

ROUNDTABLE: HIGHER EDUCATION AND CORPORATE LEADERS: WORKING TOGETHER TO STRENGTHEN AMERICA'S WORKFORCE

HEARING

OF THE

**COMMITTEE ON HEALTH, EDUCATION,
LABOR, AND PENSIONS
UNITED STATES SENATE**

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

ON

EXAMINING ISSUES RELATING TO HIGHER EDUCATION AND CORPORATE LEADERS, FOCUSING ON DEFINING THE ROLES INDUSTRY AND INSTITUTIONS OF HIGHER EDUCATION WILL HAVE TO ENSURE THAT THE UNITED STATES HAS THE SKILLED AND DIVERSE WORKFORCE IT WILL NEED TO SUCCEED TODAY AND IN THE FUTURE

MAY 19, 2005

Printed for the use of the Committee on Health, Education, Labor, and Pensions



U.S. GOVERNMENT PRINTING OFFICE

21-456 PDF

WASHINGTON : 2005

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
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ROUNDTABLE: HIGHER EDUCATION AND CORPORATE LEADERS: WORKING TOGETHER TO STRENGTHEN AMERICA'S WORKFORCE

THURSDAY, MAY 19, 2005

U.S. SENATE,
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m., in room 106, Dirksen Senate Office Building, Senator Enzi (chairman of the committee) presiding.

Present: Senators Enzi, Alexander, Isakson, Kennedy, Murray, and Reed.

OPENING STATEMENT OF SENATOR ENZI

The CHAIRMAN. Good morning and welcome to today's roundtable discussion with higher education and corporate leaders on how we can work together to strengthen America's workforce. I want to thank today's participants for coming and for their help in defining the roles industry and institutions of higher education will need to ensure that America has the skilled, diverse workforce that it will need to succeed in today's marketplace and for many tomorrows to come.

Education beyond high school and lifelong education opportunities are vital if we are going to retain our competitive edge in the global market and make every American a part of our Nation's success. To provide our workforce with education and training they will need to meet the needs of tomorrow's workplace, we will need to strengthen the connections between postsecondary education institutions and businesses. Technology, demographics, and diversity have brought far-reaching changes to the U.S. economy and the workplace, including an increase in demand for a well-educated and highly-skilled workforce.

Why do we need to be concerned about ensuring our workers have the right skills today and access to quality education and job training to keep their skills current so our businesses will remain competitive? Simply put, if we continue on the path we are on, we will not have the people with the talent and the skills they will need for the jobs that will be created over the next few years. I say this because within the next 5 years, it is predicted we will face a workers' gap of 7 million workers. Two-thirds of that gap will be due to a shortage in skilled workers.

Let me share a few facts that support the seriousness of this skills gap. Approximately 60 percent of tomorrow's jobs will require

skills that only 20 percent of today's workers possess. In this decade, 40 percent of the job growth will be in jobs requiring a postsecondary education. Those jobs requiring associate degrees will grow the fastest. Seventy-five percent of today's workforce will need to be retrained to keep their current job.

The skills gap promises to get worse unless Congress acts now to provide the guidance and vision necessary to train a generation of workers to fill those jobs of tomorrow. In this global economy, the process of learning is never over and school is never out. Technology will continue to demand that everyone learn and gain the skills they need to remain competitive in the workplace. If our students and workers are to have the best chance to succeed in life and employers to remain competitive, we must ensure that everyone has the opportunity to achieve academically and obtain the skills they need to succeed regardless of their background.

We must address the current shortage of well-educated and highly-skilled workers through partnerships among businesses, institutions of higher education, and the government, and we must do so before the shortage becomes any worse. Improving communication so universities will know what businesses need, and then providing the necessary training and education to address those needs will be critical if we are going to succeed in retooling the workforce.

For many people, acquiring postsecondary education or training is the key to their success. To prepare workers for high-wage, high-skill, and high-demand occupations, we have to support rigorous training and education programs that will lead to degrees or industry-recognized credentials in employment. We need to provide training and relevant job skills to small business owners or operators to facilitate small business development in high-growth industries. We need to expand or create programs for distance, evening, weekend, modular, or compressed training opportunities that will provide skilled training in high-growth, high-demand industries.

We need to promote entrepreneurial skill and micro enterprise training. We need to strengthen connections between employers and postsecondary education and training, and we need to provide the incentives for collaborative planning.

The Higher Education Act provides us with the opportunity we need to encourage greater cooperation and collaboration between business and postsecondary education. We must find ways to encourage students from diverse backgrounds to pursue education and training in high-demand fields.

Our focus will not only be on new students attending college for the first time, but also on adult learners who will be returning to college for additional training. Institutions of higher education need to work with employers and their employees, who must have access to continuing education and training that is flexible and responsive to rapid changes in the marketplace.

The task before us is not easy. There are many challenges with serious consequences. I prefer to think of them as opportunities. The decisions we will make about education and workforce development will have a dramatic impact on the economy and our society for a long time to come.

There is no monopoly on good ideas here in Washington, and that is why I am looking forward to hearing from all of you. I like

the roundtable format. It gives us a lot more information than we would otherwise be able to get.

We will be somewhat limited on time. I am told that we will have to conclude by 11:30 a.m., under some of the Senate rules today, so we will work toward that goal.

I will turn it over to Senator Kennedy.

OPENING STATEMENT OF SENATOR KENNEDY

Senator KENNEDY. Thank you very much, Chairman Enzi. First of all, I want to thank Chairman Enzi for the opportunity to bring all of us together in this different format that is the Enzi creation. Instead of having the traditional panels of speakers this format permits an interaction which I think has been remarkably successful when we considered some other challenging issues, pensions, for example, and so I want to thank him for giving us the opportunity to bring some really extraordinary individuals and thoughtful leaders of our community together and emphasizing the connection between business and higher education. This is very, very important.

I want to say that this is, I think, one of the most important hearings, certainly one of the most important issues that we face. When we were facing the industrial revolution, we developed the public school systems. That was actually in Massachusetts.

After World War II, when so many of the young men and women had given up 5, 7, 8 years of their lives to save their country, President Roosevelt decided to create the GI bill. It was enormously successful, and paid \$7 into the Treasury for every dollar invested in veterans' education.

We faced Sputnik and we reacted and responded with the National Defense Education Act. Out of every dollar that was expended, 5 cents of that dollar was expended in education, not that money is everything, but it is a pretty clear indication of a Nation's priority.

We are now down to a cent-and-a-half, and I thought it was just really unfortunate in this last budget when the Senate committed \$5.5 billion in new money for education. It was stripped in conference. That is the wrong priority. We have some rather basic ideas in response to a number of the things the chairman says, but we have to try and at least get it straight, even as we are dealing with the current problems of today.

Today, it is globalization. We are either going to be run out of town or we are going to get on top of it, and to get on top of it, it means we are going to have to invest in education. We have now 300,000 Chinese engineers that are graduating annually, 200,000 in India. We are graduating 50,000 engineers and half of them are from overseas. We have a problem.

We have a problem, because access to higher education in the United States is going down in terms of our college-age population, and in every other industrial Nation of the world, it is going up. What is it that other countries understand that we don't? It is the importance of investing in education and research and development.

When we see some of the cutting-edge companies that are expanding and growing, not just outsourcing jobs to India, but put-

ting some of their research centers into India, we know that we have some very serious problems.

We need to make this investment for a number of reasons. One, in order to remain the commercial leader of the free world. Two, so we have a national security that is second to none. And three, to have educated men and women that are going to be able to lead our democratic systems.

John Adams, one of my great heroes, wrote in the Massachusetts Constitution, in 1780, 8 years before the Federal Constitution, the education of our citizens is necessary for the preservation of their rights and liberties. Every single State Constitution has a reference to the importance of education. Yet we are not hearing it here in the U.S. Congress. The American people, I think, are well ahead of us. We have got some enormously talented people who understand this.

I want to thank my friend Jim Mullen from Massachusetts, the president of Biogen, who has been very much involved in caring about this issue. We are very, very grateful. I am to all of the people that are here. And Ted Hoff, who I have known for years, this has been an area in which he has been enormously energetic and he has been an important leader, as well. I thank all of those, one way or another, who I have had a chance to meet and work with in different ways.

I thank the chairman and I thank our colleagues who are joining us in our committee this morning. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Murray, did you have some comments you would like to make?

OPENING STATEMENT OF SENATOR MURRAY

Senator MURRAY. Thank you very much, Mr. Chairman. I really appreciate the opportunity to be at this hearing and thank you and Senator Kennedy for having this hearing and to all of our participants for coming today to talk about what is a critically important topic, as both our chair and ranking member have discussed already.

I particularly want to welcome from my home State Bob Craves, who is here with us today, and thank him for traveling across the country to be here. When I heard we were having this hearing, I couldn't think of a better person to be here to talk to us about how we can make college more accessible and affordable for low-income students. Bob was a founder of Costco and served there for a long time as senior vice president. He has a tremendous education background and served on the Washington State Higher Education Coordinating Board and was co-chair of the 2020 Commission on the Future of Postsecondary Education.

But I think what is most important is his contribution in co-founding a group called the Washington Education Foundation, which brings together community leaders in my State to help thousands of students who are left behind, who aren't adequately served or don't have any kind of support to give them college education. And through his foundation, he has raised more than \$150 million and provided 2,500 scholarships as well as providing college mentors for students. He has made a real difference in the lives of

many students who would have been left behind, and it is through his business experience and his community pride that he has really contributed in our State and I think he will be an excellent voice here. Bob, thank you so much for all you do and for being here as part of this discussion.

The CHAIRMAN. Thank you.

Senator Isakson, any opening statement?

OPENING STATEMENT OF SENATOR ISAKSON

Senator ISAKSON. Thank you, Mr. Chairman. I will just take a minute. I was looking at the panelists. I am delighted to welcome Dr. Palmer. I just had the pleasure of speaking to Phoenix's commencement in Atlanta and got to see first-hand the reach that they are making. IBM's presence in Georgia with a lady by the name of Ann Cramer, who I think is probably familiar to our IBM people, has done a tremendous job in helping public education and access to education in our State.

The one comment I would make is my perception is that too many of us in policy think of students and education in the sense of when we went to school and who we were, and what we called nontraditional students when I went to school in the 1960s is more the traditional student of today. I think we have to make sure that education is accessible in that way, both at the traditional State institutions, as well as the privately-operated schools, as well as all those schools that deal with specificity of trades or specialties.

I am delighted to be a part of the panel today and appreciate the chairman putting together this type of format. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

I appreciate all of you being here. Today's discussion, as Senator Kennedy mentioned, will proceed in a little different manner than a typical Senate hearing. We want a little bit more interaction. The purpose of the roundtable is to hear from the participants on a variety of viewpoints, how institutions of higher education and business can work together to strengthen the workforce.

We have requested that the participants not make an official oral opening statement. However, the hearing record will remain open for 10 days so if participants wish to submit statements, a prepared statement that they may already have or one that they may want to prepare after hearing the discussion, any expanded comments that you might have, the record will be open for 10 days so that the supplemental statements or opening statements can be made a part of the record of today's roundtable.

Before we begin, I would like to discuss a couple of guidelines of a roundtable. If any of you would like to answer a question that is being asked by us or would like to respond to a comment made by one of your colleagues, kindly stand your name tag on end and we will keep track of the order in which those come up and call on you in that order.

In order to keep the dialogue moving, we do request that your responses be 2 minutes or less. There is a lot of ground to cover. We may vary the format occasionally to fit the discussion.

I would like to introduce our distinguished panel of participants who represent a wide variety of institutions and businesses. We are

extremely fortunate today to have a distinguished and formidable panel of peers. Each one of our participants is an expert in the respective area.

Our participants today are Mr. Louis Caldera, the president of the University of New Mexico; Mr. Robert Craves, the founder of Costco Wholesale Corporation and currently the ceo and president of the Washington Education Foundation; Mr. Edward Hoff, the vice president for Learning of IBM; Dr. Edison Jackson, the president of Medgar Evers College; Mr. James Mullen, the president and ceo of Biogen; Dr. Laura Palmer-Noone, the president of the University of Phoenix; Dr. Walter Nolte, the president of Casper College.

