

# HOW THE PRIVATE SECTOR IS HELPING STATES AND COMMUNITIES IMPROVE HIGH SCHOOL EDUCATION

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## HEARING

BEFORE THE  
SUBCOMMITTEE ON EDUCATION REFORM  
OF THE  
COMMITTEE ON EDUCATION  
AND THE WORKFORCE  
U.S. HOUSE OF REPRESENTATIVES  
ONE HUNDRED NINTH CONGRESS  
FIRST SESSION

June 28, 2005

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# C O N T E N T S

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|  |           |
|--|-----------|
| Hearing held on June 28, 2005 .....  | Page<br>1 |
| Statement of Members:  |           |
| Castle, Hon. Michael N, Chairman, Subcommittee on Education Reform,<br>Committee on Education and the Workforce .....      | 1         |
| Prepared statement of .....  | 3         |
| Woolsey, Hon. Lynn C., Ranking Member, Subcommittee on Education<br>Reform, Committee on Education and the Workforce ..... | 4         |
| Statement of Witnesses:  |           |
| Hudecki, Dr. Phyllis, Executive Director, Oklahoma Business and Edu-<br>cation Coalition, Oklahoma City, OK .....          | 23        |
| Prepared statement of .....  | 25        |
| Shore, Bill A., Director of U.S. Community Partnerships,<br>GlaxoSmithKline, Research Triangle Park, NJ .....              | 6         |
| Prepared statement of .....  | 8         |
| Sterling, Sarah Revi, Program Manager, University Relations, Microsoft<br>Corporation, Redmond, WA .....                   | 15        |
| Prepared statement of .....  | 17        |
| Watson, Mike, Vice Chairman, BellSouth Foundation, Atlanta, GA .....   | 20        |
| Prepared statement of .....  | 22        |



## **HOW THE PRIVATE SECTOR IS HELPING STATES AND COMMUNITIES IMPROVE HIGH SCHOOL EDUCATION**

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**Tuesday, June 28, 2005  
U.S. House of Representatives  
Subcommittee on Education Reform  
Committee on Education and the Workforce  
Washington, DC**

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The subcommittee met, pursuant to call, at 3 p.m., in room 2175, Rayburn House Office Building, Hon. Mike Castle [Chairman of the Subcommittee] Presiding.

Present: Representatives Castle, Osborne, Ehlers, Woolsey, Scott, Hinojosa, Kind and Kucinich.

Staff Present: Amanda Farris, Professional Staff Member; Kevin Frank, Professional Staff Member; Jessica Gross, Legislative Assistant; Lucy House, Legislative Assistant; Kimberly Ketchel, Communications Staff Assistant; Deborah L. Samantar, Committee Clerk/Intern Coordinator; Alice Cain, Minority Legislative Associate/Education; Lloyd Horwich, Minority Legislative Associate/Education; Ricardo Martinez, Minority Legislative Associate/Education; and Joe Novotny, Minority Legislative Assistant/Education.

Chairman CASTLE. Good afternoon. A quorum being present, the Subcommittee on Education Reform and the Committee on Education and the Workforce will come to order. We welcome obviously those who are going to be speaking with us today and all the visitors who are in the room as well. Our meeting today will hear testimony on how the private sector is helping States and communities improve high schools.

Under Committee Rule 12(b), opening statements are limited to the Chairman and the Ranking Minority Member Ms. Woolsey. Therefore, if other Members have statements, they may be included in the hearing record. I ask unanimous consent for the hearing record to remain open 14 days to allow Members' statements and other extraneous material referenced during the hearing to be submitted in the official hearing record. Without objection, so ordered.

### **STATEMENT OF HON. MICHAEL N. CASTLE, CHAIRMAN, SUBCOMMITTEE ON EDUCATION REFORM, COMMITTEE ON EDUCATION AND THE WORKFORCE**

Chairman CASTLE. Today marks the third in a series of hearings our Committee will hold to examine the status of secondary edu-

cation and various efforts to strengthen high schools across the country. This Committee has already heard from Governors about their high school reform efforts and from a variety of nonprofit organizations about the partnerships they have across the country and the innovative ways in which they are driving changes in our high schools. Today we will hear from some of the private sector corporations and business partnerships that are increasing innovation and improvement in our Nation's high schools.

During our last hearing, I mentioned a number of statistics to suggest high school reform is surfacing as a necessity. For those of you who were at that hearing, I apologize for being redundant, but I think it is important to note this recent research that indicates one-quarter of America's high school students read below basic levels. America's 15-year-olds performed below the national average in mathematics, literacy and problem solving, placing 27th out of 39 countries. Thirty percent of students do not graduate from high school. And 50 percent of African American and Hispanic students do not graduate. These are unacceptable statistics and are very similar to the challenges we saw in our elementary schools prior to the enactment of No Child Left Behind.

High schools no longer are about simply moving students from ninth grade to graduation. We must now ensure all students are leaving their secondary education with the skills necessary to reach their next goal. Whether that goal is college, the military or the workforce is irrelevant. All students now need a strong foundation of skills and knowledge to excel in life after high school.

The testimony that today's witnesses will provide makes the important point that the modern workplace is very different than it was when America's high schools were first designed. In many cases even the most basic job applications must be completed on computers—good thing I am not applying—requiring almost every person to have at least a basic understanding of technology.

Technology is only one piece of the pie. A student graduating from high school must have a broad skill set of reading, analytical skills, communication and technology in order to succeed postgraduation. I am sure that every person in this room has heard me say more than once that I am an advocate on behalf of No Child Left Behind. It is the right thing to do, and the law is making significant headway in closing the achievement gap, particularly in elementary schools when all children should be learning basic skills like reading and math.

I commend the President, the States, the National Governors Association, local school districts and both nonprofit and for-profit organizations for recognizing we need to address our Nation's high schools. I am not yet sure there is Federal role or what that role should be, but I remain committed to learning more and doing whatever I can to make high schools part of the education reform dialog.

The private sector is uniquely qualified to help address the challenges of high school reform, because businesses recognize the importance of a strong secondary education in preparing students for future success. That is why so many in the business community have joined with States and local communities to encourage inno-

vation and meaningful reforms that will strengthen high schools and better prepare students for the future.

We have begun to hear fascinating stories about what is currently happening across the country with respect to high school reform. I look forward to hearing from today's witnesses concerning the need for reform and the partnerships they have formed. I thank the witnesses for joining us today, and I look forward to hearing your testimony.

[The prepared statement of Chairman Castle follows:]

**Statement of Hon. Michael N. Castle, Chairman, Subcommittee on  
Education Reform, Committee on Education and the Workforce**

Today marks the third in a series of hearings our Committee will hold to examine the status of secondary education and various efforts to strengthen high schools across the country. This Committee has already heard from governors about their high school reform efforts, and from a variety of non-profit organizations about the partnerships they have across the country, and the innovative ways in which they are driving change in our high schools. Today we will hear from some of the private sector corporations and business partnerships that are increasing innovation and improvement in our nation's high schools.

During our last hearing, I mentioned a number of statistics that suggest high school reform is surfacing as a necessity. For those of you who were at that hearing, I apologize for being redundant, but I think it is important to note this recent research, which indicates:

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These are unacceptable statistics, and are very similar to the challenges we saw in our elementary schools prior to the enactment of No Child Left Behind. High school is no longer about simply moving students from ninth grade to graduation. We must now ensure all students are leaving their secondary education with the skills necessary to reach their next goal. Whether that goal is college, the military, or the workforce is irrelevant—all students now need a strong foundation of skills and knowledge to excel in life after high school.

The testimony that today's witnesses will provide makes the important point that that modern workplace is very different than it was when America's high schools were first designed. In many cases, even the most basic job applications must be completed on computers, requiring almost every person to have at least a basic understanding of technology. Technology is only one piece of the pie. A student graduating from high school must have a broad skill set of reading, analytical skills, communication, and technology in order to succeed post-graduation.

I am sure that every person in this room has heard me say more than once that I am an advocate on behalf of No Child Left Behind. It is the right thing to do, and the law is making significant headway in closing the achievement gap, particularly in elementary schools when all children should be learning basic skills like reading and math. I commend the President, the states, the National Governors Association, local school districts, and both non-profit and for-profit organizations for recognizing we need to address our nation's high schools. I am not yet sure if there is a federal role, or what that role would be, but I remain committed to learning more and doing whatever I can to make high schools part of the education reform dialogue.

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We have begun to hear some fascinating stories about what is currently happening across the country with respect to high school reform. I look forward to hearing from today's witnesses concerning the need for reform, and the partnerships they have formed.

I thank you all for being here this afternoon, and look forward to hearing from our witnesses.

Chairman CASTLE. I will now yield to the gentlelady from California, the Ranking Minority of the Subcommittee, Representative Woolsey.

