
5 working adult students. And working adult students do
6 rely heavily on federal financial aid because, while
7 they employ- -- they get employment income, they've
8 got lots of other financial obligations.

9 In our experience, the maximum funds
10 provided at the graduate level under the FFEL program
11 is adequate to provide financing for our full-time
12 graduate students. That is not the case with our
13 adult undergraduate students, and particularly those
14 attending online institutions. Students who enroll
15 less than half-time and are undergraduate are not
16 eligible for federal loans. This is a big barrier for
17 many working adults who may not be able to commit to a
18 full-time class schedule.

19 Secondly, students at online institutions
20 have limited access to federal supplemental loan and
21 alternative financing arrangements that are available
22 to students who attend campus-based institutions or
23 other arrangements. One example I would give is
24 the -- well, I'm getting a little close here, but
25 these students will not be eligible for the Plus Loan
26 Program that has been provided as part of budget

1 reconciliation to graduate students or parents of
2 dependent undergraduate students. Again, we see a
3 very large gap in financing of independent under-
4 graduate students that we'd urge the Commission to
5 look for.

6 Another issue is that Title IV continues
7 to operate on the assumption that the academic
8 calendar consists of only nine months. The working
9 adult student does not go to school over nine months.

10 In fact, it's dangerous if they do, because a break
11 in the continuity of education is a principal factor
12 in causing students to stop out. But the funding
13 system doesn't work very well. We believe that it is
14 a problem that the loan disbursement rules require
15 disbursements in substantially equal installments.
16 This can create difficulties in the way students have
17 to finance their educational expenses.

18 So with that, I would like to put forward
19 a couple of recommendations to the Commission. First
20 of all, for obvious reasons, we have been ardent
21 supporters of the repeal of the 50 percent rule as
22 embodied in the Budget Reconciliation Act the House
23 passed yesterday. But I would comment that there are
24 a number of provisions relating to quality and
25 accountability in distance education that were not
26 included in the Budget Reconciliation Act, but are in

1 the HEA reauthorization provision in the legislation
2 sponsored both by Chairman Enzi (ph) and Boehner (ph),
3 and I would urge the Commission to urge Congress to
4 pass that legislation.

5 Second, we believe that both the creditors
6 and the federal government should play significant
7 roles in embracing institutional accountability. I've
8 mentioned our interest in a consistent baseline of
9 comparable data on educational outcomes. This would
10 help institutions improve quality, and it would help
11 students to make informed decisions.

12 We understand that the omnibus reauthor-
13 ization legislation includes provisions which would
14 add more specificity to the metrics that creditors
15 must review when assessing an institution's success
16 with regard to student achievement. Again, we would
17 urge the Commission to urge Congress, in turn, to pass
18 the reauthorization legislation.

19 As a third recommendation, I urge the
20 Commission to recommend that Congress create a Plus-
21 type program for independent working adult under-
22 graduates. This is the backbone of the U.S.
23 workforce, and I think it's just not right that this
24 part of the student population be disadvantaged.

25 I recommend that the Commission consider a
26 proposal to allow the disbursement of financial aid in

1 equal amounts as actually required by the student,
2 abolishing the current requirement of disbursement in
3 substantially equal amounts.

4 Finally, I'd urge the Commission to
5 support and promote legislation to create a year-round
6 Pell Grant, a proposal that has been proposed both by
7 the Administration and many in Congress.

8 Thank you for this opportunity to make
9 some remarks.

10 CHAIRMAN MILLER: Thank you, Steve.

11 All three of you, great examples of
12 innovation in higher education models of delivery,
13 each somewhat different.

14 I'd like to ask the Commission -- see if
15 there are any questions.

16 MR. DUDENSTADT: I'm interested in
17 globalization. There was an effort several years ago
18 at the British Open University to move into U.S.
19 territory, and apparently they didn't have the right
20 financial model. Are you beginning to sense interest
21 on the part of overseas online operations in coming to
22 our territory?

23 MR. GRAYER: We have schools in the U.K,
24 in Ireland and in Asia. In none of those places is
25 online education taken any type of foothold. The
26 reason is is that there's really no funding mechanism

1 in those countries currently to support it. As part
2 of the kind of complete redressing of the U.K. funding
3 system, you are going to see online education play a
4 major role in how education is delivered there.
5 That's in a three to five-year period.

6 Australia is the first country that is
7 showing, outside the U.S., major interest in using
8 online education as a replacement for full degree
9 credit programs. Corporate learning is a different
10 marketplace, but I take it you're addressing -- and,
11 you know, that's going to happen, but I think it's
12 still three to five years away.

13 MR. SHANK: I would echo that. I would
14 say it's something, we're thinking, about five years
15 away. But we simply do not know how to address this
16 marketplace right now, and cannot afford to invest a
17 lot of energy in it.

18 MR. DUDENSTADT: One more question. Do
19 you think this is going to lead to trade barriers? We
20 understand that in some -- particularly in Europe,
21 there are certain barriers to globalization efforts on
22 the part of some of our companies. Is this going to
23 be a problem?

24 MR. GRAYER: I think that the way -- the
25 reason that will not happen is that all of these
26 degree programs are mapped back to very specific

1 national standards, so that, you know, the notion that
2 there would be kind of competition is only relevant if
3 the student's going to immigrate and use that degree.

4 The EEU is really caught -- the real issue is going
5 to occur in the Eastern Europe marketplace, where
6 EEU -- as those countries come in the EEU and are able
7 to provide online degrees that are then transferrable
8 within the EEU, you're going to see some of the issues
9 you're referencing.

10 CHAIRMAN MILLER: Rich.

11 MR. VEDDER: I'll be very brief since my
12 remarks are keeping us further and further away from
13 our first drink this evening.

14 I just want to say, (a), first, I want to
15 commend Chairman Miller, first, for the whole program
16 today, which I think has been spectacular, but also
17 specifically for this panel, which I think has done a
18 super job. But I wanted to pick up on the last
19 presenter's comment that he made, and just relating to
20 bench marks of comparing the activities and the
21 performance of students in for-profit institutions
22 with those of other universities, and just say that I,
23 for one, am in complete accord with that sentiment,
24 and I think there is considerable sentiment among
25 members of the Commission -- I can't speak for all --
26 but among some of the members -- that we should be

1 moving in this direction of getting metrics that would
2 allow us to measure performance by different types of
3 educational institutions to help not only consumers,
4 but also policy-makers, in evaluating resource
5 allocation in the whole field.

6 MR. SHANK: Thank you. This could be
7 tremendously important. The one plea I would make
8 there is, comparing what we do to the results of a
9 four-year institution serving an 18 to 21-year-old
10 population, that is not a useful comparison for
11 everyone. So the issue of what is truly comparable
12 would really help informed decision-making by
13 everyone.

14 MR. VEDDER: I think we have a lot of work
15 to do in this area of defining what the metrics are
16 and so forth. But at least the fact that we should be
17 looking at this issue is, I think, well-established
18 among some of us on the Commission.

19 CHAIRMAN MILLER: David, then Robert.

20 MR. WARD: I'm intrigued by the confidence
21 in a kind of system's optimizing solution to the
22 acquisition of knowledge. I think you've taken it to
23 levels which I admire. As somebody who, in a sense,
24 spent most of my life in a more traditional learning
25 model, and who it was alleged had standards that were
26 inconvenient to students, I'm wondering if in your

1 optimizing system if I might be kind of the cynical
2 person who thinks about human nature, as well as
3 system manipulation of human nature. Are you ever
4 frustrated by the perverse culpability of students in
5 relation to what is essentially an optimizing
6 pedagogy? Does this ever happen, or are you always
7 able to overcome that dilemma?

8 MR. GRAYER: Yes and no. I tell you, the
9 worst part of it -- and this is to the questions that
10 were, again, in the last panel. To show you how right
11 on you are, even though what we're trying to do could
12 help in a big way, if a student is in a field of study
13 where the job market heats up, in the middle of their
14 educational experience, they will leave us to get that
15 job. So for us to be optimizing, and realizing that
16 three quarters of the way through their degree,
17 they'll leave us at times for the jobs that they
18 aspire to without the -- it speaks exactly to your
19 point.

20 So, obviously, the answer is, yes, we're
21 very frustrated when that happens. Steve probably has
22 less of that. But certainly the for-profit institute
23 has been riddled with that issue. But in the end,
24 adult learners are a lot more driven because they've
25 experienced usually some pain around not doing it
26 earlier.

1 MR. SHANK: I would answer on a different
2 plane the question. The issue that we have is that we
3 are very focused on, as I said, one, creating access
4 and recognizing that, coming in the door, we are not
5 very good at predicting who will succeed and who will
6 not succeed, and then use the word "optimizing" the
7 behavior of all of us, including our faculty, to
8 support the student through the success.

9 We follow a philosophy that our first
10 obligation is to attempt to make an assessment as to
11 what students realistically have the potential to
12 succeed in our system. And if it is not realistic
13 that student is going to succeed, to recognize that
14 early, and counsel that individual out early, hope-
15 fully after the first quarter of enrollment.

16 The other problem that we have is, in
17 talking with our faculty about our expectations,
18 there's an equivalent obligation we have to talk to
19 our students about expectations, so that our students
20 have to understand that there is a requirement that
21 they themselves succeed on their own in this program.

22 Certainly we talk a lot about those students that we
23 have to ask to leave, because they gaming the system,
24 and we see a lot of that.

25 MR. ZEMSKY: I need you to fasten your
26 seatbelts, but it's just me. You've helped

1 crystallize an issue for me that's nagged me since
2 Nick reoriented me at the beginning. I want to give
3 it -- I want to say it to you, and then to have you
4 tell me why --

5 MR. GRAYER: This journey is all in one
6 day?

7 MR. ZEMSKY: All in one day.

8 CHAIRMAN MILLER: One afternoon.

9 (Laughter.)

10 MR. ZEMSKY: Every time you talk about the
11 business/learning model -- and this was also true of
12 the earlier panel -- one of the real advantages was
13 the highly regulated curriculum that the deliverers
14 weren't the designers of, and that it is highly
15 standard, and it is uniform. And it doesn't
16 necessarily mean that Kaplan does what WGU does, or --
17 you know, but you talk about it that one of the ways
18 you make the business model work is that it's less
19 loosey-goosey.

20 The second thing, the word that you guys
21 used -- I could've counted them if I was smarter and
22 then given it back to you -- you actually used the
23 word "skills" over and over again. You teach skills.
24 And, Jonathan, you more than I think your colleagues.
25 But I think all afternoon it's been "skills."

26 And the third thing that you talk about,

1 because when you give the demographics of your
2 population, that these are people who are in-train.
3 And I have to be nice about this, and Kay, you'll
4 forgive me -- not punish me when I get to San Diego
5 again -- but they are not likely to be industry
6 leaders. You're dealing with the workforce. You're
7 dealing with -- if you want a military analogy, you're
8 dealing with the combat troops, and you're teaching
9 them skills that they go -- all right -- and I think
10 that that's important, and I would've said all of that
11 before. But Nick says to me, the real model has got
12 to be innovation. And so I want you to tell me where
13 I got this wrong is that you have little chance of
14 delivering what Nick says we need.

15 MR. MENDENHALL: I think there are about
16 five questions in there. Let me start with skills. I
17 think certainly as we talk about competency-based
18 education, some people are very quick to say you're
19 talking about work skills. We can define those, we
20 can measure those. The truth is that the majority of
21 our students are in Bachelor's degree programs. The
22 majority of them need, first, general education before
23 we move to professional.

24 We can in fact today both define and
25 measure competencies that go far beyond what we would
26 typically call skills. We can measure problem-

1 solving. We can measure general education
2 competencies. Although we could probably debate
3 forever exactly which competencies in general
4 education we ought to be measuring. But the state of
5 assessment today is such that we can do a much better
6 job of measuring higher order competencies than simply
7 specific work skills.

8 I think the nature of adult education,
9 you're quite right. I don't think it's a restriction
10 of the model of the education that we're delivering,
11 but the nature of adult education, if you're educating
12 with a Bachelor's degree somebody who's 38 years old,
13 the likelihood is they're not going to be -- how did
14 you say it? -- an industry leader or a captain of
15 industry, because they're halfway through their
16 career, and they aren't there yet. So we are in fact,
17 I think, those who do adult education, educating those
18 who need a degree to take the next step, to make the
19 next contribution in their career.

20 Finally, I think -- I -- I frankly
21 wondered when we'd get to the issue. I think the
22 great distinction between what WGU does and the for-
23 profits do, and frankly, what a British Open
24 University does, and some of the mega-universities
25 internationally, is -- University of Phoenix is a good
26 example -- is they do have a focus on outcomes, which

1 then leads to faculty developing a standardized
2 curriculum that's delivered everywhere that will
3 deliver on those outcomes, which is very different
4 than, choose from a whole host of electives, and
5 different professors, and we can't quite assert what
6 you will know or leave with when you leave the
7 university.

8 I don't think we take a position as to one
9 model is better than the other. I think the
10 standardized curriculum makes it easier to be
11 accountable for outcomes, and is, as the earlier panel
12 mentioned, more -- perhaps more efficient in terms of
13 delivering a consistent education.

14 CHAIRMAN MILLER: I want everybody to
15 answer, but with the title of the panel as "Models of
16 Innovatives for Delivery Systems" (sic) as opposed to
17 who we educate, so --

18 MR. GRAYER: To the issue of innovation,
19 Kaplan University has within it the only online law
20 school, in which 1200 students are studying to be
21 lawyers. Our pass rate in California, where the bar
22 is taken, is on par with any comparable university law
23 school or the schools that would match up against the
24 group. When we launched that school, there was a
25 story written in the Wall Street Journal about how
26 crazy it was, and one of our competitors said that

1 when they heard about us starting a law school that is
2 now serving 1200 people, he was thinking of starting a
3 medical school that would be comprised solely of
4 watching reruns of "Quincy."

5 (Laughter.)

6 But 1200 students today, through
7 innovation, are getting an online law degree. And if
8 you live in the State of Alaska, and you want to stay
9 living in the State of Alaska, it's the only way to
10 get a legal education. So to the point of
11 distribution, the innovations are in allowing someone
12 to go to law school at three o'clock in the morning if
13 that's when they choose to. But I do agree that as
14 far as pushing the boundaries of knowledge in the way
15 that you're defining it, that is not, once again, our
16 mission, nor can we attempt to take on that mission.
17 And that's something that we need to be comfortable
18 with.

19 MR. DONOFRIO: But I don't think you
20 should rule out the fact that somebody in the mass of
21 people that you're educating isn't capable of being a
22 captain of industry.

23 MR. GRAYER: Well, we have three of our --
24 you can take this as you will -- three of our enrolled
25 students at Concord Law School are currently members
26 of Congress.

1 (Laughter.)

2 MR. DONOFRIO: That was not a very good
3 example. You're killing me with those examples.

4 CHAIRMAN MILLER: Good place to finish?
5 No, I would just add Michael Dell and Bill Gates, you
6 know, that didn't finish college. They're dropouts.
7 So in capitalist society, that's what Nick was saying,
8 virtually anybody can do well. Captains of industry,
9 I'm not sure about, certainly not presidents of
10 universities, because they take paper as the criteria.

11 Please.

12 MR. STEPHENS: I guess the question,
13 though, is innovation has different meanings. For us,
14 the Boeing Company, innovation was about taking our
15 assembly line for the 737 from 14 days to seven days.

16 The crew that's on the floor building the airplanes,
17 who are not captains of industry, who in most cases
18 don't have a Bachelor's degree, are the ones that
19 figured that out, because they're doing that job. So
20 I would contend that part of this discussion about
21 innovation occurs at all levels. It's the creativity,
22 but it's also driving value, and that value, to me, is
23 what we're looking for in industry, which is an
24 important part of the innovation.

25 MS. SHANK: If I could, I would say,
26 again, we probably have a somewhat different

1 positioning for a for-profit in the higher ed.
2 spectrum. I think a lot of the discussion has to be
3 about diversity of opportunity provided to students.

4 For us, we are a largely graduate-serving
5 institution, and our typical student would not be the
6 troop on the ground in the military, would be the
7 captain of the aircraft carrier, mid-career person,
8 never will be the chief of staff of the Navy, but a
9 critical sector of the workforce. I would say that,
10 for us, the job we have to do is to teach a
11 combination of skills and higher order thinking
12 capabilities.

13 So if we're teaching a K-12 principal,
14 that principal has to have certain skills. That
15 principal needs to control a budget, needs to meet
16 very specific criteria that the licensing authorities
17 require. But at the same time, this principal has to
18 be an outstanding manager of teachers. Even our
19 undergraduate technology students, what the employer
20 says to us, these folks know more technology than
21 they'll ever be able to apply in our place. What they
22 don't know is thinking ability, ability to interact
23 with people.

24 So I think, you know, again, our
25 appropriate order is to do a combination. And there
26 are certain missions that we just cannot and should

1 not take on, and are much better left to other
2 institutions.

3 MR. ZEMSKY: I think the only point that I
4 was trying to make -- five questions notwith-
5 standing -- is that we have to be more careful about
6 the differing missions, and that one of the sort of
7 natures of the dialogue that takes place is each group
8 comes up, and that becomes the definition. Jonathan
9 and I had this conversation this morning. In fact,
10 that's part of the shaping of what Richard was talking
11 about when he reported for our group.

12 One of the things we have to think about
13 is this is a very complex system where we have
14 different providers and different missions, and that
15 part of what we're looking for is real balance among
16 providers and real balance among missions. We've got
17 to go at it in that way. I think that's where I
18 wanted to go with the question.

19 CHAIRMAN MILLER: I'll agree with that. I
20 think the lesson I've gotten out of it is, the
21 narrower the mission, and the more defined and focused
22 on, the better the results. My experience personally
23 in the big academic institutions was that there was
24 mission creep to the extreme compared to anyplace I've
25 ever seen.

26 When I asked one year what programs had

1 been terminated through the whole UT system, 170,000
2 students, it took 'em a long time to get the data, and
3 we found out over 17 years, two had been terminated.
4 And one was archeology, by the way. And it had
5 nothing to do with attendance. And I know there's a
6 need for some kind of programs that aren't necessarily
7 purely self-sustaining. So I think it is really
8 critical that higher ed. in general has taken on many
9 missions in the same institution. I think that's one
10 of the maybe inefficiencies we should look at. So
11 mission focus is pretty important that way.

12 Does anybody else have an urgent speech to
13 make or question to ask?

14 (No responses.)

15 I want to thank you all for your patience.

16 We put a lot of good time and effort in great panels
17 and models of innovation. Thank you.

18 EXECUTIVE DIRECTOR OLDHAM: Let me just
19 say one thing. If you want, please feel comfortable
20 leaving your binders and whatever you have here
21 overnight. We'll have staff here to make sure
22 everything's locked up and secure. So feel
23 comfortable doing that.

24 (Proceedings adjourned at 5:58 p.m.)
25
26

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

A NATIONAL DIALOGUE:
THE SECRETARY OF EDUCATION'S
COMMISSION ON
THE FUTURE OF HIGHER EDUCATION

Friday,
February 3, 2006

Paradise Point Resort
1404 Vacation Road
San Diego, California

CONTENTS

	<u>Page</u>
Opening Remarks	4
Session 5 - Innovative Public/Private Sector Models	5
Session 6 - Innovative Teaching & Learning Strategies (Course/Program Level)	61
Session 7 - Student Panel	148

COMMISSION MEMBERS

Charles Miller, Chairman

Cheryl Oldham, Executive Director

John Bailey	Catherine Reynolds
William Berry	Rick Stephens
Nicholas Donofrio	Sally Stroup
James Duderstadt	Louis Sullivan
Peter Faletra	Richard Vedder
Kati Haycock	Charles Vest
Bob Mendenhall	David Ward
Charlene Nunley	Robert Zemsky

FEDERAL STAFF

1

2

3

David Dunn	Mason Bishop
Vickie Schray	Eleanor Schiff

P-R-O-C-E-E-D-I-N-G-S

1
2 8:45 a.m.

3 CHAIRMAN MILLER: I'd like to call the
4 meeting to order. As the first and maybe most
5 important order of business, could you please turn off
6 your blackberries and let your cell phones vibrate.
7 We feel better silently. It affects the sound system
8 quite a bit, so we'd appreciate that. We're trying to
9 record these things for other people to be able to see
10 in other places. So we'd like that, if you don't
11 mind.

12 We had part of the agenda for remarks by
13 Secretary Spelling. She's off doing the duty as a
14 result of some of the initiatives from the President's
15 State of the Union. She regrets not being here. She
16 was really looking forward to hearing these panels.
17 But I think we'll be able to do good work, and then
18 give her a report.

19 We're ready, unless any of the Commission
20 members has something they need to ask or say, for the
21 panel. So if we could ask the panel to come up.

22 I want to announce that in the May
23 meeting -- we scheduled a mid-May date -- we're going
24 to meet in Washington, DC. We've done a good
25 geographic dispersion, County of Seattle meeting next
26 week, and a Boston meeting in March, that we've been

1 in other parts of the country. Most of our commission
2 is centered in that part of the universe. We have
3 lots of capacity to communicate there, and get to and
4 from. And the staff is mostly there, so we're going
5 to make the convenient decision to have that meeting.

6 That would be one that would be more in
7 the format of a retreat, although it could be right in
8 the heart of the city, in the sense that we'll have
9 mostly Commission members communicating and debating
10 each other, and less input from outside sources
11 perhaps. By that time, we'll have done a lot of
12 written work. That would give us the time to look
13 into the summer for hashing out things where we need
14 to, or improve it. We might then have a final meeting
15 for some types of votes or approvals in mid July, for
16 example, sometime before the August 1 deadline, maybe
17 without a physical meeting necessary.

18 UNIDENTIFIED MALE SPEAKER: Do we have a
19 date in May?

20 CHAIRMAN MILLER: Yeah, there's a date set
21 aside.

22 EXECUTIVE DIRECTOR OLDHAM: The 18th,
23 19th.

24 CHAIRMAN MILLER: It'll be a Thursday/
25 Friday format like we've done each way, I believe.

26 MR. DONOFRIO: We're still on for

1 Indianapolis?

2 CHAIRMAN MILLER: Yes. I beg your pardon.
3 There's an April meeting in Indianapolis. We hadn't
4 set the May location. Thank you.

5 Would you please start in order and
6 introduce yourselves.

7 MR. OTTO: Yes. I'm Rollie Otto. I'm
8 head of the Center for Science and Engineering
9 Education at the Lawrence Berkeley National
10 Laboratory. I guess you'd like me to proceed.

11 CHAIRMAN MILLER: Yes. Thank you.

12 MR. OTTO: First of all, thank you for
13 this opportunity. I'm going to largely restrict my
14 comments today to the science, technology, engineering
15 and mathematics pipeline as it relates to innovation
16 in higher education. Berkeley Laboratory is a multi-
17 program national laboratory. It's operated by the
18 University of California for the United States
19 Department of Energy. It's -- we have at the
20 laboratory several thousand scientists and engineers,
21 a total staff of about 4,000 people. Many of them are
22 graduate students and post-docs. Many of the graduate
23 students come from UC Berkeley. We have probably over
24 200 staff at the Berkeley lab who are faculty on the
25 campus. However, the laboratory is -- the director of
26 the laboratory reports directly to the University of

1 California President.

2 I just wanted to say that my comments
3 today are my views. They don't reflect the Department
4 of Energy, the Lawrence Berkeley Laboratory or the
5 University of California.

6 I saw in my e-mail this morning a press
7 release from Secretary Bodman that in fact the
8 Department of Energy, Office of Science, budget will
9 be increasing significantly. The Department of
10 Energy's Office of Science is the single largest
11 supporter of physical science research in the nation.

12 This research is carried out at its ten national
13 laboratories and 300 universities. More than 19,000
14 researchers utilize the world-class facilities at the
15 Department of Energy, Office of Science Laboratories.