I would like to take a moment to do a special welcome for Dr. Nolte, who is the president of Casper College of Casper, WY, a city that dominates the center of the State. It varies between being the largest city in Wyoming and the second-largest city in Wyoming, with a population around 52,000 people. But it is right at the heart and it is a college that has a little different role than some of the other community colleges because it also provides some 4-year degrees. I would like to welcome you and thank you for being with us today. I know what the journey entails.

We have Dr. Charles Reed, who is the Chancellor of the California State University; and Mr. Patrick Sweeney, who is the president and ceo of Odin Technologies. Reverend Michael Sheeran, the president of Regis University would like to have been here, but he is under the weather and sends his regrets. In light of his illness, Ms. Patricia McGuire, the president of Trinity University, will be participating in this panel.

I do want to extend a special welcome to Sally Stroup, who is the Assistant Secretary for Postsecondary Education in the Department of Education. She is with us today and we feel very fortunate to have a representative from the Department of Education of your caliber here listening. It is really a help when the administration shows up to absorb along with us so that they understand the direction we are going as we develop legislation based on what we have heard at these meetings. So thank you for being here today.

To each and every one of you, welcome. Thank you for taking time out of your busy schedules to be with us today. I know many of you have traveled great distances to be here. Since we do have a little bit of a deadline to meet, I will start with the first question.

The topic, of course, is how to form partnerships between businesses, institutions, and the government to ensure that the American workforce has the skills needed to remain globally competitive. Questions we asked you to consider are, what are the respective roles of each partner, and what can be done to facilitate communication and coordination between the partners?

Does anybody want to lead off? Mr. Caldera.

STATEMENT OF LOUIS CALDERA, PRESIDENT, UNIVERSITY OF NEW MEXICO

Mr. CALDERA. Thank you, Mr. Chairman. We deeply appreciate your holding this hearing and inviting us to participate.

Clearly, the partnership structure is absolutely the right way to go. We could not do our jobs as research universities without Fed-

eral support for research and for education. Corporate America can't be walled off from what happens in our schools, colleges, or universities, waiting to see if the end product is something that works. They have got to be active participants in that process. And universities have to be innovative and change so that we are not just doing what worked in the past, but doing what is going to be important to prepare the right kind of workforce and the right kind of research and scientific breakthroughs for the future.

That this is the right strategy is clearly underscored by what is happening in other countries and the level of investment that is occurring in the European Union, in China, in Singapore, and in India, and to travel to those places and to look and to see the level of involvement by businesses in support of those universities from the educational programs to the construction of research facilities and laboratories to research partnerships that lead to commercialization is to see people pursuing exactly a strategy of closer cooperation between the three.

Just two points I would like to make very quickly. One is one of the things that we have found has worked the best is when we have education that involves students and corporate America coming together. So, for example, we have the manufacturing, technology, and training center that was funded in part through EDA funding, Department of Commerce EDA funding, in part through State funding, where it is involved in both undergraduate and graduate education, because students are very active participants in the clean room that is comprised by this manufacturing, technology, and training center, and small businesses and start-ups are able to use it with the support of Intel and folks, semiconductors and others, we have a laboratory where students aren't just learning but start-ups are being able to, at much lower costs to themselves, manufacture products that they are using as the basis for creating new companies and a very different kind of knowledge-based economy in New Mexico. That kind of hands-on involvement in real world applications, not just in theoretical classroom discussions, I think is critically important.

I think one of the challenges is how do we get business engaged with more institutions across the spectrum of higher education in our country. I happen to lead a Hispanic-serving institution that is the most diverse public flagship university in the country, 44 percent minority enrollment. Yet I know that many of the kinds of employers who should be coming to or involved with an institution like mine aren't.

And I will tell a story that I thought about on the way over here. I have served and serve on several corporate boards, Fortune 500, and Fortune 1,000 companies. I have never met a minority accountant on any engagement on any of those boards, ever. And I have asked those—and as we have done our rehiring of the corporate board, I have asked them and they assure me that there are minority partners and minority accountants at the firms. So then I would ask them, where do you recruit? All of the schools that they named as the schools where they recruit are schools that have very, very low minority enrollment. They are not recruiting and are not engaged with institutions like mine, that have superb account-

ing programs—every single one of our graduates was placed last year.

So that engagement has to be broader than with just those handful of institutions that have been, for whatever reason, that is where we go to get the top graduates. There are top graduates at State universities and at very diverse universities that also have the potential to make tremendous contributions to our country. So that engagement has to be broader than with just the very top of our elite research universities.

The CHAIRMAN. Thank you. I would ask people to keep their comments short because we are going to have a lot of people that will want to contribute and, in some cases, counter things that were said or add to them.

Thank you.

Mr. Hoff.

STATEMENT OF EDWARD HOFF, VICE PRESIDENT, LEARNING FOR IBM

Mr. HOFF. I just want to convey a point of view from IBM about the partnership that exists between the business and the universities that we have today, but what might be a role of government to foster that, as well.

We are seeing in IBM that what we need to deliver value to our clients is people who, yes, know technology—we are a technology-based company—but people who also know business and understand the services and the processes that are embedded in businesses and people who have some leadership skills to be able to bring people together across different dimensions.

So as a company, we are trying today to work with universities to establish a curricula that is more interdisciplinary and actually change some of the degrees that the universities are providing. We are calling it a services-sciences curricula and degrees.

Now, in IBM, we did this 40 years ago when we essentially created the commercialization of IT and all the processes underneath this. We worked with a number of universities to establish the curricula and the degrees around information technology. We have concluded that, as a firm and as a society in the United States, we need to do that again. So we are working with all the universities that are primary partners with us, and that is working fine. It is working very well.

But my perspective is that there is a role of government in here. If you go back to some of the statements that were made earlier, there was a point of view that the government took in the late 1950s, early 1960s about what was going to be needed for the United States to be able to respond and around that, there was an investment that was made, the National Sciences Foundation and so forth, that essentially pulled both universities and businesses toward this point of view about how we needed to develop people.

So one thought that I might convey is that the government could play a role if it has a point of view about where the future is headed and about what kind of skills are needed and what kind of investment is going to be made. And it is part about money, and people do follow the money. But it is also about the statement about

where we are headed as a world and what we need to do to compete.

I will just say very quickly, when we work with China and India, the governments and the universities are very tightly combined with us as a three-part partnership—us, the universities, and the government around what kind of people are needed and how we are going to develop them. My own perspective is that that is the—the part of that three-part partnership that may need to be strengthened here is the government part of it. We know what universities we work with. We are going to work with them to try to create this services-sciences. But there may be a need right now because of globalization for the government to take the kind of role it had taken before in our history.

The CHAIRMAN. Thank you.

Ms. McGuire.

STATEMENT OF PATRICIA MCGUIRE, PRESIDENT, TRINITY UNIVERSITY

Ms. MCGUIRE. Thank you, Senator Enzi, and thank you for convening this important meeting today.

I think the story of Trinity in Washington is illustrative of how concern for workforce education has worked with the business community and with government to transform institutions, as well, and I hope our story can help inspire continuing transformation. We are one of the Nation's historic catholic women's colleges that today serves a remarkably different population than we did when I attended Trinity and when our distinguished alum Nancy Pelosi attended Trinity in the early 1960s.

Today, Trinity serves a highly diverse population that is 85 percent African American and Latina. Ninety-five percent are low-income, and 75 percent are over the age of 25. Our median family income today is about \$35,000 a year, which is remarkably different from the public institutions in our region, which have significantly higher median family incomes. And we are able to serve the several thousand students we serve largely as a result of the very generous Federal financial aid programs, which we applaud and are grateful for and our students are grateful for.

As we considered how to create a new institution for the 21st century, we turned to our business community, and I, like all of the university presidents here in the District of Columbia and the Washington region, serve as a board member of the Greater Washington Board of Trade. Through our work with the Board of Trade, we have all been deeply involved with workforce development issues in the Washington region, and that is a key component of the model.

Directly as a result of that work, we began to change our curriculum at Trinity in order to be responsive in a more direct way to the changing workforce needs of this region and we received considerable support from our business community as a result. One of the partnerships that we formed was with Time-Warner, America-on-Line, and thanks to their support and also the support of the U.S. Department of Education through the PT3 program, Preparing Tomorrow's Teachers for Today's Technology, we were able to revamp the way in which we use technology in our classrooms to

train teachers, and as a byproduct, to train all of the new professionals that are coming out of our programs.

In a similar way, the Department of Labor had a Workforce Investment Program for information technology, and with another grant through the Department of Labor, the local Workforce Investment Council in DC., and a coalition of corporate partners, such as Marriott, Deloitte Touche, and others, we created another program that focused on workforce development for individuals who were not yet in college and needed a pipeline to come into college in order to be able to acquire the information technology, the skills they needed to be successful, including targeting workers such as custodians who worked in the hospitality industry who wanted to move up into front-line positions, working desks, and so forth.

We are now working on another kind of partnership for the health care industry. Just this morning—I am on the board of the Washington Hospital Center—I told them I had to leave the meeting to come here, and I told them why and they said, please go because workforce development for the health care industry is one of the great critical needs. We are partnering with MedStar and Kaiser Permanente to build out our health professions programs, nursing and allied health, as well. And as a result of that, another piece of what we are doing is, for the first time ever, moving across the river to a new location in Southeast Washington in Ward 8 to open higher education program specifically targeting health professions in the Southeast Washington neighborhoods that are critically underserved by higher education.

These are just some examples of how partnerships with business in the critical workforce areas have helped to change our curriculum. Our faculty has been very open to it. And all of this has been made possible, as well, thanks to leadership and initiative by the Department of Education and also most critically by the kind of support our students receive through the Pell grants as well as the Federal loan programs.

We serve a population here in the District of Columbia that is critically low-income. Some of the poorest of the poor are actually enrolled at Trinity, a private institution. We provide a significant amount of tuition discount. We are not well endowed. Our endowment is only \$10 million, so it is not like we have a lot to give. But we discount our tuition heavily and we leverage the aid significantly to help our students become successful and they really are.

So that is just some models for you to consider.

The CHAIRMAN. Thank you very much.

Mr. Mullen.

**STATEMENT OF JAMES MULLEN, PRESIDENT AND CEO,
BIOGEN**

Mr. MULLEN. Thank you, Senator. I wanted to focus on, without going back over territory that has already been covered, and I wanted to pick up on one of your opening statements, which is this numbers gap and that is quite concerning.

I represent not only a health care company, but a health care industry, I think, in saying this, and we have focused on the front end of the pipeline as well as the back end of the pipeline, which is how you excite kids when they are in elementary school, in mid-

dle school, in high school, and I think there are some creative ways to do that. A simple government approach there was a conversation with the mayor and I said, we will open up our labs if you will open up your schools. We have constructed labs and we have now put about 90 percent of the 8th graders in the City of Cambridge through courses in our own laboratories. The goal, just to excite a few of these kids, and then second, also to make sure we are exciting all the kids.

So it was, traditionally, you see a lot of, as you go through the graduate programs and what not, get into secondary education, you see plenty of Northern European descent, plenty of Asian, but we are not seeing the black community and we are not seeing the Latino community and we are able to get more of that going.

Second, we have had great success with some help from government funding on really setting up and enabling partnerships between the industry and the community colleges or the universities for workforce retraining. So where we see a shift in the industry base to really put together programs that are going to be appropriate for a broader range of people, to retrain them and move them from one industry to another. We have had great success with that in North Carolina as they have moved from software and other high technologies to biotechnology manufacturing.

The last point I would make is to make sure we keep our eye on the NIH and the NSF funding. That is the funding source that really drives the graduate-level programs in higher education, in science, engineering, and math. We have got to do everything we can to keep that going. That is a foundation of basic science that is important to competitiveness, but it also is the money that enables these students to go on and get Ph.D.s, M.D.s, and advanced degrees.

Thank you.

The CHAIRMAN. Thank you.

Dr. Jackson.

**STATEMENT OF EDISON O. JACKSON, PRESIDENT, MEDGAR
EVERS COLLEGE**

Mr. JACKSON. Thank you, Mr. Chairman. I would like to come at the question a little differently. When you spoke about, in your opening statement, about diversity, increasing diversity, one of the challenges that we have in this Nation and we need to acknowledge, that there is increasingly a disinvestment in higher education in the education. We have got two issues. We have a short-term—we need to have a short-term solution as well as a long-term solution.