**STATEMENT OF HON. LYNN C. WOOLSEY, RANKING MEMBER,  
SUBCOMMITTEE ON EDUCATION REFORM, COMMITTEE ON  
EDUCATION AND THE WORKFORCE**

Ms. WOOLSEY. Thank you, Mr. Chairman, for holding today's hearing, and thank all the witnesses for being here. I look forward to hearing what you have to say.

We are going to hear from various corporations that have been on the front line of high school reform, knowing full well that your corporations and all corporations have a huge stake in the success of our education system, and we appreciate that, and we know that is where you are coming from.

As we move forward, I hope that we will also hear from school administrators, from teachers, from parents and students about their experiences and what they think we can do differently. Certainly our high school system needs reform and greater resources if our country is to compete in the 21st century economy. There are also many outstanding high schools and educators who can and will lead the way, and I think it is essential that we listen to them also.

There isn't much doubt that high school reform is a critical issue. As we will hear today, about one-third of entering ninth-graders do not graduate from high school. Among minority students, barely half graduate from high school. Only about half of the students who do graduate go on to college, and many of them are not really ready for college. About one-third need remedial courses. And of those students who go directly from high school to the workforce, nearly half do not have the skills that they need. That might have been OK in the industrial age, but it is not nearly good enough for today's knowledge economy. And regardless, it is not good enough to just meet the moral obligation that each generation has to educate its children.

In his recent article, *It's a Flat World After All*, Thomas Friedman explains that America's historical and economic advantages have disappeared now that the world is flat, and anyone with smarts, access to a Google and a cheap wireless laptop can join the innovation fray. But it will be impossible for our country to continue to lead the world in innovation if our high school system is not among the best in the world.

There are many aspects to high school reform, but I am especially pleased that two of our witnesses include the importance of increasing girls' interest in science and math so that our technology workforce can draw from the greatest possible pool. As Dr. Susan Hockfield, the president of the Massachusetts Institute of Technology, said recently, squandered talent is one of the key issues of women in science and engineering.

Another thing we should do right off the bat is to fully fund the No Child Left Behind Act. The vast majority of NCLB, we call it, funds go to elementary schools. But if we fully funded NCLB this year, we would increase support for high schools by 79 percent. Unfortunately, the education appropriations bill that the House re-



cently passed cut funding for No Child Left Behind by about 3 percent and cut funding for education technology by about 40 percent.

This issue is about both resources and reform, and I look forward to hearing our witnesses talk about the efforts that their companies have undertaken to reform America's high schools and how a private-public partnership will help every high school student achieve to the level required for the student's success and for the success of the United States economy. I look forward to hearing from you. Thank you.

Chairman CASTLE. We have a very distinguished panel of witnesses before us, and I thank them for coming today. Mr. Bill Shore serves as director of U.S. Community Partnerships at the GlaxoSmithKline Corporation. In this capacity, Mr. Shore is responsible for building relationships with key external stakeholders. He also heads the corporate contributions committee, which determines GlaxoSmithKline's corporate investments in the U.S. Mr. Shore has served on the board of directors for groups, including the North Carolina Business Committee for Education and the North Carolina Public School Forum. He is a former member and chairman of the board of the Durham Public Education Network and is currently chair of the U.S. Business Education Network for the U.S. Chamber of Commerce.

Ms. Sarah Revi Sterling serves as senior program manager of university relations at Microsoft. She currently leads Microsoft's efforts to increase participation of women in computer-related majors and improve retention of women with technical expertise. Ms. Sterling also chairs the Workforce Alliance of the National Center for Women and Information Technology, a team of senior-level employees from the technology sector, including Hewlett-Packard, Intel, Cisco, IBM, Google and Microsoft.

Mr. Mike Watson, a senior director of community relations for BellSouth Corporation and vice chairman of the board of the BellSouth Foundation. In his capacity, he is responsible for all community programs for the corporation, including the BellSouth Foundation community relations programs, corporate giving program, volunteerism as well as executive customer relations and customer information programs. Mr. Watson's telecommunications career spanned over 30 years. Prior to his telecommunication career, he served his country for 4 years as an officer in the United States Navy.

Dr. Phyllis Hudecki is the executive director of the Oklahoma Business and Education Coalition, a business-led nonprofit organization dedicated to improving public education in Oklahoma. This organization is sponsored by 31 of the State's leading corporations, which allows them to support a number of initiatives, including the Oklahoma Scholars Program, to encourage students to take rigorous courses in high school. Prior to her current position at the Oklahoma Business and Education Coalition, Dr. Hudecki has served in a number of roles, including associate director of the National Center for Research and Vocational Education at the University of California, Berkeley; State director for career technical vocational education at the Iowa State Department of Education, and program specialist at the U.S. Department of Education in Washington, D.C.

I would like to remind the Members we will be asking questions after the entire panel has testified. Committee rule 2 imposes a 5-minute limit on all questions. I think you all understand the rules, too. You are going to get lights, green for 4, yellow for 1, and when it gets to red, you want to start thinking about wrapping up if you could.

I have introduced you individually. Let me just welcome you collectively and thank you for being here. You are all part of what we hope will be the solution in dealing with education in America perhaps from a different angle than what we are used to. We deal with a lot of teachers and administrators, but the private sector has gotten more and more involved very beneficially, and we are delighted to hear what you have to say, and I am sure we are going to have a few questions.

We will go across, and we still start with Mr. Shore.

**STATEMENT OF BILL A. SHORE, DIRECTOR OF U.S. COMMUNITY PARTNERSHIPS, GLAXOSMITHKLINE, RESEARCH TRIANGLE PARK, NC**

Mr. SHORE. I am with a high-tech company, can you tell?

Mr. Chairman and Members of the Subcommittee, good afternoon. I am Bill Shore, director of U.S. community partnership for GlaxoSmithKline. Thank you for inviting me to speak today on an issue that is very important to our company and very important to the U.S. Chamber of Commerce and very important to businesses, large and small, reform of high school education in America.

Let me begin by telling you why the issue of K-through-12 education and specifically high school education is so important to my company, the U.S. Chamber and to me personally. I work for a company that is headquartered in the Research Triangle Park in North Carolina, and as you may know, that Research Triangle Park is pretty well known and well respected. We have IBM's largest facility in the world there. We have GlaxoSmithKline, and we have other companies. And it is critical to our continued success to have a top-notch high school education system in that area to be able to draw talent from.

We have been very fortunate that North Carolina continues to be a leader in the U.S. in terms of educational improvements due to the excellent leadership by former Governor Jim Hunt and our current Governor Mike Easley. We have strong leadership. We are very fortunate to have strong leadership in the business community in our area. And GSK, I am proud to say, has been in the forefront of leading a coalition of public-private partners to focus on school reform efforts.

I have in my written testimony a lot of the details associated with what we have been doing as a company over the years, and it really is quite a list. I do want to mention the philosophy that draws our involvement to public schools. As you would imagine, we are asked to fund a lot of projects and programs. We contend that we are not—if we are not making a difference in the classroom, we are wasting our time and resources. We learned through experience years ago you just can't write a check and expect to make a difference. The money is gone quickly, and the impact is sometimes minimal.

If anyone asks why high schools must reform, the answer to that question lies in the presentation that was made by the superintendent of public schools in Durham, North Carolina, recently, and it mirrors what we have already heard this morning. 30 percent of high school students fail to graduate. Fifty percent of minority ninth-grade students failed to complete high school in 4 years, and over 2,000 U.S. public U.S. High schools the senior class is 60 percent smaller than the freshman class that entered 4 years earlier. Thirty-three percent of freshman must enroll in remedial courses. We have situations where in companies, in community colleges and university systems, high school graduates have to take remedial programs.

GSK is a high tech company that relies on being able to hire the cream of the crop. We have to be able to compete globally. We would love to be able to home-grow our talent as opposed to hiring them from other places. We have to have top-notch high schools to be able to do that. We draw a parallel between our business and the world of K-through-12 education. It takes an average of 14 years and around \$800 billion to get one drug on the market. That is the length of time it takes a child to enter first grade and complete all the way through 2 years of college.

We think putting resources on the front end of this education issue is so critical. Currently we spend somewhere between 30,000 and \$60,000 to keep one person in prison a year. That is a lot more than we spend to pay teachers on an annual basis, and more than it costs for a college education in some cases.

The most important element to me is leadership. We are lucky. We have strong leadership by the business community. We have strong leadership by elected officials, and it shows in them being able to see our State increase as well as it has.

How is our company contributing to K through 12? K-through-12 education is the No. 1 social issue that almost every company looks to. There are public-private partnerships, and about 70 percent of the Nation's schools are providing goods and services to about 35 million students.

The most important way a private sector can improve high schools is not by writing a check, but being willing to have a dialog and be a partner in the process of improvement. One of those things we are doing in the U.S. Business Education Network is creating an organization that is going to build relationships and capture the information on a national basis that is going on in every State. Three thousand local Chambers of Commerce and the business community are going to be able to interact in that way.