16 The Department of Energy in total has 17 national
17 laboratories and 55,000 scientists and engineers.

18 Why do I tell you this? Well, I think
19 we're here today because the nation's education system
20 has not kept pace with our advances in science and
21 technology. DOE has been one of the major science
22 agencies to lead those advances in science and tech-
23 nology.

24 The role of the Department of Energy, it
25 will in fact be a major player in science, technology,
26 education, mathematics in preparing the next

1 generation of scientists and engineers. And I can say
2 that with confidence because it has since its
3 beginning when it started as -- largely maps back to
4 the Atomic Energy Commission.

5 Largely that traditional role has been for
6 graduate students and post-docs -- thousands and
7 thousands of graduate students and post-docs have been
8 trained in the DOE's National Laboratory system.
9 Since the 1960s, thousands of undergraduate students
10 have had access to those same facilities and the same
11 education and training.

12 The role of the DOE National Laboratories
13 and the Department of Energy, and the Office of
14 Science in particular, will complement higher
15 education and partner with K-12 schools, colleges,
16 universities, and the private sector in science and
17 technology. The connections to the private sector are
18 already in place. For example, at Berkeley Lab,
19 typical of the Department of Energy National
20 Laboratories, in the last ten years, we have had ten
21 R&D 100 awards. Many of these have been licensed.
22 There are 20 startup companies that are based on
23 Berkeley Lab technologies, and capitalized at \$1.9
24 billion.

25 The DOE Labs stand apart from the
26 universities and the private sector. We bring

1 students into the laboratory and provide for their
2 education and training and professionalization, but we
3 don't offer degrees. In the private sector, we
4 develop technologies and transfer those to the private
5 sector, but we are careful not to compete with the
6 private sector in that process.

7 Now, I had prepared my remarks and
8 submitted them to you, but there was another story I
9 wanted to tell. I'm going to kind of get to my point
10 for my presentation today, and I'm going to use the
11 alternative story. I hope that it works well for you.

12 I came to Berkeley Lab 31 years ago as a
13 post-doc to work with Glenn Seaborg as a nuclear
14 scientist. I spent a number of years doing that.
15 What happened after that was that, even though I
16 didn't continue in nuclear science research, I
17 followed in the footsteps of Glenn as a mentor in his
18 role in science education. Similar remarks were made
19 yesterday about the success of the reform in science
20 and math education as a result of the Sputnik era in
21 the 1960s.

22 Glenn Seaborg was the Chairman of the
23 Department of -- of the Atomic Energy Commission --
24 excuse me -- back in those days. He had just left
25 being Chancellor of the University of California. For
26 those of you who might not know who Glenn Seaborg is,

1 he's one of the great scientists of the 20th Century,
2 discovered plutonium, remodeling of the periodic
3 table, and many, many other contributions. But he had
4 often talked about the fact that, in those days, he
5 would get together on a regular basis with the top
6 science administrators -- NASA and NSF -- and they
7 would just talk about K-12 education and what they
8 could do about it, and sort of divided up the
9 landscape, and began funding efforts to bring about a
10 change in the way students were prepared throughout
11 our entire education pipeline.

12 Back in those days, the Department of
13 Energy began sponsoring thousands of undergraduate
14 students to do internships at its National Laboratory
15 systems. Eventually -- well, what happened is that,
16 when I went to Berkeley Lab, after a few years, Glenn
17 Seaborg got involved in the Nation at Risk Report and
18 played a major role in the language in that report.
19 He was really quite adamant. I heard Secretary
20 Spellings speak about the Nation at Risk Report,
21 calling for three years of math and science in all
22 high schools in the nation. He was very much an
23 advocate of that.

24 As a result of that report, the Department
25 of Energy began to expand its role in what we could do
26 in the science, engineering, technology pipeline. So

1 we began working with teachers. We began working with
2 the K-12 system in schools. At one point, by the mid
3 1990s, this role expanded. We had thousands of
4 teachers who were coming to National Labs in the
5 summer doing research doing research internships on
6 the idea that many of our high school teachers in
7 science and mathematics had never actually been in the
8 enterprise. We found that this was making a huge
9 difference.

10 By the time we had the budget cuts in '94,
11 most of the support for the extended outreach of the
12 Department of Energy was largely cut out of the
13 budget. That had a sort of a ripple effect. But
14 since that time, in the last ten years, that's been
15 rebuilt. Today we have centers, such as the one I
16 head at Berkeley Lab, for science and engineering
17 education which are utilizing the resources of their
18 National Laboratories to impact and improve the
19 quality of math and science education wherever they
20 can and as much as they can. Largely this is done
21 through partnerships with K-12 schools, with
22 universities -- colleges and universities, and we are
23 attempting to address the critical issues that we all
24 know well in our education system, and really having
25 those students be prepared to step into the workforce.

26 Now, typical -- back in the 1980s, when

1 all of this started, we set some goals for ourselves.

2 These goals, you'll recognize them, because they
3 really respond to the existing problems we have still
4 today in our science, technology, engineering
5 pipeline. These goals have stood the test of time as
6 something around which we needed to find innovative
7 approaches, again, utilizing the resources of the
8 Berkeley Lab, to address these problems. The goals
9 are to promote equal access to scientific and
10 technical careers for all students -- that's not the
11 case today -- improve quality of science and
12 engineering teaching and learning, increase the number
13 of U.S. students who become scientists and engineers,
14 with an emphasis on those students' groups
15 historically under-represented in scientific and
16 engineering enterprise, and to promote science
17 literacy.

18 So one of the things I'd like to focus on
19 today, based on our experience and my experience over
20 20 years of doing science and engineering education in
21 a National Laboratory setting, is to focus on, what
22 are the essential elements of student learning
23 experiences in high education that will prepare them
24 to enhance the science and technology -- and this is a
25 quote -- "enhance the science and technology
26 enterprise so the United States can successfully

1 compete, prosper, and be secure in the global
2 community of the 21st century." That comes -- a quote
3 from the gather of "Rising Above the Gathering Storm."

4 So what are we preparing students for
5 today? I'm going -- not being the laboratory
6 director, and being held responsible for this comment,
7 I'm going to say that the next several decades will be
8 marked by an explosion of technological innovation and
9 scientific discovery, and it will be largely in this
10 nation. Now, how can I say that? Well, it's been my
11 experience at Berkeley Lab that what's happening at
12 Berkeley Lab today is what's going to be happening in
13 the future. Therefore, by extension, as we look at
14 those -- at what's happening today in science and
15 technology, we have an understanding of the skills and
16 knowledge today's stem students will need.

17 I give a number of examples of some of the
18 things that are happening today. But why is it -- why
19 could I make this -- or what is happening in the
20 system today that's different than what happened ten
21 years ago? Our research today can be characterized by
22 the integration of core competencies to solve key
23 problems facing humankind in areas of energy, health,
24 materials, and the very structure of our universe and
25 structure of matter.

26 We are bringing together the knowledge

1 that we've gained through, for example, the Human
2 Genome Project, and the investments of the Department
3 of Energy and NIH and others have made in that area,
4 with scientific tools that were unimaginable a few
5 years ago, and computational capabilities. When you
6 bring -- when these three things converge in the hands
7 of your scientists and engineers today, we are able to
8 make advances that we couldn't have envisioned 20
9 years ago.

10 I give a couple examples. Remember that
11 the Department of Energy largely funds physical
12 science. But the convergence of these tools is
13 opening doors in the health sciences, for instance.
14 I'm just going to bring out one example of something
15 that is a convergence of a tool. The nanoscience has
16 resulted in little nanostructures that we call quantum
17 dots that literally light up when you shine various
18 forms of light on them. They're so small they can be
19 attached to single molecules. These single molecules
20 can be chosen to find their way into the nucleus of
21 living cells, and you can literally track the pathway
22 of a single molecule in a living cell as it goes about
23 its metabolic functions. We've never been able to do
24 that before. Again, it's that convergence.

25 We have at Berkeley Lab an advanced light
26 source that's the brightest source of ultraviolet and

1 x-rays in the world. It's allowing us to do protein
2 crystallography today in a matter of days and hours.
3 Just a few decades ago, it was months and years that
4 we could do that. So we can not only know what the
5 genes are in the human being, we can know the
6 structure of the proteins that are expressed. And
7 beyond that, we can actually look at the complex
8 mechanisms that are actually -- that the proteins are
9 involved in.

10 So what skills and knowledge will students
11 need in this kind of advanced technology, innovative
12 technology and advanced science discoveries? So with
13 no apologies -- and I know there's been a lot of
14 studies -- this is my own list. I would say a solid
15 foundation in the basic concepts, principles and
16 theories of all fields of science. Ideally this
17 science literacy level of knowledge would be taught in
18 high school in four years of science courses.

19 As a result of my involvement with Glenn
20 Seaborg over the years, I became imbedded and
21 intricately involved in the setting of the California
22 science standards, in the writing of the science
23 framework, in the setting of subject matter standards
24 for science teachers.

25 So a second thing is professional level of
26 knowledge of skills in one field of science,

1 engineering, technology or mathematics. This is the
2 traditional view of undergraduate preparation, and
3 it's still essential.

4 Ability to recognize and make connections
5 between what they are taught and real-world
6 applications. What we see when students come to us,
7 and are surprised by how frequently undergraduate
8 students miss these connections. The real essence of
9 what they're being taught and its importance is not
10 really apparent to them until they have to apply that
11 knowledge, which they do largely through our primary
12 method of providing internships and access to advanced
13 equipment.

14 You notice how readily high school
15 students take the knowledge that they've gotten, and
16 they put it in little mental compartments, and
17 nothing's connected. That's another aspect as we
18 reach down to the high schools.

19 They have to have an understanding of the
20 broad relationships between science, technology and
21 societal issues. They should have an understanding of
22 the nature of scientific inquiry and an ability to
23 apply scientific investigation. They should have math
24 concepts and an ability to use advanced computational
25 tools. They should be able to communicate and
26 collaborate using technology. They should have a

1 willingness to learn and integrate knowledge from
2 outside areas of their own expertise to solve complex
3 interdisciplinary problems.

4 One of the things that -- and the last is
5 persistence and willingness to work. Whenever Glenn
6 Seaborg gave a talk, he would always end, work hard,
7 that was the key to success. I think being a
8 scientist or engineer, one of the things that you've
9 got to have is that inclination.

10 So who should we be preparing? Well, the
11 short answer is all students. We need a scientific-
12 ally literate population to support the science and
13 technology advances we're making, or we'll basically
14 erode the base. But then we should also have a system
15 that allows people access as long as possible through
16 the education system to not be eliminated from
17 choosing the option of being a scientist, engineer or
18 technician. Not everybody should be a scientist or
19 engineer, and not everybody wants to. But we're not
20 providing a system that provides for making that
21 choice all the way through the system, or entering the
22 system later in life. This is particularly true for
23 those who are impacted by socioeconomic issues related
24 to the quality of their education, largely extending
25 to under-represented minorities.

26 So it's been our experience that programs

1 designed around mentored research experiences using
2 scientific tools can address most of the barriers and
3 challenges to developing the skills and knowledge
4 students will need to contribute to the 21st century
5 workforce. It's a powerful strategy and effective for
6 capturing and preparing students who have been
7 historically under-represented. The strategies
8 described have -- that we've used have been built
9 around the principle of mentored research experiences
10 and access to scientific tools. These strategies
11 motivate students to consider stem careers and
12 advanced degrees, they calibrate students to the
13 skills and knowledge they will need, and provide for
14 their professionalization. These strategies provide
15 teachers and faculty with experiences that update
16 their knowledge and transform their view of teaching
17 and learning.

18 In short, these kinds of experiences
19 should be supported and encouraged, and I would
20 encourage the Commission to develop its recommenda-
21 tions to be sure that these are recognized as an
22 important contribution to the education of the stem
23 work force.

24 I give a list of activities that we've
25 been doing. I want to just mention one that is kind
26 of interesting, and that's our connection with Laney

1 Community College. We were encouraged to develop an
2 advanced technological education grant in concert with
3 Laney as a result of the partnership between NSF and
4 DOE. We found that our Building Sciences Group, which
5 was envisioning a major savings of building energy
6 through building energy efficiency was faced with the
7 fact that it was developing new digital-based
8 technologies, and that the community colleges, our
9 local community college, was not preparing students to
10 work with these new technologies. So it became
11 integral to the research program to have a base of an
12 education system that would prepare students for the
13 future. And so that grant is doing that, and it's a
14 wonderful grant. We have a high school component with
15 that in which students are learning physics by
16 building refrigerators. It's amazing how many
17 students -- and they get concurrent enrollment both at
18 the community college and at the high school -- and --
19 and how many students are interested in doing that.

20 So my recommendations -- how are we doing
21 on time? Okay? Are we doing all right on time?

22 CHAIRMAN MILLER: You're doing fine.

23 MR. OTTO: Okay. Great. Thank you.

24 My recommendations are to increase support
25 in federal science and technology agencies for
26 research internships for high school and college

1 students and faculty. Recognize mentors, as the
2 partnerships need to be the colleges and universities,
3 the private sector has a major role to play. I think
4 some of the things we're doing and some of the other
5 things you're going to hear today are models for that.

6 But we need to recognize our mentors, and recognize
7 this form -- aspect of preparing the next generation
8 of scientists and engineers.

9 We need to track our participants.
10 Oftentimes we're supported to implement our programs,
11 but the resources -- and get as many people into the
12 program as possible -- but we need to be tracking
13 students into this pipeline and through this pipeline,
14 not so much to do a lot of number-counting, but to
15 know where they are, and keep the mentor/student
16 relationships going.

17 There are some wonderful things happening
18 at minority-serving institutions. I was just at
19 Jackson State University two weeks ago. Out of
20 necessity, to address the issues of persistence at the
21 university into the graduate school levels, they've
22 developed some strategies that are aligned with the
23 idea of providing students with access to advanced
24 scientific equipment. Industry partners and the
25 federal agencies can help these universities attain
26 this kind of equipment and the latest state-of-the-art

1 kind of thing, so that the students get early access
2 to these. Freshmen coming in can actually be assigned
3 to research groups to work on -- with scanning
4 electron microscopes and scanning tunneling
5 microscopes. I actually would suggest that some of
6 these strategies that are being done out of necessity,
7 and successfully done at black colleges and minority-
8 serving institutions, be looked at as strategies in
9 some of our major research institutions.

10 Encourage the private sector science and
11 technology businesses and industries to partner with
12 schools and colleges and universities, high schools,
13 and so on. Help them find ways to do that effective-
14 ly, and feel comfortable doing it, and put their
15 resources in those directions. I think you're going
16 to hear some more about that today. And then fund --
17 there are successful stem science, technology,
18 engineering, mathematics pipeline programs out there.

19 But oftentimes funding is three years to five years.

20 We really need a much longer investment in those
21 places that are doing the job well, and develop some
22 criteria for longer than five-year support.

23 Then I think that one of the most
24 important things we can do is to take this concept of
25 mentored research and access to advanced scientific
26 equipment, and push it as far down in the pipeline as

1 we possibly can. It's amazing. I was speaking with
2 the -- well, the superintendent equivalent of the
3 Oakland Unified School District -- state-appointed --
4 and I said I was from Berkeley Lab, and I was a
5 scientist. And he said, oh, our kids don't know many
6 scientists, there's not many of you around. And I
7 said, well, I've got about a thousand where I work.
8 So he's very enthusiastic about making that contact
9 between our scientists and engineers, technical staff,
10 and his school system. And we need to find ways to do
11 that. He basically opened the door to do it. But
12 most people don't have interactions with the science
13 and technology workforce, and know very few people.

14 We're taking advanced equipment out into
15 the schools all the way down to the fifth grade. It's
16 amazing. You don't have to teach a fifth grader how
17 to use a multimeter. You know, our kids today are
18 getting -- have at home technologies that are so much
19 more advanced and that they're used to just using on a
20 daily basis than those available in the schools today.

21 Finally, the broad picture, to encourage
22 public, private university school partnerships for
23 mentoring and access to science tools and equipment is
24 the final message in the overall message that I bring
25 to you today.

26 CHAIRMAN MILLER: Thank you.

1 Dr. Reed.

2 MR. REED: My name's Charlie Reed. I'm
3 the Chancellor of the California State University.

4 First of all, thank you for the
5 opportunity to come today and speak with you. I also
6 want to commend Secretary Spellings for creating this
7 Commission. My colleagues around the country and I
8 don't spend enough time thinking about the future of
9 higher education.

10 Some of you know me, and I'm going to take
11 a risk now and get into your business and say, I have
12 high expectations for you. I would really like to see
13 the intellectual and experience power of this
14 Commission come forward with only three or four big
15 ideas. And I think you can do that. We've got a lot
16 of little ideas in this country, but what we need in
17 higher education are three or four big ideas.

18 I've submitted my full testimony for the
19 record, so I'm going to proceed as quickly as I can
20 today. The California State University is the largest
21 four-year system in the United States. We have 23
22 campuses, a little over 405,000 students, and 44,000
23 faculty and staff.

24 Over half of our students receive
25 financial aid. Many of our students are the most
26 needy students in California. Fifty-four percent of

1 our student body, those 405,000, are students of
2 color.

3 The California State University's mission
4 is to provide high quality, affordable education to
5 meet the ever-changing needs of the people of
6 California. It costs approximately \$2800 per year for
7 tuition. We try hard to keep our costs down. The
8 Governor of California just bought out a fee increase
9 of eight percent, which cost him \$57 million in the
10 California State University.

11 The California State University plays a
12 critical role in preparing candidates for jobs in
13 California, and to keep California in its leading
14 position around the world. We work for California
15 every day.

16 The California State University produces
17 more than half of all the Bachelor's degrees in
18 California. If you take all the privates and the UC,
19 we produce more Bachelor's degrees than they do. And
20 we produce about one third of the Master's degrees in
21 this state.

22 We play the most pivotal role in preparing
23 the state's diverse workforce, providing more than
24 half of the undergraduate degrees granted to the
25 state's Latino, African-American, Native American,
26 Asian Pacific Islanders, Vietnamese and Eastern

1 Europeans.

2 Why public/private partnerships are
3 important: I have believed for a long time as a
4 chancellor in Florida, and now California, that
5 public/private partnerships are the vital life for
6 higher education, and to infuse what we need into the
7 economy. In fact, the future success of our economy
8 and our country are directly linked to the educational
9 attainment of our students.

10 The California State University recently
11 sought to measure our impact, economically and
12 otherwise, on California's businesses and communities.

13 This study found that our campuses had an economic
14 impact of over \$13.6 billion. We were responsible for
15 economic activity that supported over 207,000 jobs,
16 and we think we paid more than \$760 million in state
17 taxes to help support this state.

18 The study further cemented our belief that
19 CSU's work is tightly bound to that of our local
20 communities and economies in these partnerships.
21 Essentially, the California State University sees
22 itself as a bridge-builder between communities, the
23 economy, businesses and the workforce, and improving
24 the quality of life in our communities.

25 Partnerships now -- our most important and
26 biggest partnership is with the public schools of

1 California. Given that over 90 percent of our
2 students come from California's public schools, it's
3 important for us to make the public schools as good as
4 we possibly can. We spend a great deal of time doing
5 partnerships and bridge-building with our K-12
6 partners. And believe me, they have got one big job.

7 But what we want to try to help them do is
8 to prepare students to get ready to succeed in
9 college. Sixty-five percent of today's K through 12
10 students in California are students of color. Fifty-
11 four percent of the students in the California State
12 University are students of color. This Commission
13 must pay attention about the future of this country in
14 educating students of color, recent immigrants that
15 have come to this country, because that is changing
16 fast, every day and every week around this country.
17 So I say, we've got to figure out how to do that, and
18 to prepare those students to get Baccalaureate and
19 Master's degrees, and prepare them for the workforce.

20 Preparing them to be ready to go to college, and
21 preparing them to have the tools to go to college is
22 important.

23 Three years ago, we were trying to figure
24 out, how can we impact every high school? California
25 has more than 900 high schools. At the time, we were
26 in 120 high schools trying to uplift the preparation

1 of students for college, and we wanted to be in all
2 900. So we went to the State Board of Education, and
3 we asked them if we could imbed in the California
4 Standards Test for the 11th graders--our placement
5 exam. We call that the Early Assessment Program.

6 This past year, we tested more than
7 220,000 11th graders throughout California in April
8 and May. We test them in two ways, in mathematics and
9 in English proficiency. We created this testing
10 program because we wanted to give 11th graders a
11 snapshot as to whether or not they were prepared to
12 come to the California State University. We wanted to
13 give them a chance to get prepared before they got to
14 us.

15 So we try as hard as we can to turn around
16 our testing results and send 'em back to every high
17 school in California by the 1st of August. And then
18 we ask that high school, will you get with those
19 students, share that information with the students and
20 the parents and your counselors, and change their 12th
21 grade life. In other words, we want them to take
22 algebra II again, or trigonometry, or geometry, or
23 calculus. We want them to take English, English
24 writing skills and reading comprehension in the 12th
25 grade.

26 I think this Commission knows this, but I

1 can tell you the 12th grade is the biggest wasteland
2 in America. Very little happens in the 12th grade.
3 So we want to have an early wake-up call for these
4 students, and say, if you want to go to college,
5 here's what you need to do, and do it in the 12th
6 grade, because the resources are already there to do
7 that.

8 Now, one of the things that I like to do
9 is walk around. I walk around in schools to see how
10 California State University-prepared teachers are
11 doing, and talk to students, and talk to parents. And
12 I do that on my visits to the campuses. Well, about
13 five years ago, it was like, duh, it occurred in
14 talking to these people, when you think about this
15 population that we're trying to serve, their parents
16 have never been to a college or university. They have
17 never thought about what it takes to be prepared to go
18 to a college or university.

19 So I came back to the office, and I said,
20 we need to get the word out to the public schools.
21 It's our responsibility. Because they're coming.
22 They want to get a Baccalaureate degree. So what we
23 did is we built a poster, and I have distributed more
24 than a half million of these posters throughout
25 California on how to get to college.

26 Now, if your brother and sister or your

1 parents have never even been on a college campus, let
2 alone thought about what you have to do, it's scary.
3 We're scary. So what we did is we pushed this down
4 into the sixth grade. Down this side, it's six,
5 seven, eight, nine. And down this side, it's 10, 11
6 and 12. Down through the middle of this poster it
7 says, here are the tests that you need to take, in
8 addition to these courses. Here are the scores you
9 need to get.

10 And you can get financial aid. As I said,
11 more than half of our students can get financial aid.

12 We provide 25 percent of our students full financial
13 aid if their families make \$60,000 or less. But they
14 don't know when and how to apply for that.

15 Now, when you think about our population,
16 we printed this in Spanish. I made a mistake the
17 first year. I asked somebody to translate this into
18 Spanish, into proper Spanish. Well, do you know,
19 there is no such word in Spanish for "scholarship"?
20 So we went out on the street and redid this and
21 printed it in street language so parents could
22 understand it. I have had citizens come up to me and
23 say, I'll send you a check because I want every kid in
24 the seventh grade in Ventura County to have one of
25 these posters for their bedroom.

26 Well, since this time, we've formed

1 another partnership with our Boeing friends. With
2 Boeing, we've printed another half million of these,
3 and we have been asked this past year to print these
4 in Korean, Vietnamese and Chinese and Mong languages,
5 because those parents are comfortable reading it in
6 their native languages, and they can really help their
7 kids.