I represent Medgar Evers College and the City University of New York, 5,346 students, most of whom are of African descent, and I also speak on behalf of the NAFIO institutions. What I would like to challenge the business community is to begin to look at those wonderful institutions for potential employees. They are highly competent and capable, but we don't often look to them but we look to the same institutions over and over again, and yet we have this huge potential of fantastic graduates who could do great work.

I want to talk about what is happening in our country, and particularly in minority communities. We are pricing higher education

out of the reach of the most needy in our society and something has to be done about this. Otherwise, we will relegate that segment of our society, the margin of society, and the social costs associated with that sector will be enormous, and it is increasing.

If you look at the graduation rates of minorities in this country, and particularly urban areas, instead of increasing, particularly males, black and Hispanic males, the graduation rate is not going up, it is going down. We know how to fix the problem. The question is, for me, do we have the will to do it? And that is the challenge for us in higher education. That is the challenge for us in government. That is the challenge for us in terms of industry.

We have to think about how do we change the paradigm. How do we change the paradigm to increase not only access, but also equity of success in higher education and the K-12 system.

So as we talk about models for business, government, and higher education, we need to think about how we increase the pipeline, those coming through the pipeline, and I want to share with you for a moment, in the historically black colleges, we have an agenda gap. Over 60 percent of the students enrolled in higher education in our institutions are female. At Medgar Evers College, I created a Male Empowerment Center because I want to change the paradigm. Last fall, I increased the male enrollment at Medgar Evers College by 23 percent, and what we were able to do was to go out into the various communities and provide opportunities in education and information and showing people that education does matter and it can make a difference.

So we need to begin to, as we talk about how we create greater models and collaboration, we need to talk about how we increase those who are disengaged in our society, who want to succeed but have not provided the opportunity or the encouragement or the mentoring and/or the information to get there.

[The prepared statement of Mr. Jackson follows:]

PREPARED STATEMENT OF EDISON O. JACKSON

Good morning Chairman Enzi, Ranking Member Kennedy, Senator Clinton, the Senator of the great State of New York, other members of the Health, Education, Labor, and Pensions (HELP) Committee here assembled, I thank you for affording me the opportunity to participate in this important discussion about strengthening the relationship between the Federal Government, industry, and higher education institutions to prepare a diverse cohort of well-trained professionals for tomorrow's labor force.

I am pleased to appear before you this morning in my capacity of president of Medgar Evers College of the City University of New York. The foundation of Medgar Evers College was unlike that of any other college within the City University system. The community, in a collaborative effort that included the Bedford Stuyvesant Restoration Corporation, the NAACP, the Central Brooklyn Coordinating Council, local elected officials, and Central Brooklyn residents, formed the Coalition on Educational Needs and Services that successfully lobbied to establish the college to serve the educational, social, and economic needs of Central Brooklyn. When in 1971 the college opened its doors to its first class of 1,069 students, it was in the spirit of Medgar Wiley Evers, of James Meredith, of Martin Luther King, Jr. and all who believed in the transformative powers of education and the absolute right to equality.

On July 30, 1970, Governor Nelson A. Rockefeller approved the "establishment of an experimental 4-year college of professional studies offering both career and transfer associate degrees and the baccalaureate degree, to be located in the Bedford-Stuyvesant area of Brooklyn."

Densely populated and ethnically diverse, Central Brooklyn is characterized as a primarily low-income, minority area, with low educational attainment rates, high

unemployment, and faces many of the other urban challenges associated with economically depressed, inner city areas. Central Brooklyn is as well, home to the largest Caribbean population outside of the Caribbean.

Named Medgar Evers College in memory of the courageous African American civil rights leader killed in his native Mississippi in June 1963, the college opened its doors to its first class of students in 1971. Integral to the mission of Medgar Evers College is the belief that education has the power to positively transform the lives of individuals and is the right of all individuals in the pursuit of self-actualization. Consequently, the college offers programs both at the baccalaureate and at the associate degree levels, giving close attention to the articulation between the 2-year and the 4-year programs.

To date, the college has graduated approximately 10,000 students. Just over a thousand are expected to graduate at our May 2005 Commencement, of which approximately 600 are Baccalaureate degree recipients.

I am also pleased to be here today as a member of the National Association for Equal Opportunity in Higher Education, NAFEO, the membership professional association of the presidents and chancellors of the Nation's 105 historically black colleges and universities, and the emerging predominately black colleges and universities: public and private, 2-year and 4-year, urban, rural, and land-grant, located in 25 States, the District of Columbia, Virgin Islands, and Brazil. NAFEO president, Lezli Baskerville, is accompanying me here this morning.

As many of you are aware, but others are not, NAFEO was founded 35 years ago as the umbrella association of all of the Nation's historically and predominately black colleges and universities. Its mission is to champion the interests of HBCUs and PBCUs with the executive, legislative, regulatory, and judicial branches of Federal and State Government, and with corporations, foundations, associations, and non-governmental organizations; to provide services to NAFEO members; build the capacity of HBCUs, PBCUs, their executives, administrators, faculty, staff, and students; and serve as a voice for blacks in higher education.

Today, the world into which HBCUs and PBCUs are sending students is much different than it was 35 years ago when NAFEO was founded, or 40 years ago when HEA was initially passed. The institutions in which our students are enrolling are different and are evolving still to meet the changing characteristics of today's students, today's civic, social, political, ecumenical and labor force needs. These evolutionary occurrences are the driving forces behind the particular need for a strong industry/MSI partnership today. I cite just a few of the contextual predicates for this discussion from the vantage of HBCUs and PBCUs.

In the 40 years since the Higher Education Act was passed, the Nation has become more colored, more culturally diverse, more global, more technological, and more virtual. The cost of higher education has escalated to keep pace with the growing scientific, security, and technological demands of the day: demands for information now, information on-the-go, and to expand the reach of the information we have and information we need beyond the borders of campuses, counties, States, regions, and nations.

Yesterday's non-traditional students are the traditional students of today and tomorrow. Today students older than 24 years or enrolled on a part-time basis are the majority of all students. An estimated 55 percent of students fall into these categories.

Today, most new jobs require a postsecondary education. To meet these employment needs will require training a more diverse and technologically sophisticated workforce. The projected labor market needs and demographic shifts into 2014 dictate a re-examination of who will receive and who must be able to access and achieve a postsecondary education. The number of high school graduates is growing and is becoming increasingly diverse. By 2007-08, 43 percent of graduating seniors will be racial and ethnic minorities. By 2014 roughly 50 percent of the students "*Knocking at the College Door*" will be traditionally underrepresented minorities, according to a December 2003 report of the Western Interstate Commission for Higher Education (WICHE) in partnership with the College Board and ACT.

Not only is the racial and ethnic distribution shifting, but the gender distribution is shifting as well. Today in excess of 55 percent of college students are women, up from 45 percent in 1976. An alarming nearly 70 percent of students on many HBCU campuses are female on average, in part because of a tragic trend documented in a report by the Schott Foundation, that shows that nearly 60 percent of African American males are not graduating with their high school cohort for a number of well documented psycho-socio-economic reasons.

The South, where most HBCUs are located, will experience the greatest growth in high school enrollment, with nearly 751,700 more students expected in 2007-08 than in 2001-02 or a 5 percent growth rate. It will also experience the greatest gen-

der gap with fewer than 50 percent of African American males graduating with their cohort in all Southern States except Virginia, where according to *Public Education and Black Male Students: A State Report Card*, prepared by the Schott Foundation, 55 percent of African American males will graduate with their cohort, as compared with 73 percent of White males. This reflects a 17 percent achievement gap.

The Northeast is projected to see a decline in public school enrollment between 2007 and 2008, with an estimated numerical loss of 207,700—a 2 percent decline. This reflects the largest projected decline in high school enrollment of any region in the Nation. By 2018, it is projected that the Northeast will experience a slight enrollment increase; with 700 more graduates in the class of 2018 than in the class of 2014.

It is projected that the high school graduates of all regions will become increasingly diverse. As college-eligible students become increasingly diverse and increasingly non-traditional, there is evidence that 25 percent of high-ability, low-income high school graduates are locked out of college despite 30 years of systematic investment in student aid; and despite the best efforts of this and past administrations. These high-ability, low-income students are locked out of college because they have unmet financial need—\$3,700 per year, on average. (*Access Denied, Restoring the Nation's Commitment to Equal Educational Opportunity. A Report of the Advisory Committee on Student Financial Assistance, 2001*).

High ability, low-income students are also increasingly locked out of college because State flagship universities, that have a legal responsibility by Federal mandate to be “the peoples’ universities” are doing a poor job of enrolling and graduating African American students, Hispanic students, and American Indian students. According to a recently released report by Thomas G. Mortenson, the Senior Scholar at the Pell Institute for the Study of Opportunity in Higher Education, at this time when State public higher education institutions should be doing more to enroll and graduate traditionally underrepresented populations, because of their growing numbers in the population, most of our flagship universities are doing a grossly inadequate job of enrolling African Americans, Hispanics, and American Indians.

Despite some recent progress, among the universities that Dr. Mortenson found to be least engaged in enrolling underrepresented minorities present in higher education in their States, and most segregated are: the University of Georgia, University of Mississippi at Oxford, Louisiana State University, Baton Rouge, University of Tennessee, Knoxville, University of Delaware, University of Texas, Austin, University of Arkansas, Fayetteville. These are all States with HBCUs. The Mortenson report goes further to conclude,

“As these State flagship universities disengage from the demographic changes occurring in their States, they diminish their justification for further State financial support for their operations. As flagships increasingly focus on the affluent shrinking majority populations in their States, then State political leaders should reallocate State higher education investment resources toward those institutions and programs that are serving these growing populations on which the State futures depend.

“To maximize social welfare and diminish the many divisions that fracture our Nation, Federal resources devoted to broadening higher education should also be reallocated. Institutions that are disengaged from serving the growing demographic groups on which our country’s future depends should be suspended from further title IV student financial aid program eligibility. Institutions that are disengaged should be placed on probation and challenged to engage or face suspension. And those institutions that are reaching out to these growing demographic groups should be strongly supported for the important work they are doing.

“Moreover, many of these same State flagship universities that are turning away from addressing demographic opportunities have accumulated significant endowments (profits) that remain tax free: UT system (\$8.7B), Univ. of VA (\$1.8B), Ohio State U (\$1.2B) UNC CH (\$1.1B) Penn State U (\$.900M), University of Illinois (\$900M), University of Delaware (\$900M).

“These public universities have accumulated huge profits but most appear unable or unwilling to enroll their State shares of underrepresented minority populations. They do not lack resources—they lack will.”

The Mortenson Report has public policy implications worthy of our consideration. As we seek to invest more equitably and efficiently in higher education, to prod higher education access and success, and to focus on outcomes-based education, we should invest proportionately more in those institutions, like HBCUs, that continue to enroll and graduate disproportionate numbers of traditionally underserved students. This approach would foster at least three of the administration’s higher edu-

cation goals: (1) **promoting access to postsecondary education;** (2) **containing college costs and prices;** and (3) **fostering standards and accountability.**

Relative to *promoting access and success*, educating more diverse students has long been the province of the Nation's historically and predominately black colleges and universities. As one author noted, "HBCUs remain the patron saints of universal access." HBCUs and PBCUs are, in fact, the "patron saints of universal access AND opportunity."

By patron saints of "access and opportunity" I emphasize that HBCUs and PBCUs are not just opening their doors to opportunity to a broad and diverse group of students, many of whom have been traditionally underserved, but also offering students a college opportunity that is *appropriate* for their aspirations, preparation, and abilities. They are giving traditionally underserved students—the growing majority in America—an opportunity for a successful postsecondary experience.