I was at the national education summit 2 years back hosted by IBM. Lou Gerstner, who is the current CEO, said—talking about how the U.S. ranks in the world in terms of science and math. Of course this is going to be important to our company. We are like 18th or 19th. He said, if we rank the same in the world in Olympic basketball, we would quickly bring the pros in. I have to agree with him. We need a little outrage and the same kind of rallying around the flag that we had during the 1960's for the space race, because I think this issue is that important. We have to fix our high schools, and as a company we want to be able to be a partner in doing that. Thank you very much.

Chairman CASTLE. Based on our how Olympic basketball team did the last time, we may need to bring in somebody else. Thank you for your testimony.

[The prepared statement of Mr. Shore follows:]

**Statement of Bill A. Shore, Director, U.S. Community Partnerships,  
GlaxoSmithKline, Research Triangle Park, NC**

Mr. Chairman and members of the Subcommittee on Education Reform, I am pleased and honored to be here today. Thank you for your kind invitation. My name is Bill Shore and I am the Director of U.S. Community Partnerships for GlaxoSmithKline (GSK) pharmaceuticals.

GSK is a world leading research-based pharmaceutical company with a powerful combination of skills and resources that provides a platform for delivering new medications for today's rapidly changing health care environment. GSK's mission is to improve the quality of human life by enabling people to do more, feel better, and live longer. Our social investment focuses on both health and education.

Headquartered in the United Kingdom and with U.S. operations based in the Research Triangle Park, NC and Philadelphia, PA, the company is one of the industry leaders with an estimated seven percent of the world's pharmaceutical market.

GSK has leadership in four major therapeutic areas—anti-infectives, central nervous system (CNS), respiratory, and gastro-intestinal/metabolic. In addition, it is a leader in the important area of vaccines and has a growing portfolio of oncology products.

The company has a consumer health care portfolio comprising over-the-counter (OTC) medicines, oral care products and nutritional health care drinks, all of which are among the market leaders.

GSK has over 100,000 employees worldwide in 110 countries. The company has a leading position in genomics/genetics and new drug discovery technologies.

It is interesting to note that it takes an average of 14 years and \$800 million to get one drug to the market. . . the same length of time it takes for a student to enter first grade and complete two years of college.

I am here today to testify on behalf of the U.S. Chamber of Commerce, the world's largest business federation, representing more than three million businesses of every size, sector and region. Chamber members, like GSK, are concerned about advancing the education of our high school students and strengthening the economic base of their communities. Through greater education reform of our high schools comes the strengthening of our skilled workforce. Local and state Chamber members represent broad networks of employers across the nation. This network, unlike any other entity, is uniquely positioned to bring together people and business to assist in the advancement of high school reform. The Chamber is committed more than ever to quality education issues and workforce development.

I serve on the U.S. Chamber of Commerce Center for Corporate Citizenship (CCC), a 501(c)3 nonprofit Chamber affiliate that supports businesses helping out their communities. The CCC is an instrumental arm of the Chamber in championing the need to strengthen U.S. student achievement.

In addition to representing the Chamber, I will provide a personal and corporate perspective on the subject matter of today's subcommittee hearing, which is the critical role of education reform at the secondary education level, its impact on our country's global competitiveness, and preparing our workforce for the 21st century. I have spent much of my career working on education issues and reform for GSK and more recently in conjunction with the U.S. Chamber of Commerce. I have been on the board of trustees for North Carolina Central University in Durham, a historically black university. I have chaired Public Education Network programs and committees at the local, state, and national levels. Additionally, my wife and one of my daughters are educators, with my daughter teaching students with learning disabilities. Corporately and personally I believe I have a perspective on American education that is hands-on and current.

As we all know, the primary focus of the past 20 years has been on grades K-8, and rightfully so. If students can not read, write, and do math at the 8th grade level, when they leave middle school, their chances of succeeding in high school are greatly diminished. Now, it is time for us to focus on the high school experience. We need to ensure that a high school diploma is more than a certificate of attendance. There are many organizations, educators, elected officials, and businesses that have been shining a spotlight on this issue over the past few years, and now the center of our attention is on how to provide an excellent K-12 education for all students.

Currently, companies, community colleges, and universities on a national level have to provide remedial training for many high school graduates who are not adequately prepared to be successful in the next step of their education or in their jobs. The efforts of this subcommittee on high school reform, hopefully, will help address the problem.

In my opinion, the most important element of being successful in helping states and communities improve high schools is leadership. We must have strong leadership from the business community, the educational community and from elected officials to ensure strong and effective public-private partnerships. We need leadership to agree on a vision of where we want to be as an educated society. We need to focus on high standards, effective accountability measures, and rewards for excellence.

In North Carolina we have benefited from that leadership. Thanks to the vision and determination of former Governor Hunt, current Governor Easley, and the strong leadership of the private sector, North Carolina has developed a reputation as a state that is making great strides in K-12 educational improvement over the past 10 years. The business community has been critical to this success.

GSK and IBM led the effort to conduct a North Carolina Business Education Summit following the national summit. Governor Hunt and Mr. Ingram were Honorary Chairs and I served as co-chair of the planning committee along with my counterpart at IBM. We brought leaders in K-12 education, business, elected officials, and the statewide university system to discuss reform efforts in our state.

In addition to the statewide summit, I have been fortunate over the years to serve as chairman of the Durham Chamber of Commerce Public Education Committee, the North Carolina Communities in Schools Board of Directors, the Durham Public Education Network, and now the U.S. Chamber's U.S. Business Education Network Task Force.

I have been privileged to serve as a board member of the North Carolina Business Committee for Education, the Public School Forum of North Carolina, the North Carolina Standards and Accountability Committee, the Durham Technical Community College Foundation Board, the North Carolina Central University Board of Trustees, the Conference Board's Business Education Council, and a number of other local and statewide initiatives that have addressed K-12 education improvement efforts. I served in these roles because GSK cares very deeply about the education of our students, the quality of our teachers, and the role of our company in helping these students to succeed. I do not think we can spend our time, resources, and leadership skills on a more important issue. For us, it is the right thing to do. As a high-tech company with long-term requirements for a highly-educated workforce, it is in our best interest to make K-12 education one of our top priorities. Mary Linda Andrews, my colleague here today, continues to serve along with me and others on education boards and serves as advisor on education-related efforts in North Carolina and Pennsylvania.

Overall, you might ask—how are companies contributing to K-12 education? Companies rank education as the number one social issue that they should help to address.<sup>1</sup> According to a study by The Council for Corporate and School Partnerships, they contribute approximately \$2.4 billion dollars to K-12 education.<sup>2</sup> By way of comparison, this is more than is spent on all corporate public policy advocacy and lobbying combined. And this does not take into consideration the leadership and volunteer time that companies and their employees provide to schools.

<sup>1</sup> The 2003-2004 Survey on the State of Corporate Citizenship In the U.S. was conducted by the CCC and Boston College with a grant from Hitachi. The survey examined attitudes and expectations of leaders of small, medium and large companies regarding the definition and role of corporate citizenship and its alignment with standard business practice. This survey showed that education was the number one issue in which the business community felt it should be playing an active role.

<sup>2</sup> The Council for Corporate & School Partnerships Guiding Principles for Business & School Partnerships at 4, available at <http://www.corpschoolpartners.org/pdf/guiding—principles.pdf>.

There are public-private partnerships in approximately 70% of the nation's school districts, providing goods and services to 35 million students. Individual companies focus on different education needs. Some focus on math and science (GSK, Bayer, Siemens, Westinghouse), others on history (Siemens), others on ethics (Deloitte), others on social studies and cross-cultural skills (Target), and still others on literacy (GSK, Coca-Cola and Verizon).

Companies also engage with students throughout the learning process, whether at pre-K (GSK), after school (Wachovia and GSK), in high school (Microsoft and GSK) or in college, MBA, and Ph.D. programs (KPMG).

Companies also focus on the enabling environment for teachers and students. Organizations like Communities in Schools—which provides social services to needy students so that teachers can focus on teaching—receive corporate support in over 30 states. Office Depot distributes over 250,000 backpacks full of essential school supplies to needy children. TimeWarner works with teachers and superintendents with organizations like New Leaders New Schools.

Chicago-based QuamNichols' CEO Bill Little, and many other corporate leaders like him, works with Janet Knupp and her group, the Chicago Public Education Fund, in a partnership that addresses a broad range of education issues in Chicago. Other geographic-based public-private partnerships have developed in other cities around the country—most notably the Boston Compact and the Washington Compact.

While there are a wide range of success stories, there is an increasing feeling in the business community that more needs to be done at a national level. That is why a group of leading companies like GSK, and others have come together to create the U.S. Business Education Network (USBEN). USBEN is a new business coalition staffed by the CCC of the U.S. Chamber of Commerce. USBEN is dedicated to harnessing the power of the business community to address issues facing the U.S. education system as it prepares our children for the future. USBEN is working to build relationships between partners, share success stories, and link practices to policies to ensure lasting change. I am privileged to chair this task force.