8 Now, outreach is the key to working with
9 our partners, the business of California. So we took
10 an economic study that we had completed and identified
11 the eight largest businesses, and identified the
12 populations -- the ethnic populations that are coming
13 through the CSU, and decided that we wanted to go
14 listen to the businesses and to the ethnic population
15 about how the CSU's doing, and what we needed to do.
16 Now, that's difficult in higher education because most
17 of us talk all the time. So I asked the presidents to
18 come with me, and the deans, and the provost for those
19 programs. The biggest businesses in California --
20 agriculture, the science technology, aerospace,
21 information technology businesses, the movie,
22 television, entertainment business, hotel/restaurant
23 management business, biotech -- all those
24 businesses -- we invited between a 100 and 150 of the
25 most influential business leaders to come. And as I
26 said to the deans, we are not talking; we are

1 listening. And we want to listen about what higher
2 education needs to do for the 21st century.

3 Now, what was really interesting to me is
4 we said to ourselves, let's meet with all these people
5 and hear what they have to say for a change. And we
6 did. Whether it was the ag. industry, the biotech,
7 the movie industry, the entertainment, hotel,
8 restaurant, the engineering, Silicon Valley, the
9 information technology, they all said the same thing.

10 Number one, they're looking to hire graduates that
11 can communicate in writing and orally, because
12 everybody makes presentations today.

13 Number two, we want you to teach these
14 students to work together in teams, because our
15 researchers and our marketing people, or our
16 accountants and our sales people, have to be able to
17 understand each other.

18 Third, they said, your students need to be
19 able to and willing to accept change, because our
20 field is changing so rapidly.

21 Next, they said, your students need to
22 understand how to use technology. The ag. guy says,
23 you know what? We milk 10,000 cows a day. Nobody
24 touches those cows anymore. It's all done with robots
25 and computers. The guy that plants the lettuce that
26 we probably had here last night, he said, you know, we

1 do that with the computer. We decide where we're
2 going to plant it, how much fertilizer's gone in
3 there, when we're going to cut it, how long it's going
4 to take to grow, and we have ordered the truck to back
5 into the warehouse to pick it up to take it to the
6 East Coast. With one push on that button, all that
7 happens.

8 Next, they said, we want you to teach
9 students more than one language, because California is
10 in a global world economy. Students that can only
11 speak one language aren't very important. The guys in
12 the ag. industry simply said, if you don't teach 'em
13 Spanish, we can't hire 'em, because that's where our
14 workforce is today. The movie industry said, you
15 know, we sell more movies in Asia and Mexico than we
16 do in the United States.

17 Now, we also heard that they want our
18 students to be aware of the globalization and the
19 larger world. Finally, they all kind of end up
20 saying, and we want students to be willing to do the
21 grunt work when they start, not be in charge of this
22 company at the end of the first month.

23 (Laughter.)

24 We have since formed task forces of all of
25 our deans in each of those disciplines. Those deans
26 have to report back to me, and I have to report back

1 to those businesses and industries about how we're
2 doing. But you know what? They want to help us
3 reform what we're doing because they want to hire our
4 students so that they will be more competitive.

5 I can tell you that in the ag. industry,
6 we went to the Governor and said, the applied research
7 need is great in California for the applied area of
8 ag. The industry has said to us, if you can get some
9 money from the state or the federal government, we'll
10 match it more than two to one every year. That
11 partnership has worked now for the last five or six
12 years.

13 We went to the biotech industry. As you
14 know, the stem cell effort and the bonds -- well,
15 we're still waiting for them to be sold, but there's
16 \$30 billion worth of work out there. Well, that
17 industry and our colleagues at the University of
18 California and Stanford have the researchers, but they
19 need the workforce in those labs to be successful. So
20 we have formed a partnership with the biotech
21 industry.

22 Some of our most important partnerships
23 are with the communities. As we met with business and
24 industry, we also have met with the communities and
25 the ethnic communities. For instance, I have spent a
26 lot of time in Southern California and the Oakland

1 area meeting with the African-American community. We
2 have done that through their churches. The West
3 Angeles Church is the largest church in Los Angeles.
4 They have about 20,000 members.

5 The bishop has invited us to be his
6 partner. On February 26 -- and this is after about
7 five meetings -- the black churches of Los Angeles are
8 having what they call CSUPERB Sunday. Myself and my
9 colleague presidents are going to be speaking at all
10 the services on February 26th in the Los Angeles
11 Basin. And we're doing the same thing in Oakland with
12 the African-American community, again, focusing on
13 what does it take to go to college? How can we,
14 through our outreach programs, get into those homes?

15 We're doing the same thing with the Latino
16 community. We've formed a partnership with a group
17 called PK, where we are going to adopt 125 elementary
18 schools as partners, and teach the Latino mothers --
19 the Latinas -- how to manage their children and to
20 focus on what it takes to go to college, to see if we
21 can be successful there.

22 But the same thing with the Korean, the
23 Chinese, the Vietnamese, the Mong communities. We
24 have met with all of them, and we want to continue to
25 meet with them throughout the year.

26 Now, with these experiences, what can I

1 recommend that this panel consider?

2 One, think about federal programs that can
3 incentivize and help fund model business and industry
4 partnerships.

5 Two, look at an increased federal emphasis
6 on applied research that trains students to have
7 practical knowledge about what it takes.

8 Three, incentivize partnerships between
9 universities and communities. I am very proud that
10 California State University students, the most needy
11 students in this state, contributed last year 34
12 million hours of service back into the community --
13 tutoring, Meals on Wheels, senior citizens. But those
14 students got a better education because of that
15 community partnership. Think about incentives to get
16 universities to build partnerships with high schools
17 to better prepare students to go to college.

18 I think all of these partnerships, and
19 many others around the country, are working, but we
20 have got to continue to focus on the future of higher
21 education. And the future is tied to a lot of under-
22 served students and families. Many are immigrants.
23 Many are the first in their families to ever have a
24 chance to go to college. That's who's coming to
25 higher education in this country.

26 Thank you.

1 CHAIRMAN MILLER: Thank you, Dr. Reed.

2 MS. POINDEXTER: I was about to start
3 clapping.

4 (Laughter.)

5 CHAIRMAN MILLER: We save the applause
6 until the third presenter.

7 (Laughter.)

8 MS. POINDEXTER: Well, good morning. My
9 name is Monica Poindexter, Associate Director of
10 Diversity and College Programs for Genentech. This is
11 a very, very kind of personal testimony for me in many
12 ways, because this panel, at least for me, I didn't
13 know what they were going to be speaking about.
14 Listening to the comments this morning, I'm a product
15 and a native of Oakland, California. I went to UC
16 Davis, and I participated in under-served minority
17 programs that are no longer being funded in the State
18 of California. I know without my participation in
19 these programs at an early age, in elementary school
20 and in high school, and in college, I would not be
21 sitting before you today. So if you ever want to know
22 the reality around what public programs can do for
23 under-represented minorities in academia, let me be an
24 example.

25 So today I'm here to really talk about
26 creating and maintaining effective partnerships. This

1 presentation here has just pitched me up perfectly.
2 So thank you for setting the stage for my
3 presentation. The title is "Bridging the Gap Between
4 Government, Academic and Industry."

5 Many of you know that at Genentech, we are
6 the first biotechnology company in the world. We were
7 founded in 1976, which means that we are now getting
8 ready to celebrate our 30th year anniversary since we
9 opened up in 1976. We develop and manufacture drugs
10 for medical unmet needs.

11 Progress involves change. Progress
12 involves taking risks. Progress involves doing things
13 differently so you have a different outcome. As the
14 Secretary of Education Commission, what is being done
15 to do things differently in education? When you look
16 at high-growth industries like biotechnology, we are
17 rewriting textbooks, medical textbooks, technology
18 every day. When we look at the education work- -- our
19 future workforce, based upon the curriculum that is
20 being designed and developed in the education system,
21 is it current? Is it relevant? Is it going to
22 produce the diverse workforce that we need in
23 industry?

24 Some examples that I'm going to be talking
25 about are some of the industry demand-driven partner-
26 ships that we at Genentech have developed out of a

1 need and out of relationship. And I think you've
2 heard here in many ways that the success of industry
3 demand models have been based upon seamless partner-
4 ships with our communities, with academia, as well as
5 finding a way to integrate government in how we do our
6 business and how we direct funding to under-served
7 population, but also to programs that are going to be
8 progressive, and design curriculum that will meet our
9 needs in a just-in-time workforce environment.

10 When you look at manufacturing and having
11 to get products out to the end patient, if we do not
12 have a qualified workforce at the entry level that
13 understand the basic skills of math, science and oral
14 communication and written communication, that all
15 affects where we have to go for our pool of talent.
16 The State of California, the education system, is a
17 huge link in that. If we do not have students that
18 are being prepared, or even introduced to what bio-
19 technology is until they get to high school or until
20 they get to college, it's a little late.

21 When you look at the enrollment of
22 students going into the UC systems or into the
23 California State systems, it is showing a diverse
24 workforce in population. But how is that translating,
25 and why is it not being reflected in the demographics
26 for industry? There's a disconnect. So the challenge

1 is, how do we bridge the gap? And when you talk about
2 changing, it's going into uncharted territory. These
3 examples that I heard here -- working with the
4 churches, working with the communities, working with
5 the under-served population -- that's uncharted
6 territory. But that takes risk, and it takes
7 everybody being out of their comfort zone.

8 I think now, in many, many ways, industry
9 recognizes the need to get out of their comfort zone.

10 Academia is recognizing the need to get out of their
11 comfort zone. And government, it's time to recognize
12 to get out of your comfort zone, as well.

13 I'm here to talk about the Genentech-
14 Skyline biotech model. This program was actually
15 designed and developed with our partners, with Skyline
16 Community College, as well as with the County of San
17 Mateo Workforce Investment Board. This partnership
18 was actually designed and initiated out of the need
19 from 9/11, when the United Airline workers were hit
20 very, very hard from the 9/11 incidents, when they
21 were not able -- when they were actually laid off. We
22 needed to look at, really, how can we tap into an
23 under-served population that was hit by such a tragic
24 incident, and provide new training skills and utilize
25 their transferrable skills in the biotechnology
26 industry?

1 Out of that, we had Genentech employees
2 that actually are professors at Skyline Community
3 College develop an articulated biotechnology
4 certificate program that is based upon Genentech's
5 manufacturing needs. This baseline program has been
6 able to take these airline mechanics, train them on
7 Genentech's manufacturing procedures, bring them
8 through a three-month intensified training program,
9 and then we provided paid work experience internships
10 for them for six to nine months, and then brought into
11 our manufacturing areas, where we were actually able
12 to then convert them into full-time Genentech
13 employees after nine months.

14 This program started off with 9/11. It's
15 now gone into under-served communities. It's gone
16 into schools in the Fremont area, Ohlone Community
17 College, Solano College, and this has served as
18 basically a model that the State of California is now
19 looking at to replicate on many, many levels. Last
20 year, we were actually pleased to be able to receive
21 an award from the Department of Labor for being able
22 to design a model that actually made it work, and we
23 could prove that industry, academia and government,
24 that we know how to work together. We know how to
25 work together when there is an industry need and
26 demand. But it's really looking at, how can we bring

1 these entities together in a progressive environment,
2 and not make it in a silo effort?

3 So at the Department of Education, instead
4 of having to do things on a piecemeal basis, how can
5 we look at models and replicate them, not just in this
6 state, but nationwide? Because when we look at bio-
7 technology, and we look at Genentech just overall,
8 it's a high-growth industry. This model will not just
9 hold true for biotechnology. It can hold true for the
10 other industries that Charles Reed talked about -- the
11 agricultural, maybe the petroleum industry. So it's
12 really teaching academia, government and industry how
13 to work together.

14 I think that if there are some conversa-
15 tions on a national level that can start to take place
16 to teach people, to teach faculty, how to think
17 differently around partnering with industry -- because
18 at the end of the day, we need a just-in-time
19 workforce in any state. And if we don't have the
20 workforce, then you're going to start to see
21 individuals recruiting people outside of their own
22 natural states where they do business.

23 I don't need to go through my entire model
24 that we have here, because it is in your handouts.
25 But one of the things I wanted to call your attention
26 to is the Genentech-Bayer corporate gateway to biotech

1 model. Because when we look at preparing a workforce,
2 what does that mean? You will look, and it's actually
3 the little colored -- the pretty colored map one
4 here -- if you can turn to that, because I can tell
5 you that, when you look at the biotechnology
6 industry -- Rollie Otto talked about a scientist, and
7 sometimes you hear individuals say, well, we don't
8 know where we can find under-represented minority
9 scientists, you know, as if they don't, quote/unquote,
10 exist.

11 Well, I think that when we look at trying
12 to develop and identify program models that will
13 actually be inclusive of under-served populations,
14 that you will start to learn and see that minority
15 under-represented scientists, they do exist, and they
16 can be developed. But part of the challenge is that
17 we have to be comfortable going to the places where
18 minorities are, and how to reach out to them within
19 the educational realms of the education system,
20 whether it is with the historically black colleges and
21 universities, whether it is not cutting funding for
22 programs like the MESA programs, like the SAGE
23 Scholars program, like A Better Chance, like the Young
24 Scholars program. These are all programs that I was a
25 part of that helped me get connected into the UC
26 system, into the California State University system,

1 that helped expose me to higher education. But when
2 we cut these type of programs in higher education,
3 then you cut out the programs that will keep under-
4 represented minority future scientists in the higher
5 educational institutions.

6 So when you cut the programs, then you're
7 cutting off a diverse future workforce for industry,
8 which now means that now we have to rebuild organic
9 partnerships by going into the churches, and funnel
10 them into the education system, because we cut out the
11 very programs that were initially designed to keep
12 them into the education system.

13 When you look at this model here, this is
14 industry speaking here. We are now looking at trying
15 to start off our future workforce at the eighth and
16 tenth grades so that they can get exposure on what
17 biotechnology is. That means that we are targeting
18 youth, neighborhood residents and disadvantaged
19 adults, targeting individuals -- people in the Oakland
20 Bay area, going into those under-served communities.

21 I think you all hear a theme here.
22 Between academia and industry, we are recognizing the
23 need for us to change how we do business by going to
24 the communities in which we need to partner with,
25 because we recognize that they're not all enrolling
26 into all the educational systems or programs that are

1 now being cut out of the education systems. So now we
2 have to go to them. There's a gap there.

3 Then taking it from the eighth to the
4 tenth grade on up to the college and career, building
5 into -- and actually I didn't even know your presenta-
6 tion, but I have Laney in here, as well, because we
7 know that Laney is a community college that serves an
8 under-represented minority population. So what do we
9 want to do? We want to bridge and bring a biotech-
10 nology certificate program to Laney. Why? So that we
11 can develop a diverse workforce at that level, provide
12 them opportunity to get jobs within the biotechnology
13 industry.

14 Taking that on up to the biotechnology
15 manufacturing training model to the Skyline and Ohlone
16 model that we won the awards for from the DOL, as well
17 as from the State of California, then they go on up to
18 a three-month paid internship, paid tried out
19 employment for us to be for us to be able to assess
20 their skill sets, and for them to be able to assess if
21 this is the environment or career they want to be in.

22 After that, it's the full-time placement contingent
23 upon our business needs.

24 So, you see, here you have industry now
25 developing programs for our specific needs, but it's
26 really a true -- it's -- the time is now to have the

1 true and real dialogues around industry, academic and
2 partnerships, especially for high-growth industries.

3 Recommendations -- as if I haven't
4 provided some already. But some of them are business
5 and industry partnerships, creating legislation in the
6 process that makes it easy and efficient to partner
7 with academia. Now, I can't tell you -- I've been
8 working on this partnership for the past four years.
9 I've been at Genentech for six years, and I have
10 learned so much in the process of what it means to
11 work with government and what it means to work with
12 academia. And I'll just leave it at that.

13 (Laughter.)

14 The other piece that I'll add here is
15 that, when we look at training the future students,
16 there's another missing link. The missing link are
17 the faculty. How skilled are our faculty to be able
18 to train and teach on biotechnology? Who said
19 internships were only for students? We need
20 internships for faculty.

21 When we look at a just-in-time workforce,
22 if we want students to be able to articulate the core
23 competence skills that we're needing in an entry level
24 bioprocess manufacturing technician, do the teachers
25 even understand what a bio- -- who a biomanufacturing
26 technician is, yet alone to be able to teach on it?

1 We have to connect the dots. So what do
2 we do at Genentech? Well, we have had some faculty
3 actually go through a rotation program so that, with
4 the biotechnology certificate model, they can know
5 first-hand what their students are expected to know,
6 so they can take that articulated curriculum and that
7 experience that they had at Genentech, and bring it
8 right back to the classroom.

9 Department of Education, what are we doing
10 to retrain and to upgrade the skill sets for a high-
11 growth industry for the students and for our faculty
12 in a consistent and replicated model?

13 Direct funding -- direct education funding
14 to progressive programs that industry already
15 supports. Don't keep putting money into programs that
16 are not progressive, and whose curriculum are out-
17 dated, and who have not proven a return on investment
18 on being able to produce well-qualified and educated
19 students that can contribute to the workforce. Change
20 your funding streams on where you put your money.

21 Invest in direct money and grants and
22 initiatives that support low income and under-served
23 schools so that industry can ensure a diverse work-
24 force. It's always the chicken before the egg
25 syndrome. How are we supposed to have a diverse
26 workforce if the education system is not funding low,

1 under-served communities to provide the access to
2 education so that we can even say, oh, you know what,
3 we have a population of under-represented minority
4 students at Stanford, or at UC Berkeley, or at Cal
5 State East Bay.

6 Invest in a faculty internship or skill
7 training for high-growth industries. When he talked
8 about -- who was it? -- Charles Reed said, find three
9 big ideas that you can work on. You got three of 'em
10 right here. One of them is to really focus in on
11 being able to identify programs that will be able to
12 focus in on faculty development skill training
13 specifically for high-growth industries --
14 specifically for high-growth industries, aligning
15 curriculum to ensure that it is vibrant for a just-in-
16 time workforce needs. That has to be a must. We as
17 an industry can't keep going piecemeal, you know,
18 trying to go to ten colleges and say, okay, you know,
19 fix this curriculum here. It has to be system-wide.

20 Then the other area is your diversity and
21 range and scale of partnerships as far as for
22 immediate kind of recommendations. I think you had
23 some examples here of being able to do things
24 differently so you have different outcomes.

25 And I'll stop here. Thank you.

26 CHAIRMAN MILLER: That's good.

1 (Applause.)

2 CHAIRMAN MILLER: We'd like to take a
3 little time to ask -- get some questions answered.
4 Members of the panel.

5 MS. NUNLEY: Chairman Miller, could I ask
6 a question to Monica?

7 MS. POINDEXTER: Yes.

8 MS. NUNLEY: I was looking at your success
9 data in your report.

10 MS. POINDEXTER: Yes.

11 MS. NUNLEY: I just wondered -- I see that
12 162 people have been interviewed, 37 hired at
13 Genentech, and 16 by others. What happened to the
14 rest of them?

15 MS. POINDEXTER: Some of the students did
16 not complete the program, or some students are
17 currently still doing internships at our companies.
18 There are partnerships with Bayer, with Kiron. As you
19 see, like at Genentech, we've interviewed quite a few
20 of them, and so those that maybe did not actually kind
21 of fit the actual skill or profile level once they
22 completed the program probably did not receive offers,
23 or received offers from other companies, and/or are
24 still in the six and nine-month internship program
25 with the possibility of converting. The longer the
26 students are in the internship program, it gives them

1 more time to be able to have exposure on the
2 manufacturing floor, with the higher probability of
3 being converted.

4 MR. DUDENSTADT: Chancellor Reed, the
5 State of California is perhaps the best model of
6 strategic approach to higher education with a master
7 plan of the 1950s that responded to the changing
8 nature of the state. Once again, this state is
9 changing very, very rapidly, in demographics, in
10 economics, and so forth. How is the system kind of
11 rethinking its expansion? I was quite struck at a
12 strategic meeting that occurred at UC Santa Cruz a
13 year or two ago when the concern about how there will
14 be sufficient growth in higher education to serve the
15 changing needs of this state, and whether the old
16 model of the community colleges, the Cal State system
17 and the UC system really would respond adequately to
18 that changing paradigm. What's the thinking about how
19 that future's approached?

20 MR. REED: Well, the thinking about that,
21 number one, is figuring out our responsibility to have
22 students better prepared to go to college. That
23 includes focusing on rigor, especially in the high
24 school disciplines.

25 Number two, frankly, we have a broken
26 system as far as the master plan goes in the transfer

1 from community -- from -- from high schools to
2 community colleges, and to the California State
3 University. I am spending a lot of time and effort to
4 try to fix that, because I think California -- and I
5 love my friends in the community colleges -- but it
6 kind of lost its way. It became all things to all
7 people, a place where you're supposed to go find
8 yourself. Well, we don't have time or enough money to
9 find ourselves.

10 MR. DUDENSTADT: Which part was that
11 placed, the community colleges or --

12 MR. REED: The community colleges. And
13 then it's become a runaway set of general education
14 requirements that are different between the community
15 colleges and the universities. We need to get those
16 aligned.

17 Now, third, Jim, with the master plan, one
18 of the things that I've tried to do is to look out ten
19 years to see if we can serve this tidal wave of
20 students -- different kinds of students, immigrant
21 students -- and I think we can. But our behavior has
22 to change, and we have to become more efficient.
23 We're not going to get a lot more money, but we have
24 to utilize our facilities the year round. We've got
25 to use them more hours of the day. We have got to
26 schedule differently. We've got to use technology

1 differently. In other words, I can see us having
2 students meet instead of twice a week, once a week
3 sitting in a seat and the other time on the web
4 getting the information. And some of it can be
5 delivered better there than in the classroom. So
6 those are some of the kinds of things.

7 We've got to provide incentive systems to
8 our faculty to develop their course ware in different
9 ways, and then go from there.

10 MR. DUDENSTADT: Amen.

11 MR. SULLIVAN: Mr. Chairman?

12 CHAIRMAN MILLER: Please.

13 MR. SULLIVAN: I'd like to, first of all,
14 commend all three of our panelists this morning for
15 very productive, very interesting and very challenging
16 presentations.

17 I think all three of you show the power of
18 outreach into the community. One of the -- and -- and
19 certainly the common theme all three of you
20 emphasized, the need for resources to support these
21 programs. That's a given, and I think we need to
22 address that.

23 My question or comment is as follows. One
24 of the issues, in my view, is that many under-
25 represented minorities don't feel welcomed into the
26 higher education system. One of the challenges we

1 have is really saying to these communities that higher
2 education is for them and for their future and for
3 their families. That's a major challenge.

4 I'd like to ask, in your outreach
5 efforts -- and certainly Chancellor Reed working with
6 the churches, which I agree certainly in the black
7 community, very important institution is the church,
8 and I commend you for your outreach there. I'd like
9 to ask, are there ways that your activities help
10 address this issue? Because in many low income
11 communities, with the alienation they feel from the
12 higher education system, they don't prepare. And
13 those students who often want to become a scientist
14 are really discouraged by their peers. So are the
15 things that you're doing helping to address that
16 cultural divide?

17 MR. REED: I hope so. One of the ways you
18 have to start is you have to show these communities
19 that you look like they do.

20 MS. POINDEXTER: Thank you.

21 MR. REED: I am proud of -- we -- we have
22 23 presidents in the California State University, and
23 I can represent here, we are the most diverse
24 university system in this country, led by diverse
25 presidents. And when I can take five or six African-
26 American presidents to the African-American

1 community -- frankly, I'm the only white guy sitting
2 up there -- they are more comfortable. I chose West
3 Angeles because it's the biggest church. But the
4 other six presidents that are going to be there are
5 going to be African-Americans talking to African-
6 Americans, making them feel safe, comfortable, have
7 within our university their communities, and then show
8 them the opportunities that are there for those
9 communities.

10 We're going to have Latinos teach Latinos
11 in those elementary schools on how to manage their
12 children and prepare. I'm convinced that it starts --
13 we don't have nearly enough diverse faculty members.
14 That is the hardest thing that we're trying to
15 overcome. You know, faculty hire faculty. It's just
16 natural that they reach out to the people that they
17 know. So we're trying to say, you know, reach into
18 these other communities and get into the pools that
19 come before us people that look like our students.
20 And so we've got to continue to do that.