Regarding the national effort to **contain college costs**, HBCUs and PBCUs are generally offering a good return on the investment. According to data from **The College Board's Trends in College Pricing 2004**, and the *2004 NAFEO Enrollment Survey of HBCUs*, private HBCUs on average cost \$10,000 per year less than their white counterparts, when tuition, fees, room and board are factored in. Public HBCUs on average cost \$1,000 less than their white counterparts. That HBCUs are by-and-large offering a good return on their investment is supported by some of the outcomes:

- HBCUs represent only 3 percent of all colleges and universities, yet they enroll 16 percent of all African Americans in 4-year degree granting institutions;
- They graduate 30 percent of African Americans receiving 4-year degrees, and 40 percent of African Americans receiving 4-year degrees in STEM areas;
- Twenty-four percent (24 percent) of all Ph.D.'s earned each year by African Americans are conferred by 24 HBCUs;
- Eighteen (18) of the top 23 producers of African Americans who go on to receive science related Ph.D.'s are HBCUs;
- Four (4) of the top 10 producers of successful African American medical school applicants are HBCUs. These HBCUs produce 20 percent more African American applicants than the other six (6) institutions combined;
- Eight (8) of the top 10 producers of African American engineers are HBCUs.

The outcomes are not all good, as you know. HBCUs and PBCUs like their white counterparts, are losing far too many students. According to a new survey by The Education Trust, only 60 percent of all college students are completing undergraduate study in 6 years. The graduation rates at HBCUs and PBCUs are as varied as they are at HWCUs and we must reverse this trend. HBCUs and PBCUs have a responsibility and unique qualifications to improve the education outcomes of their students. HBCUs have a rich history of enrolling, nurturing, transforming, graduating and sending disproportionate numbers of African American students to graduate and professional schools, especially in the STEM areas. HBCUS and PBCUs must do better.

This leads to my final contextual observation I believe in **standards and accountability**. Medgar Evers and other predominately black colleges and universities want to work with Members of Congress and a business partnership to ensure an accountability system that is **equitable and efficient; a system that factors in developing scholarship, expanding diversity and access, increasing learning, retention, and graduation; and facilitating post-graduate public and private service in areas of high need**. I believe that such an accountability system can be designed in a manner that does not have a chilling impact on creative teaching and learning; and that does not infringe the First Amendment Academic Freedom of a college or university to determine for itself who may teach, what may be taught, how it shall be taught, who may be admitted to study and how successful completion will be gauged. Medgar Evers College, and our national umbrella association NAFEO, look forward to working with you to craft such a system.

TITLE II—TEACHER QUALITY ENHANCEMENT GRANTS FOR STATES AND PARTNERSHIPS

Title II currently provides competitive grants to improve teacher education programs, strengthen teacher recruitment efforts, train future teachers to utilize technology more fully, and improve student achievement. In addition, this title establishes certain **evaluation and reporting requirements for States** that receive grants, and higher education institutions, in an effort to assess the quality of teacher education programs, primarily through the reporting of *pass rates on teacher certification examinations*. Institutions in which a teacher education program is designated "low performing" are ineligible for faculty development funding and barred from accepting into its teacher ed program any student receiving title IV funding.

Improving teacher education is a key component to improving tomorrow's education workforce. There simply are not enough teachers for the classrooms. The teaching profession serves as a gateway to all other professions, and the path through which a literate democracy must tread. With the ever increasing standards that have emerged since the landmark, *A Nation At Risk Report*, class size reduction initiatives, swelling numbers of immigrant and baby boomer children, and the "graying" teaching force, the United States is experiencing critical teacher shortages. The problem—especially acute in urban and rural districts and in the hard-to-fill areas of special education, mathematics, and science—is so severe that:

- Forty-two States issue emergency credentials to people who have taken no education courses and have not taught a day in their lives. Many teachers are hired based solely on their experience leading church or camping groups.
- One-fourth of new teachers—if they are licensed—are not licensed to teach in the field they are teaching.
- Twenty percent of new teachers leave within the first 3 years; most likely to leave are those with the highest college-entrance exam scores. A whopping 49 percent of those who leave do so because of job dissatisfaction or to pursue another career.

In addition to the growing number of students, new standards that require smaller teacher-student ratios, and retirement and attrition, other factors have contributed to the current situation. A lack of teacher mobility, inadequate induction programs, poor working conditions, the lowest unemployment rate in 3 decades, and a growing salary gap between teachers with master's degrees—all help to explain why our Nation is experiencing the worst shortage of qualified teachers ever in its history.

To meet the demands for qualified, diverse, culturally sensitive teachers, especially in traditionally underserved areas, we need well-prepared teachers that can perform to high standards. Students attending predominately black colleges and universities, like their counterparts attending historically and predominately white institutions, are capable of meeting any and all certification requirements when afforded the necessary resources. However, undue reliance on a single evaluation measure disproportionately disadvantages institutions that constantly battle chronic under-funding and financial insecurity, while producing disproportionate numbers of qualified teachers of color who are important to the success of minority students and the Nation.

It is important, however, that the criteria utilized to evaluate the effectiveness of teacher preparation programs must include not only a keen understanding of the pedagogy, but also reflect the pluralism and diversity of the Nation and the classrooms into which the teachers will go. The aim of any State program must include increasing diversity in the State teacher corps; increasing the percentage of elementary and secondary school classes taught by diverse teachers; and increasing the extent to which any new teachers will help to achieve pluralism among the ranks in the State, in districts and individual schools.

The U.S. Congress and the business community can be of immense assistance in ensuring that under-resourced institutions are provided the necessary tools and resources to ensure that students are able to pass the PRAXIS and other exams. This can be done without increasing the level of public investment in this very important undertaking, but rather, by making a more efficient investment of limited public dollars, in those institutions with least resources. This more efficient investment of sparse funds would facilitate access to the resources necessary to enhance teacher preparation programs, such as technology.

While technology is vital, human resources remain indispensable components of the learning process. Time and resources for **faculty development** to expand knowledge and skills are essential to the progress and success of both faculty and students.

A key piece to ensuring that faculty development is successful in promoting student success is the need to forge effective business, and governmental partnerships in key areas necessary to maintain a competitive edge not only for faculty, but also for their students. Partnerships with research universities or other specialized institutions of higher learning are key to exposing faculty to cutting edge thinkers, techniques, curricula, equipment, etc. The world has witnessed an information and knowledge explosion in the last 40 years, making it increasingly difficult for under-resourced schools to graduate students who can effectively compete with other, better financed institutions. While information and knowledge management is critical to the sciences and information technologies, advances in theory or applications of existing fields of knowledge impact on the curriculum and pedagogies in the humanities, social sciences, and even fine and applied arts.

Such partnerships will prevent faculty from becoming stale in their fields, and eliminate the risk of teaching a curriculum that no longer provides the essential skills and critical knowledge graduates need to enter and remain competitive in the workforce. Models for such partnerships may include faculty “internships” with corporations or organizations in their field of expertise; the “visiting scholar” model whereby selected industry leaders are attached to a particular colleges, formalized faculty/industry mentoring, etc. An immediate benefit of such partnerships is clearly a better educated teacher and college faculty corps.

The business world strongly supports such partnerships (*Sharing Responsibility: How Business Leaders and Higher Education Can Improve America's Schools, 2001, Business-Higher Education Forum*) and has strongly urged further involvement of the two sectors in improving the K–16 pipeline.

NAFEO has proposed and I offer for consideration by this august body, the joint public-private funding of **Ten Collaborative Centers of Excellence for Minority Teacher Education** on HBCU campuses and PBCU campuses throughout the country. These centers will play a critical role in *increasing the production of highly qualified minority teachers*.

The centers will be provided resources sufficient to *establish state-of-the-art teacher training facilities equipped with the latest technology, where curriculum will be reviewed and assessed, best practices and strategies identified and replicated, professional development and training for teachers provided*. In addition, necessary and meaningful research will be conducted on critical issues related to the education of minority children/students that will not only be used to address such vexing issues as eliminating the education achievement gaps of minorities, but also to provide critical data essential to developing and shaping public policy more effectively at all levels of government. The centers will not merely benefit the institutions at which they are housed, but also provide resources for educational institutions proximately, regionally and nationally.

The overall goals of these centers will be to develop more highly qualified minority teachers, improve the educational prospects of minority students, and further the goal of equal educational opportunity for all Americans.

One approach that Medgar Evers College has developed is a model approach to enhancing the K–16 pipeline through an innovative program at its Middle College High School at Medgar Evers College (MCHS). We intend to improve the economic and academic outcomes of our primarily minority student population by rolling out a program that permits selected students the option of choosing a curriculum that will allow them to graduate with both a high school diploma and an Associate’s degree. Graduates can then choose to enter the work force directly, or continue their academic career thus graduating by the age of 20 with a baccalaureate degree. We hope to enhance retention of high school students by reinforcing the value of what is increasingly becoming the entry level credential in the workforce, the Associate’s degree. Furthermore, since many minority students are unable to continue on to graduate school due to both personal and familial economic responsibilities, the opportunity to earn a baccalaureate by 20 decreases the amount of time spent outside the workforce while also reducing the burden of financial aid.

Global Education

Among other things, the tragic events of September 11, 2001 highlighted the critical need to cultivate more people of color to be involved in our global outreach and national security efforts. Current programmatic efforts have proven to be inadequate. Additional strategies must be employed and resources provided to strengthen and expand the capacities of HBCUs, PBCUs and other MSIs to participate more fully in this arena. Systematic and focused efforts to enhance the capacities of MSIs to increase the numbers of minority students knowledgeable about the world regions, foreign languages and international affairs to play crucial roles in advancing our Nation’s diplomacy and security efforts are essential to America’s continued safety and prosperity, and to industrial growth.

I propose the idea of the establishment of a joint public-private partnership to establish **ten area studies centers at Minority Serving Institutions**. These centers would feature programs involving student and faculty exchanges, area studies, foreign languages studies, global cultures studies, global faiths, economies, and political systems studies. The goal would be to expand the cadre of people of color, well equipped to assist to shape the Nation’s foreign policy priorities and secure our homeland.

A critical element of achieving global education is enhanced technology capability, especially and minority-serving institutions and historically and currently under-resourced institutions.

Medgar Evers Government-Institution-Business Partnerships

Medgar Evers College has identified a particular sector to effectively enhance employment opportunities for our students and local constituencies. In analyzing industry statistics and projections, the college has identified the Allied Health and Biotechnological field as a focus for developing career ladders for its student population. The School of Continuing Education and Community Programs and the School of Science Health and Technology have established agreements to develop career ladders locally. The college is working in collaboration with the State University of New York Downstate Medical Biotech Incubator to establish career tracks in biotechnology.

The area of healthcare practitioners and associated technical occupations are projected to grow by over 18 percent between 2000 and 2010, with support occupations growing over the same time period. Advancement in the direct patient care side of the industry is defined by an extensive system of professional certifications.

Biotechnology is another sector with growth potential in New York City. However, it requires economic development support. The field is projected to be one of the Nation's fastest growing industries over the next few decades. New York City possesses all of the ingredients that have fueled the industry's growth—research facilities, top education institutions and renowned scientists, according to a 2002 Center for an Urban Future report. But many biotechnology firms in the city are concerned that a shortage of trained technical workers and real estate expenses will hamper growth. Biotech projects frequently require significant start up funding from public sources to pay for space and equipment. However, the likely possibility of the development of the Brooklyn Army Terminal into hundreds of thousands of square feet of biotechnology manufacturing space increases the probability of job growth in the near future. Biotech career opportunities in New York City are currently “top-heavy,” but experts project a growing need for front-line workers as research and development projects move toward commercialization and economic developments such as the Brooklyn Army Terminal come on line.

Through its established relationships with professional unions, the health and hospitals sector in New York City, and its academic degree programs in The School of Science Health and Technology, Medgar Evers College has positioned itself to address the needs of these expanding employment sectors.

I thank the committee for providing me the opportunity to participate in this important dialogue. The membership association of NAFEO and I stand ready to work with this committee as it continues to explore the important questions that have brought us to this hearing.

The CHAIRMAN. Thank you.
Mr. Sweeney.

STATEMENT OF PATRICK SWEENEY, PRESIDENT AND CEO, ODIN TECHNOLOGIES

Mr. SWEENEY. Thank you very much, Senator, and thank you for inviting me here. To address the question of the various roles of those three entities in terms of helping future generations in keeping our country competitive.

I think, in general, there are three components. The government needs to support the infrastructure. The corporations of the United States need to define the problem and figure out where there are shortcomings. And then, third, education needs to respond in kind to those two things.

Just to give a little bit of my perspective on it, I sit on the board of Darden Graduate School of Business's Alumni Board down at UVA, but one of the more interesting things I do is I am the only North American board member for Trinity College in Dublin, not in Washington, DC. I tell my wife that I think they ask me onto those boards because of my largely unspectacular undergraduate career and they wanted to figure out what not to do— [Laughter.]