The point is, business support for education is not about philanthropy—cash contributions are just the tip of the iceberg. Business engagement with education can span a wide spectrum, including:

- developing/understanding the skills required to be successful at companies like GSK;
- advocacy;
- advice about process management;
- motivation;
- mentoring;
- standards and accountability;
- capacity building; and
- encouragement.

Already some of the top business supporters of education have started to come together, but more needs to be done. We fully recognize that students are ultimately responsible for their own success, and that teachers are on the front lines of making that happen. GSK, the business community, and the Chamber are deeply concerned about the future of our educational system. It affects our society and our economy in so many ways. We want to continue to increase our engagement and support for improving student achievement and the effectiveness of our education system to respond to 21st century workforce requisites and economic conditions.

I should also note that the Chamber is already involved in specific educational efforts to promote education and skills training of our workforce after graduation from high school. The U.S. Chamber of Commerce Center for Workforce Preparation (CWP)—in partnership with local chambers, other workforce development organizations, and funders—has been instrumental in defining and demonstrating the unique role of local chambers in workforce development and education. CWP's priority goals include promoting and supporting effective education and training initiatives concerning workforce excellence; conducting and supporting research that will develop more effective worker training programs; initiating and documenting promising education and workforce preparation programs that can be replicated by chambers of commerce and their small business members at the local level.

Now, I'd like to share why GSK has been a supporter of education and its continued reform for decades. There are many reasons for this support:

- 1) It is part of our corporate focus to give back to the communities where our employees live and work.
- 2) We want to help ensure that our employees have the best education possible for their families (all corporations want this).
- 3) We need a highly-educated workforce for our business.

- 4) We believe that education is the key to helping resolve many of today's social issues. It is much less expensive to proactively educate a child than to have that child live in poverty with potentially enormous future societal costs, including incarceration, if that child cannot become a productive adult member of the workforce. Estimates of the cost per year in prison range from \$30,000 to \$60,000 per year. That is more than we pay teachers per year in many of our communities.

The magic bullet for education reform does not exist. There must be a concerted effort at the local, state, and national levels. In conjunction with the U.S. Chamber of Commerce and the U.S. Department of Education, GSK is helping to lead the way as we jointly take a more meaningful look at how education can be reformed and how that will impact the U.S. position in our global economy. Our nation's education system forms the basis for skills that the U.S. workforce develops. It is the bedrock for research and development, and it contributes fundamentally to the development of our communities and the cohesiveness of American society.

I will highlight some of the ways GSK is partnering on the state and local levels in North Carolina.

The North Carolina New Schools Project—an initiative of North Carolina Governor Mike Easley and his Education Cabinet funded in part with an \$11 million grant from the Bill and Melinda Gates Foundation—aims to create 40 to 50 new and redesigned high schools across the state. The New Schools Project will reform high schools and better prepare students for the workforce and college. GSK has provided leadership on the Advisory Board and has underwritten town hall meetings with superintendents and business leaders in school districts that will benefit from these efforts.

The first round of funding from the New Schools Project is focused on health science schools. Each of the grant recipients is committed to creating new high schools and schools within existing schools that have a focus on the health sciences. They will be developed in conjunction with regional health care and higher education partners. These schools will be academically rigorous. GSK will continue to support the next round of schools, which will focus on middle college and early college high schools in partnership with the community colleges and public and private colleges and universities.

Many school systems in the U.S. have experienced their share of struggles: 30% of high school students fail to graduate; 50% of minority 9th grade students fail to complete high school in four years; in over 2,000 public U.S. high schools the senior class is 60% smaller than the freshman class that entered four years earlier; only 32% of high school graduates are ready to attend a four year college; 33% of the freshmen must enroll in a remedial course; and 50% of the freshman class fail to earn a degree in six years.

The number and types of industrial working class jobs have dramatically decreased. Good middle class jobs now require skills acquired through high levels of education, and almost all jobs require complex problem-solving, effective communication skills, and the ability to exercise independent judgment while working in groups.

How will communities resolve this situation? In Durham, NC, Dr. Anne Denlinger, superintendent of Durham Public Schools (DPS), is focused on high school reform because there is stagnant growth in student achievement, unacceptably high suspension and dropout rates, too few students graduating in four years, increased state graduation requirements, and there are too few students—particularly African-American and Hispanic—in higher level classes.

DPS created a High School Reform Committee, with teams from each high school that will meet twice a month for one year to develop strategies for high school improvement. The goal is to ensure that all students will graduate from high school ready for the next level of their education or ready to work at a skilled job.

This results-oriented committee will collect and analyze data, determine best practices, and design strategies. They will examine current and historical data and “benchmark” against national standards. They will increase academic rigor and expand support; increase relevance and improve relationships; align structure, calendar, and schedule for more personalized education; involve parents, community agencies, and businesses in high school reform; and recruit, retain, and develop highly qualified teachers.

Further, they will adopt three measurable goals and after nine months' work, will agree on five broadly focused areas. They will brainstorm and agree upon high-leverage district strategies for each area. Schools will develop action plans to align with districtwide strategies, and school teams are expected to share committee work with faculty, staff, and parents.

Durham has a vision for reforming its high schools and it has a vision for its students: By 2013, 100% of students graduate from high school in four years; by 2009, 90% of graduates complete a college prep course of study; and by 2009, 80% of graduates meet University of North Carolina system admission requirements.

Already, Durham has increased graduation requirements, provided staff development for all high school teachers in using effective teaching strategies for the block schedule, designed support courses for ECP students, provided schools with SAT prep software, and held an AP teacher assembly on access and equity.

The school system has or is implementing an Early College High School, a City of Medicine Academy, Ninth Grade Academies, and Middle College High Schools.

Shouldn't we, as a country, have such a vision and expectations?

GSK provides leadership on the executive board of the North Carolina Business Committee for Education (NCBCE). Together we want to improve tomorrow's employees through education reform.

NCBCE has established a Center for 21st Century Skills to design curriculum, teacher training, and student assessments to support students in acquiring knowledge and skills to prepare them for further education and for the present and future workforce. The Center will work closely with the New Schools Project with an initial focus on high school reform. The Center will also work with the North Carolina Science, Math, and Technology Education Center; the North Carolina School of Science and Math; the Board of Science and Technology; and governing boards of education (State Board of Education, Community College, and University) to research and propose options to create new or expand existing math and science summer programs across the state and to establish regional math and science programs for high achieving high school students. The Center will also support efforts of the Futures for Kids program that connects students with the workforce needs of their home communities. GSK provided the seed funding for the Futures for Kids program and has continued in an advisory capacity to the program. GSK recognizes that it takes a collaborative effort to reform schools.

GSK staff took a leading role in the review of the North Carolina science curriculum to help reform it so that inquiry-based science kits would be available as part of the curriculum.

GSK supports the Public School Forum of North Carolina (Forum) with funding and leadership. The Forum is a not-for-profit policy think tank and partnership of business leaders, educational leaders, and governmental leaders in North Carolina that has made a significant contribution to schools across the state. The Forum has set the public policy framework for North Carolina's entry into school accountability with the passage of the School Improvement and Accountability Act. The Forum has proposed major changes to the way in which North Carolina funds its schools—changes that have resulted in over \$100 million of supplemental funds going to low wealth and small schools each year and the establishment of the North Carolina School Technology Fund. The Forum has created a one-of-a-kind Institute for Educational Policymakers, a capacity-building center that focuses on members of the General Assembly, the State Board of Education and reporters who cover their actions.

High school reform means that all students have access to the same quality education, including teachers, special services, and educational materials. The quality of a child's education should not depend on the wealth of their family or the wealth of their neighborhood. To help equalize the education of disadvantaged children or children whose schools are at a disadvantage, GSK supports multiple programs.

GSK recognizes that teacher development is an integral key to student success. When you impact one teacher, there is a cascading effect on thousands of students over the teacher's career. GSK provided a three-year, \$300,000 grant to the National Board for Professional Teaching Standards (NBPTS) to increase the number of science teachers pursuing National Board Certification in the Research Triangle Park area of North Carolina and in the Pittsburgh and Philadelphia areas of Pennsylvania.

GSK was instrumental in establishing the Destiny Traveling Science Laboratory Program and we continue to be a major sponsor of the University of North Carolina's traveling science laboratory, Destiny, since its inception in 1999. Destiny is a fully self-contained lab that accommodates 12 lab stations for a total of 24 students. Destiny visited 90 under-served secondary schools and reached 4,000 students during 2004. The program encourages women and minority students to pursue science careers.

GSK gave a three-year grant to Juniata College and Drexel University for transition and start-up costs of the Science in Motion (SIM) program. SIM endeavors to improve performance in science and math among high school students statewide in Pennsylvania. The program models teacher preparation recommended by the Na-



tional Science Board. A mobile educator serves high school teachers by visiting classrooms once a week to facilitate introduction of advanced equipment and modern technologies.