21 One of the partnerships -- and Monica said
22 this -- we're asking business to loan us some people
23 that look like our students. That really works well
24 for our students because it gives them a leg up on
25 those companies to get jobs. But it also brings to
26 our faculty much more realistic expectations that

1 these people have.

2 MS. POINDEXTER: I would like to add, as
3 well, that when we look at outreach into the
4 community, just from an industry perspective, that's
5 important, as well, because I know that when we go
6 into the communities, the students want to see under-
7 represented minority professionals. When they think
8 of corporate America, they automatically think of a
9 white man. They may not think of a black female in a
10 position of influence. And so when you look at the
11 outreach, and when you look at also providing and
12 bridging the gap, it's also developing programs that
13 are going to be going directly to those communities.

14 I think the flipside of it is that it's
15 access to information and the comfort level. So when
16 we look at the comfort level, a lot of people,
17 especially under-represented minorities, or even low
18 income individuals, may not feel as if the higher
19 education represents where they would be comfortable.

20 So sometimes it might take the education system to
21 kind of reshape or redevelop their image to make it
22 more inviting for individuals that may not have that
23 exposure to what higher education is all about.

24 The other angle of it is that we also have
25 to be comfortable with actually going into the
26 communities. That's where, when you look at Charles

1 Reed, when you look at, you know, him going into the
2 churches, when you look at industry developing
3 specific programs like scholarship programs for
4 minority students, and then providing an internship,
5 that's saying, you know what, you guys have -- as
6 maybe the Genentech Scholars program -- that program
7 is targeted for students -- under-represented minority
8 students pursuing degrees in the sciences, providing
9 internship, and hopefully a full-time job. So when
10 they see programs like that, it's, you know what,
11 that's an organization or a company that embraces
12 diversity and that has created an environment for me
13 to feel comfortable in.

14 Mentorship is another. It's outreach.

15 Rollie.

16 MR. OTTO: I would respond by saying that
17 one of the important challenges we have is to
18 diversify our teaching force, particularly at the high
19 school level, to accomplish the goal that you have
20 laid out to encourage students to consider higher
21 education. Yes, it'll take a while, but one of the
22 important partnerships that's been developed around
23 this is the Department of Energy's Office of Science
24 supported a pre-service teacher program. We then got
25 the National Science Foundation to say that they would
26 allow any teachers in the programs called Excellence

1 for the Preparation of Future Teachers -- I think I
2 didn't get the name just right, but it was an NSF-
3 sponsored program. One of those centers was at
4 California State University Fresno. As a result of
5 that, we were able to leverage our dollars and bring
6 five teachers in for every one that the Department of
7 Energy sponsored.

8 Many of those teachers were coming up
9 through the system as undergraduates out of the local
10 community colleges. They were under-represented
11 minorities who had already gotten the vision that they
12 needed to be part of the -- or many of these pre-
13 service teachers needed to be part and represent their
14 communities. They were oftentimes the first in the
15 family to get degrees. But they had the desire to
16 bring their communities into the college-going greater
17 rates, and they were going to do it by being in the
18 K-12 system.

19 Coming to Berkeley Lab as an internship
20 gave them the confidence that they were able -- as
21 well-prepared as any of the other teachers that were
22 going into our system in California because they
23 were -- they saw the frontiers. So programs,
24 partnerships that really diversify our teaching
25 workforce should be encouraged.

26 MR. REED: I just want to share one

1 anecdote with you that I'm really proud of. In the
2 Central Valley, the San Joaquin Valley around Fresno,
3 they have a huge Mong population -- there and
4 Minnesota. I can't tell you why they settled there,
5 but -- because of farming. But I was there last
6 spring because we had funded a leadership program for
7 the public school leaders, the principals of
8 elementary, middle and high schools. I think I can
9 represent this. The first Mong in America who got a
10 Master's degree and became a principal, in the Fresno
11 United School District. That meant so much to that
12 community because those children had somebody to look
13 up to. I went out to that school, and she's doing a
14 great job. But what it did for the community by
15 seeing some of their own people being in a leadership
16 position probably meant more than anything that we
17 could do.

18 MR. VEDDER: Thank you, Mr. Chairman.

19 CHAIRMAN MILLER: Sure.

20 MR. VEDDER: I just love this panel.
21 Getting away from the diversity issues for just a
22 minute, and into the efficiency issues that Chancellor
23 Reed raised, you raised it with regards to year-round
24 schools and so forth. But one statement that you made
25 struck me, because it's one I've heard several other
26 times, and no one wants to talk much about it. You

1 said the 12th grade is a vast wasteland. If that is
2 the case, why aren't we doing more in terms of
3 national policy, and perhaps even at the state level,
4 to make the secondary and post-secondary educational
5 experiences more seamless, integrate them more, maybe
6 cut out for some students that 12th grade which is a
7 wasteland, and have them go directly either to the
8 community colleges or four-year Cal State colleges or
9 whatever, and use the resources that are freed up from
10 kids that used to be sitting doing nothing, and put
11 'em to better use? Do you think we ought to be doing
12 more in that? Do you think, as a nation, we somewhat
13 have a problem in this area?

14 MR. REED: I think you're getting close to
15 one of those big ideas that you could come out with.
16 Yes to all of what you said. Some of the students
17 ought to be dual-enrolled at community colleges or
18 universities. Other students need this extra work,
19 but they need to find out that they need this extra
20 work. Maybe you all could come out and say, we don't
21 need the 12th grade anymore for what it's doing, which
22 is very little, and here's what we need to focus --
23 the partnership with the community colleges and the
24 universities for these kids that are coming out of the
25 11th grade, and whether or not they're prepared for
26 college work.

1 You know, when I say "prepared for college
2 work," I mean this: It is the same thing -- prepared
3 for the workforce, prepared for college. If you take
4 those two high school curricula, kids are going to be
5 ready to go to work in the workforce just as well.

6 MS. POINDEXTER: I just want to make a
7 comment on that, as well, that maybe -- that -- that's
8 one point of view, but the other is looking at the
9 whole perspective and notion that's been lost, which
10 is trade. When you look at maybe utilizing the 12th
11 grade as an opportunity for students to actually look
12 at specific trades, like maybe being able to pursue or
13 receive a certificate their last year in partnership
14 with a high school diploma. For some students,
15 college may not be the actual next step for them.
16 However, the bridge that the Department of Education
17 could do or could provide for them are some options on
18 receiving certifications in high-growth industries
19 that will allow them to -- that will articulate or
20 translate into nice paying jobs in industries such as
21 biotechnology, or agricultural, or the Boeing area --
22 industry -- what is that? -- aeronautical? --
23 aerospace. You guys know what I mean.

24 CHAIRMAN MILLER: Avionics.

25 MS. POINDEXTER: Right. Thank you.

26 But looking at another option, which is

1 the certificate option, in conjunction with their
2 diploma, so that even if they may not have an actual
3 four-year degree, certificate can also be a leg into
4 the workforce area. So, you know, looking at things
5 differently.

6 CHAIRMAN MILLER: Thank you.

7 We have a big idea bucket. We're ready to
8 receive any of those in writing or personally. We
9 thank you very, very much for a very enlightening
10 presentation.

11 (Applause.)

12 (Recess from 10:09 a.m., until 10:18 a.m.)

13 CHAIRMAN MILLER: Thank you for joining
14 us. I think we'd like you in the order listed on the
15 program. I'd be pleased if you'd introduce yourself
16 as you speak. Tom.

17 MR. MAGNANTI: Good morning. My name is
18 Tom Magnanti. I'm Dean of Engineering at MIT, and
19 proud to say a long-time educator. In fact, as you
20 can tell by the color of my hair, a long-time
21 educator. Thank you for the opportunity to speak on a
22 topic that is so important to all of us.

23 There's much we could talk about today
24 concerning higher education, especially science,
25 technology and mathematics education. We could, for
26 example, discuss higher education in the innovation

1 economy, exciting developments in engineering and
2 technical education, those elements that have made
3 higher education in the United States the envy of the
4 world, including size, scope and variety, the
5 confluence of instruction, in research, universal
6 accessibility, and the free-flowing access of
7 information on education and research.

8 In recent congressional testimony, I
9 offered broad recommendations that spoke to some of
10 these topics and some of these elements. I'll refrain
11 from trying to repeat those recommendations today.
12 But before starting, I'd like to endorse the
13 recommendations made by the Council on Competitive
14 Innovation America report, and also the Rising -- or
15 the Gathering Storm report.

16 So rather than speak to those today, I'd
17 like to focus on a simple proposition. Technology and
18 openness make a difference in higher education.
19 Technology and openness make a difference in higher
20 education. To tell you why I feel confident in making
21 that statement, I will share some experiences and data
22 from my home institution's continued experiment in
23 open sharing, MIT OpenCourseWare.

24 A high school computer science teacher in
25 Arizona, a physics teacher in Toms River, New Jersey,
26 a home schooling mother in rural Illinois, a

1 management instructor at the University of Idaho, an
2 MIT freshman from Michigan -- this seemingly disparate
3 group of people all has two things in common, first,
4 the singular motivation to seek the best in learning
5 and teaching, and second is OpenCourseWare.

6 Our prior panel asked about big ideas. I
7 think that OpenCourseWare is such a big idea, a bold
8 initiative of the MIT faculty to share or give away
9 the content of an MIT education to anyone anyplace in
10 the world for free.

11 In higher education, technology helps us
12 to assemble and codify knowledge, improve instruction
13 and learning, and provide unprecedented access for
14 learners everywhere. With OpenCourseWare, we are
15 providing open access to our entire curriculum to the
16 entire world.

17 First, what is OpenCourseWare?
18 OpenCourseWare is not a distance learning program or a
19 certificate or degree-granting program. It is a
20 large-scale web-based publication of educational
21 material that supports an MIT education. Imagine, if
22 you will, having the lecture notes, the PowerPoint
23 slides, the syllabus, the homework sets, for a course,
24 after you've assembled a course and taken a course.

25 But we even offer open access to our
26 laboratories through a program called i-Labs. Think

1 of sitting at your computer and operating the MEMS
2 testing device, or a wind tunnel, or a chemical
3 engineering reactor, and integrating that with an
4 education, again, in an open access environment.
5 Educators use OpenCourseWare materials for curriculum
6 development, while students and self-learners draw
7 upon the materials for self-study.

8 How about some data? Currently at MIT,
9 there are 1250 courses from 34 different academic
10 disciplines now available, more than two thirds of the
11 way towards our goal of publishing the entire MIT
12 curriculum of 1800 courses. The response, at least it
13 seems to me, has been overwhelming.

14 Some assessments in metrics of success.
15 In three years, more than 17 million unique users have
16 visited the OpenCourseWare site -- 17 million unique
17 users. Eighty percent of the users indicated that
18 OpenCourseWare has been extremely positive or a
19 positive impact on their educational initiatives.
20 Ninety-two percent of self-learners have told us that
21 OpenCourseWare increases their motivation and their
22 interest in learning. Ninety-six percent of educators
23 report that OpenCourseWare has helped them or will
24 help them improve their courses. And 51 other
25 OpenCourseWare projects now offer open access to a
26 diverse array of published courses at institutions in

1 the United States, China, France, India, Japan and
2 Vietnam.

3 But there's a lot more than data. Other
4 voices speak to the power of OCW much better than I.
5 Elizabeth Rose, a self-learning from North Dakota,
6 writes:

7 "This is so overwhelming I want to cry. I
8 know OCW doesn't take the
9 place of a degree, but what a
10 great way for me to get used
11 to formal learning materials
12 again in hopes that I'll be
13 able to pursue graduate
14 study."

15 And Coretta Jackson, an MBA student from New Jersey,
16 shares:

17 "When I first came across MIT's
18 OpenCourseWare, I pinched my
19 web browser to check if it was
20 functioning properly. The
21 free platform of OCW is
22 fostering a measure of
23 educational parity in higher
24 education by offering access
25 to premium content in course
26 materials otherwise reserved

1 for MIT's full-time student
2 population. I hope I live to
3 see the day when every
4 university will launch and
5 promote its own version of
6 OpenCourseWare."

7 As you can see, OpenCourseWare speaks of
8 the themes this Commission has identified. At MIT, we
9 have demonstrated an OpenCourseWare model that is an
10 affordable, accessible, scalable way to transform
11 education. Our global audiences of users hold MIT
12 accountable to create and share high quality
13 materials.

14 We believe there are tremendous positive
15 implications to open sharing of educational materials
16 for the U.S. workforce. The challenge is simple. Can
17 we leverage what is happening at our college campuses
18 to the benefit of all Americans, and close the
19 educational gap that we are discussing here today?
20 History has proven that education and discovery are
21 best advanced when knowledge is shared openly, and the
22 promise of OpenCourseWare is an opportunity, I would
23 argue, we should not miss.

24 Let me close by two recommendations, the
25 first, which, again, I think and I hope you agree, is
26 potentially a big idea. Let's launch an OpenCourse-

1 Ware for secondary education, a website focused on
2 science, engineering and mathematics, that would help
3 close the achievement gap in science and engineering
4 in the United States that concerns us all. Let's do
5 so by creating a government-industry-educational
6 partnership to develop and sustain such a project.

7 My second recommendation: Let's create
8 incentives to catalyze the development of OpenCourse-
9 Ware projects at universities and colleges across the
10 United States, enabling the open sharing of
11 educational materials from a variety of institutions,
12 disciplines and educational perspectives. Such a
13 portal could serve as the leading resource for
14 teaching and learning, and would address issues of
15 accessibility, affordability and accountability, and I
16 would add scalability.

17 I believe both these recommendations could
18 be instrumental in supporting the administration's
19 goal of training 70,000 high school teachers to lead
20 advance placement courses in math and science, and
21 bring 30,000 math and science professionals to teach
22 in the classroom to help students struggle with math.

23 Thank you.

24 CHAIRMAN MILLER: Thank you.

25 MR. SMITH: Good morning. I want to thank
26 the Commission for the opportunity to present --

1 testify in this dialogue. I know how grave the charge
2 is that the Commission has, and how important this
3 testimony is. But my fellow Pittsburghers would be
4 disappointed if I didn't say for the record, go
5 Steelers -- with apologies to Seattle.

6 (Laughter.)

7 CHAIRMAN MILLER: We're going to meet in
8 Seattle next week.

9 MR. SMITH: We'll send towels.

10 In terms of characterizing the big picture
11 of what I have to say today, Jim Dudenstadt adumbrated
12 it yesterday, and that is that we are not leveraging
13 the results and the methodologies that come from the
14 learning sciences, and in particular cognitive
15 science, that has developed over the last 30 years for
16 designing better higher education. This is an area in
17 which e-learning can provide substantial help. But in
18 order to explain how, I have to go into some detail.
19 So forgive me if I dive into some pedagogical details
20 this morning. I think this is a place where my
21 favorite quote from Nees Vandereau (ph) applies, which
22 is that God is in the details.

23 I explain that in these terms. If you ask
24 me point-blank, is e-learning going to play a critical
25 role in the future of higher education? -- I would
26 say, yes, but not if we're doing it the way we're

1 doing most of it now. The problem is that e-learning
2 has inherited a fundamental flaw in our current
3 approaches to managing pedagogy in higher education.
4 This flaw damages all kinds of education, but it is
5 particularly fatal in e-learning environments. The
6 flaw I'm talking about is that educational
7 interventions, from classroom teaching, to textbooks,
8 to e-learning tools, makes shockingly little use of
9 what is in fact the best information that we have to
10 improve education, and that is scientific results from
11 research studies in the learning sciences, and I'll
12 add research methods from the learning sciences.

13 We act as though the intuitions of
14 educators and the intuitions of educational software
15 developers are sufficient on their own to produce
16 effective instructional environments. They are not.
17 The general failure to apply research-based theory and
18 to do scientific assessments of educational inter-
19 ventions is starkly illustrated in a single study that
20 you can find on the excellent resource from the
21 Department of Education, a website calls the "What
22 Works Clearinghouse."

23 If you go to the home page today, you will
24 find a report on 40 interventions that are available
25 for adoption in middle school mathematics. The What
26 Works Clearinghouse study reports that, of those 40,

1 only five supply any evidence whatsoever that they
2 work. And of those, only three supply really rigorous
3 scientific evidence that they work. What's wrong with
4 this picture? How can we responsibly promote the use
5 of educational interventions that offer no scientific
6 evidence of their effectiveness?

7 Alternatively, we might hope that these
8 interventions and other interventions are being
9 designed using research-based results, well-confirmed
10 theories from cognitive science, from the learning
11 sciences. But the fact of the matter is they are not.

12 Even though I'm reporting about a K
13 through 12 study in this case, the situation's even
14 worse in higher education. Those of us who have
15 taught in higher education know that when we walked in
16 front of that first class, we were armed with what?
17 We were armed with our intuitions about what was going
18 to work in teaching what we were about to teach. We
19 were not armed with good ideas from the learning
20 sciences about what was going to work.

21 So my premise is -- or my -- my contention
22 is quite straightforward. Unless we first design
23 teaching and learning environments using well-
24 confirmed theories from the learning sciences, and
25 secondly, regularly test the efficacy of those inter-
26 ventions through sound scientific assessments, we will

1 not improve the future of higher education.

2 Now, here's one of those remarkable things
3 where the tables are actually different than the way
4 people most commonly characterize them. We often
5 worry about, well, can e-learning be as good as
6 traditional learning? And what I'm saying is that
7 traditional learning is pretty much intuitively
8 informed as opposed to scientifically informed.
9 E-learning is actually something that can, if we
10 pursue it properly, provide -- offer us an opportunity
11 to meet the desiderata that I've described, but not
12 unless we change how we do it.

13 So what I'm going to briefly describe to
14 you is a project at Carnegie Mellon called the Open
15 Learning Initiative, which is funded by the William
16 and Flora Hewlett Foundation, that tries to leverage
17 e-learning to produce really quality online education
18 by doing the following: by basing course design on
19 proven theories about how people learn; by iteratively
20 improving courses through routine scientific
21 assessment, and then appropriate modification based on
22 those assessments; and using a team approach of
23 content experts, cognitive scientists, human-computer
24 interaction experts, and information technologists as
25 the author of each of the courses. The project I
26 refer to is called, as I said, the Open Learning

1 Initiative. And it has produced now exemplars of what
2 we call cognitively informed online courses, which can
3 also be interactive textbooks, which we frankly think
4 are going to be the textbooks of the future.

5 These materials are completely different
6 in kind, and have a completely different purpose than
7 those available at MIT's OpenCourseWare site that Tom
8 has described to you. The Opening Learning Initiative
9 courses are not a compilation of course materials used
10 in traditionally taught courses at Carnegie Mellon,
11 the OCW model. Rather, they provide -- they're for a
12 different purpose. They provide the complete
13 enactment of instruction online. Although we believe
14 these courses are more effective when used as an
15 interactive textbook in what's called a blended model,
16 we have -- our effort has been to make them so that a
17 student can complete an entire course without
18 instructor intervention.

19 The option of having no instructor is
20 precisely the reason that the Open Learning Initiative
21 courses must be informed by the best current knowledge
22 from the cognitive sciences, and iteratively developed
23 using formative studies of student use in order to
24 make them effective. The development philosophy and
25 process is what makes the Open Learning Initiative
26 courses so different from hundreds of computer-based

1 courses that have been hyped over the last few
2 decades, and failed miserably in use.

3 OLI courses are exemplars of online
4 instruction that work. I have included in my
5 testimony some of our summative evidence. And when we
6 say summative evidence, we mean sort of the final
7 conclusion about whether this worked or not, because
8 we do a great deal of what's called formative study
9 along the way in order to make them good courses.
10 I've included from our statistics course a detailed
11 summative study done last fall on our online
12 statistics course. The comparison class was a very
13 high quality introductory statistics course that has
14 been worked on for years at Carnegie Mellon with
15 cognitive scientists to make it better. And what we
16 found, much to my pleasure, and somewhat to everyone's
17 surprise, was that the students who took only the
18 online course -- I'll emphasize with no instructor
19 intervention, because we sort of sat on the instructor
20 and said, no, you can't reach -- right? -- the
21 students who took only the online course did just as
22 well as the students that took the traditional course.

23 Now, the cost of delivery was significant-
24 ly less. The cost of developing the course was quite
25 substantial because of all the work that went into it.

26 But if that were averaged over a large number of

1 students, what we would have is a less expensive form
2 of delivery, even in a mixed model. And perhaps even
3 more importantly, what you have is a course that was
4 designed by a team of the experts that I described,
5 which by and large is going to be better than many of
6 the courses that are currently taught as introductory
7 statistics courses across the country.

8 There's always a struggle with getting
9 adoption of this, even in a blended model. But here
10 is an opportunity where e-learning can actually help
11 us get into what we do in the classroom the results
12 from the learning sciences that I'm talking about.

13 I've included in my testimony further
14 evidence we have about our online biology course.
15 We're developing more and more evidence all the time.

16 I'll skip that, and just make the point that -- if I
17 can find it -- that there's a second aspect to digital
18 learning environments that we can leverage to really
19 improve the future of higher education. Digital
20 learning environments can be instrumented to gather
21 data about how well the course is working even as it
22 is being taught, what I call action research. So you
23 don't have to wait for all the research to be done.
24 You can actually do the research on the fly. You can
25 improve the courses and the Open Learning Initiative
26 courses were are instrumenting to gather data.

1 For example, we have a virtual chemistry
2 laboratory in our online chemistry course I'll talk
3 about in a minute. And what we can do is look -- with
4 the student's permission -- look at every step that
5 they take in making decisions about how to solve
6 problems in there, gather the data, call in the people
7 from the data mining department, and say, help us
8 figure out how to find the relevant patterns here, and
9 learn where the students are having problems, and
10 where they're not having problems. And by the way --
11 and the example from the biology course that's in my
12 testimony illustrates this -- the professor can see
13 the morning before he or she goes in to teach the
14 class, well, what are they getting, and what aren't
15 they getting? -- from all that data that has been
16 gathered from the online environments. So they are
17 armed with feedback. The students, as I will talk
18 about in a minute, are armed with feedback from
19 intelligent tutoring systems. So what we produce here
20 is a massive set of feedback loops to continually
21 gather data about what's working and what isn't
22 working -- before it's too late -- right? -- before
23 it's too late for the student, before it's too late
24 for the professor.

25 Let me give you just sort of one example
26 of a fundamental principle from cognitive science --

1 that has come from the cognitive sciences over the
2 last 20 years that we implement in these courses.
3 Educational interventions should provide instruction
4 in the problem-solving context -- for reasons I'll
5 talk about in a minute -- and give immediate feedback
6 on errors. Now, you look at most online learning
7 environments, and what kind of feedback do you get on
8 errors? Correct, incorrect. That's useless feedback.

9 The kind of feedback that we've built into
10 the Open Learning Initiative courses are based on
11 intelligent tutoring systems. We're lucky to have
12 30 years of work at Carnegie Mellon in what are called
13 cognitive tutors. These are intelligent tutoring
14 systems that essentially are built on trees of novice
15 and expert knowledge that can follow what a student is
16 doing online, and individually tailor the feedback
17 that they get, and give them meaningful feedback. For
18 instance, the cognitive tutor that is in our
19 statistics course might well say to a student not
20 "correct" or "incorrect," but, "no, you seem to be
21 confusing categorical variables with continuous
22 variables in this case." That's going to vary from
23 student to student, because it is an intelligent
24 tutoring system.

25 This work has actually also produced some
26 of the most effective online algebra interventions in

1 middle schools and high schools, which are now
2 marketed by a company called Carnegie Learning, and
3 are now used in thousands of public middle schools and
4 high schools.

5 The point is that the students get
6 individualized feedback immediately rather than
7 waiting for the midterm, and that makes a huge
8 difference in learning outcomes.