But in the case of Trinity over in Dublin, in Ireland in general, most people don't know the fact that Ireland is number two in the world in exportation of software. A country of just a few million

people is second only to the United States in the exportation of software. That came about through an incredible partnership between corporations, government, and then the higher education system.

It came about in Ireland because of need. There was a 20 percent unemployment rate and Ireland clearly wasn't going to participate in the industrial revolution. They had to go from the agricultural revolution to the technology revolution, and they said, how can we do that?

And government decided that they would support the infrastructure. They were the first country in the E.U. to put in something that was called an OC-48, a very large bandwidth pipe running around the country to give access to high bandwidth, because they knew if they were going to export technology and export their intellectual property, they would need the super highway to do that. So the government built that.

The educational system came in behind that and put a focus on technology, put a focus on software, put a focus on driving innovation. Now Trinity is taking the tack that those things are becoming commodity items, so now we have to look and figure out what the next revolution is going to be, and I think there is an awful lot that we can learn about that in the United States as a much bigger country and say, look, let us not try and fight something that is going to happen in terms of things becoming commoditized or things being outsourced. Let us figure out what the next revolution is and be on the leading edge of that.

The CHAIRMAN. Thank you.

Mr. Craves.

STATEMENT OF ROBERT CRAVES, FOUNDER, COSTCO CORPORATION, CURRENTLY CEO AND PRESIDENT, WASHINGTON EDUCATION FOUNDATION

Mr. CRAVES. Thank you. You are probably wondering why a guy that sells you mayonnaise in 50-gallon drums is talking about higher education—[Laughter.]—but the Governor of the State of Washington put me on more boards and commissions than I know what to do with, and even a retailer got it pretty soon that there is an alarming problem out there.

Things that we learned, of course, is that the percentage of kids on free or reduced lunch is going up in our State. For example, in 1999, we were at 30 percent. Today, we are at over 37 percent. We were looking around in a county that arguably is one of the more highly educated workforces in the country, King County, which houses, of course, Microsoft and many others, except that everybody that got good jobs was coming from someplace else.

So my associates at Costco and I looked at this and said, what a waste of human capital. So what we did—this is just an example of what business can do, and appreciate we are low-tech or no-tech, so we kind of look at educating the whole person. There are about 60,000 graduates in the State of Washington every year. Thirty-thousand go to some kind of college. Thirty-thousand don't. Our question was, of the 30,000 that don't, how many of them can earn a baccalaureate degree or better, and the numbers we came up with through the Department of Education, some independent re-

search we did, and the Higher Education Coordinating Board of the State was about 6,000 on the low side. It was 6,000 to 12,000.

So we used the 6,000, and so we put together, in cooperation with all our public and private universities and community colleges, this foundation which provides college scholarships and mentoring to low-income, high-potential students. The idea here is to try to put a national coalition of these foundations together to try to raise in this decade a billion dollars to help these poor kids go to school.

We think higher education has certainly signed on. We have agreements with all the institutions to help these poor kids. The definition, obviously, of low-income is going up. Our public universities are increasing tuition by 7 percent a year. Our privates, in general, are 5 percent, but remember, their base is \$28,000 instead of \$5,000, so it is getting to be more and more costly. Trying to help kids with their part of the education finance is, at least to us, is incredibly important.

As we go State to State to try to open up more education foundations, a couple of things that the government could do is certainly make money available to build the infrastructure of these foundations, which is minor, maybe a couple million dollars for start-up money.

The other thing that you have going right now is the new piece of funding which would give private philanthropy a match of, I believe, 50 cents on the dollar. So if we raise a million dollars, let us say, for scholarships, that the Federal Government comes in with \$500,000, which makes it infinitely easier for people like me to raise money when I go to the Starbucks of the world and the Microsofts of the world raising money, to say that we have a partner here.

So I think that is what businesses can do. We have had the buy-in of perhaps 500 different companies. Lots of them are vendors, of course, who love to come to this party and give us money for this. But it is out there and people, when they can put a face on something and they can see the money going to help an individual, it is a significantly easier sale than just saying, give me money for higher education. Thank you.

[The prepared statement of Mr. Craves follows:]

PREPARED STATEMENT OF BOB CRAVES

Every year, thousands of young people across the country dream of attending college, but they don't go because they don't have the means to pay for it.

We think of them as the children left behind; the students that aren't adequately served or supported by existing government and scholarship programs.

We felt we could do better, which is why we created the Washington Education Foundation in 2000. Working together with several private organizations and companies—including the Bill and Melinda Gates Foundation and the Costco Warehouse Corporation—we've been able to provide scholarships and mentoring to thousands of low-income, high-potential students in Washington State.

None of this would have been possible without the support and active participation of several leading figures in our State government, including the current and prior Governor, the Superintendent of Public Instruction, and the Higher Education Coordinating Board, a citizen board responsible for overseeing various aspects of State public policy including the distribution of scholarship funds to both public and private institutions.

Education beyond high school is increasingly essential as a way out of joblessness and poverty. Higher education increases productivity and creates a well-educated citizenry that can contribute to the vitality of our Nation.

Yet for many children who live in low-income homes, postsecondary education is simply not considered possible. And in fact, the disparity in educational attainment between young adults with low incomes versus kids from high-income families is large, pervasive, persistent, and the gap is growing larger every year.

It's such a terrible waste. Because with a relatively small level of support—partly financial, partly in guidance and mentoring—most of these students could succeed, and ultimately contribute their brains, their talents, and their energies to society.

This Spring, we at the Washington Education Foundation are celebrating our first full graduating class of students who have been recipients of our programs. We have a unique and pro-active approach to our scholarship programs—we don't just throw money at the students and then walk away. The Achievers Scholarships, for example, are granted to students at the end of their Junior Year in High School. That's really just the beginning of the process—from then, our statewide network of more than a thousand volunteer Hometown Mentors goes to work helping students through the complicated process of selecting and applying for colleges, which is essential since many of these students represent the first generation of their families to attend college, and can't get that sort of advice at home. Support for each student continues once he or she begins attending university, through a network of college mentors that help to assist and monitor the students through this often-difficult transitional period.

I describe this because we've been fortunate in Washington State to forge a public/private partnership with our State government. Through the generosity of our benefactors and volunteers, we've been able to raise nearly \$150 million in scholarship funds from private foundations, companies, and individuals. The State has supported our efforts through the commitment of resources to manage, oversee and ensure the success of the Mentoring portion of our program. I like to point out that the State is getting a great bargain—its financial contribution is less than 10 percent a year of what we grant in scholarships, but that contribution allows us to focus our resources on the students themselves. By working in concert, the contribution of the State is multiplied 10 times over, meaning that we all win.

That's essential to accomplishing what the Roundtable discussion will be focusing on—strengthening our workforce to meet the needs of industry and our country. I've met many of our scholarship recipients personally. I can assure you they have the brains, the grades, and certainly the drive that demonstrates they can succeed. All they need are the financial and other resources to ensure they get on the track to success.

To that end, there are two ways I believe the Federal Government can support the efforts of foundations such as ours in delivering on the current and future needs of education across the country:

- A matching program that encourages private philanthropy by providing dollar-for-dollar matches of donations made for university scholarships. Through our efforts, we've raised \$150 million in the State of Washington—if we could double those resources, we could support thousands of additional students and allow them to reach their full potentials.

- As other States look to initiate their own education foundations built on our model, it would be a great boon if the Federal Government could support those efforts through making an investment in the start-up costs. Thanks to the generosity of the Gates Foundation and Costco, we were able to fast-track our efforts in the State of Washington and get our programs going in months instead of years. But not every State will be so fortunate as we were to have such outstanding benefactors right from the start; and in my view it would be better for their fundraising efforts to be focused on developing scholarships instead of building infrastructure. A small investment in start-up costs by the Federal Government would reap huge rewards later.

Thanks for the opportunity to participate in today's Roundtable; and thanks also for bringing these critical educational issues to the forefront.

The CHAIRMAN. Thank you.
Dr. Nolte.

STATEMENT OF WALTER NOLTE, PRESIDENT, CASPER COLLEGE

Mr. NOLTE. Thank you. Thank you, Senator Enzi. I will have to admit that I bought one of Mr. Craves' 50-gallon jars of mayonnaise when I left Washington in 1993. I still have it. [Laughter.]

I want to follow up a little bit on what Mr. Mullen said. I agree that one of our challenges is how to keep young people interested in high-skill, high-wage jobs. How do we keep young people in school, I think is one of our challenges.

Wyoming is in an interesting position right now where fiscally, the State is very strong. We have developed—you asked the question, how can government be involved. Recently, the State of Wyoming passed a \$400 million scholarship endowment for high school graduates, and basically when that ramps up over the next 5 or 6 years and the endowment is full, any high school student with any motivation at all should be able to go to college tuition and fee free. We might be unique in the Nation in that respect, but it is a tremendous resource for our high school students and we are hoping that this will be a powerful incentive for parents to encourage their young people to continue in school and to achieve the standards necessary to receive this scholarship.

One of the other things that we are doing, again, it is a partnership with government, with our school district, and with the local private sector, is that we are looking at the development of a skill center located either on our campus or near our campus, a joint facility run by the high school district and the college with input from the private sector, a modular facility that we can change instantly to meet private sector and business and industry needs with an open entry, open exit curricula. We are hoping that this facility will address the high school drop-out problem.

We will react to the programs that we need very quickly when this facility is developed over the next few years based on private sector input. We are hoping that the private sector will help us equip this facility because those are the high-cost items for any college, community college, or high school district in running a program.

We are also hoping to jump-start this with an application for President Bush's Community College Job Training. We really think that this is an adaptable program that we can move quickly on what private sector employers are telling us their immediate needs are.

The challenge will be to get young people involved in this, to keep them involved. And again, I agree with Mr. Mullen that that is something that has to start at an early age in the education career.

The CHAIRMAN. Thank you.

Dr. Reed.

STATEMENT OF CHARLES REED, CHANCELLOR, CALIFORNIA STATE UNIVERSITY

Mr. REED. The California State University has 420,000 students, probably about the same number of people that live in Wyoming. [Laughter.]

Senator Enzi, thank you for convening this very important meeting. I want to take a little different approach and be maybe a little more specific. We will be graduating 88,000 students this spring. We began last week and we will run our commencements through the second week in June. It is very important, of those 420,000 students, approximately 54 percent of them are students of color. We

are the largest feeder of the workforce in California, which is the seventh-largest economy in the world.

Having said that, my colleagues here have all talked about this pipeline and they have talked about partnerships. If we all say those words, we all need to live those words, and that partnership and those pipelines, as Senator Kennedy said, start in K through 12, and that is the preparation of students in K through 12 for the workforce and for college, and college awareness is a huge, huge issue among minority students.

I can say this. College is no longer a luxury in our society. It is a necessity. So, therefore, I have a suggestion. I think yesterday you passed S. 1021, which is the Workforce Reinvestment Act, which included the President's Community College Initiative. I would like to suggest that you add to that bill the possibility that higher education, 4-year institutions could join in a partnership with community colleges. The community colleges can be the direct-funded organization, but require that they have this partnership with K through 12 and with higher education, 4-year institutions.

In California, the California State University accepts 7 of every 10 students from the community colleges, and this is a continuum. So if that bill would allow us at the 4-year level to focus on workforce development with our partners, the community colleges, and their partners, K through 12, I think we are going to be so much better off.

One of the things that I have tried to do is to form what we call Chancellors' Advisory Commissions of business and industry in California. For instance, the agriculture industry, the largest industry in the United States, in California. I have about 20 of the largest agricultural producers in California advise me twice a year. What do they say they need? Students who can communicate, both orally and in writing. Two, students who can work together in teams across all their businesses. Three, students who understand technology. Now, they also come back and say, chancellor, you need to work more and harder with your community colleges, and so I would like to see that added to S. 1021.

The CHAIRMAN. Thank you. We are talking about the Higher Education Act primarily today, but we are trying to make this all seamless with the Workforce Investment Act and there is a provision in there, we might not have it clear enough, that colleges, 4-year institutions, can work through the community colleges and a partnership as business can work through, but we may not have that clear enough and it is an excellent suggestion.