For over 18 years, GSK has been supporting public education networks in North Carolina and Pennsylvania. These community-based public school advocacy groups link human and material resources to strengthen public schools. They leverage private contributions to ensure the greatest possible impact in every school and also are a facilitator of community involvement in public schools. Some of the programs that GSK supports are K-8 Science Initiative, local education summits, Food for Thought Teacher grants, Leadership Academy, and Task Force on Teacher Excellence.

GSK is a supporter of the Kenan Fellows Program, an innovative model to promote teacher leadership, address teacher retention and advance K-12 science, technology and mathematics education. Kenan Fellows are public school teachers selected through a competitive process to participate in a prestigious two-year fellowship, all while remaining active in the classroom. During these two years, Kenan Fellows work in partnership with distinguished scientists, university faculty, and the Department of Public Instruction, developing curriculum and teaching resources that bring cuttingedge research into the hands of students. Kenan Fellows are scientists, inventors, authors and leaders in our classrooms bringing curriculum to life!

Student scholarships are important because far too many high school students are not as motivated if they do not believe that they have a chance to continue their education due to finances. Since 1994, the GSK Science Achievement Award has been a competitive award available to graduate students in chemistry, medicine, and the biological sciences through the United Negro College Fund (UNCF). UNCF is the nation's oldest and most successful minority higher education assistance organization. GSK also has provided support for the minority scholars program through the American Chemical Society.

The GlaxoSmithKline Opportunity Scholarships are awarded annually to persons who "have the potential to succeed despite adversity and have exceptional desire to better themselves through further education or training." The endowment for this GSK program currently stands at more than \$700,000.

GSK endowed four North Carolina community colleges with a total of \$400,000. Eligible students must be enrolled in an electrical/electronics technology, electronics engineering, biotechnology, computer engineering technology, industrial pharmaceutical technology or industrial systems technology program, or currently pursuing an associate's degree in science or other approved science or engineering related curriculum. Students must also demonstrate financial need. Selected students carry the distinction of the "GlaxoSmithKline Scholar."

In addition to GSK's corporate focus on education, the North Carolina GSK Foundation provides about two million dollars a year in grants to programs supporting education in the state. The Foundation also runs the GSK's Women in Science (WIS) program, which is committed to reversing the trend of under representation of women in fields like chemistry, medicine, mathematics and pharmacology. The WIS program pairs outstanding undergraduate women at North Carolina colleges and universities with GSK women scientists working in laboratories and other environments conducive to further study and research. Our scientists, as mentors, guide students along pathways to learning more about rewarding careers in the sciences. The students, as scholars, gain a vicarious view of corporate life as mentors show them, by example, that women can succeed in science.

Over the years, GSK has been proud to provide funding, employee volunteers and/or leadership to many organizations focused on improving our K-12 education system. In addition to the programs listed above, other programs include the following:

- American Association for the Advancement of Science—Science in the Summer
- America Reads
- Challenger Center for Space Science Education—Sally Ride Science Festivals and Club
- Children's Literacy Initiative—provides literacy training for Teach for America
- Children's Village—literacy curriculum for students and teachers
- City Year Greater Philadelphia—tutoring and mentoring to low performing schools
- Communities in Schools
- Durham Academy—minority scholarships for high school students
- Durham Academy—Summer Science Institute for high school students in North Carolina
- Franklin Institute—Partnerships for Achieving Careers in Technology and Science
- Greater Philadelphia Cares—Reading STARS, a volunteer-based literacy program

Hill Center—teacher training to recognize and work with students who have learning disabilities (includes an evaluation component)  
 Lincoln Hospital School of Nursing—scholarship endowment for minority students  
 Lowes Grove Middle School—corrective reading literacy program  
 MSEN—science education leadership institute  
 National Humanities Center—teacher leadership and professional development  
 North Carolina Central University—Biotechnology Institute  
 North Carolina Infrastructure for Science Education (NC-ISE) programs—preparing science teacher leaders as facilitators for statewide training of K–12 teachers for implementation of inquiry science in North Carolina schools  
 North Carolina School of Science and Math  
 North Carolina State University—learning technology programs for high school students  
 Peace College—leadership development for pre-college girls  
 Philadelphia Education Fund—state and national Middle Grades Matter programs  
 Project Graduation—scholarships  
 PTAs support through our “GSK Investment in Volunteer Efforts” program  
 Science Fair support in North Carolina and Pennsylvania—teacher workshops and judges  
 Summer Technology Institute—for teachers in North Carolina  
 Teach4NC—Web site showing individuals from all professional backgrounds how to obtain their North Carolina teaching license  
 Thomas Jefferson University—science outreach program that brings science classrooms through a mobile zebrafish lab and teacher workshops for Philadelphia public schools  
 Total Quality Education Efforts  
 Teach for America—support for science teachers  
 United Innworks Academy—summer science workshops  
 U.S. Department of Education—No Child Left Behind blue ribbon schools conference

Wistar Institute of Anatomy & Biology—high school summer science fellows

In conclusion, we must not relax our efforts to win the high school reform battle. On the contrary, it is imperative that we strengthen our efforts by making this a nonpartisan goal, as we did with the space program in the 1960s. My sense is that our education issues are more compelling than ever before. The country expected us to be competitive in the race for space travel and with combined, concerted efforts and strong leadership we rose to the top. We can and we must have the same expectations for educating our youth as they prepare to lead in the 21st century. It is incumbent upon us to lead the way to changing the horrifying educational statistics we continue to hear.

GSK is in the business of helping to improve the quality of human life for millions of people around the world. This should be the same goal of the United States as we educate our students—our leaders of tomorrow. Everyone shares this common goal of providing an excellent education for all of our students in order to provide an opportunity for an improved quality of life.

If we do our part, our children will do more because they are better educated. College graduates make \$1 million dollars more in their lifetime than non-graduates. They will feel better, not only about themselves and their accomplishments, but they are more likely to be in better health and live longer. Statistics show that educated people take better care of themselves.

These trends will enable the U.S. to thrive and take a stronger position in a global economy that is becoming increasingly competitive. As a corporation, we have the right to expect great things from our students and we have the responsibility to assist schools in their understanding of what is needed to prepare students for jobs and for higher education.

I would like to emphasize what many of us already know—U.S. students are slipping globally in math and science. The views of the Report to the Nation from the National Commission on Mathematics and Science Teaching for the 21st Century are particularly instructive. The report notes:

Our children are falling behind; they are simply not “world-class learners” when it comes to mathematics and science...The Third International Mathematics and Science Study tested the students of 41 nations. Children in the United States were among the leaders in the fourth-grade assessment, but by high school graduation they were almost last. Here at home, the National Assessment of Educational Progress basically substantiates our students’ poor performance...In short, our children are losing the ability to re-

spond not just to the challenges already presented by the 21st century but to its potential as well...<sup>3</sup>

This is of great concern to GSK and should be to all Americans, but especially to you, as leaders of our country. As a corporation strongly linked to and dependent upon a highly-educated workforce, we have to ask what we can do as collaborators to help strengthen and reform our educational system. As a team, we must ensure that our high school students are prepared to meet the work and educational challenges of the 21st century. Our global competitiveness depends upon it.

Thank you. I am happy to take questions.

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Chairman CASTLE. Ms. Sterling.

**STATEMENT OF SARAH REVI STERLING, PROGRAM MANAGER,  
UNIVERSITY RELATIONS, MICROSOFT CORPORATION,  
REDMOND, WA**

Ms. STERLING. Mr. Chairman and Members of the Committee, my name is Sarah Revi Sterling, and I represent the Microsoft Corporation, where I manage our gender equity programs in computer science through our External Research Team at Microsoft Research. I also represent the National Center For Women and Information Technology, an organization committed to increasing the participation of girls and women in information technology and computing, where I am the chairperson of the Workforce Alliance. I want to thank you for the opportunity to appear here today to discuss how the private sector is helping States and communities improve high school education and to highlight the challenges relating to the role of women in science and technology education.

The future of U.S. competitiveness depends on our capacity to cultivate and maintain a diverse, innovative and technically trained workforce. U.S. students across the board are opting out of computer science often because of the false impression that there will be no jobs waiting for them when they graduate. But the situation among women is much worse. The number of women interested in computer science as a major has dropped 80 percent between 1998 and 2004, and has dropped 98 percent from its peak in 1982. Some computer science departments at top research institutions have no women in their incoming freshman class. And out of the female students who do enter computer science, the attrition rate is between 40 and 60 percent. This trend away from computing starts earlier than college, but at the middle and high school levels.

To meet these challenges, the National Center For Women and IT, or NCWIT, was formed recently with the mission to ensure all women are fully represented in the influential world of information technology and computing. NCWIT is a growing coalition of over 40 companies, academic institutions, the National Science Foundation and nonprofits working aggressively to understand and solve this problem.