9 Cognitive scientists have also recognized
10 something that Rollie Otto mentioned, that they refer
11 to as inert knowledge. I would say that a great deal
12 of the knowledge that we transfer in higher education
13 remains inert. What this means is it just can't be
14 transferred to the context in which it needs to be
15 used.

16 The example I'll use is the standard
17 introductory chemistry course. The problems in a
18 standard introductory chemistry course, the way it's
19 taught, is really as a sets of abstract mathematical
20 skills. Students employ learning strategies to solve
21 typical textbook problems, and perform well on
22 chemistry exams, but they fail to see the relationship
23 between the mathematics and the real world chemistry.

24 And so when they walk into a laboratory, essentially
25 they don't know what to do.

26 Well, how have we addressed this using

1 e-learning? Well, in what is one of the most
2 remarkable pieces of software you'll find, there is in
3 the Open Learning Initiative courses a completely open
4 virtual chemistry laboratory. I have a graphic of it
5 in my testimony that doesn't do it justice. You have
6 to actually go and use it. But the point of
7 developing this was not to replace the chemical
8 laboratory, but was to change the nature of homework.

9 The typical chemistry homework problem, many of you
10 will remember, is something like, well, given ten
11 molar -- given ten milligrams of one mole of
12 substance-A, and ten milliliters of one molar of
13 substance-B, calculate -- and the temperature went up
14 by ten degrees when you mixed them -- then what is the
15 heat of reaction between A and B? And I don't know
16 about you, but when I was a student in physics, what I
17 would do is I'd read the problem, and then look back
18 through the chapter to try to find the equations to
19 plug those numbers into. That produces what the
20 cognitive scientists call inert knowledge. You can't
21 actually use that when you get out to work in a
22 chemistry laboratory.

23 In the chemistry course, this has been
24 completely replaced. The problem that the student is
25 given is, here's the virtual chemistry laboratory;
26 construct an experiment that will measure heat of

1 reaction between A and B. That's an open-ended,
2 ambiguous, typical difficult chemistry problem, and
3 they have to learn how to solve it in this e-learning
4 environment.

5 So the conclusion is that the Open
6 Learning Initiative courses work, and we can
7 demonstrate that they work by scientific studies,
8 because they incorporate research from multiple
9 literatures, including cognitive psychology,
10 education, educational technology and science
11 education that take very seriously the notion that
12 research-based theories and assessment practices must
13 be used to develop effective e-learning.

14 One might reasonably ask why. Most
15 e-learning materials developed in higher education
16 over the past 20 years have been developed by
17 individual faculty members, many of whom are great
18 teachers. Why aren't their intuitions sufficient in
19 order to produce quality e-learning materials? Well,
20 again, you won't be surprised to learn I have a
21 research-based answer to that. The research that was
22 done by Kettinger and Nathan, faculty at Carnegie
23 Mellon, a rather surprising result, and that's why I
24 usually include in presentations. It's about what
25 they call the experts' blind spot.

26 What they did was they constructed a

1 middle school mathemat- -- a high school mathematics
2 exam. They gave this high school mathematics exam to
3 hundreds of students. They determined which of the
4 problems on that exam were more difficult and which
5 were less difficult. So they had a ranking of the
6 problems. And then they gave that same exam to high
7 school teachers, middle school teachers and elementary
8 school teachers in mathematics, and said, please rank
9 these problems on difficulty. As the graph in my
10 testimony shows, the most expert teachers in the
11 field, the high school teachers, did miserably on
12 ranking the problems. Middle school teachers were
13 better. The least expert, the most novice, the
14 elementary teachers, did the best.

15 Now, this isn't limited to this area. I
16 mean, I often used to talk to my students when I talk
17 physics about what I call the Fineman problem. Those
18 of you who've read the Fineman lectures on physics
19 probably -- and know some physics -- recognize that
20 they're absolutely brilliant and wonderful expositions
21 of the field, as long as you're already a physicist.
22 But the idea of trying to learn as a novice from those
23 books, because of Fineman's expertise, you can see in
24 so many places he has the experts' blind spot. Many
25 of the people that we are sending into the classroom
26 in higher education have this experts' blind spot.

1 That doesn't mean they shouldn't be in the classrooms,
2 but it means that they need help in understanding
3 this, and how to overcome it.

4 I describe in my testimony various ways in
5 the Open Learning Initiative courses it's all the more
6 important in e-learning. You must take this very
7 seriously.

8 The human-computer interaction folks at
9 Carnegie Mellon have this mantra. When designing an
10 interface, you have to say to yourself over and over
11 again -- you'll appreciate this if you've tried to use
12 the latest software -- the mantra is, "I am not the
13 user." And so what they do is constantly watch what
14 users are doing with interfaces in order -- novice
15 users are doing with the interfaces in order to
16 understand how to build quality interfaces that are
17 actually effective.

18 So the mantra we have in the Open Learning
19 Initiative work has been borrowed from them -- and
20 they're our partners in all this -- "I am not the
21 learner." I have to understand where the novice
22 learner is coming from, especially in developing
23 e-learning environments, in order for them to be
24 effective.

25 So I'll sum up my recommendations and the
26 conclusions that I've given you. One, cognitively

1 informed design and scientific assessment processes
2 should be the norm in education. They are not. We
3 must recognize that solely intuitively informed
4 designs suffer weaknesses, including the experts'
5 blind spot.

6 Second, educational treatments, especially
7 e-learning treatments, that can't provide scientific
8 evidence for their efficacy should not be used.
9 Digital e-learning environments provide us an
10 unprecedented opportunity to widely propagate
11 demonstrably effective, cognitively informed
12 educational interventions.

13 Educational institutions should encourage
14 the adoption of cognitively informed e-learning
15 treatments, interactive textbooks, online courses,
16 learning objects, whatever, recognizing that those
17 kinds of treatments will be developed for the few by
18 the many, like textbooks. This is the hard sell.
19 Everyone wants to know how to do it for themselves.
20 Everyone does not have the set of expertise necessary
21 to do it. It will be developed by the few for the
22 many.

23 The potential for e-learning environments
24 to gather performance data to inform individual
25 students, those cognitive tutors, and instructional
26 designers about what works and what doesn't work

1 should be a high priority for criteria for funding of
2 e-learning and purchasing decisions of e-learning
3 tools.

4 So if I want to put one thing in the big
5 idea bucket, that is that we need a lot more research
6 on learning. Even more importantly, we need a way to
7 engineer -- it's like the issue of the problem of
8 having all of this research and engineering and
9 management of the services industry -- we really
10 haven't had much by way of engineering and management
11 of the results from the learning sciences to move them
12 into learning. They just sit there in the research
13 journals.

14 In the final analysis, I always have to
15 quote our dear friend Herb Simon. And in many ways,
16 I'm channeling Herb today, who would gather the
17 faculty and ask them how many of them had really any
18 training in education, and very few would raise there
19 hands. Herb was, if you don't know, the Nobel
20 laureate polymath who spent most of his career with us
21 at Carnegie Mellon. This summarizes the necessity of
22 the marriage of learning sciences and technology to
23 make e-learning tools effective. Herb said, "If we
24 understand the human mind, we begin to understand what
25 to do with educational technology."

26 Thank you again. I really appreciate the

1 opportunity.

2 CHAIRMAN MILLER: Thank you.

3 MR. WILEY: My name's David Wiley. I'm
4 Director of the Center for Open and Sustainable
5 Learning at Utah State University, and also an
6 associate professor in the Department of Instructional
7 Technology there. Thank you, Mr. Chairman, other
8 members of the Committee, for the opportunity to
9 participate in the dialogue. I have submitted written
10 testimony, but I do want to go over the high points of
11 it with you today.

12 I think we're at a rare moment in time, a
13 moment in time in which the right thing to do is also
14 the best thing to do. Those two things don't occur
15 simultaneously too frequently.

16 Jim said yesterday that we should commit
17 ourselves to a vision of providing all citizens with a
18 universal educational opportunity and create the
19 world's most advanced knowledge society. The Moral
20 Acts and the GI Bill were mentioned as bold
21 initiatives that changed the face of access. Today I
22 want to suggest another such move in that same history
23 that falls right in line with what Tom and what Joel
24 have said. I want to suggest that it's not only the
25 right thing for us to do, but it's what we have to do
26 if higher ed. wants to remain relevant and engaged.

1 As have been detailed in books recently
2 like The World is Flat, the world is changing a lot.
3 Business is responding to those changes, and science
4 is responding to those changes. By contrast, higher
5 education has not largely responded to many of these
6 changes. In the testimony, I outline six of those,
7 and I'll cover them briefly here.

8 One is a move from things being analog or
9 being in print to things being digital. We think
10 about voice-over IP in terms of voice communications,
11 electronic books, electronic textbooks, digitized
12 newspapers, things like that.

13 There's an increasing move from closed to
14 open -- open-source software, open access to data like
15 weather data, astronomical data, research in the
16 Public Library of Science Journals.

17 There's a movement from being tethered to
18 one spot to being mobile. We have batteries in
19 laptops. We have cell phones. We have wireless
20 internet access. We're not tied to the wall.

21 There's a movement from being isolated to
22 being connected -- e-mail, instant messaging. In
23 terms of content, hypertext connects content to other
24 content. Web services and other systems interconnect
25 people, content and computers.

26 There's a move from being generic to being

1 personal. If you have bought a car recently, or a
2 cell phone, or a computer, you can pick the interior
3 of the car you want, you can buy skins for your cell
4 phone, set the ring tones. And you don't walk into a
5 store and buy a computer off the shelf. You get
6 online and you say, I want this much RAM, this much
7 hard drive space, this kind of monitor, and you get it
8 the way that you want it.

9 There's also a move from consumption,
10 finally, to participation. Things like blogs,
11 podcasting and vodcasting, or video podcasting, let
12 ordinary people participate in reporting news, in
13 producing internet radio shows, and in making their
14 own movies.

15 So it's quite a move. I'd like to tell
16 two stories about a student that relate to these
17 moves. The first story has the student in her dorm
18 room, or at the student center, or in a coffee shop,
19 or on the bus, doing some homework. This student
20 connects to the internet using her laptop, which she
21 does mobilely. She uses Google to find a relevant web
22 page, which provides her a digital resource that is
23 open for her to access. And while carrying out her
24 search trying to solve her problem, she chats with one
25 friend on the phone and another using instant
26 messaging to see if they can help her.

1 In other words, she's connected to people,
2 and she's connected to content. The content itself is
3 connected to other content as she browses around the
4 web, clicking one link to the next. She quickly finds
5 the information that she needs, ignoring irrelevant
6 material. So what she's looking at is personalized,
7 it's not generic. Once she finds what she's looking
8 for, she shares that with her friends by phone and by
9 instant message. She participates in the process of
10 teaching.

11 Now, that same student a few hours later
12 in the classroom. The students are inside the
13 classroom; in other words, they're tethered in one
14 place. They're using textbooks and handouts or
15 printed materials. They pay tuition and register to
16 attend. In other words, the experience is closed to
17 most people. Talking during class, passing notes to
18 Joel or Tom, working with others outside of class
19 even, is generally discouraged. In other words, this
20 student is isolated, even though they're surrounded
21 physically by peers. Each student receives exactly
22 the same instruction as each of her 30 classmates.
23 It's generic as opposed to being customized. And the
24 students are students, and they don't participate in
25 the teaching process. They're consumers of what the
26 teacher is producing.

1 There's a disconnect here, and the
2 disconnect is growing wider and larger. We could tell
3 a similar digital, open, mobile, connected, personal,
4 participatory story about an engineer, about a
5 scientist, about a researcher, many of the kinds of
6 fields that we've talked about wanting our students to
7 go into here.

8 So as life, business and science drift
9 further from where higher education continues to stay
10 largely, where is the value? What's the value to the
11 people who pour their hearts, their souls, their
12 dollars, their tears? It's a question worth asking.
13 And the answers, I think, may be surprising.

14 Once upon a time, if I may, the courses of
15 our colleges and universities were the primary reposi-
16 tories of post-secondary content. Today, initiatives
17 like OpenCourseWare provide content-seekers from
18 around the world with other legitimate sources of
19 post-secondary content. Once upon a time, the
20 university library was the primary repository of
21 research, like peer review journals and monographs.
22 Today, initiatives like the Public Library of Science
23 and pre-print services provide individuals from around
24 the world with legitimate alternate sources of
25 research findings.

26 Once upon a time, a college or

1 university's faculty was the primary repository and
2 seat of technical and academic expertise within a
3 community. Today, technologies like e-mail, instant
4 messaging and others put seekers of expertise in touch
5 with faculty at other universities around the world,
6 as well as professionals, pro-am hobbyists and others
7 almost instantly.

8 Once upon a time, the degree programs of
9 our colleges and universities were the credentials
10 most highly valued by employers. Today, certifica-
11 tions like the Microsoft certified systems engineer,
12 Cisco certified internet work expert, and the Red Hat
13 certified architect certificates are sometimes worth
14 more to employment-seekers than a degree in computer
15 science from a four-year academic program.

16 So to summarize, once upon a time, higher
17 ed. enjoyed monopoly positions with regard to
18 curricular content, research results, expertise and
19 credentialing, but we don't anymore. Each of these
20 monopolies has been broken in the recent past, but
21 higher ed. hasn't done anything to respond yet.

22 Now, you might say, well, what about
23 online classes? What about e-learning? Isn't
24 e-learning the answer? As is highlighted in my
25 testimony, I think e-learning only covers two of these
26 six characteristics in that e-learning is digital and

1 it's mobile. I can do it from my bedroom or from the
2 pub or wherever. It still remains largely closed, in
3 that to participate in e-learning, you need to pay
4 tuition, you need to register, you need a password.
5 Online learning is notoriously more socially isolating
6 than face-to-face courses. Students are provided
7 basically with digital copies of the lecture notes
8 that were given in the classroom, so they still get
9 the same generic information that the other students
10 get. And they're placed in the position now of just
11 downloading stuff, so they're definitely still
12 consumers.

13 This is very different from the normal
14 life experience of today's undergraduates particular-
15 ly. Their lives involve insumptions (sic) about
16 instant on-demand access to multiple sources of
17 information from multiple people via multiple
18 technologies. If you walk into any teenager's bedroom
19 today, what you will see is them watching a DVD,
20 listening to music, surfing the web, talking on the
21 phone, and instant messaging with a few friends, while
22 doing homework, all at the same time. It should not
23 be any wonder that these students cannot tolerate
24 being talked to for 60 minutes. This is not the mode
25 that they work in.

26 It's even worse online. Online is a

1 cultural and social space for them. There's a certain
2 set of expectations there. When we take our
3 e-learning into that social and cultural space that
4 they're used to being in a certain way, and
5 appropriate it to our own ends, it's a very shocking
6 and disturbing experience for a lot of them.

7 Now, the name of this panel, which is
8 "Innovative Teaching and Learning Strategies," might
9 first conjure images of specific behaviors that we
10 could ask professors to demonstrate in the classroom,
11 things like, use a problem-based approach, or have
12 students work in small teams. But the diversity of
13 teachers' and learners' preparation and background,
14 combined with the actual differences in the academic
15 disciplines themselves, make it impossible for me to
16 recommend these or any other specific teaching
17 technique for application at all levels across all
18 content areas.

19 But I think there is at least one
20 innovative teaching and learning strategy that can be
21 applied broadly to the great benefit of higher
22 education and all its stakeholders, and it's openness.

23 I think the movement toward openness, which has
24 already been talked about in terms of MIT OpenCourse-
25 Ware, Carnegie Mellon's Open Learning Initiative, the
26 OpenCourseWare at Utah State and others, is really one

1 of the great innovations in teaching and learning
2 that's happened in the last several decades. In the
3 context of my remarks here today, I think that
4 openness is the gateway to connectedness, to
5 personalization, and to participation, and a broad
6 catalyst for other kinds of innovation.

7 A few examples: As a faculty member, if I
8 want to connect my course materials to prerequisite
9 materials from classes students have already taken in
10 order to either create review opportunities or provide
11 remediation, I cannot do that if those materials are
12 not open for me to access and point my students out.
13 As a faculty member, if I want to personalize the
14 experience for my students, or more importantly, if I
15 want to empower my students to meaningfully personal-
16 ize it for themselves, I and they have to be able to
17 edit and customize the materials that we use. We
18 cannot do that if they're not open. As a faculty
19 member, if I want to engage my students in creating
20 and contributing resources, tutorials and other study
21 materials to a class, this is much more easily done
22 when the course material repository is open and the
23 students are able to put things in it and participate.

24 A few words about how openness connects to
25 some of the higher level goals of the Commission. It
26 might be surprising to hear that, at MIT, at Utah

1 State, at Tufts, at Johns Hopkins, at some of the
2 schools -- at all of the schools where OpenCourseWare-
3 type projects are going on and faculty are being
4 invited to put their lecture notes, their syllabi,
5 their assignments and things out into the open, it is
6 not uncommon to have a faculty member ask for a little
7 time to tidy up those materials first. Right? And
8 why is that? It's because openness puts teaching in
9 the same position that our scholarly work is, which is
10 it opens it to peer review. That has an impact on
11 quality.

12 Openness of this sort also provides an
13 unprecedented level of transparency to all the stake-
14 holders in education, not just the faculty and the
15 students, but the parents of the students, who, being
16 a parent of future students, if I could go and look at
17 metrics about average student satisfaction with
18 courses, or actually look at the courses themselves,
19 read the lecture notes, see the assignments, I would
20 much rather have that level of transparent access to
21 what was going on in the classroom as a stakeholder.

22 Several reports already brought to the
23 attention of the Commission, like "Innovate America"
24 and "Rising above the Gathering Storm," have indicated
25 the absolute urgency with which the U.S. must work to
26 develop, recruit and retain the very best and

1 brightest students from home and abroad. Recent
2 analysis of evaluation data from MIT's OpenCourseWare
3 shows that, of students that knew about the existence
4 of OpenCourseWare before coming to MIT in this last
5 freshman class, 35 percent of those said that the
6 existence of OpenCourseWare was a factor in their
7 choosing to come to MIT as opposed to going somewhere
8 else. That number's up significantly from last year.

9 The world's best and brightest students
10 are already starting to see this strategy of openness
11 as a catalyst for further innovation, and they're
12 already starting to include this commitment to
13 openness as a criteria in the places where they choose
14 to go. The time will come -- as was requested by the
15 quote that Tom read, I think the time will come when
16 OpenCourseWare or similar collections of open access
17 materials are as fully expected from every higher ed.
18 institution as websites are today. Ten years ago, no
19 one had websites. But today, if your child or the
20 child of a friend was looking for a college, and you
21 got online to look them up and see what they did, if
22 they did not have a website, they would lose all
23 credibility whatsoever in your eyes probably. In
24 fact, you'd probably wonder if they'd gotten the name
25 of the university right.

26 The U.S. can be a leader in this next move

1 into OpenCourseWare, or we can follow. There are
2 already active consortia, as has been mentioned, in
3 China, in Japan, and in South America of universities
4 that are doing OpenCourseWare, as well as in Europe
5 and other parts of the world. In terms of the total
6 number of universities actively involved, the U.S. is
7 already behind.

8 Our first move or advantage in this area,
9 which is provided by MIT providing so many courses so
10 quickly, will not last long when the China consortium
11 has 150 universities in it. We have to broaden higher
12 education's commitment to openness, and then start to
13 innovate on top of that platform.

14 Now, one related remark. It's commonly
15 said with regard to large sections of general ed.
16 courses that everything past the fifth row of the
17 auditorium is distance learning. Okay. And to a
18 large extent, that's correct. The tried and true
19 techniques for teaching a 30-student course
20 deteriorate rapidly as the number of students grows to
21 50, then 100, and then to 300. The value of our best
22 pedagogical tool seems to vanish completely.

23 What we will be amazed to find, however,
24 is that the inverse is also true. There exist
25 techniques for facilitating learning among extremely
26 large groups of students that will deteriorate just as

1 rapidly as 10,000 students become 2,000, 2,000 become
2 200, and 200 become 50. Higher education is largely
3 unacquainted with these innovative teaching and
4 learning strategies, because before the internet, it
5 wasn't possible to put a group that large together
6 where each member of that group could communicate with
7 each other.

8 There's much for us to learn, then, by
9 looking at and studying the social, the linguistic and
10 the political structures of very large online
11 communities. These communities are a core part of the
12 everyday experience of our students, and an increasing
13 number of our faculty. This is just one area of
14 innovation that I think could be leveraged by a
15 commitment to openness in education.

16 Soon after the launch of MIT's OpenCourse-
17 Ware initiative, my team at Utah State worked together
18 with them to develop an online support area called
19 Open Learning Support, where people using the MIT
20 materials could form study groups to freely tutor and
21 support each other. We've seen students from around
22 the country and around the world freely and
23 effectively answer questions in every topic, including
24 linear algebra and physics. We've also seen faculty
25 from MIT and from other areas participate voluntarily
26 in these forums to support students.

1 So open access to educational materials,
2 in this case, in turn opens access to peer support.
3 Open access to educational materials also opens access
4 to faculty support, because when the faculty aren't
5 spending all their time lecturing in the classroom
6 delivering what could've been delivered electronic-
7 ally, faculty are now free to do other sorts of
8 things.

9 Edwards Deming said, "It's not necessary
10 to change. Survival is not mandatory." I like that
11 quote, and I think it's relevant in this context.

12 In summary, then, I'll say, I think that
13 higher education is increasingly falling out of step
14 with business, science and everyday life. In order to
15 realign itself with changes in society and in its
16 student base, higher education must find the will to
17 innovate in the area of openness, and then in the
18 areas of connectedness, personalization, participation
19 and other key areas. But openness is the key to
20 enabling these other innovations and catalyzing
21 improvements in quality, through peer review, and
22 accountability, through transparency mechanisms, and
23 through affordability and accessibility, for obvious
24 reasons.

25 The open infrastructure of the internet
26 has enabled a huge number of innovations at a speed

1 and scale that could never have occurred if that
2 infrastructure had been closed. I submit that
3 content, faculty support and peer support are the
4 infrastructure of teaching and learning. To the
5 extent that we open these, we can speed the adoption
6 of scale of innovation in the teaching and learning
7 space.

8 So my recommendation to the Commission is
9 this: Please set a bold goal of universal access to
10 educational opportunity. It's the right thing to do
11 for the citizenry. It's the best thing to do for
12 higher education. And openness can play a large part
13 in making that successful. Thank you.

14 CHAIRMAN MILLER: Thank you.

15 I'm awed. I have a hard time saying
16 anything, for a change.

17 (Laughter.)

18 Rick.

19 MR. STEPHENS: Great presentation. I have
20 some questions about OpenCourseWare and the business
21 model of education. On one hand, we see the cost of
22 higher education continue to escalate. Yet what
23 you're proposing is an openness and essentially
24 sharing of the intellectual property that universities
25 have or colleges or higher education have. How do you
26 see the OpenCourseWare approach playing out in the

1 business model that currently higher education has
2 today?

3 MR. WILEY: Well, I think part of what MIT
4 has demonstrated to all of us in setting an example
5 through OpenCourseWare is that the intellectual
6 property of -- how can I say it? -- the value of a
7 university education is not in the content. That's
8 not where the valuable intellectual property is. If
9 the value of the university experience were the
10 content exclusively, then libraries would never have
11 evolved into universities. Right? I could walk into
12 a library, I could check out textbooks, I could take
13 them home, and I could call that a university
14 education.

15 Of the many things that the university
16 does -- and we've talked about some of them in terms
17 of socialization and credentialing and those kinds of
18 things over the last day and a half -- providing
19 access to content is not the core value of the
20 business model. Right? It's access to experts who
21 will be dedicated to helping you when you need help.
22 It's the credential that you receive. It's the social
23 networks that you build while you're there, that
24 later, when you go out to get jobs, you tie into. The
25 primary, secondary, tertiary, none of those values in
26 ranking are the content.