[The prepared statement of Mr. Reed follows:]

PREPARED STATEMENT OF CHARLES B. REED

Chairman Enzi, Ranking Member Kennedy, and members of the committee, thank you for inviting me to participate in this important discussion about the preparation of our Nation's workforce. Few, if any, university systems can match the scope of the California State University (CSU) system. Nationally, about 1.25 million bachelor's degrees are awarded annually in the United States by about 2,000 colleges and universities with a combined student population in excess of 15 million. As the Nation's largest 4-year university system, the California State University's 23 campuses award more than 4.5 percent of those bachelor's degrees, giving the CSU a significant national presence. In California, a State boasting 372 public and private institutions, the CSU plays an even stronger role. It serves nearly 400,000 students, twice as many as the University of California and more than all private colleges and

universities in California combined. It accounts for almost half of the bachelor degrees granted in California, and a third of the master's degrees.

And those bachelor degrees are not narrowly focused. Because of the breadth of its offerings, which includes more than 1,800 degree programs, the California State University serves as the essential engine of California's skill-dependent economy. Its role in workforce preparation is unrivaled. It provides the majority of the State's new teachers, 40 percent of its engineering and nearly half of its business graduates, and more graduates in agriculture, communications, health, and public administration than all other California colleges and universities combined. Our focus is on quality, access, and affordability. We are proud to say that the CSU is working for California.

In order for our country to remain globally competitive, we must build strong and effective partnerships between education, business, and the government. No matter which sector we represent, our work is essentially interconnected. The strength of our country's educational system relies on the participation of businesses and government, and in turn, a strong educational system helps us build successful businesses and a strong economy. It is all part of a continuum in which we must be active partners.

Point 1: Our Efforts Must Begin With K-12

For as long as I have been at the California State University, I have made it a priority to work with our K-12 schools. The vast majority of our students come from California's public schools, and the more K-12 and higher education work together, the better prepared our students will be for success in college.

Point 2: College Awareness and Preparation Are Key

College is no longer a luxury in our society, it is a necessity. We know that a person with a bachelor's degree will earn nearly twice as much over a lifetime as a high school graduate. Before I came to California, it had never occurred to me that many young people didn't know how to prepare for college. But our population is rapidly growing and shifting. California is now a majority-minority State. Many of our students come from homes where the parents are not from this country and do not speak English. Plus, many of our students are the first in their families to attend college. These students often need assistance in making sure they get the right classes in high school, filling out applications, and filling out financial aid forms.

Also, even when many of our students arrive at college, they still face a need for remedial education. Remedial courses are expensive for students, costing them added time to their degree, additional tuition payments, and often increased student indebtedness. Remedial education is also costly to the institution, demanding scarce resources, and ultimately reducing seats available to the next class of students at a time when enrollment demand is outpacing the capacity of our colleges and universities. The CSU is working with California's schools to reduce the need for remediation at the college level. Our efforts to address this issue include:

Early Assessment Program: The CSU has worked with the California Department of Education and State Board of Education to create this testing program, which is embedded in the 11th grade California Standards Tests. It is designed to give students an "early signal" about their level of college readiness. Once they take this test, students have the opportunity to do any additional preparation that they need to do for college while in the 12th grade. Our early assessment focuses on mathematics and English, two areas that are essential to preparing students to participate in a highly skilled workforce.

GEAR UP and TRIO: The GEAR UP and TRIO programs are essential to our efforts to prepare disadvantaged students for a college education, and indeed to let them know that college is a possibility for them. The California State University participates in more GEAR UP programs than any other entity in the Nation, and I urge you to strengthen and maintain these two essential programs.

Poster: We created a "How to Get to College" poster to distribute to every middle school and high school in the State. This poster spells out exactly what courses and tests a student needs to take to prepare for the California State University or the University of California. The demand for these posters has been overwhelming. We now distribute posters all around the State in English, Spanish, Chinese, Vietnamese, and Korean. Boeing has been a strong supporter and lead partner in underwriting this effort.

Point 3: All Americans Must Have an Opportunity to Participate and Contribute

At the CSU, approximately 54 percent of our students are from minority populations and 40 percent come from households where English is not the main language spoken. In an increasingly diverse society, it is essential to ensure that all

sectors of that society are prepared to participate. Unfortunately, there is still an achievement gap across all levels of higher education. The reality is that we need to build a “pipeline” for under-represented students from high school to graduate school to business. To do this, we must increase the number of role models, including teachers, who can reach out to diverse communities. We must also improve on the graduate opportunities available to under-represented populations. For example, adding a graduate component to Title V of the Higher Education Act (HEA) would be a step in the right direction to greater inclusion of American Latinos.

Ensuring that all young people have a chance to participate is a critical component in building a highly skilled workforce. American business needs individuals who can design, produce, and ultimately market products to every community in America and increase the demand for America’s products throughout the world.

Point 4: We Need Partnerships With Business to Prepare Students for Workforce Success

The fact that there is a gap between what students are learning and what future employers need from our graduates tells us that higher education needs to pay closer attention to workforce preparation. Our credibility with our business and community partners ultimately depends on our ability to prepare students who are equipped with the tools for future success.

According to the public policy and research firm Public Works, three key attributes necessary for success in the 21st century workforce include the ability to think critically and creatively, the ability to relate collaboratively, and the ability to adapt and transact in a global economy. If we give students the opportunity to work in teams, challenge them to work across divisions, and offer them more exposure to real-life situations, they will be better prepared for what today’s jobs require of them.

Several of our most successful recent graduates have told us that the key to their university experiences was working with professors who knew about workforce needs and having a flexible curriculum that allowed them to get maximum exposure to the latest technology, equipment, and techniques.

There are plenty of opportunities for us to work closely with business partners in our community, including the sponsoring of scholarships, internships, and job placement opportunities. Additionally, several of our campuses have undertaken innovative joint ventures that benefit all parties involved. For example, Cal Poly Pomona is launching a joint public/private partnership known as Innovation Village. The new Red Cross regional headquarters that just opened at Innovation Village will be the largest blood-processing facility in the country. The university offers the Red Cross a strategic location and access to vast university resources. In return, having that facility offers the university prime educational and research opportunities.

Point 5: We Must Continue to Inform our Community Partners About the Impact/Importance of Higher Education

The California State University recently did a comprehensive study of the impact of the university and its 23 campuses. The study found that CSU-related expenditures create \$13.6 billion in economic activity, support 207,000 jobs, and generate \$760 million in State taxes. We have been conducting events all across the State that highlight the CSU’s role in several key industries to industry and community audiences. By raising awareness about the role of the university, we hope to build stronger partnerships that will allow us to make new inroads into these industries—and to hear more about how we can better prepare students for the workforce.

Thank you again for this opportunity to present the views of the California State University. I hope you will continue to view our system as a resource as you work on the reauthorization of the Higher Education Act and other matters related to workforce preparation.

The CHAIRMAN. Thank you.
Dr. Palmer-Noone.

**STATEMENT OF LAURA PALMER-NOONE, PRESIDENT,
UNIVERSITY OF PHOENIX**

Ms. PALMER-NOONE. Thank you, Chairman, for convening this today and for inviting me to participate.

I am the president of the University of Phoenix, a for-profit regionally accredited institution with over 233,000 students, not

quite as large as the Cal State system, but watch out, Dr. Reed. We are on our way. [Laughter.]

The average age of our students right now, Senator, is a little over 34 years of age, and about 41 percent of our students identify themselves from being from racial and ethnic minorities.

My point in giving you that background is that I think it would be a mistake for us to limit our consideration today to what we refer to as young people, the 18- to 22-year-olds. We need to assist in the workforce development of the people in the workforce now. We simply don't have the luxury of waiting 4 or 5 or 6 years for some of these things to take root.

With regard to your question about increasing the partnership between universities and business, I think that higher education has been somewhat remiss. We need but only to ask. If we ask those companies what it is that they need, as Dr. Reed has indicated, they tell us some very interesting things.

We conducted some research in December of this past year. About 300 national employers were asked, what is it that you are looking for? What are the skills that are missing? What do you promote on? Why do you hire people? And they told us, they want communications skills, they want critical thinking, they want collaboration and teamwork, they want adaptability, a commitment to lifelong learning, a commitment to a willingness to change with the organization. All of those things ranked ahead of the technical skills of the positions.

What is government's role, then? I think it is that we have to have some help in increasing access. The reason that students are not going to school now has nothing to do with geography. We have done a wonderful job in higher education, putting a college on every corner or putting it onto the Internet or some way for people to go. The barrier to their being part of the higher education scene is money. They need to have funding. They need to have a way to get access.

If I had a recommendation for the rallying cry for the Higher Education Reauthorization, it should be that we should change "No Child Left Behind" to "No One Left Behind." Thank you.

The CHAIRMAN. Thank you very much.

We will need to move on to a second question here. Again, we have to be through by 11:30 a.m., under some Senate rules that are being invoked today. And this has been alluded to by many of you while you have been talking, but I really want to thank you for all of the comments that you have made so far. I have got a pile of notes here on some additional follow-up questions that I am going to have to do with each of you, because I think you are really getting to the heart of some of the things that we need to study and get answers for as we do the Higher Education Act.

This pipeline that we have referred to, there is a huge concern in this country, and we need to have it, we have always been the leaders in math and science and health and technology and that has really made the economy what it is. We lead the rest of the world. We develop a product. Eventually, that becomes kind of a standard product and they make it everywhere in the world. The reason that we are able to be successful is we go ahead and we develop new products. We have been staying ahead of the curve so

far, but I am a little discouraged with the number of kids that are going into math and science and health and technology and the ones that are going to be the inventors of the future that will keep that technology going.

So how do we encourage students to prepare for and enter those high-skill fields? What can we be doing to get the kids excited, as was mentioned? How do we do that? Ideas?

Dr. JACKSON, I think you had your card up first.

Mr. JACKSON. We have many programs that are federally funded that are doing a terrific job. GEAR UP is doing a tremendous job in working with young people to get them to, first to understand that college is possible, second, that these professions are available to and for them, but also to give them the kinds of skills that they need so that they don't feel that the science, health, and technology professions are not for them.

But I want to go back. We had in 1960, the Sputnik era, National Defense, Science Defense Act. I was one of those who went to college, Howard University, majored in science, because there were resources available for me. If we don't increase the number of faculty or teaching in our K through 12 system, we have too many people teaching out of their discipline in math and science. How can you encourage young people to love science and math when you have people who are not qualified and just simply doing it? The modeling that it seems to me is necessary and the love of the profession, you have to have people who are qualified. We can't produce enough of those.

We are talking about very high-cost programs, and somehow or another, if you are asking what is the role of government, what is the role of the Federal Government, you have the model. It worked. Why not go back and embrace that model again, or at least examine it for those things that were successful and then to try to fund those programs.

I think we have a lot of opportunity. We have the models. We can go back to them. They are successful. They were successful. And you are seeing the fruit of that or proof of that with a lot of people who are now like me, perhaps could not have gone to college were it not for that act.

The CHAIRMAN. Thank you.

Dr. Reed.

Mr. REED. Senator Enzi, I think that—I support what Dr. Jackson said about the National Defense Education Act. He and I are probably about the same age, so there are a lot of good ideas there that I would commend you and your staff to look at, especially in preparing math and science and foreign language teachers for the future.

Mr. JACKSON. Yes.

Mr. REED. Let me say this, that awareness and understanding by parents and students of what it takes to join the workforce and to be able to go to college is really important. Senator Isakson was talking about students don't look like we did when we went to college. Eighty percent of the students in California State University work, many full-time. Forty percent of them come from homes where English is not the first language spoken.

One of the things that I learned just by walking around is students and some of their teachers and their parents have no idea what it takes to go into the workforce or go to college. One of the things that we did is we printed a half-million posters that we send out every year in Spanish, English, Korean, Chinese, Vietnamese, so that these families can be much more informed of the importance of taking algebra I and algebra II by their junior year in high school.

The California State University, and I think the Federal Government could help all of us, could incentivize us to push down into K through 12 the expectations. We are now offering an 11th grade exam—I am paying for that—in all of the junior year, 11th grades in California which just simply says, are you prepared for the workforce? Are you prepared to go to college? And, frankly, about 80 percent of the students are not prepared.