At the high school level, NCWIT's programmatic priorities include stimulating girls' interest in IT and promoting a positive image of female technology workers and the innovative work that they do. NCWIT has partnered with the Association for Computing Machinery, the Computer Science Teachers Association, the Girl

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<sup>3</sup>Before It's Too Late: A Report to the Nation From The National Commission on Mathematics and Science Teaching for the 21st Century at 4 (2000).

Scouts of the USA and many high-tech companies to form a K-through-12 Alliance with the focus on attracting more girls into the study of computer science and assembling standards for computing education.

NCWIT's K-through-12 Alliance and industry members are committed to sharing their promising practices to promote the recruitment, retention and advancement of girls and women in IT. Promising practices focused at the high school level include symposia to prepare girls for IT careers, summer camps that provide opportunities for girls to experience the multifaceted areas of computer science, programs for both students and parents to inform them about IT courses and careers and mentoring programs.

The alliances that comprise NCWIT are committed to pursuing fresh thinking in building up the female technical workforce as the last 20 years of efforts have not positively affected this pipeline. Companies like Microsoft, Intel, Google and others are putting their best creative minds not just on new products, but on finding ways to engage younger students earlier.

In addition to supporting an array of efforts with private- and public-sector partners like NCWIT, Microsoft has committed to invest over \$35 million through our Partners in Learning program, a long-term commitment by Microsoft to partner with governments, schools and teachers to support the systemic changes needed to address many of the challenges I have already outlined. Partners in Learning also strives to address the unique expectations students have of schools, such as ensuring they have access to and the capability to effectively use advanced technology tools as part of their learning environment.

In addition, Microsoft has been developing an educational prototype called the School of the Future scheduled to open in west Philadelphia in 2006. The School of the Future is rooted in the vision of an empowered community where learning is continuous, relative and adaptive.

Microsoft has also funded a series of pilots with universities to increase the numbers of women from regional feeder schools choosing to major in computer science. These programs in their third year are showing success and increasing the number of female high school graduates excited about starting academic careers in technology.

Mr. Chairman and Madam Ranking Member, the gender gap in IT threatens the ability of the U.S. to compete globally. We know that a more diverse talent will yield different products and better ideas, contributing to stronger U.S. economic performance. Girls and women must play an important role in fostering new innovations if the U.S. is to remain competitive. Working together, the public and private sectors can and must make swift and substantive changes in our educational and business institutions to promote an inclusive culture of innovation. America needs the talent of all its citizens, our competitiveness, security, and ultimately the health of our democracy depends upon this. Thank you very much.

Chairman CASTLE. Thank you, Ms. Sterling. We appreciate that. [The prepared statement of Ms. Sterling follows:]

**Statement of Sarah Revi Sterling, Program Manager, University Relations,  
Microsoft Corporation, Redmond, WA**

Chairman Castle, Ranking Member Woolsey, Members of the Sub-Committee:

My name is Sarah Revi Sterling and I represent Microsoft Corporation, where I manage our gender equity programs in computing in the External Research team of Microsoft Research. I also represent the National Center for Women & Information Technology (NCWIT), an organization committed to increasing participation of girls and women in information technology (IT) and computing, where I am chairperson of NCWIT's Workforce Alliance. I want to thank you for the opportunity to appear today to discuss how the private sector is helping states and communities improve high school education and higher education, and to highlight the challenges we face as a nation as it relates to the role of women in science and technology education—in particular women in information technology and computing.

Mr. Chairman, the dearth of young women choosing technical courses and career paths is more than a gender equity issue. Department of Labor projections forecast that our economy will add nearly 1.5 million professional IT jobs by 2012—but the numbers of both male and female students joining the technical workforce is diminishing greatly each year. The ability of the U.S. to remain competitive as a leader in math, science and engineering is one of America's greatest national security and competitiveness concerns. The future of U.S. competitiveness depends on our capacity to cultivate and maintain a diverse, innovative, and technically-trained workforce.

While U.S. students across the board are opting out of computer science as an undergraduate major often because of the false impression that there will be a limited number of jobs available upon graduation, the situation among women is worse. Who choose computer science as an undergraduate major has declined every year since 1984. Mr. Chairman, the stark reality we face as a nation is that nearly one-third of American high school students will not graduate, and more than half of those who do are not ready for a four-year college in many instances because American high schools were designed for an industrial and not a knowledge economy.

As Bill Gates recently stated "...the heart of the economic argument for better high schools...says: we'd better do something about these kids not getting an education, because it's hurting us. But there's also a moral argument for better high schools, and it says: We'd better do something about these kids not getting an education, because it's hurting them." Educating students to be the future creators of software, devices, and communication systems is the only way we are going to be able to be globally competitive in innovation, research and development. Bureau of Labor Statistics projections from 2002 show that information technology jobs will out-strip IT degree production by nearly a factor of two to one. This will cripple our competitive edge in high-tech industry unless high school curricula reform, teacher training practices, and perceptions about computing change nationwide.

The gender gap in America's technical workforce represents our most significant opportunity to build an innovative and highly trained workforce for the U.S. to maintain its competitive edge. As corporations are increasingly aware, the gender gap creates significant negative economic consequences. Catalyst, a top professional gender research and advisory organization, has authored several studies and business cases that show a direct relationship between the diversity of a company's workforce and company earnings. The group of companies with the highest representation of women on their senior management teams had a 35 percent higher return on equity and a 34 percent higher total return to shareholders than companies with the lowest women's representation.

A diverse talent pool creates more cutting edge and dynamic technology. Employing gender diversity in the innovation process yields a much wider range products and better ideas, contributing to stronger U.S. economic performance. We at Microsoft see firsthand the value of diversity in the research and development labs—a richness of perspectives creates far stronger products that take a broader array of consumer needs into account. Unfortunately, we simply cannot find enough women to hire into these jobs.

The U.S. faces the challenge of attracting sufficient numbers of women and men candidates both to pursue degrees and careers in IT and computing. While it is true that women earn more than half of all bachelor's degrees conferred, they are conspicuously absent from technology fields of study. Newly reported data compiled by the Higher Education Research Institute at the University of California at Los Angeles shows the percentage of all incoming students interested in majoring in computer science has plummeted over the last four years. Between the fall of 2000 and the fall of 2004, the percentage dropped by 60 percent and is now 70 percent lower than its peak in the early 1980s.

The number of women interested in computer science as a major has fallen 80 percent between 1998 and 2004 and 93 percent since its peak in 1982. According to NCWIT data, in 2000, women accounted for only 28 percent of all degrees in computer and information sciences, down from 37 percent in 1984, and the percentages are lower at major research universities. Out of the female students who do pursue computer science degrees, the attrition rate is between 40 to 60 percent by the time they graduate. Although women make up nearly half the total U.S. workforce, they represent only 25 percent of all professional IT workers and represent only 11 percent of corporate officers at the top 500 U.S. technology companies.

The absence of girls and women in information technology careers limits the way that technology is developed, marketed, and consumed. Attracting, recruiting and retaining girls and women helps widen the talent pool, offering industry not only more qualified candidates to fill available positions, but a far greater chance at creating valuable new intellectual property and product lines. Women's participation in IT, as both its creators and its consumers, guarantees that it will be a dynamic force in our future; and technology's pervasive impact on all our lives makes women's participation an imperative.

These industry and academic trends relate directly to a problem that is demonstrable in high school. Based on the National Center for Education Statistics recent report, *Trends in Educational Equity of Girls & Women: 2004*, even high school girls take mathematics and science courses that are at least as rigorous as the courses of their male counterparts. While computer use among girls has more than doubled since 1984, girls represent only 15 percent of test-takers in Advanced Placement (AP) computer science—the lowest female representation of any AP test. In a 2002 study conducted by the Women's Foundation of Colorado, the majority of girls surveyed expressed a greater desire than boys to work in a profession that had positive societal impact. Although technology is the very foundation on which these young women will be able to fulfill their professional aspirations, most girls do not yet perceive IT as a profession in which this is likely or even possible. Particularly at the middle and high school levels, educators, businesses, and the media must work to change the image of IT as a relevant, exciting discipline; the basis for communication and innovation, in all aspects of our lives. Consistent reinforcement of a “geeky” image and the absence of mentors, teachers, and other role models in IT, confirm the stereotype of technology as inhospitable or incompatible to girls and women, and are cited as a major reason why girls show declining interest in math and science at the high-school level. We need high schools to aggressively communicate the message that the computing field will be the source of future innovations across society, particularly in academic areas that were once distinct from computing, but are now oftentimes intensively computational in nature.

To meet these challenges the National Center for Women & Information Technology (NCWIT) was recently formed with the mission to ensure that women are fully represented in the influential world of IT and computing. NCWIT is a growing coalition of over 40 respected corporations, academic institutions, government agencies and non-profits working aggressively to understand and solve this problem. As a community of change-agents NCWIT is committed to investing in research and education, determining best practices for progress, and implementing these solutions across the country. NCWIT believes in building a national “infrastructure” in order to support the systematic and focused approaches required to solve the gender gap in IT and computing.