1 MR. STEPHENS: I guess I would say,
2 though, that with a school like MIT, which has a large
3 financial endowment, clearly the endowment is paying
4 for much of the cost, and the tuition is not covering
5 all that cost. So if in fact today 40 percent of
6 students are 25 years or older, and are no longer
7 living on campus, I suggest the model is changing. So
8 again, over time, if that plays out, and there are
9 fewer and fewer who actually have to show up on
10 campus, then I'm trying to understand, again, what
11 that model looks like. And again, if in fact we're
12 seeing costs go up, what's going to cause it to turn
13 around, to come back down? OpenCourseWare certainly
14 looks like the opportunity, but I don't understand the
15 dichotomy.

16 MR. MAGNANTI: Let me offer a couple
17 thoughts on that. One is, I think, as David just
18 said, we shouldn't confuse knowledge transfer with
19 education. I think it's a mistake to do that. And
20 this is knowledge transfer. It's providing access to
21 information.

22 Our young people go to websites and
23 download music for \$1.99 -- right? -- they download a
24 piece of music. Let's suppose that I told you you
25 could access the curriculum at any one of our
26 universities at a dollar an access -- dollar an access

1 point. That's about what we're talking about in terms
2 of OpenCourseWare. Our funding basis comes from
3 foundations. It's been on the order of about \$22
4 million to put that in place. But we've had
5 17 million visitors. All right. So we're talking
6 about a dollar to access that. Right? Compare that
7 with a university education these days or 30, \$40,000,
8 whatever the university education is. This is
9 scalable, it's affordable, and it provides access, I
10 think, to the many. I think we've got to think of it
11 in that terms.

12 But I would encourage us, don't confuse it
13 with a university education. There's the socializa-
14 tion, credentialization, there's all that goes with a
15 university education that OpenCourseWare is not about.

16 It's about providing access in the way that I think
17 that David has articulated so wonderfully.

18 MR. WILEY: Although I do think that when
19 that content becomes open for people to use, then that
20 opens up not the kind of socialization that happens on
21 our campus, but another kind of socialization. And
22 you can talk about whether instant messaging and
23 e-mailing and all those kinds of things are legitimate
24 kinds of socialization or not. You may call them
25 illegitimate, but that's the way that a lot of our
26 students are socializing now. So it does open it to

1 that, and it opens it for other kinds of entre-
2 preneurial, innovative things to happen in
3 credentialing and in a bunch of other spaces.

4 MR. SMITH: So can I respond? For our
5 kind of content, the question you ask is a much more
6 complicated question, because we are, as I said,
7 creating the delivery of instruction online. And so
8 the economic model of how you support that -- and that
9 is not cheap. We estimate, of the courses we've
10 created so far, although we're driving the cost down
11 by creating the models for development and the infra-
12 structure to support it, so it's probably now on the
13 order of between \$500,000 and a million dollars a
14 course to make a really effective course. So it's not
15 something we're going to support out of our endowment.

16 We're also foundation-funded right now. And so we
17 have to create some kind of mixed model, and we're
18 committed to some kind of mixed model, where the
19 content can be available, open, but there's some added
20 value that people who will use the courses get, and
21 students pay for. But again, I agree that this is
22 scalable.

23 The difficulty is largely social. That
24 is, if our statistics course -- let's say our
25 statistics course cost a million and a half to build.

26 You can do the math. If there are a thousand people

1 using it, well, it's fairly expensive. If there are
2 10,000, that's a pretty inexpensive, high quality
3 course. But we've got to convince people that -- get
4 them out of the "not invented here" syndrome and
5 develop that kind of business model.

6 CHAIRMAN MILLER: David.

7 MR. WARD: I'd like to sort of ask a
8 question a little bit about the sort of long-run of
9 the history of higher education, because in some ways,
10 you may be defining a break point, because
11 historically we've reflected on the history of higher
12 education from the middle ages, probably associating
13 the invention of printing in a sense with the nodal
14 points of higher education, and then various elements
15 of change in the 19th century. In a way, we've been
16 arguing that, like the church, in a sense, we've
17 changed little. There's this sort of continuity that
18 can accommodate structural and social change, and we
19 change just enough to cope with it.

20 I think what you were talking about is
21 something which cannot be coped that way, that we're
22 facing institutionally a culture that probably has a
23 lot invested in slow change or in the idea of
24 preserving tradition, and that, therefore, we examine
25 what should be preserved rather than what should be
26 innovative. I think most of us who have run

1 universities sense a bicultural element in the
2 faculty, the staff, the alums, between change and
3 innovation. The change culture is very different from
4 the preservation culture.

5 Your description, David, is that, in
6 effect, we may redefine the architecture and the
7 structural properties of an institution, and how --
8 what it will look like. In other words, we have a
9 model which probably is close to that, and it may --
10 and that's going to be very hard, because I really
11 think there's a certain pride in what I would call
12 adjustment rather than innovation in how we've coped.

13 So that would be my first observation. Do you think
14 what you've described, unless we can change that
15 culture, which weighs preservation so heavily, and
16 conservation so heavily, then we are, for the first
17 time, going to be obsolete because we can't change
18 fast enough?

19 The second one is more -- perhaps the more
20 difficult challenge, which is that in order to solve
21 the dilemma of under-performance of American students,
22 whether it be in college, high school, or before,
23 there's a sort of a standards movement, and a sort of
24 accountability movement, that places a great deal of
25 emphasis on age -- largely age-specific standards.
26 What I'm hearing again from you is customization, and

1 that in fact it may be possible for somebody at 15 to
2 have the same sort of body of things somebody else may
3 have at 20, and that in fact we are investing a great
4 deal in standardized evaluations in which the average
5 may have a great deal of variation in it, and that
6 while we may raise the minimum average standards, we
7 may inhibit the precocity of those who are well above
8 that standard. Particularly as we move into high
9 school, a high level of standardization may in fact
10 have some problems for us in terms of innovation and
11 so on, and how can we introduce customization into the
12 standards movement? Two questions there.

13 MR. WILEY: Well, there is a role for
14 standards to play, from at least this perspective:
15 the history of the automobile and of being to mass --
16 not only mass produce, but mass customize automobiles.
17 Right? And if you know six sigma (ph), the lean
18 literature, then what I'm going to say is going to be
19 repetitive. But it wasn't the assembly line that
20 really revolutionized the production of large numbers
21 of cars at quality. Right? It was the careful
22 standardization of each of the parts that had to
23 attach to each other. So instead -- in an initial
24 case, when you'd get a part, you'd have to take it and
25 file it and customize it to make sure you could snap
26 it into the other part and put it together to build

1 the car. But when those parts were highly
2 standardized, then it became quick matter to put those
3 together and produce a car more quickly. Then once
4 you knew what the standard was, if you didn't want the
5 red one, you could take a blue one, and mass
6 customization became possible also.

7 So there's definitely a role for standards
8 to play, but I think it's in a different way than we
9 tend to think about 'em, the kind of age-specific way,
10 you know, all the way across, you know, every 17-year-
11 old should be at a certain level. So I think it does
12 require, again, a rethinking of the role of standards,
13 not a rejection of standards, because standards are
14 extremely important to make a lot of this happen, but
15 thinking about them in a different way.

16 CHAIRMAN MILLER: I could add that there
17 are efforts, and there are actually examples in K
18 through 12, of doing exactly that, customizing the
19 learning process individually by students. And
20 there's technology available. The biggest hurdle
21 isn't the testing or the standards part. It's
22 actually the custom of how we behave in classrooms.
23 And it's very hard for an earlier trained teacher over
24 at a district that's not interested in change to adapt
25 to those things. It's not that they're not available,
26 and could be used actually fairly easily today. And

1 it's not the standards that intervene, it's the people
2 in the system that, as you say, are change-resistant.

3 MR. WILEY: Again, the technology's never
4 the hard part. The social part is always the hard
5 part.

6 MR. SMITH: This is also a place that I
7 would encourage the Commission to take a look at
8 something like those cognitive tutors for algebra and
9 geometry, because built into those are learning
10 objectives. And students have what they call a
11 "skillometer" that indicates on an individual basis
12 whether they're acquiring the skills that are
13 specified. They'll acquire them at different rates,
14 and the students get that feedback about whether
15 they're acquiring them or not. So it's not a single
16 final test, but instead, it's an accrual of data on
17 how that particular student is performing. Indeed
18 those build a student model for that student, and you
19 can look at that model for that student and what he or
20 she understands.

21 So, I mean, here's a place where that kind
22 of combination of cognitive science and technology can
23 actually play a role in making interactive assessment
24 of whether students are performing the way we need
25 them to.

26 MR. MAGNANTI: I can't help but think of

1 your question in the context of textbooks. You think
2 of a textbook not as providing standards, but as
3 providing some core knowledge that we capture, and
4 hopefully in a compelling way, and that we then
5 customize. And we locally customize for our students
6 locally at our universities. So we take a particular
7 piece of knowledge, and I think in some ways we've got
8 to capture some core knowledge that we agree is --
9 whether you call that standardization or whatever --
10 and then how do we customize that? We, I think,
11 traditionally have customized that locally at our
12 universities in our classrooms. I think as the panel
13 is suggesting, there might be different forms of
14 customization that's provided, I think, by the fact of
15 this openness, or the students might do some of that
16 customization, as well as the faculty.

17 MR. WILEY: If it's going to scale.

18 MR. MAGNANTI: Yes.

19 MR. DONOFRIO: Just a few thoughts, and
20 somewhere in these thoughts there'll be a question.
21 I'll promise you this. I am terribly encouraged by
22 all three of you. Absolutely fascinating, very, very
23 well done. And not only because I'm a technologist,
24 but who you are and what you're saying, this gives me
25 great hope, in all candor, given the academic
26 institutions that you represent, to have such forward-

1 thinking ideas about pedagogy and how we really should
2 be teaching our students.

3 Perhaps the best thought I have here is,
4 you're quite right, David. I think this whole
5 openness movement is being terribly underplayed. I
6 think it's as much a social movement as it is a
7 technological movement. Here's what my real worry is
8 for us and for you. Industry thinks it needs
9 something different than what you're producing,
10 because it lives in that real world. The children
11 that we are growing up here, the K-through-12'ers that
12 we are growing up, they are changing at an incredibly
13 fast rate. They are not what we have been putting
14 into college. They are coming better prepared.
15 They're different. They think differently. You're
16 quite right; they live in an online world, for
17 goodness sakes. You know, they got 17 windows open
18 all at the same time. You talk about being able to
19 multi-task. And that's the world they like to live
20 in.

21 Then to exacerbate that -- to exacerbate
22 that, of course, we're giving them more powerful
23 machines every day to play their games with. You
24 know, soon they'll have a terraflop's worth of
25 computing in their hand, you know, playing all these
26 wacky things that they do.

1 So you are absolutely correct, I think, in
2 your thinking, all three of you, in terms of getting
3 in line with this movement of change that maybe -- you
4 know, people talk about often a silent crisis or quiet
5 crisis. This may be one of the more silent crises
6 that's occurring. Maybe they're not all as educated
7 as we'd like them to be. And maybe there's not
8 accessibility for all of them either, by the way. So
9 that's a big issue in terms of the way the population
10 in this country may be split, depending upon who you
11 are and what your background is. But eventually,
12 we're probably doing a pretty good job here in terms
13 of getting everything wired up.

14 So maybe here's the question. I was going
15 to ask you a whole bunch of things about overseas, but
16 I'm not going to do that. How do you enact this
17 blended model that you keep talking about? I mean,
18 how do you really make some substantive change, to be
19 candid with you, in what you teach at your
20 institutions?

21 You know, in all due respect, Tom, I mean,
22 so have you changed the way everybody is taught at
23 MIT? It sounds like Joel is trying hard to do that at
24 Carnegie Mellon. Although he admits he doesn't
25 understand the blended model, and he doesn't have a
26 handle on it, but he comes the closest to offering us

1 the ability to actually driving down the cost of
2 educating someone.

3 Could any of you comment on, are we
4 actually going to put this into work, or is this just
5 going to just be a great corpus of knowledge here that
6 we'll look back on 20 years from now and say, man, we
7 should've done it because China did it?

8 MR. MAGNANTI: Well, first of all, thanks
9 for the question, Nick. Again, we shouldn't confuse
10 the OpenCourseWare movement with education, and it's
11 not the totality. So I'll just give you a couple
12 examples at MIT. I'm sure we could give others at the
13 other places.

14 Our basic freshman course in physics now,
15 which used to be a 300-person lecture course, is now
16 taught in a studio format. So it's taught in a room
17 with 13 projection screens around the room, students
18 around tables. They've got desktop experiments,
19 computers there. It's taught with mini-lectures.
20 It's taught with little beamers in terms of conceptual
21 questions, and they get histograms for those questions
22 in a much more interactive, flowing framework.

23 Our curriculum in our Aero/Astro Depart-
24 ment now is taught in a scheme which they call
25 conceive, design, implement, operate, in terms of
26 where they talk about conceiving of products,

1 designing products, implementing products, operating
2 products. They're now teaching in a framework in
3 which they use -- the instruction is conceptually
4 driven. So they have students before the class
5 actually do the homework and do the reading
6 assignments, and they come into these classes and say,
7 here's four conceptual questions. Let me give you a
8 test on those four conceptual questions. Based upon
9 that, I'll in real time do the lecture.

10 So there's an enormous amount of
11 innovation, not just at MIT, but at all of our
12 institutions, in terms of, I think, in some ways,
13 we're seeing, I think, a seat change in terms of
14 higher education in general. At many places, we've
15 sort of created these research factories, and they've
16 served the nation well. But now I think our faculty
17 are stepping back and saying we want to think
18 seriously about education. And I'm seeing that not
19 just at MIT, but at lots of our institutions. So I
20 think we're actually seeing those kind of changes.

21 This OpenCourseWare provides, I think,
22 materials for the faculty to use, and the wherewithal
23 to make some of these changes. And so it helps to
24 facilitate some of those changes. But this is not --
25 OpenCourseWare by itself is not going to change
26 education.

1 MR. DONOFRIO: I understand.

2 MR. MAGNANTI: We need systemic changes in
3 pedagogy, as well.

4 MR. DONOFRIO: I do understand. You're
5 close to the same topic, but you're all quite
6 different. So I do understand that.

7 But, Joel, what you talked about was more
8 about changing the way the young are actually taught.
9 Tell me a little bit more about that.

10 MR. SMITH: So the answer is that these
11 Open Learning Initiative courses are being -- and
12 parts of them -- are being used at Carnegie Mellon.
13 And, yes, it's fundamentally changed the way that we
14 teach introductory statistics, introductory economics,
15 it's changing the way we teach introductory biology.
16 The faculty, working with this team of experts, is
17 learning about what we now know about how people
18 learn. That's the difference. These are world class
19 researchers who are interested in the quality of their
20 instruction, but they don't have time to go and learn
21 cognitive science.

22 I'll tell the Commission one of the things
23 that has frustrated us. We have on repeated occasions
24 submitted proposals to the National Science Foundation
25 and the Department of Education saying we as a nation
26 need some way -- and we would like to get started --

1 to help faculty understand what we now know about how
2 students learn, and to continue to learn that as the
3 cognitive sciences and the other learning sciences
4 develop. There seems very little interest in this
5 engineering piece of taking the results from the
6 research, and taking the methodology, and pushing it
7 into classrooms in ways that will actually be useful
8 for faculty. And that's faculty across the range,
9 from R1 to community college faculty. And those will
10 be different. Right? But find ways to help them
11 learn about this new information. And there's really
12 not much support making that effort.

13 CHAIRMAN MILLER: Who are the people you
14 listed there? That was National Science Foundation,
15 NIH. Did you try the Department of Education?

16 MR. SMITH: No, I think we'll try them
17 next.

18 CHAIRMAN MILLER: All right.

19 MR. WILEY: I'll just give one example
20 briefly, as well. As a faculty member in instruc-
21 tional technology, I teach a two-course sequence on
22 the design of educational materials, with an emphasis
23 on designing them so they can be easily reused by
24 someone else at another point in time. It's a design
25 field. There are many points of view. There are
26 principles that are well understood, but there are not

1 clear answers that are right as opposed to others that
2 are wrong.

3 In the second semester of this two-course
4 sequence, in trying to think about how to apply some
5 of these principles about being digital and open and
6 connected and participatory and these things, with the
7 goal -- with the primary goal really being of helping
8 students understand what the different arguments from
9 the different perspectives are, I designed a course
10 that read basically like a script for a sitcom. So,
11 several characters, one who's the vice president of an
12 educational software company, one who's a researcher,
13 one that's a corporate and structural designer that's
14 creating training materials there, five or six kinds
15 of people, and wrote all the lectures from this
16 perspective. It's basically a group of people that
17 get together weekly and argue about the different
18 points of view.

19 Now, I took that course, and I put it onto
20 a wicky (ph). And if you're not familiar with a
21 wicky, a wicky is a website on which every page has a
22 button that says "edit," and anyone can click that
23 button, and anyone can edit it. So I took that, and I
24 put it in a public place, as well, so that people
25 could find it. About three weeks into the semester,
26 one of the students -- well, I came back to the

1 course, and I saw that there was a new character in
2 the sitcom. It was a graduate student. And one of
3 the students had said, you know what, the perspective
4 of students isn't represented here. And they got in
5 and started weaving their comments and their points of
6 view, and actually wrote that out through several
7 weeks of the course.

8 So it would take a different kind of
9 solution if you were teaching math. I'm definitely a
10 believer that the approaches need to be customized
11 depending on which content area that you work in. But
12 in this particular area, this was an approach that was
13 very successful with the students. It was digital, it
14 was open, and things were connected to each other.
15 They participated, and they took it a direction that
16 they were interested in. I think it was a moderately
17 successful example.

18 MR. DONOFRIO: It's actually in their --
19 it's in their real life, too, Dave.

20 MR. WILEY: Yeah.

21 MR. DONOFRIO: I mean, this is the way
22 they live; right? It's wicky, PD, blogs. I mean, we
23 just don't really grasp yet just how multi-tasking and
24 how unstructured their whole world is. So I am
25 encouraged here. I mean, so clearly we'll have to
26 focus more on this.

1 MR. MAGNANTI: I want to offer a brief
2 comment here, and that is, we think this sharing and
3 multi-tasking is new in some ways. Now, some of us
4 did it before, but at a slower pace. I wrote a book
5 once, and I claim I wrote this book with Johnny
6 Carson, because I used to write it at 11:30 at night
7 until 1:00 in the morning watching Johnny Carson. So
8 we did it at a slower pace, but we did do it.

9 MR. DONOFRIO: I still do it.

10 MR. ZEMSKY: If you've been here through
11 this day and a half, you'll discover I frequently
12 follow Nick, and I'm not nearly as nice.

13 (Laughter.)

14 I've been -- Joel, you know this -- but
15 I've been a long-time watcher of you guys, and
16 fascinated by the technology and what you do. But I
17 keep coming back to the following proposition, which I
18 have two parts to it to ask you to respond to. The
19 not nice way to put it is, your problem is you don't
20 have any customers. You have answers for other
21 people's problems, and they don't see the problems
22 that you're talking about.

23 The other proposition is -- and again, it
24 doesn't work exactly at MIT what I'm saying, and I
25 understand that, or at Carnegie Mellon in the narrow
26 sense -- but, you know, we have at least two major

1 problems in the education realm that we just aren't
2 getting done. We're not getting language instruction
3 done. There isn't anybody that's going to say we are
4 good at language instruction in this country.
5 Actually, we're not getting science or math literacy
6 done. I keep -- the proposition I -- every time I'm
7 sort of in this is, I'm always amazed, and I'm all for
8 openness, and I get all that message, but I think you
9 guys need customers.

10 I was sort of struck that I think all
11 three of you said you're living off the foundations.
12 You're not living off the core budget. If you had
13 customers, you'd be living off the core budget. I
14 think that's the change that just doesn't get made
15 somehow, because the people you need to serve don't
16 think they need your services, in the nicest way I can
17 put it.

18 MR. SMITH: So I think that that is a
19 basic problem. I mean, we do have customers in the
20 sense that there are dozens of universities across the
21 nation that are now learning Open Learning Initiative
22 courses. Gradually, over five or six years of
23 difficult work, the company, Carnegie Learning, that
24 now markets the algebra and geometry cognitive tutors,
25 made tremendous inroads into being used in the public
26 education system, the K through 12 system, in the

1 United States. But I think in that case, the change
2 that happened was the demand for curriculum that
3 actually worked.

4 Suddenly from above there was a demand
5 that, oh, my goodness, we really have to teach these
6 students in a way that's going to be effective so they
7 actually know algebra and geometry. That was the
8 point at which Carnegie Learning could haul out all of
9 the research, the dozens of scientific research
10 papers, and say to the superintendents, you can buy
11 this, and this is going to work. That is when they
12 got customers. Of all the customers that started with
13 them, only they and one other are left. And you're
14 right; they didn't have many customers to start with.

15 We don't have that customers for the Open
16 Learning Initiative courses we're developing now. But
17 what we are trying to do is understand what it will
18 take when the tipping point comes, when we hear about
19 the difficulty of students fulfilling their
20 requirements in California, having to go an average of
21 seven years in order to actually get all their
22 courses. When the tipping point comes, and somebody
23 says, we're going to have to do something about this,
24 we want to know what it takes to actually deliver
25 effective online learning. And so in many ways, we're
26 preparing for a future that we hope comes, and that

1 we'll have customers for these now. But you're right;
2 right now, people don't realize that this is a way
3 that could solve problems that they have.

4 CHAIRMAN MILLER: It probably comes that
5 the average retirement age of the current faculty at
6 large -- we have change-resistant institutions, is
7 what we know, and it's very hard for people to adapt
8 new technology and new circumstances. In fact, it
9 tends to work against some of their interests, it
10 seems to me. That's an argument that happens in other
11 places, too. Your K through 12 example is clear. And
12 if you don't have standards, there's no way to measure
13 whether it's good or bad to begin with.

14 MR. WILEY: I want to disagree in the
15 politest way possible with Bob's comment, because even
16 though the foundation does fund the software that we
17 write that provides the social wraparound of MIT
18 OpenCourseWare, and the foundation funds the open
19 source software we write that people can use for free
20 to pick up and do their own OpenCourseWares, they
21 don't fund my teaching. I was actually trying really
22 hard to suppress the great offense I took yesterday at
23 a comment that was made. I can't remember who made
24 it, but the comment was that employers are the primary
25 consumers of higher education's product. And I
26 thought, where are the students? And to tell me that

1 I don't have a customer, when I'm in the classroom
2 teaching students, and I do the kinds of things I do
3 to respond to the needs that they have, I definitely
4 do have customers. Now, they're not large-scale, you
5 know, it's not a thousand of them. But I've got
6 classrooms full of students that demand something
7 different, and I try to be innovative to respond to
8 those. And I think I absolutely do have customers.

9 MR. ZEMSKY: Just a quick -- it -- it
10 seems to me that what happened in medical technology
11 is an interesting example. You want to talk about a
12 resistant profession, try the docs. Okay? And
13 they're greedy to boot. That's got the two things
14 that don't work too well. That wasn't recorded, I
15 trust.

16 (Laughter.)

17 But when they really had some major
18 problems, suddenly they changed dramatically. And one
19 of them was they wanted non-invasive diagnostics.
20 They embraced things that they wouldn't have thought
21 of embracing.

22 See, I think, Charles, that the thing that
23 the Commission could do -- and this isn't meaning
24 to -- these guys are doing great. Nick is absolutely
25 right. Our job, it seems to me, is to create the
26 customer base, not to invest further in the product

1 development. We just need a customer base for what
2 these guys do. And they will do fine if we can drive
3 them to a customer base.