But what we are asking, Louis Caldera and I served on a committee and one of the things that we found out is the 12th grade in America is the biggest wasteland. Nothing happens in the 12th grade. Kids go out and get jobs about 11 o'clock in the morning at McDonald's so they can buy a car, but they are not going to school. They are not taking math, real math. They are taking—sometimes it will be math, maybe it will be math, never will it be math. I saw a high school that had 34 math discipline courses. There is not that much math out there in the world. There are only about five or six maths. So if we can focus on algebra, geometry, trigonometry, and calculus, we would do these kids a great favor.

We are trying to push our expectations, our workforce expectations, down into the public schools.

The CHAIRMAN. Thank you.

Mr. Mullen.

Mr. MULLEN. I will pick up on a couple of things; one I said before and agree with Dr. Jackson. You have got to hook these kids early and get them excited about education. I am particularly focused on the math and science and the engineering, and the reason for that are a couple-fold. One, that is what drives the economy and the technology and the new jobs. But the other is just a simple observation. I have rarely seen somebody go through training in liberal arts or business and then follow that on with a science education. I have seen the reverse thousands of times. So if you do not get them involved early they just simply do not get the skills and they get more and more distant.

So I think we have to have better teachers, so teachers that are highly qualified to teach these subjects down in the grade school levels. I think the government industry can help a lot in helping shape curricula. So what is important and also making it relevant and exciting for the students, and exposure.

So one of the keys that we had around this community lab was the excitement and the exposure. Show them what the jobs are. In the minority community—and I sit on a board called the Biosciences Career Program that is completely aimed at bringing minority kids into these group programs. Most minority kids, the only person they ever saw in health sciences was a physician. They do not know what all these other jobs are so there is nothing to get excited about.

So part of that is exposure. That is a place where both the industry is happy to play a role because we all have kids and students in school too. And I think the government can play a role in the curriculum shaping as well as the access to some resources.

Thank you

The CHAIRMAN. Thank you.

Mr. Caldera.

Mr. CALDERA. Thank you, Senator. Three bullet points. The first one has to do with the emphasis on K-12 and on teachers who are well-prepared and subject matter experts in science and math. A great science teacher will turn you on to science. One who does not understand science or math is going to turn you off to math or science, perhaps permanently.

The second bullet point is the importance of involving undergraduates in research. There is nothing like the antidote to the large lecture class, to work in a small lab with a scientist, with a professor, as part of a small team. The same is true with hands-on involvement, whether it is in a lab or whether it is at a company near you, to turn you on and to help you understand the real-world applications, to let you know what scientists and researchers are doing and how their breakthroughs have real-world applications. It has a huge impact on career field selection, decisions to go on to get master's and Ph.D.'s, just commitment to education, if we can find ways to support more undergraduate involvement in research.

The third, and that is particularly important to institutions like mine, is support for a graduate program for Hispanic-serving institutions. We have done a pretty good job in this country of increasing the minority enrollment at the baccalaureate level, but the message for a lot of those kids, especially those who came from families where no one had ever graduated from college, was that the goal should be graduating from college. We have got to raise that. The goal should be getting a Ph.D.

So creating more opportunities for some of those students to not limit themselves to the baccalaureate level but to be thinking about the master's and Ph.D. level is very important, and an HSI graduate program could help support that.

The CHAIRMAN. Ms. McGuire.

Ms. MCGUIRE. Thank you. I was struck by the passion and clarity with which Dr. Reed described the problem. My heart was leaping with resonance at the description.

I think those of us who work in urban centers in particular, and urban universities—and I do not mean to exclude others but being a university in the District of Columbia—I understand the catastrophe that is called senior high school. Senior high schools just do not work in this city and they probably do not work in a lot of cities. We see children coming into college who absolutely are so unprepared they do not know what calculus is. They have never heard the word trigonometry before. They do not even have the vocabulary to understand what the course schedule titles are in order to know what they need.

Now I happen to be one of those college presidents who is not embarrassed or ashamed to say that my institution does a heck of a lot of remediation. There is nothing wrong with that word be-

cause there is nothing wrong with the brains of these students. They simply have not had the platform prepared for them to be as successful at the gate as other students from better high schools. I believe absolutely, passionately, that every student can learn that instead of saying no child left behind, let us say, every student can and will learn and be successful.

One of the things I have come to understand is that those of us who are colleges and universities, particularly in the urban centers again, could and will and are willing to create that bridge from whatever grade school level, maybe it is 2nd grade, maybe it is 1st, maybe it is pre-K, the student needs to get into to become successful. I think the traditional notions of Federal financial aid and institutional support need to have a whole new layer put on them specifically for the urban student who has been under-prepared. Traditional financial aid is great but it does not necessarily help all the students I have who need to have 13th and 14th grade before they can become college freshmen. We call it college freshmen right now because we do not know what else to do with them.

Our students at Trinity, on average, are completing in 7, 8, and 9 years. They are not even completing in 6 years any more. So we look at completion rates and everybody says, oh, that is terrible. It is not terrible. They are completing, for heaven's sake. But we are having to repeat 9th, 10th, and 11th grade in order to get them to finish and be successful at the other end.

Now this relates to math and science in particular because the math, science skills are the particular problem that we see. The quantitative skills are just simply nonexistent. It is not that they are poor. They are nonexistent, and it is not the child's fault. It is in fact all of the other issues. We cannot wait for K-12 to reform itself in order to solve this problem because then you will have no scientists or mathematicians for many generations to come.

I would challenge Congress to think, and the Senate and this committee in particular, to think of how we could work with you to create a very new program that would incentivize those colleges and universities who are willing to work with you, with the Department of Education, and with industry in the creation of some new model programs that would be, frankly, a little less complicated than GEAR UP, more focused on the senior high school level, and that would—in fact some of the things I would like to see would be 12 months of education. I do not think the students need to take off the summertime, but they need to be supported in the jobs that they would otherwise be taking in the summertime. They need to have their stipends replaced.

We are willing to do summer camps that remediate in math and science in the summertime, but there is no support for the children and we do not just have money dropping from the sky to do that. We need that kind of support.

We need the kind of support that would say that teachers who want to participate and want to be retrained can indeed be retrained to teach students who have no parents at home to hear their homework and to work with them on homework. There is an assumption that parents have to do it, and let us face it, that is another piece of the problem. But we are not going to fix that problem anytime soon either.

Now there are some new models. They are called charter schools, they are called different kinds of private schools. But those models are not big enough and there is not enough of them to be able to help bridge this problem. I submit that colleges and universities working with industries and with the right kind of support would be willing to create some of those new models with the focus that you are asking for.

Senator KENNEDY. Let me ask you, is this not what the National Science Foundation is supposed to be doing? Is that not what we support the National Science Foundation to try to do? Are we supposed to have a new program? We have tasked them to try to develop this type of program I would be interested, do you hear from them? Are they involved? Or what is your evaluation?

I apologize for having to be away for a while, but that is one of the challenges the National Science Foundation is supposed to be working on in this area, trying to develop these kinds of programs and then present them to us after they have been tried and tested and what is working and what is not, rather than starting from scratch. What is your sense? Have you tried to get them to do this and have they turned it down, or what is your own experience?

Ms. MCGUIRE. We certainly have had support from the National Science Foundation for the upper level collegiate programs, and I think there are excellent for the upper level collegiate programs. But the problem in getting students into the pipeline out of K-12, particularly in areas where students have been underserved by their high schools to begin with, is that there really is no program that really focuses specifically on this. NSF does a great job at the upper division levels, or for highly talented high school students. But the highly talented high school students are few in number in the math and science fields. There needs to be a different kind of program for the students who need to, at age 16, 17, 18 learn what algebra is, for example.

The CHAIRMAN. Thank you.

Mr. Hoff.

Mr. HOFF. Thank you, Senator. I just wanted to add a couple thoughts.

I completely agree with Mr. Mullen and Mr. Craves that most businesses would be delighted to participate actively in thinking about how to pull the pipeline of people through, especially in areas such as math and science, and how to be able to identify the opportunity that would actually excite kids to do so. I might suggest, and we can submit things for the record, that you look at some of the recommendations that are coming out of something called the Business Higher Education Forum. This is a number of different businesses. We are just one of them participating in it.

The basic idea is to organize by State a business with universities, taking a look at—with the State government sponsor, not the Federal Government, the whole pipeline from K-16, all the way through. What do we need to do? How do we identify the jobs? How do we look at some of the curricula that needs to be shaped? What role could business play in this? How do we look at what faculty we need? What curricula needs to be set up? What kind of assessments and so forth? So we will submit for the record what the

Business Higher Education Forum is recommending, and I would encourage you to take a look at it.

Then the other thought I had that you might want to look at is the question of how you might be able to take advantage of some emerging technologies—I am sure Dr. Palmer-Noone would agree with this—about how to make learning more exciting, and how to also make it something where not only people who are in school, but also people who are out in the workforce can actually learn on an active basis. I think a lot of experience that we all have is that the way in which math and science is taught is the same way it has been taught for a long time. It is boring for an awful lot of kids. It does not allow kids to get over the psychological hurdle of having confidence that they can actually participate in this kind of learning.

I think there are opportunities to take advantage of where kids are. They are playing all these games. You could turn that into education. If there is a way in which the Federal Government can sponsor a means of advancing the way that we enable kids to learn, I think that that would be something else that you might want to look at.

The CHAIRMAN. Thank you.

Mr. Craves.

Mr. CRAVES. Thank you. I just wanted to tell you something that we are shopping around at the moment. Recently I brought a fellow named Dr. Warren Buck on staff of the foundation who happens to be an African-American Ph.D. nuclear physicist and was the chancellor of the University of Washington, Bothell, one of the branch campuses. His function will be to go into the middle schools, along with a team of recently graduated African-American and Hispanic men, to promote kids going into the sciences.

Our idea is to actually give a scholarship to a 7th grader for college. We have a guaranteed tuition program in the State of Washington and for \$35,000 right now you can buy 5 years at the University of Washington. So our idea is we would buy one of those for these kids and get them motivated to do well in math and science in the high schools.

We think the high schools are too late. If you try to play catch-up in math and science and you are a junior in high school, forget it. So you have to get down into the 7th grade. So maybe this is a GEAR UP attached to the carrot, which is the scholarship, and we are looking at maybe doing a thousand kids a year. If they make it into college, and if they can declare, or at least through curriculum are in math and science, then they would get this scholarship.

So we think there is something here to—I know everybody wants everything fixed tomorrow morning, but perhaps we have to begin to invest deeper down into the system.

The CHAIRMAN. Thank you.

Mr. Sweeney.

Mr. SWEENEY. Thank you, Senator. I guess as an entrepreneur I probably tend to look at things, the glass is not half full, it is overflowing. So when you bring up an issue of, there is concern over the declining participation in math and sciences, I would not necessarily be worried about that as much as I would be worried

about what we are trying to do in response to that decline. We talked a little bit when I had spoken about Ireland earlier, we talked a little bit about the outsourcing and some of the initiatives. I think students are not excited about math and sciences because it is very routine, and as Mr. Hoff pointed out, it is something that we are not teaching well and we are not teaching any differently than when most of us went to school.

What I think is probably the bigger issue is we need a curriculum, at least from a hire perspective, that is not necessarily focused on the technology age, which is now arguably in its maturity, but it is rather focused on the innovation age that we are starting to get into now that I alluded to earlier in terms of what we are doing over at Trinity College in Dublin. Things like the right brain thinking ideas, art, design, sciences. It works very well in high school. There is a private high school here in Washington that is almost all African-American that has a 90 percent graduation rate. It is unheard of. And it is a feeder high school for an architectural program, so it is very design focused.

I grew up in an unusual environment. My dad never went to university but he was one of the first people that Ross Perot hired in Electronic Data Systems up in Boston. I used to crawl around the data center as a kid. My mom was a bank teller so we would go in on Saturdays, and I had a chance to understand this really interesting technology of computers. What my dad taught me was how to communicate that technology. I think Dr. Palmer-Noone said one of the things businesses are needing now more than anything else is the ability to have people who can communicate. We are not asking for math and science folks. We are not asking for code writers.

If you look at how we do things now, if you look at why things are outsourced to India and China, it is because there is no innovation left in those skills. They have become routine. In fact we have a program now that can write 300 lines of code a second. Code writing is no longer a competitive advantage for anyone. It is a commodity. It is no different than sewing buttons on a jacket.