Through a nationally connected effort of programs, networks, and research, NCWIT is working to guarantee that women's perspectives and skills contribute significantly to the creation, development, consumption and application of IT. NCWIT is building a national infrastructure and working to connect all phases of the education and career pipeline, including K–12. Key to NCWIT's success is its ability to assess and disseminate effective practices to benefit girls and women in the IT field, to reuse what already works, to measure success with an annual scorecard, to raise the visibility of the issue, and to mobilize educational, industrial, and governmental communities focused on change. NCWIT works to cross-leverage and coordinate work from many organizations reducing duplication, encouraging reuse and improving efficiency, and generally creating a cogent national implementation plan.

NCWIT is organized using a distributed model of existing efforts, established thought leaders, and assessment teams to provide a model that will encourage efficiency, support existing programs, unify like-minded efforts, and leverage consolidated efforts for national impact. NCWIT's geographically diverse group of hubs, including academic institutions, industry initiatives, professional groups, and other organizations, acts as the flexible foundation for the creation and application of programs, research, and outreach.

NCWIT is targeting promising practices and working to turn them into best practices that can be replicated and used by various institutions and organizations across the country.

At the high school level, NCWIT's programmatic priorities include stimulating girls' interest in IT and promoting a positive, current image of technology workers, and the kinds of innovative work women can do in computing. NCWIT is partnering with the Association for Computing Machinery (ACM), the Computer Science Teachers Association (CSTA), a number of technology companies, and the Girl Scouts of the USA (GSUSA), to form a K-12 Alliance, with a focus on attracting more girls into the study of computer science and assembling standards for computing education. As an NCWIT hub, GSUSA is responsible for initiating, implementing, tracking, and measuring programs aimed at increasing girls' participation in IT and computing. With its high-profile reputation and national reach, GSUSA has extensive community contact and experience with influencing policy issues affecting girls.

NCWIT's Academic Alliance and Workforce Alliances, such as the K-12 effort, are committed to sharing their promising practices to promote the recruitment, retention, and advancement of girls and women in IT. Promising practices focused at the high school level include symposia to encourage girls to take courses that will prepare them for IT careers; summer camps that provide opportunities for girls to experience computer science through modeling and visualization programs, basic programming skills, and web site design; hands-on programs at universities with activities for both students and parents to inform them about university technology programs and encourage girls to pursue IT degrees; and mentoring programs. NCWIT is committed to pursuing fresh thinking in building up the technical female workforce—the last 20 years of efforts have not affected the technical ecosystem positively. Companies like Microsoft, Intel, Avaya and others are putting their best creative minds not just on new products, but on finding new ways to engage students early and to dispel the myths and stereotypes that pervade the industry.

As part of Microsoft's commitment, in 2006 NCWIT will publish the first annual Scorecard, a metrics-based research report that informs the public on the status and progress of girls and women in information technology. Such a publication does not exist today, and will serve as a critical tool in our collective efforts to increase the visibility of the issue, track long-term national progress, and educate all concerned stakeholders, including employers, legislators, teachers, and parents. Research for the Scorecard will be conducted and supervised by statisticians and social scientists, and the professionally printed report will be made available free and distributed nationally.

In addition to supporting an array of efforts with private and public sector partners, Microsoft has addressed the significant challenges aligning the culture of education in America with the exigencies of the knowledge economy. For example, recent data indicate a growing disconnect between school systems and the students they serve: fewer than one-quarter of high school graduates feel that they were significantly challenged and faced high expectations in order to graduate from high school. In addition, an overwhelming majority of graduates say that they would have worked harder if their high school demanded more of them and set higher academic standards. Only 28 percent of 12th graders say that schoolwork is often or always meaningful—down from 40 percent in 1983. Only 21 percent of 12th graders say that their courses are very interesting. Common among these surveys is an undercurrent of frustration that schools and teachers have not recognized, much less responded to, the underlying uniqueness of the students they serve.

In an effort to address these challenges in the public education system, Microsoft has committed to invest over \$35 million through our Partners in Learning program—a long-term commitment by Microsoft to partner with government, schools and teachers to support the systemic changes needed to address many of the challenges outlined above. Partnering schools receive financial and other types of support to develop new approaches to education that keep students engaged in their education while equipping them with the skills to succeed in the Innovation Economy. Partners in Learning also strives to address the unique expectations students have of schools, such as ensuring they have access to, and the capability to effectively use, advanced technology tools as part of their learning environment.

In addition, Microsoft has been building an educational prototype called the "School of the Future"—scheduled to open in West Philadelphia in September 2006. The School of the Future is rooted in the vision of an empowered community where learning is continuous, relevant, and adaptive. The school will serve as an educational model that nurtures student achievement through holistic reform of secondary education through the application of research and development practices as well as best-of-class technology solutions in nearly every area of the learning com-

munity, including curriculum delivery, community collaboration, back-office support, content creation, and dissemination of content and assessment.

At the undergraduate level, Microsoft also has funded a series of pilots with universities to increase the numbers of women from regional feeder schools choosing to major in computer science. These programs, in their third year, are showing incremental success in the numbers of female high school graduates excited about starting their academic careers in technology. These programs seek to engage female students who would not normally classify themselves as math or science oriented but are interested in the human factor and creative aspects of computing, such as user interface design, artificial intelligence, and graphics. The early successes of these programs are now being emulated at several other universities who share concerns regarding negative perceptions held by high school girls about computing as a meaningful career.

Mr. Chairman, the gender gap in information technology threatens the ability of the U.S. to compete globally. A diverse talent pool creates cutting edge and dynamic technology. Employing gender diversity in the innovation process yields different products and better ideas, contributing to stronger U.S. economic performance. Girls and women can and must play an important role in fostering new IT innovations if the U.S. is to remain competitive. Working together, the public and private sectors can and must make swift and substantive changes in our educational and business institutions to promote a culture of innovation that is inclusive and diverse. America needs the talent of all of its citizens: our competitiveness, security, and ultimately the health of our democracy depend on it.

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Chairman CASTLE. Mr. Watson.

**STATEMENT OF MIKE WATSON, VICE CHAIRMAN, BELL SOUTH  
FOUNDATION, ATLANTA, GA**

Mr. WATSON. Mr. Chairman and Members of the Committee, thank you for the invitation to speak with you today. In its 2000 Pathways to Prosperity report, the Governors Workforce Education Task Force in one of our Southern States found that 65 percent of the jobs in this century will require a 2-year degree or certification, yet only 32 percent of that State's ninth-graders will pursue a 2-year degree or certification; 20 percent of the jobs will require a college degree; 28 percent of the ninth-graders will pursue a 4-year degree. The final 40 percent of the State's ninth graders will pursue unskilled jobs because they either drop out of high school or lack the skills needed for employment. Only 15 percent of the jobs available will call for unskilled labor.

The bottom line, workers are not ready for the modern workplace. The world of technology requires strong mathematics and science skills plus the ability to read, to write well, to think and reason, and to explain complex concepts.

At BellSouth, we believe that systemic and lasting change can only happen if our school leaders have the competence and capacity to drive reform in their districts. That is why the BellSouth Superintendent Leadership Network, a group of 50 superintendents across the Southeast, will focus on high school improvement over the next 2 years and provide their analysis, insight and input to State, regional and national high school redesign efforts.

We also recognize when it comes to student achievement, the quality of teaching and instruction is a major predictor of a child's academic success. A Missouri task force on K-through-16 education concluded that improving teaching quality is the single most important factor in eliminating the achievement gap.

Last year BellSouth launched a major new initiative. BellSouth Quality in the Classroom Teaching Initiative, a \$10 million pro-



gram designed to assist teachers in professional development, retention and workplace conditions, top issues facing teachers nationwide.

As a technology company, we recognize that technology plays an integral role in education and can have a significant impact on student achievement. The BellSouth Foundation will be launching a new strategy in September that we believe will be instrumental in improving high schools in the Southeast. Called the BellSouth Foundation e-Learning Initiative, this strategy is designed to bring engaging, rigorous online instruction to students throughout our region, particularly low-income and minority students, to help address the growing achievement gap.

A key component of the strategy will include support for Stateled virtual high schools. We believe that virtual schools and online learning are a growing resource for education leaders as they seek innovative and cost-effective ways to accommodate growing student populations, meet diverse curriculum needs and provide a qualified teacher in every classroom. Students benefit by having access to a broader curriculum and by engaging in anytime, anywhere learning.

Our strategy for virtual learning complements the work of the National Governors Association, and we commend Governor Warner for spearheading the Redesigning American High Schools Initiative. We are excited about partnering with NGA and offering our support to Governor-led efforts that incorporate virtual learning into their high school redesign efforts.