4 MR. MAGNANTI: I guess we've all had an
5 allergic reaction to your comment, so I'm going to
6 respond to it, as well.

7 CHAIRMAN MILLER: He warned you ahead of
8 time.

9 MR. MAGNANTI: The packaging label was
10 good. But I'm a little puzzled by your comment.
11 There's a question of who's going to fund what we're
12 doing, and then whether we have customers. Now, as I
13 mentioned, 11 million unique visitors have visited
14 OpenCourseWare sites -- 11 million unique visitors.
15 When we started OpenCourseWare, we began by going
16 through a strategic planning exercise at MIT to say,
17 are we going to get into the distance education game
18 and a for-profit game? And we decided not to do that.

19 We decided it would be better to move to this
20 OpenCourseWare movement and give it away, to the
21 consternation of some of our faculty, I might say, who
22 said this is the dumbest thing MIT could ever do,
23 which is to give away all our intellectual property
24 and intellectual content.

25 But I think there are customers for this.

26 I think one of the things I recommended, and maybe

1 didn't recommend forcefully enough, is I would ask us
2 to think about creating multiple versions of these
3 across the nation, as David has said, but also one for
4 secondary education. If we think about trying to
5 improve secondary education in this nation, providing
6 OpenCourseWare material that's widely available for
7 that institution to bring the best math, physics,
8 science, chemistry and biology education to them, and
9 to also introduce engineering education to that
10 population -- I think if we can introduce engineering
11 education to help stimulate and motivate the basic
12 math and sciences, we would improve secondary
13 education, we would improve the literacy of our
14 population in terms of their understanding of science
15 and technology, and we would create more, I think, of
16 a demand for science and engineering education and
17 learning at the college level. I think some of the
18 pipelines --

19 CHAIRMAN MILLER: How does that happen?
20 I'm having a hard time as a lay person. You said it's
21 not for education, it's sort of out here as a great
22 opportunity, but I'm not sure what it does to educate
23 people. So you just said it would inspire people if
24 they had this available for secondary.

25 MR. MAGNANTI: That's correct.

26 CHAIRMAN MILLER: And what's the

1 connection? How do they fit?

2 MR. MAGNANTI: Well, there's a certain,
3 "If you build it, they will come," I think, mentality
4 here. And I don't say that to be flip in any sense.
5 But we could unleash the creativity of our students,
6 we would unleash the creativity of our faculty across
7 the nation, if they had a set of materials that they
8 could use. And we've seen this with respect to
9 OpenCourseWare, people using it in very unusual ways,
10 ways that we didn't anticipate -- self-learners, home-
11 schooled people using this, people using this all
12 around the world in a wide variety of ways. I think
13 just let's unleash the creativity of the population
14 out there by providing them with some compelling
15 material. And we can't do this compelling material
16 unless we have some collective activity as a nation to
17 develop this. We can't afford to do this one at a
18 time across the nation. We need, I think, a concerted
19 effort by the nation. It will not be that expensive
20 on a per-use basis if we do that.

21 MR. ZEMSKY: Could I just say that the
22 difference between Joel and Tom is, remember when Joel
23 told his story, he had a real problem he went out and
24 solved. They couldn't learn geometry and algebra.
25 Tom, I think the difference between you and I is I
26 just don't believe in "awe shucks." I think that

1 until the educational establishment comes to a
2 recognition, this is the job we're not getting done,
3 they're not going to reach out for you guys. So that
4 we could -- my argument, for what it's worth, is you
5 will be inundated if people like me, who do the
6 teaching -- because I'm like David in that way --
7 said, I can't get this job done using my current
8 tools. Right now, 95 percent of the people who stand
9 in college and high school classes actually think they
10 can get the job done with current tools. That's what
11 we have to change.

12 It's not a comment about open source. I
13 believe. I'll bleed for you if you need me to. But I
14 need the problem on the table, because the evidence,
15 to me at least, says the innovation does not work
16 unless -- in this country particularly -- unless it's
17 problem-attached. And we need to get more specific.
18 It's not just science literacy. It is, how many
19 people do you have to teach to speak Arabic, Sally?
20 She's got a real problem you could help her with,
21 actually, it turns out.

22 CHAIRMAN MILLER: Okay. So I think you
23 just got some new customers here today, one for sure.

24 I need to still understand, is the idea
25 that you'd have a nation of learners, you'd have all
26 this information, and you'd create the intellectual

1 curiosity, and somehow a large set of people start
2 communicating with each other to access that, that
3 they spend their time now accessing this information
4 more than doing something else?

5 MR. MAGNANTI: I would, again -- and the
6 other panelists might have a different view on this --
7 think of this as publishing, think of this as
8 textbooks, think of this as putting in the hands of
9 educators compelling material that they can use. This
10 compelling material need not be at the level of a
11 course. It could be modules that they could use so
12 that they could infuse some of their basic education,
13 at the secondary education, or at the college level,
14 to provide a set of compelling materials that will
15 help improve their education and provide them with
16 some resources for that, but done at a national level.

17 MR. DONOFRIO: So, I mean, maybe -- if I
18 could, Mr. Chairman? -- maybe this has something to do
19 with the other issue we've been dealing with, which is
20 the lack of science and the lack of math teachers in K
21 through 12. Maybe what Tom is suggesting is that that
22 type of offering could be put together -- and maybe it
23 needs to be put together by colleges, by the way, so
24 that we could then open it up and offer it to people
25 who want to upgrade or improve their ability to teach
26 math and teach science in K through 12. That could go

1 a long way to getting this whole movement started,
2 Tom.

3 MR. MAGNANTI: Yeah. So already we've
4 unleashed creativity; right? So now the thought is,
5 let's take this and use it to educate those 70,000
6 math teachers that we want to educate; right? So
7 let's use this as a mechanism for doing that.

8 CHAIRMAN MILLER: All right. I want to
9 ask a question that's separate from that. I heard a
10 comment about the Chinese will eventually have many
11 more of these OpenCourseWares. So is that going to be
12 in Chinese, or what's the validity of that data? Can
13 we rely on it? I mean, what's the quality? Or is
14 that sort of an intellectual head-fake? I mean, what
15 controls that in that kind of world?

16 MR. WILEY: I'm not -- I think I can
17 answer your question, but I don't quite understand it.
18 So that's actually probably pretty dangerous. Would
19 you restate it?

20 CHAIRMAN MILLER: Well, I heard somebody
21 say that --

22 MR. WILEY: It was me.

23 MR. DONOFRIO: It was David.

24 CHAIRMAN MILLER: -- we're just creating
25 this, but in the relatively near future, there'll be
26 many more of these kinds of opportunities created by,

1 say, Chinese universities. I don't know anything
2 about the reliability or validity of that. I have a
3 brand effect when I hear MIT, but I don't know that
4 from a Chinese -- and what language will it be in? I
5 mean, what's the benefit of it for most people that
6 speak other languages if it's in Chinese?

7 MR. WILEY: In our OpenCourseWare, we do
8 have modules on how to speak Chinese. But there's
9 a -- the group of schools that are doing this
10 initially do a lot of information-sharing in terms of
11 what are the best practices. How do we do it with as
12 little resource outlay as we can? How do we prevent
13 exposing the university to risk of litigation from
14 sharing IP that we don't own? And so there's a lot of
15 communication back and forth between these groups. In
16 fact, in April, there'll be a meeting in Kyoto of all
17 the 50 main universities around the world that are
18 doing this kind of OpenCourseWare work. There's a
19 consortium of the ten very best schools in Japan.
20 It's Tokyo University, and Waseda (ph), and Osaka, and
21 Kyoto, and Kyushu Daigaku (ph), and it's the big
22 schools there, the schools in China, it's Beijing --

23 CHAIRMAN MILLER: How do you know what the
24 validity of the information is? We have a reliability
25 here when people put out with the name MIT or
26 something. We trust it. Why would anybody trust some

1 other university that most of us would not know about?

2 Are you going to vet information? Are you going
3 to --

4 MR. DONOFRIO: What are they doing it for,
5 David? Are they doing it for themselves, or are they
6 doing it for the world? Maybe that helps.

7 MR. WILEY: Well, mostly it's done by
8 consortia; right? It's ten schools in France, it's
9 ten schools in Japan. But the Japanese schools are
10 all translating the materials into English, as well as
11 into Japanese. At the Chinese schools, some of them
12 are doing it in English. All of it's being done in
13 Chinese. In fact, some of what they're doing is
14 translating the MIT materials into Chinese so that
15 students can use it there.

16 But the question of what's the validity or
17 the reliability of those materials are -- well, the
18 simple answer is it's people with Ph.D.'s that teach
19 at universities, so it's the same reliability and
20 validity answer as what happens in the classrooms.

21 MR. SMITH: Well, I think you raise the
22 issue of sort of trusted sources and credentials and
23 credentialization. Johns Hopkins is putting up an OCW
24 source in medicine. Well, that's a trusted source,
25 and we know that that's going to be high quality
26 because it's a trusted source. It's the same way when

1 we develop textbooks. We write textbooks, and some of
2 them you're going to say you trust in terms of their
3 content, and some you're going to less trust. But the
4 movement here is to provide openness and provide this
5 ability. It's not to validate, it's not to
6 credentialize other universities.

7 MR. DONOFRIO: But here's my biggest
8 worry. If China gets customers -- to Bob's point --
9 before we do, they'll come up with a better blended
10 model, Joel, and they will drive this a lot faster and
11 educate a lot more, and maybe, to your point, a lot
12 more effectively.

13 MR. WILEY: Well, and realize that quality
14 doesn't mean the kind of content that comes out of the
15 R1 schools; right? There's a lot bigger need for this
16 in community college just in terms of sheer numbers.
17 You couldn't take the linear algebra course out of
18 MIT, and without changing it at all, drop that
19 material into a community college mathematics course
20 and have it work. We need these OpenCourseWares at
21 all levels. The R1s need to be collaborating on them.

22 The teaching universities need it, the community
23 college level. We need a broad collection of schools
24 that are working together on this, and one place where
25 we can go to get access to all of it.

26 MR. MAGNANTI: In that sense, if we're

1 going to do something for secondary education, we've
2 got to extract the content from that system. It's not
3 from our universities. We've got to go to that system
4 and find creative ways of extracting that content, and
5 then providing it in a way that's compelling.

6 MS. NUNLEY: That all spurs a question for
7 me, talking about the multi-culture and so on. I
8 presume that your materials are in English, and that
9 they aren't available in multiple languages, unless
10 some other country, as you mentioned, is translating
11 it to their language. But I'm concerned about non-
12 native speakers in this country and how we can use the
13 developments in education to not further stratify our
14 country economically. I just wondered about your
15 thoughts on that.

16 MR. SMITH: So I think that's a very
17 important part of this. I mean, understand that many
18 of these initiatives really have just been -- are just
19 a few years old, and are sort of getting it right
20 first in terms of delivering it in English, and now
21 we're working, for instance, with universities in
22 Columbia to do translation and contextualization
23 there. But that's not the appropriate thing for
24 contextualization in Southern California community
25 colleges. So it's going to require this creation of
26 partnerships in order to contextualize it.

1 I mean, we're now deploying some of this
2 Qatar. Although they want it in English, it turns out
3 that many of the students learn it much faster in
4 Arabic. And so we're going to face that translation
5 and contextualization. They've never seen snow. A
6 lot of our problems come from Pittsburgh, and they
7 have to do with snow.

8 So it's got to be a -- this is a long-term
9 effort. It's not something that's going to happen
10 overnight in terms of making this useful, especially
11 the sort of thing we're doing in terms of fully online
12 education. That's something that's going to take
13 years, and the tipping point, we think, is still
14 several years out there. Although we do fear that
15 perhaps China might get there before us in terms of
16 what was talked about.

17 MR. WILEY: Well, and even for as short a
18 period of time as we've been doing this, there's
19 already a consortium of schools in South America
20 that's translating these materials into Spanish and
21 Portuguese. There's a group in China that's trans-
22 lating them into simplified Chinese. There's a group
23 in Taiwan that's translating them into traditional
24 Chinese. There's a group in Korea that's about to
25 form to translate them in South Korea into Korean.
26 Because they're digital, and they're available over

1 the network, it only takes one person or one group
2 doing it. So even for a short a period of time as
3 we've been working, to already be in five languages,
4 the original plus four more, and to have other people
5 contributing things back that we could translate into
6 English if we weren't so ethnocentric as we are,
7 there's a lot of activity already happening for as
8 short a time as it's been going on, and I think it'll
9 continue that way and just get faster, because it's
10 open. They don't have to ask for permission and write
11 memoranda of understanding to be able to do these
12 translations. They can just do 'em, and then share
13 them back.

14 MR. MAGNANTI: I actually think your point
15 is very well-taken. We've got to make sure that we
16 provide wide access to the U.S. population, and
17 understand that that's not a homogeneous population.
18 It's a very good point.

19 CHAIRMAN MILLER: Any other questions? Go
20 ahead, Bob.

21 MR. MENDENHALL: I'm very encouraged with
22 the idea and the potential of sharing of courses, the
23 opportunity that it provides us for both better
24 quality and lower cost, as we share great content. I,
25 for one, would like to be a customer, so we'll talk.

26 MR. DONOFRIO: Especially for free.

1 MR. MENDENHALL: But I think, you know,
2 one of the challenges, as Bob said, is, how do we get
3 institutions and faculty out of their silos to
4 actually be open to sharing course ware? Is there
5 something specifically that you feel like this
6 commission ought to be recommending in order to
7 facilitate that?

8 The other question it seems to me we've
9 kind of not addressed is that there's a disconnect
10 between your OpenCourseWare that can be customized,
11 and the scientifically developed course ware with good
12 cognitive science, which you would not want to have
13 modified or changed. Clearly, the OpenCourseWare is
14 relative inexpensive to put online and let people
15 access, and the cognitively developed content is quite
16 expensive, and probably would have a cost attached to
17 it. But I think the idea of having courses that could
18 be shared across institutions and across faculty,
19 particularly if we could develop a great course that
20 was universally accepted as providing great instruc-
21 tion, could allow us to address the problem that we do
22 have, which is, how do we educate more students at
23 lower cost than we are today? Do you want to address
24 those?

25 MR. SMITH: Let me take on two of them.
26 One is, I think you're exactly right, and we just have

1 to be honest about this. The courses that are
2 carefully developed, you know, using cognitive theory,
3 using -- and careful testing, and -- I just can't tell
4 you what goes into this. They watch the students use
5 the courses. They do what they call contextual
6 inquiries. They figure out where the students are
7 having problems. They go back and redesign the
8 course. And then it goes through iterative
9 development.

10 There's no doubt that then you don't want
11 just pell-mell modification of that, because a lot of
12 thought has gone into it. That said, we do provide --
13 so it's a question of degree of customization. So we
14 do provide a way that a faculty member can choose to
15 use certain modules, and not use other modules, that
16 sort of thing, as we do with textbooks, you know,
17 please ignore chapter two, everything in it's false.
18 So we provide -- so it's a question of degree of
19 customization, you know, whether you can just modify
20 it wholesale, which in many context would be fine, and
21 in this context we'd say no. And I agree, there is
22 that tension. We just live with that.

23 In terms of -- of -- I forgot what the
24 second thing I was going to address, so maybe --

25 MR. MENDENHALL: Getting it shared among
26 institutions and faculty.

1 MR. SMITH: Oh, yes. What the specific
2 recommendation -- and I'll just say it again -- I
3 think the vast majority of faculty don't have the time
4 and don't have access to information about what we
5 now -- why cognitive and learning sciences are now
6 very important to what they do. I mean, we're talking
7 about a national clearinghouse for content. We
8 haven't talked about a national clearinghouse for
9 teaching well, for management and engineering of your
10 courses so that they use what we now know about how
11 people learn.

12 I think what this Commission could
13 recommend is that the nation provides for its teachers
14 and professors that kind of information, that kind of
15 transfer from what is being done in the learning
16 sciences into the software, into the classroom. Right
17 now, that is not something where there are many
18 incentives to do that. There's just not much --

19 CHAIRMAN MILLER: We have a recommendation
20 to do more research, or at least the possible
21 recommendation to do more research and fund the kind
22 of research you're talking about on learning,
23 cognitive and otherwise, you're saying there's enough
24 of that, or we're comfortable there, and what we need
25 to do is expand it into practical teaching
26 populations, is that it?

1 MR. SMITH: Yes, exactly. It's the
2 transfer into the practical teaching. Once the
3 faculty member becomes cognizant of this gap -- and
4 there's a difference between knowing the content and
5 teaching the content well. And again, I'm going to
6 come back to saying, depending on research -- you
7 know, sound, scientific research in what works -- and
8 then they -- and they resonate with that. They say,
9 oh, well, this is cognitive science. This is
10 research. I understand these are research results.
11 I'm willing to apply these in my classroom. This
12 isn't just a theory somebody dreamed up. Here's the
13 results that it works. So they're willing and get
14 excited about using the classroom. So, yes, it's the
15 transfer.

16 MR. MAGNANTI: I have a little question
17 for you all. How many of you learned economics from
18 Paul Samuelson's Principles of Economics? All right.
19 So what we need --

20 CHAIRMAN MILLER: I read it, but I
21 wouldn't --

22 MR. MAGNANTI: Oh, you didn't learn it.
23 Well, --

24 (Laughter.)

25 Good distinction. Good distinction.

26 So an interesting question is whether,

1 coming out of this OpenCourseWare movement, there will
2 be some analogs of that in certain fields where
3 there'll be some seminal materials that will be
4 adapted widely across the nation because it's
5 compelling -- because it's compelling. So one is
6 that.

7 The second that you asked, how we can
8 help. I think what our faculty look for is impact and
9 fame. They want to impact the world. So I think if
10 we can find mechanisms for helping them to impact the
11 world -- I don't know quite what those are -- or
12 rewarding them -- and they are looking for fame, and
13 so I could imagine national awards, corporate awards,
14 whatever, that are some set of awards that you could
15 establish as a Commission through the Department that
16 would honor some of our faculty who are doing some of
17 the most innovative things in this arena. I think
18 that might help, as well.

19 MR. WILEY: And I'll add to your first
20 question, what could we do? I think you could take it
21 from the perspective of, how do we reward faculty, and
22 how do we incentivize in that way? But think about
23 what we've done in the last 10 or 15 years around
24 diversity in higher education; right? Fifteen or 20
25 years ago, nobody had heard that term. Now it's a
26 huge term. We do training on it. We hold workshops

1 on it. We promote it as what we want. We want this
2 principle to be part of the culture of higher
3 education in a way that it wasn't before, and we've
4 pushed for that in very specific ways.

5 I think we can push for openness in the
6 same way, as a principle that will improve higher
7 education, in not the same way, but in a way analogous
8 to an embracing of diversity as a principle and a
9 commitment, and it has improved our education. So
10 that's one thing.

11 The second thing, to your other question
12 about you don't want to change -- your comment that
13 you don't want to change the cognitively informed
14 tutors. I would disagree with that. Actually, Joel
15 disagreed with it in his first statement. He said it
16 doesn't snow in Qatar; right? We do have to modify
17 those materials in certain ways. I would think about
18 it like a cell phone -- right? -- where there's
19 underlying structure, but then you can buy different
20 skins that you snap on and snap off, the way you think
21 about a web page now, where there's a clean separation
22 between the structure and the content and the way that
23 it's presented. Is it red, blue, large, small,
24 whatever?

25 We can abstract the content and the
26 presentation of the content away from each other so

1 that we do keep the effectiveness of these proven
2 principles from cognitive science. But when we take
3 it into Qatar, we can change the example from snow to
4 something else, or when we take it into Tonga, we
5 can't talk about a slice of a pie, because pies aren't
6 round there. Questions like that on tests just
7 flummox students because they don't know what they
8 mean.

9 We do have to be able to appreciate the
10 cultural context of these students, and we have to be
11 able to adapt for that. But we can do that and still
12 hold to these proven cognitive principles if we
13 separate those two parts out.

14 MR. MENDENHALL: I was on a little
15 different point, in that, you know, Charles mentioned
16 the OpenCourseWare from MIT has credibility because
17 it's MIT. Joel would say it's only as good as the
18 faculty member who actually is very trained in the
19 subject matter, but not particularly in how to teach
20 it. Therefore, you know, it represents content and
21 not instruction, which I think Tom was clear to say at
22 the beginning.

23 The question is, are we looking for open
24 content, or are we looking for great instruction that
25 we can share across universities that actually helps
26 us educate more people at lower cost with high quality

1 instruction?

2 MR. SMITH: Both.

3 MR. WILEY: Yeah, and it's probably a
4 phase; right? Once there's lots of open content
5 available, we can take and assemble that into lots of
6 open instruction; right? The content is infra-
7 structure that we innovate on top of once it's open
8 and available.

9 CHAIRMAN MILLER: Well, we have a lot of
10 content today. What I just heard somebody say is we
11 don't know how to deliver it if we don't know the
12 brain works and so on. So the content itself doesn't
13 solve it. I'm not sure I heard that connection. I
14 have a disconnect there. I heard one -- we have this
15 marvelous amount of content, and I'd think that would
16 create a large amount of activity in general, but not
17 at institutions of learning, unless you have people
18 who know how to use the cognitive sciences. That's
19 what I think I heard you say. We have all these
20 people out there today that have the knowledge.
21 You're saying we can't deliver it very well.

22 MR. SMITH: So you may find disagreement
23 at the table, but I would agree with what you just
24 said. I mean, the content alone, without the various
25 mechanisms -- although, I mean, David talked about
26 many of the mechanisms in terms of developing social

1 relationships so people can help each other use open
2 content. Tom talked about the faculty members inter-
3 changing ideas about how to use the content. So
4 getting the content out there changes that other
5 scene. But I would agree that the content alone is
6 insufficient. You've got to have supporting
7 mechanisms to help people learn better with it and
8 teach better with it. That's our great challenge is
9 putting both out there and making them available.

10 MR. MAGNANTI: I would refer to a comment
11 that David made before, and that is that the content
12 is better because it's open-sourced. Our faculty,
13 again, who are very proud and want fame, they want the
14 best possible content out there. So the content of an
15 MIT education is better today than it was three years
16 ago because of open content, because the faculty, in
17 bringing these courses together and putting them
18 together, have developed better content. But I would
19 say that content is not widely available, and I think
20 that's why we need more of this OpenCourseWare.

21 CHAIRMAN MILLER: Thank you. I beg your
22 pardon. Would you like to --

23 MR. WILEY: Just briefly. If I wanted to
24 do something innovative with this Samuelson textbook,
25 because it's not open, because the rights are owned by
26 a publisher, I'm basically stuck with, "Skip chapter

1 two." So there is plenty of content, but it's all
2 IP-encumbered.

3 If there is open content, I could take
4 that, and I could translate it into another language.

5 I could change an example so that, instead of snow,
6 it talked about something else. I could do those
7 innovative things. There is lots of content, but
8 we're prevented, to a large extent, from really
9 innovating with it, because that infrastructure is
10 closed.

11 MR. MAGNANTI: And also, if I can add to
12 that, as David knows, one of the great challenges in
13 putting this material together is the IP. So we have
14 to go through -- with all these sites for the
15 OpenCourseWare, we've got to go through every single
16 course, and we've got to check every single piece of
17 IP, because there's a fair use doctrine that says, if
18 I'm teaching at MIT, I can take a page of Time
19 Magazine and flash it up, and I can use it. I cannot
20 broadcast that over the web. So someone's got to
21 cleanse every single course that we do because of the
22 IP. It's an important, I think, aspect of this, and
23 it's an important limitation, as well.

24 CHAIRMAN MILLER: And you're implying one
25 of these pieces of course work is going to be the gold
26 standard because everybody will adopt it. If we raise

1 a question about standardization of anything, even in
2 general education, we get a lot of push-back. Would
3 we have Samuelson in another philosophy? How do you
4 do that? That's what I meant about whose name is on
5 it, and what the brand is, and things like that. It
6 makes a difference to me whether it came from a
7 Chinese university, or a United States university, or
8 a British university. Things like that would be how
9 we would differentiate philosophy and truth, even
10 validity.