So what we have to look at is, how are we going to set an innovation age? How are we going to create a curriculum that is going to exploit the coming innovation age?

I am blessed to be in an industry now that arguably is going to be as large or have as big an impact as the Internet. It is a technology called radio frequency identification. It is really the art of putting little computer chips on everything from supply-chain management to asset to passports. It started out—it is a nice proxy for the evolution in technology. What happened was, 30 years ago a guy would walk around a distribution center with a clipboard and a pen and he would count boxes and he would write down what he counted. So he would count and then he would capture the data.

Someone created a technology called a bar code. That automated the data capture part, but he still had to count. He still had to go and wand each box and read the bar code. Now RFID has come along and made that task go away through innovation. So someone came through an innovation and created it.

So I would say that the curriculum—and the concern should not necessarily be math and science enrollment. Rather the concern

should be, what is the curriculum and how is it going to exploit where things are clearly going within industry and within the globalization of technology.

The CHAIRMAN. Thank you.

Dr. Nolte.

Mr. NOLTE. If I could respond to Mr. Sweeney I guess I might suggest that maybe we already have the basis of that curriculum. It is called our general education curriculum, where we really try to—and we do not do a good job of explaining at any level of education why these things are important. I do not think we do a good job explaining to our student why it is important for a general education curriculum. But it is designed to address some of the kinds of things that we have been talking about here today: communication skills, quantification skills, math, science skills, critical thinking skills, the ability to work in groups, the ability to think outside of the box.

I guess I might suggest that that curriculum needs to be constantly updated to reflect the kinds of innovations that you are talking about. We as institutions of higher education, I believe, need to do a better job of explaining why it is important to our students, particularly why math and science are important to our students, because they do not really understand that and it is boring to them because that is what they had in their early ages.

Thank you.

The CHAIRMAN. A final word, Dr. Jackson.

Mr. JACKSON. If you are looking for a model that works, I invite you to come to Brooklyn, NY, and to see what we have created with a high school and a college. Every year we have 200 seats available and 2,000 students apply for this high school admission, and it is a science and math high school. Most of the students who enroll in this high school are low income.

But what we have done is to create a teaching workforce who have a passion for their discipline. Yes, the 11th and 12th grade we say is a waste, and Medgar Evers College provides the calculus, the upper science courses, the enriched courses that rarely would a high school be able to provide, except the very specialized ones. We have made a commitment to making a difference with the young people.

So we start out with parents signing a contract, parental participation. We have gotten so good now, next year we are starting at the 6th grade, because it is almost too late when they get into high school. So at the end of this model, students graduating from our high school will have an associate degree and will be able to go on and get their baccalaureate degree. One of the nice things is we offer both the associate and the baccalaureate degrees, and it is seamless from the associate to the baccalaureate degree.

It is a model that does work, it is working, and I invite you to come and to check us out.

The CHAIRMAN. I appreciate that. I appreciate all the comments from the panelists today. A lot of good ideas there, and of course, we are looking forward to any expansion on the remarks that you want to make. I would just ask you to keep those ideas coming. My staff said that we had a lot of great idea people, and I really have

to concur with that. This has been tremendous, some of the thoughts that are jarred loose.

The games that kids play—there was a shortage of frogs 1 year in the United States for dissection, so a computer programmer wrote a program for dissecting frogs. I bought one of those programs. I was well out of college by that time but I do not think I got to dissect a frog when I was in high school. Fascinating game. You could take this frog apart, put it in the right places in the tray. You could call up all kinds of information about each of the pieces that were there. When you finished you could put the thing back together and if you got it back together right, it stood up and danced. So there are some very exciting things that can happen out there.

Trinity College has a great program with a limited research budget where they have a double peer review. They have a peer review by the true peers, and then they have the business peer review on grants, and the business peer review is to see if the research will actually result in anything that could be marketed. As a result there are things being spun off before they ever get started on the research. I think that is a model that some of the colleges in the United States could follow.

The CHAIRMAN. Parade magazine puts out an article once a year that has the jobs in the United States and what people make at them. Since we usually do not vote on Friday I go back to Wyoming and visit classrooms, and when I am in 9th grade classrooms or earlier I like to ask them what they think they will make if they go to work right out of high school. Most of them think that they will make about \$45,000 a year. So that magazine is very helpful. I distribute a lot of copies of that so they can find out what people in different occupations are making. Just a few of the ideas that have been jarred loose.

Any final comments?

Senator KENNEDY. Just again I thank all of you so much for being here. I think we have to think about where our responsibilities lie. What is the Federal responsibility, what is the States responsibility? Are we really trying to be serious in dealing with some of these issues? We have many companies that do a terrific job. They do a terrific job in outlay, and I can imagine you are the people that go on to the board and say, look, we want to create or continue an innovative program, to improve the skills of their workers and to improve the pipeline.

I think ultimately we have to try to more closely examine—these are terrific suggestions. We will be having our staffs back in touch with you, but hopefully you can think about what we ought to be doing to try to help us prioritize—we cannot do everything but we have to try to figure out ways that we can do more. Then I think we have to probably share our ideas. States have done some things, local communities have done some things. We need to share ideas of what works.

Since Senator Enzi gave his favorite story, I have to share mine. I was up at the Museum of Science in Boston just a few years ago when we had strong support for this very small program called STAR schools. The education program is funded at \$26 million. The Museum of Science had a small program using distance learning.

They brought 450 inner-city kids into their big auditorium and they satellited in Robert Ballard who found the Lusitania and the Bismarck and the Titanic. He was in the Galapagos, and he was in his little machine that they call a Jason. He was asking the students, or the teacher was, for a volunteer that could steer the machine down there. You could have heard a pin drop in there for over an hour. Then he was talking not only about the ocean life, but he was talking about the density of the water, and pollution.

These kids all left there enormously interested in what science and this other whole world were about. We have to figure out how we make that a common occurrence, how we interest and fascinate young inquisitive minds every day in school. We need to get teachers, we have got to get the schools, the school boards, all the rest of it engaged in learning science. But all of you can be very helpful to us if you help give some guidelines to do it.

I thank the chair very much. This has been very interesting, very helpful. We are going to keep after you so we hope you will keep after us.

The CHAIRMAN. We will be sending some questions in writing that we hope that you will answer based on what you have stimulated here today. Thank you so much for your testimony. Unfortunately, our time has run out, so thank you. We are adjourned.

[Additional material follows:]

ADDITIONAL MATERIAL

PREPARED STATEMENT OF REV. MICHAEL SHEERAN, S.J., PRESIDENT, REGIS
UNIVERSITY, COLORADO

Since I was unable to attend the Roundtable discussion on the relationship between higher education institutions and corporations to strengthen the American workforce, I am especially grateful to the Senate Health, Education, Labor, and Pensions Committee for affording this opportunity to share my views. I would like to make three points: First, only through careful collaboration between business and higher education can current developments in technology, science, and business practices be promptly translated into course content that truly prepares students for the workplace. Second, it is in the long-range interest of the corporate world and of the Nation that higher education include serious elements in the liberal arts because such background prepares employees who are creative and ethically attuned. Third, the Federal Government should seek to encourage distance education in ways that complement the natural good effect of the marketplace.

Some background: I am president of Regis University, a Denver-based school of 16,000 offering bachelor's and master's degrees in business, health care, and the liberal arts, 14,000 of our students are adults. About 40 percent of our students are wholly online. Regis is one of 28 American Jesuit colleges located in 19 States. The oldest, Georgetown University, was founded in 1789. Regis, founded in 1877, has the largest percentage of adult students of the 28.

Six years ago, the Association of Jesuit Colleges and Universities (AJCU) formed JesuitNET, a distance education consortium facilitating online course work in our 28 schools. There are currently 350 courses offered by JesuitNET, including 50 online certificates and degree programs. The Federal program that made our efforts effective was the Learning Anytime Anywhere Partnership Program (LAAP).

Under the JesuitNET LAAP grant, IBM collaborated with our Jesuit school consortium to develop a Competency Based Distance Education course model over a period of 3 years. This model is now used as a basis for new online degree programs at our University of San Francisco, Gonzaga University, and Loyola University New Orleans. Without the LAAP grant, all 28 schools would still be taking the baby steps in program development that their very constricted internal resources would have allowed.

The LAAP model illustrates that Federal initiatives can be well run and can make a significant impact for the good of the economy. The LAAP model had (1) a specific focus, with a specific outcome; (2) the requirement of corporate partnership and financial support; (3) a sufficient level of government funding. A typical grant was at \$1 million for a 3-year period.

Something very similar in impact could be achieved by offering grants to develop programs that attract and prepare students for technical areas needed by industry. May I suggest that the committee should not be surprised if it turns out that efforts to tailor programs in the sciences, business, accounting, etc. to the needs of corporate America often work best when independent colleges and universities collaborate with individual corporations. Independents tend to be smaller and less bureaucratic. That means they can flexibly adapt their curricula. In Regis U's collaboration over the past 30 years with Coors Brewery, Hewlett-Packard, IBM, Sun, and a number of other employers, it has been normal to change our curriculum in 6 months or less to be sure employees are learning the right computer languages and the right accounting software for their firms' systems. I recall one case where the Regis faculty tailored a computer science program to one firm's needs in less than 6 months. At one of our public competitors, the same review and approval process takes 3 to 5 years.

American business will need more and more employees who love math, science, and technology. I believe that love typically germinates in middle and high school classrooms. But there is a major gap between available teaching technology in mathematics and the natural sciences and the preparation of teachers to use this technology. Perhaps grants for training future middle and high school math and science teachers and upgrading the skills of present teachers could be awarded to education departments/schools at universities around the country under Title II Teacher Quality in HEA.

Let me move to my second point: Jesuit schools have always put priority on balancing practical competencies with a strong liberal arts education, often achieved through an extensive core curriculum. Until the late nineties, we at Regis found resistance from some of our corporate partners to this priority. After Enron and similar scandals, corporations have come to a new realization of the value to the firm of having employees who are not just technically competent but also steeped in a

broad, thoughtful approach to life and therefore to business. They realize we are preparing people not just for entry-level jobs but for senior management and the boardroom. They understand that literature, history, philosophy, languages, and religious studies provide the breadth and ethical sensitivity that America and its corporations need for the long haul. It strikes me that Federal grant programs encouraging integration of these liberal arts areas with technical and scientific areas would be an effective witness that our national leaders realize the importance to the Nation of turning out citizens not just of competence but of virtue focused on the common good.

Finally, a note on Distance Education. For about 25 years, Regis U. has experimented with various forms of distance education. We have our own testing unit to determine comparative outcomes between our younger and older students, our classroom and online students, etc. We have done some studies comparing outcomes of our adult students to adult students at other institutions. We have been quick about changing what seems not to work well. We do this both because we believe in quality and because constant fine tuning gives us a competitive advantage.

Like classroom education, distance education can be extremely effective and it can also be a dismal experience. Similarly, the “hybrid” courses that mix classroom and electronic learning have a significant potential, but can be done badly.

I would suggest that one way for the Federal Government to encourage quality in educational innovation is to make sure the marketplace is protected from deceptive practices. For example, we need updated Federal protection of educational brands. Regis University has been fighting for years against an organization of similar name that sells diplomas through servers outside the country. A recent applicant wrote along the following lines, “After looking at your online course offerings, I concluded your degree fit my interests perfectly. However, I am not going to sign up because I don’t want to have to convince every new employer for the next 30 years that my diploma is from the real Regis University and not a degree mill of similar name.”

I was pleased to see that a new Federal database of available accredited programs is now available. It will be a real service to potential students and their employers.

I would also suggest that the marketplace itself is an important force for quality. Adult students and their employers with tuition reimbursement programs are wonderfully vigilant when it comes to making sure they get value for their money. For a university serious about distance education, every tuition-paying corporation is also a quality control agency. Federal tax laws that favor corporate investment in employee education are a far more reliable way to guarantee quality than any new Federal bureaucracy attempting to exercise direct regulation of already accredited programs.

My thanks to the committee for inviting my testimony. More basic, thanks for being serious about guaranteeing the future of our Nation by promoting collaboration between business and higher education.

[Whereupon, at 11:32 a.m., the committee was adjourned.]