11 MR. WILEY: I would say let the market
12 work, and the market --

13 CHAIRMAN MILLER: That's a good answer.

14 MR. WILEY: -- the market worked pretty
15 well for Samuelson.

16 CHAIRMAN MILLER: Except we don't have it
17 in places that you talked about.

18 MR. WILEY: That's true.

19 CHAIRMAN MILLER: Thank you. This has
20 been one of the finest panels for me, and I feel for
21 the rest of the Commission. I have a sense we're
22 going to be back to ask more questions from all three
23 of you. Thank you very, very much.

24 (Applause.)

25 Would our student panel come to the table
26 up front.

1 (Pause.)

2 EXECUTIVE DIRECTOR OLDHAM: All right.
3 We're a little bit behind schedule, so I'll -- we'll
4 kick this off. As you all remember from Nashville, we
5 have set aside time at each of the meetings to hear
6 from our consumers of education, either current or
7 very recent consumers of education, our nation's
8 students. The three students we have today have all
9 benefitted from the alternative and innovative
10 educational delivery models that we heard from
11 yesterday, WGU, Kaplan and Capella.

12 I'll just turn the microphone over to
13 Jerry, and hope that they all give a little brief
14 introduction -- personal introduction of themselves,
15 and leave that to them rather than me do it. Thanks.

16 MR. DAVIS: My name is Jerry Davis. I am
17 the Chief Information Security Officer for the U.S.
18 Department of Education. I've been in the security
19 field for about 14 years. Prior background -- spent a
20 number of years at the Central Intelligence Agency,
21 Marine Corps counter-intelligence officer, and served
22 as the manager of wide area network security for the
23 District of Columbia.

24 I'm a lifelong student. All of the
25 degrees I do have -- the three degrees that I have
26 have all been from alternative education. I am

1 currently working on another degree at this time, also
2 in alternative education.

3 Would you like me to go ahead and go right
4 into my remarks, ma'am?

5 EXECUTIVE DIRECTOR OLDHAM: Please.

6 MR. DAVIS: Absolutely. Okay.

7 Members of the Commission, distinguished
8 guests and fellow students, I bid you all a good
9 afternoon. As I said earlier, my name is Jerry Davis,
10 and I'm a 37-year-old student from Sterling, Virginia.

11 I hold degrees at both the undergraduate and graduate
12 level, and I'm currently working on a second graduate
13 degree. I am honored that I have been given this
14 opportunity to exchange dialogue with you in regard to
15 the many innovations in education that I have
16 witnessed and experienced as a lifelong student,
17 father of two college-bound students, spouse, and a
18 full-time member of our country's workforce.

19 For any high school student exercising the
20 option to attend an institution of higher education,
21 it is a daunting task that is overshadowed only by the
22 voluminous choices in institutions, and the stress of
23 acceptance and accessibility, which is forever
24 punctuated with the impediment of cost containment. I
25 am an adult who has never truly left the higher
26 educational system, and as such, those same stressors

1 that weigh intensely on the minds of the college-bound
2 high school student weigh even heavier on the adult
3 student. Adult students must contend with conflicting
4 and competing priorities, and professional and
5 personal responsibilities, all while making an attempt
6 to acquire the fabled balance between work and life.
7 Finding an institution to attend that is amenable to a
8 student of this sort is an arduous undertaking.

9 My reason for choosing to be a lifelong
10 learner is rather simple. I enjoy the benefits
11 derived of possessing knowledge. But to continue
12 acquisition of knowledge through a structured program
13 of study for the adult learner must be attained
14 through a program that is pliable enough to conform to
15 the lowest common denominator, and fully satisfy
16 navigating what I express as the triple constraints of
17 true educational innovation.

18 This program must be accessible and on
19 demand, and must provide measurable and tangible
20 value, and it must be economically feasible. Western
21 Governors University is one such institution that
22 answered the call of the triple constraint. WGU's
23 innovative approach to delivering a quality degree
24 program through its competency-based format is long
25 over due. The extreme pliability of WGU's program
26 provides options that are not normally seen in degree-

1 granting virtual environments, and is not available in
2 a traditional learning environment.

3 WGU's program was my logical choice
4 because I was able to structure my studies around my
5 lifetime requirements and commitments instead of the
6 reverse. The competency-based format fully promotes
7 the student's control in management of time. Courses
8 were available to me as I needed them, on demand.
9 This removed the regulation of having to be somewhere
10 at some predetermined time, when time, as it seems, is
11 often rarer than money.

12 At WGU, the student drives success. WGU
13 allows for as much or as little interaction with the
14 appointed mentor or with other students as a student
15 needs or desires, implicating further accessibility
16 and traversing yet another constraint.

17 The method of proctoring tests is not new;
18 however, the implementation of proctored testing in a
19 competence-based format is very powerful. Test
20 results are provided in near real time, and a passing
21 score reenforces to the student that the course
22 material had been adequately assimilated. This is
23 immediate proclamation of value add, measurable and
24 tangible learning.

25 The tuition structure that WGU offers is
26 savvy and smart. The tuition is built around spans of

1 time vice per-credit fees. This structure, combined
2 with the competency-based format is highly synergistic
3 and incentive-based, meaning that if I work quickly in
4 demonstrating the required course competencies, then
5 the quicker I can complete the program, while
6 expending a minimum amount of funds.

7 I completed my course of study in business
8 with a concentration in IT security in just around
9 five months. WGU is the only higher learning
10 institution I've attended -- and I have attended
11 many -- where I've actually had funds return.

12 As a Chief Information Security Officer at
13 the U.S. Department of Education, I am required by law
14 to possess the requisite experience and education
15 needed to carry out the duties of the position. There
16 is an over-arching and critical need to acquire
17 professionals who are well trained and who own the
18 relevant education. WGU substantiated my employment
19 and provided me with some additional tools and skills
20 that I'm able to leverage in my current role.

21 To this end, I will close my remarks with
22 a few recommendations for the Commission. Number one,
23 drive home the ideology that an innovative education
24 delivery model is not based solely on technological
25 attributes, but rather, on innovations that address
26 and enable accessibility, promote measurable and

1 tangible results, and aggressively support cost
2 containment.

3 Second, continue to evaluate virtual
4 competency-based post-secondary educational programs
5 in an effort to expand their ranks.

6 Third, continue to evaluate solutions to
7 ensure that virtual learning institutions remain cost-
8 effective, and accessible to students of the lowest
9 common denominator.

10 Fourth, develop solutions and programs to
11 market virtual learning institutions and their
12 programs.

13 Finally, establish a student forum
14 consisting of current or private virtual learning
15 institutions with the intent of collecting suggestions
16 for the improvement and enhancement of the virtual
17 learning environment.

18 This concludes my remarks. Again, I'd
19 like to thank the Commission for its undivided
20 attention and for this rare and valuable opportunity.

21 EXECUTIVE DIRECTOR OLDHAM: Thanks, Jerry.

22 Jon.

23 MR. LAMPHIER: Hi. Good morning. My name
24 is Jon Lamphier. I wanted to begin by thanking you
25 for the opportunity to come and speak with you today.

26 I thought I would tell you a little bit

1 about my experiences with non-traditional education,
2 my background leading up to that, and what I've done
3 with it afterwards. I grew up in western North
4 Carolina. I graduated in 1994 from Hendersonville
5 High School. I enjoyed being a student. I had a very
6 good grade point average. I went to a traditional
7 educational institution. I went to the University of
8 North Carolina, where I attended for one semester, and
9 I ran out of money.

10 As is common, I think, in western North
11 Carolina, since I had left the higher education field,
12 I went into the military. I went into the Marines,
13 where I served for six years. I left the military
14 service in early 2001.

15 I had a wide range of experiences. I had
16 attended a variety of traditional school and non-
17 traditional school while a Marine. That was not
18 readily transferrable into a traditional degree. I
19 had also gotten married, I had a child, and was not in
20 a position that traditional schooling really met my
21 needs.

22 The Marine Corps experience did not train
23 me to accept defeat, however, so I found a solution,
24 and the solution was Kaplan University. As you know,
25 Kaplan offers the non-traditional approach, offering
26 the vast majority of courses online. A number of

1 institutions I had been familiar with, including the
2 Marines, including the National Security Agency,
3 including the Navy, had all used some variant of that
4 model, so I was a little bit familiar with it. And
5 Kaplan seemed like a full-featured program.

6 I received from Kaplan all the same
7 academic support I had received from the traditional
8 undergraduate programs before that, and that I've
9 received from traditional graduate programs after-
10 wards. University representatives walked me through
11 the process of applying, walked me through the process
12 of financial aid, and helped me explore how my
13 previous course work would fit into my new degree
14 program.

15 I had an academic advisor at Kaplan who
16 assisted me in everything from selecting courses to
17 balancing my academic and professional workload. I
18 was working a full-time job at that time, as well as
19 having the family duties. I think that's a familiar
20 situation for most non-traditional students.

21 The academic experience was also similar
22 in the non-traditional education as I had received in
23 previous more traditional classes. My classes
24 typically met once per week. Most involved guided
25 discussions by the instructors, a format that I have
26 seen used in more traditional academic settings to

1 encourage student participation and understanding.

2 Moderate sized classes of generally about
3 20 students ensured a diversity of ideas, but gave
4 everybody a chance to participate. The instructors
5 were all very well qualified for their courses, and
6 generally went above and beyond to help students
7 comprehend the material and apply it.

8 Where a non-traditional education
9 surpasses a traditional experience really is in the
10 diversity factor. Universities have cited time and
11 again diversity as a crucial ingredient in applying
12 and preparing young minds and exposing them to new and
13 different ideas. Whereas most traditional schools
14 attempt to foster diversity through admitting students
15 with different backgrounds, and then combining them in
16 nearly identical settings, online schooling allows for
17 diversity because students are actually coming from
18 those divergent backgrounds each and every time they
19 attend class.

20 In my courses, I connected with professors
21 at Princeton while working in Atlanta. Some of my
22 classmates were full-time students at Kaplan's Iowa
23 campus, while some were single mothers in Kansas, and
24 some were New York City policemen. The effect this
25 has on learning and discussion is enormous and
26 important, and it cannot be duplicated in the same way

1 in a traditional setting.

2 One of the purposes of this Commission is
3 to investigate the accessibility of higher education
4 for less advantaged families. Non-traditional
5 education is one method that addresses this problem by
6 affording access to higher education to many students
7 for whom the rigors of a more traditional program may
8 simply not be feasible. Rather than be forced to
9 choose between supporting a family and pursuing a
10 degree, online education allows students to pursue
11 both. It acknowledges and accommodates our increas-
12 ingly mobile society, allowing students to work and
13 attend class even when their geographical location is
14 in flux. It brings flexibility to an area that badly
15 needs it, and ultimately makes college a realistic
16 opportunity for many students that may otherwise have
17 given up their dreams of attending school.

18 I graduated from Kaplan in 2003, and I
19 went on to pursue my law degree at Fordham University
20 School of Law in New York, a top-tier school known
21 nationally for its academic prestige. I served there
22 as an editor on the Fordham Moot Court Board and the
23 Fordham International Law Journal, and I have never
24 felt at a disadvantage to my peers. If anything, I
25 have excelled. While in school, I have worked as a
26 law clerk, as a research assistant, and as an intern

1 with the Federal Trade Commission, and I have
2 performed well in each position, if I judge that
3 myself. I have relied on the learning I accomplished
4 at Kaplan each time, and I have not been disappointed.

5 In May of this year, I will graduate from
6 Fordham and sit for the New York State Bar exam, and
7 have accepted an offer to begin as a senior associate
8 as Ernst & Young in New York. Additionally, I am
9 continuing at Fordham, expecting to achieve an MBA in
10 finance in spring of 2007. None of these accomplish-
11 ments would be possible, not even remotely, without
12 Kaplan and without the non-traditional educational
13 benefits.

14 I encourage the Commission to strongly
15 consider non-traditional education as an important
16 step in preparing our nation to meet the academic
17 challenges of tomorrow and better equipping our
18 citizens to compete on the international field. Thank
19 you.

20 EXECUTIVE DIRECTOR OLDHAM: Thank you,
21 Jon.

22 Carol.

23 MS. YOUNG: Hello. My name is Carol
24 Young. I am a registered nurse. I work in a low risk
25 newborn nursery, and occasionally in the neonatal
26 intensive care unit. I am certified in low risk

1 neonatal nursing.

2 I also want to thank you for the
3 opportunity to speak before the Commission on the
4 future of higher education. I am honored to join the
5 other panel members as they describe their experiences
6 in the learning process for adults.

7 I am a recent graduate of Capella
8 University, where I earned a Ph.D. in organization
9 management with a specialization in leadership. My
10 educational path has been a long one, and it's been
11 fueled by a desire for knowledge and the aspiration
12 for continual growth.

13 I started first grade at the age of four
14 in a very small rural elementary school in Kansas that
15 did not even have an inside bathroom, if you can
16 believe that. I made the eighth student at that
17 school, and that allowed that school to remain open
18 for one additional year.

19 I continued in the Kansas public school
20 system until I graduated from high school. I then
21 attended a Catholic nursing school in Wichita, but
22 left there and started a professional nursing program
23 in Houston. I did not have to work during that time.

24 I did graduate, and I passed my licensing exam to
25 become a registered nurse.

26 I worked as an RN for several years,

1 during which time my daughter and son were born. As
2 they approached school age, I felt the desire to
3 return to school, and believed that a Bachelor's
4 degree was essential to future success as a nurse. I
5 earned a Bachelor of Science degree in nursing from
6 Houston Baptist University.

7 About five years later, I again felt the
8 desire to learn and the need for more education to
9 enhance my career, but along a different line.
10 Working full-time, having a family, and trying to meet
11 school class schedules, it took me six and a half
12 years to complete a two-year program at the University
13 of Houston, but I did earn an MBA. That degree opened
14 many doors for me, including the opportunity for a
15 nurse executive fellowship and for promotions at work.

16 My current job requires a Master's degree.

17 About eight years after earning my MBA, I made the
18 decision to begin a Ph.D. program. That quest took
19 nearly four years, but I treasure the experience, and
20 I feel fulfilled. Just think, a little girl from a
21 farm in Kansas is now Dr. Young. It's just still a
22 thrill.

23 I chose an innovative, non-traditional
24 school because it was the only way I could continue my
25 chosen career in a company where I'd worked for nearly
26 30 years. It's now approaching 34 years with that

1 company. As a neonatal nurse, I work 12-hours shifts,
2 varied days, weekends and holidays. Additionally, I
3 have family considerations, and for pleasure, I travel
4 and run marathons around the country.

5 As I searched for a school that would fit
6 me, I discovered Capella University. It was fully
7 accredited, and was small enough that I felt like I
8 would receive individual attention. I did. I
9 received an e-mail just a couple of months ago from an
10 admissions advisor just saying hello. Learner support
11 services met every need, and answered or found the
12 answers to questions in a prompt, helpful and
13 professional manner.

14 Most of all, the faculty were wonderful
15 and treated us as peers. There were not more than 16
16 learners in my courses, which allowed us to get to
17 know each other, in addition to the instructor, as
18 well. We had access to faculty in the course room,
19 via e-mail, and by telephone. I was able to log on
20 and complete my course work, comprehensives and
21 dissertation around my work schedule, family, and
22 marathons in Anchorage, Honolulu, Nashville,
23 Baton Rouge, and other cities.

24 I also met many faculty members and other
25 learners at colloquia. The colloquia were an
26 innovative idea that provided an excellent opportunity

1 for more in-depth interaction with faculty,
2 administrators, support services and learners from my
3 own school, along with learners from other schools in
4 Capella University.

5 The quality of my instructors was
6 excellent. For example, my dissertation committee was
7 made up of my mentor, who has a Doctor of Business
8 Administration, a member who is a practicing
9 physician, as well as a Ph.D., a psychologist with a
10 Psy.D., who is also a lawyer, and a visiting scholar
11 from Louisiana State University who has a Ph.D.
12 Additionally, most of my faculty had held or were
13 holding positions of responsibility in the business
14 world. That added a richness and depth to my
15 education. They could speak to the latest research on
16 a topic, and enrich it with experiences they had
17 encountered in their career.

18 I'm currently working as a peer with my
19 mentor on two different but related academic projects.

20 Each step of my college career has opened more doors
21 for employment and career advancement that I never
22 even dreamed of as a young girl starting out.

23 I spoke to the chief nurse executive where
24 I work about a month after I graduated to tell her I
25 was finished with my Ph.D., and she offered an
26 exciting job on the spot. My hospital is beginning

1 the journey toward Magnet Recognition, a program
2 developed by the American Nurses Association that
3 recognizes the unique contribution of registered
4 nurses to the health care of hospitalized Americans.
5 She offered the opportunity to coordinate that
6 journey, and to use my Ph.D. to direct the nursing
7 research program that will assist us in providing
8 evidence-based practice to improve patient outcomes.
9 That opportunity would not have been offered to me
10 without the successful completion of my Ph.D. at
11 Capella. I am now filling that role, along with my
12 previous role as RN-IV in the low risk newborn
13 nursery. I have the best of both worlds.

14 But along with that opportunity, I can now
15 serve as a faculty member to help other learners along
16 their path to fulfill their dreams. I'm now starting
17 to investigate other innovative educational programs
18 where I can work in the same manner that was so
19 successful for me as a learner, one where I can work
20 at a time most convenient to me, and one where I can
21 work from anywhere in the world, so that I can
22 continue to travel for pleasure. Along with knowledge
23 that I have to share, all I need is internet access.

24 I did receive financial aid for the first
25 time while I was at Capella University. An advisor
26 helped me to get started, and it was easy after that.

1 Everything I needed to apply for and keep track of my
2 loans was easily available on the Capella website.
3 Even though I am still in the grace period, I have
4 started to pay back the loan. The debt is very
5 manageable, and I'm planning to pay it off in one half
6 or less of the required time.

7 Compared to the cost of a doctoral program
8 at a traditional university, my education at Capella
9 was not only more convenient, but affordable. I was
10 able to continue full-time employment throughout that
11 program, and that would not have been possible in a
12 traditional program -- in the traditional program I
13 investigated. I also did not pay the many fees that
14 were required when I earned my other degrees, such as
15 those for sports programs where I had no interest. My
16 time is valuable also, and I got to spend my available
17 time on continuing my career, and on learning rather
18 than driving to class and looking for a parking spot.

19 I value my educational opportunities in the
20 traditional program; however, that does not fit my
21 life at this time.

22 Specific recommendations that I would have
23 for the Council is to encourage and help finance
24 additional innovative and non-traditional models that
25 will increase access for those adults who are unable
26 to attend traditional programs, such as those with

1 full-time jobs, burdensome family responsibilities,
2 those who travel frequently, or may live a long
3 distance from campus.

4 Like Monica Poindexter said, my second
5 recommendation fits right in with her comments, that
6 we need to encourage and help finance programs to
7 attract more faculty members with appropriate degrees
8 who work outside of academia to join the pool of
9 available instructors. In order to produce graduates
10 who are adequately prepared to step into the work
11 place, there must be an adequate quantity of faculty
12 with impeccable credentials. Non-traditional programs
13 can draw from a pool of professionals who are unable
14 to attend traditional programs for the same reason
15 that adult students cannot.

16 That concludes my remarks. Again, I thank
17 you for this opportunity, and I would welcome
18 questions or comments.

19 EXECUTIVE DIRECTOR OLDHAM: Thanks, all
20 three of you.

21 Does anyone have any questions,
22 Commissioners?

23 MS. NUNLEY: All very, very impressive.
24 Congratulations for your accomplishments and for your
25 wonderful testimony.

26 MS. HAYCOCK: If I could ask a question?

1 Let's say the three of you have 18-year-old children
2 who are about to decide on colleges, and are ready
3 to -- can afford to go full-time. How would you help
4 them think about the pros and cons of traditional
5 versus the alternative kinds of programs that you've
6 chosen?

7 MS. YOUNG: I have already been through
8 sending children to college. I have children that are
9 from -- my -- my son was able to go through his under-
10 graduate program. He did work at the same time, but
11 he was tied to a classroom schedule. When he went
12 back -- he has a Master's degree as a social worker,
13 and he again worked at that time. The traditional
14 school was good for him, but he also might've
15 benefitted if he'd been able to work a little more
16 hours to help support that if he'd been able to do a
17 non-traditional program, and I would encourage him to
18 look at both methods and see what best fit with him.

19 My daughter went to a traditional program
20 only. I would encourage her to just look at the
21 programs that are available out there, maybe do a
22 blend of both. I'm encouraging my daughter now to
23 attend -- she's a stay-at-home mom now -- I'm
24 encouraging her to go back and do a non-traditional
25 because she's a stay-at-home mom.

26 MS. HAYCOCK: Thank you.

1 MR. DAVIS: Kind of along the same lines,
2 I do have a daughter that's headed to college at the
3 end of this coming school season, in the fall, and I
4 have one that'll be going the following year. I did
5 present those options. But I looked at it really
6 close with her, because it's not -- the non-
7 traditional is not a program, I believe, if you're not
8 really a self-starter, if you're not really motivated,
9 if you really have to be pushed to go to school to
10 begin with. She is very motivated. She is very much
11 a self-starter. But I didn't believe it would suit
12 her to start off at a non-traditional school on her
13 own. That's largely just by looking at her bedroom,
14 from the mess of things that are all over the place.

15 (Laughter.)

16 So she needs structure. She still needs a
17 lot of structure in her life. A traditional school, I
18 believe, will give her a lot more structure that she
19 needs at her age, as well as for my next youngest
20 that's going to be going, again, in another year or
21 so.

22 So those are kind of the things that we
23 looked at, myself and my wife looked at, in letting
24 her decide really what she wanted to do. She's seen
25 me online for years now. It's kind of a thing in the
26 house, you know, you can't bother Dad, he's doing

1 schoolwork right now. She was heavily recruited by
2 some of the Ivy League schools and whatnot, so it was
3 a give-and-take with her. But I encouraged her to go
4 the traditional route largely because of structure.

5 MR. LAMPHIER: If I can answer from a
6 little bit different perspective, my daughter is six,
7 so picturing her going off to college is quite a jump
8 for me. But I believe you have also -- the way I
9 think about it, you have the higher education oppor-
10 tunities that exist now, and the higher education
11 opportunities that will exist when she is 18.

12 You know, to put it in different terms,
13 I've had an e-mail for about 16 years now. About five
14 years after I got one, I heard of a guy starting a
15 business, and he was going to sell books online. I
16 thought, this is the stupidest idea ever, because you
17 can go down to Waldenbooks and pick it up, and if you
18 want a book, do you want to wait for days and days to
19 get it? It doesn't make any sense. And of course
20 Jeff Bazos made Amazon, and I think he's doing just
21 fine. I really wish I had thought more about that
22 investment opportunity.

23 I think 12 years down the road, you may
24 have much, much grander concepts. Just the way that
25 Jeff Bazos got in at an early stage, and now I don't
26 think there's a company out there that doesn't see

1 what could be considered an alternative form of
2 product delivery as an important part of their
3 business model. I think higher education is similarly
4 served by considering that. I don't think it's for
5 every student, but it might be for some courses for
6 every student, or for all courses for some students,
7 and no courses for some students. But it definitely
8 has a place. So I would have to see when she's old
9 enough what the world looks like then. But it's
10 definitely something that would play a factor in my
11 mind.

12 MS. HAYCOCK: Thank you.

13 EXECUTIVE DIRECTOR OLDHAM: Anyone else?

14 (No responses.)

15 Thank you all so much for being here. I think we're
16 running ahead of schedule, so we can wrap up early and
17 let everybody get on their planes. Thank you.

18 (Proceedings adjourned at 12:27 p.m.)