Another key component of our e-Learning strategy is to expand access, allowing students to take advantage of virtual learning opportunities. Most low-income students do not have access to technology and online educational content in their homes. Hence, these students lag behind in student achievement. By expanding access to online learning to students in underserved communities, we will support schools' efforts to improve achievement for low-income students.

We plan to maximize the impact by leveraging the expertise of our employees in support of these initiatives. Currently we have over 100,000 active and retired volunteers. Our focus on e-Learning provides an outstanding opportunity to engage our volunteers and to utilize their skills in the community. This is an ambitious endeavor, yet we believe our support of this growing virtual learning movement will benefit high schools and make it possible for students at all levels to achieve high-quality courses of instruction personalized to their needs.

For decades, the focus has been on improving K-through-8 education, and we have made great strides. It is time to broaden our focus and extend those same standards to high schools. Together we can make a real difference in public education for our students, for our society and our economy. We look forward to doing our part in this important national effort. Thank you.

Chairman CASTLE. Thank you, Mr. Watson.

[The prepared statement of Mr. Watson follows:]

**Statement of Mike Watson, Vice Chairman, BellSouth Foundation, Atlanta, GA**

Thank you for the invitation to speak with you today about private sector initiatives to improve high school education.

In its 2000 Pathways to Prosperity report, the Governor's Workforce Education Task Force in one of our southern states found:

- 65% of the jobs in this century will require a two-year degree or certification—yet only 32% of that state's 9th graders will pursue a two-year degree or certification
- 20% of the jobs will require a college degree—28% of the 9th graders will pursue a four-year degree
- The final 40% of the state's 9th graders will pursue "unskilled" jobs—because they either drop out of high school or lack the skills needed for employment. Only 15% of jobs available will call for "unskilled" labor.

The bottom line: workers are not ready for the modern workplace. The world of technology requires strong mathematics and science skills, plus the abilities to read, write well, to think and reason, and to explain complex concepts.

**BELLSOUTH'S SUPPORT FOR HIGH SCHOOL REFORM**

*Education Leadership*

At BellSouth, we believe that systemic and lasting change can happen only if our school leaders have the confidence and capacity to drive reform across their districts. That is why, the BellSouth Superintendent Leadership Network, a group of 50 superintendents from across the Southeast, will focus on high school improvement over the next two years and provide their analysis, insight and input to state, regional and national high school re-design efforts.

*Teaching Quality*

We also recognize that when it comes to student achievement, the quality of teaching and instruction is a major predictor of a child's academic success. A Missouri task force on K-16 education concluded that improving teaching quality is the single most important factor in eliminating the achievement gap.<sup>1</sup>

Last year, BellSouth launched a major new initiative—BellSouth Quality in the Classroom Teaching Initiative, a \$10M program designed to assist teachers with professional development, retention, and workplace conditions, top issues facing teachers nationwide.

BellSouth's strong commitment to teacher quality and professional development is enhanced by other corporate colleagues such as IBM.

In our home state of Georgia, 75 state school superintendents who participated in the Georgia Leadership Institute for School Improvement have received training on leadership and change management through use of the IBM Reinventing Education Change Toolkit. All of these initiatives support the teaching, learning and student achievement objectives and outcomes of No Child Left Behind.

*e-Learning*

As a technology company, we recognize that technology plays an integral role in education and can have a significant impact on student achievement. The BellSouth Foundation will be launching a new strategy in September that we believe will be instrumental in improving high schools in the Southeast. Called the BellSouth Foundation e-Learning Initiative, this strategy is designed to bring engaging, rigorous, online instruction to students throughout our region—particularly low-income and minority students—to help address the growing achievement gap.

A recent study released by Harvard University found that nationally, only 50 percent of Black, Latino and Native American students earn a high school diploma, and that problem is particularly acute in the South—where we live and work. We feel a sense of urgency to turn these dismal statistics around and we'll strive to do that through our e-Learning initiative.

A key component of this strategy will include support for State-Led Virtual High Schools. We believe that virtual schools and online learning are a growing resource for education leaders as they seek innovative and cost-effective ways to accommodate growing student populations, meet diverse curriculum needs, and provide a qualified teacher in every classroom. Students benefit by having access to a broader curriculum and by engaging in anytime, anywhere learning.

<sup>1</sup> Closing the Achievement Gap Report, <http://www.nga.org>

Our strategy for virtual learning complements the work of the National Governors Association, and we commend Governor Warner for spearheading the “Redesigning American High Schools Initiative.” We’re excited about partnering with NGA and offering our support to Governor-led efforts that incorporate virtual learning into their high school redesign efforts.

Another key component of our e-Learning strategy is to expand access allowing students to take advantage of virtual learning opportunities. Most low-income students do not have access to technology and online educational content in their homes; hence, these students lag behind in student achievement. By expanding access to online learning to students in underserved communities, we will support schools efforts to improve achievement for low income students.

We plan to maximize the impact of our e-Learning focus by leveraging the expertise of our employees in support of these initiatives. Currently, we have over 100,000 active and retired volunteers. Our focus on e-Learning provides an outstanding opportunity to engage our volunteers and utilize their skills in the community.

This is an ambitious endeavor yet, we believe that our support of this growing virtual learning movement will benefit high schools and make it possible for students at all levels to receive high quality courses of instruction personalized to their needs.

#### *Conclusion*

For decades, the focus has been on improving K–8 education and we’ve made great strides. It’s time to broaden our focus and extend those same standards to high schools. Together, we can make a real difference in public education—for our students, our society and our economy. We look forward to doing our part in this important national effort.

Thank you.

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Chairman CASTLE. Dr. Hudecki, you are on.

#### **STATEMENT OF PHYLLIS HUDECKI, EXECUTIVE DIRECTOR, OKLAHOMA BUSINESS AND EDUCATION COALITION, OKLAHOMA CITY, OK**

Dr. HUDECKI. Thank you. It is a real pleasure to have an opportunity to share with you some very concrete work that is going on in Oklahoma.

Several leading corporations and CEOs about 5 years ago decided that they wanted to do something to invest in improving public education in Oklahoma, understanding the economic and social imperative for having strong public schools, so they got together and formed this organization in 2000. We are 5 years old. We now have 31 companies, very prominent companies, who sponsor the organization. But rather than decide how to tell educators how to do their business, they decided to work in partnership with educational leaders and with others in the State in moving some key education policies and in raising expectation about what should happen in our public schools as our kids graduate.

One of the first things we did is deal with infrastructure issues. We partnered with the State department of education in doing a feasibility study of developing a statewide student data system so we would have accurate data about each student and where they are. We could keep track of our dropout rates better. And you can imagine all of the good information that would come out of having a very good data system.

We have partnered with the State department, the higher education system, the Governor and legislators on various initiatives. And typically what we do is fund half of the initiative and then ask

for public-sector match of our private-sector funding, so it truly is a partnership.

One of the most exciting things we have done is actually on the local level. We have participated in the State's Scholars Initiative, and this impacts high school students directly. The goal of the program is to get high school students to take more rigorous courses in high school so they are better prepared for college and work when they graduate. Business leaders are trained as volunteers to talk to eighth-graders, recruit them and give them incentives, recognition, and upon graduation they are better prepared to be successful after high school.

One quick example comes from Ardmore, Oklahoma, which is a small town down the Red River. Ardmore High School, the year before they initiated this, the Scholars Program only had seven students sign up for high school physics, so the class was canceled. The first year of the State Scholars Initiative, they had 34 students sign up for high school physics. They have the same kind of results with lab science classes and foreign language. What is happening is that now they are needing to find more teachers to teach upper-level math and science classes and foreign language, and we think that is a good problem to have. Hopefully we can find a way to help solve that.

The next thing that we did, which is also very exciting, we also worked with Governor Brad Henry and the legislature and educational leaders this recent past legislative session in enacting the ACE legislation, which is Achieving Classroom Excellence in Oklahoma. It is a very aggressive agenda which will reform high schools and middle schools and the outcomes for students in those systems. It was very much a bipartisan initiative, and what we did was develop a provision that every student in ninth grade will be enrolled in the college prep curriculum unless their parents go to school and sign a consent form which will unenroll them. We will have a requirement that students must pass 4 out of 6 end-of-instruction tests to receive a high school diploma. We will also require mastery of eighth grade reading and math standards, or there will be interventions put in place for students. And the State will be paying for up to 6 hours of high school students currently enrolled in college course work. Those are the major provisions, but there are others as well.

You know what? We know that was the easy part. Getting that passed will be the easiest piece of that. The most difficult will be the implementation. The law also builds in a task force, and the business community will participate with the education leadership in developing the details for implementing this very important piece of legislation.

We believe, based on our experience in Oklahoma, that one of the advantages that business-led coalitions bring to the effort is that we have continuity. When policymakers and administrations change, the business community is typically still present and can bring continuity to the discussions and to the concepts. And so that has been our experience in our State, and I believe it is the same in others.

One other important initiative, and we are with 18 States in this initiative, is the American Diploma Project, which really got a lot

of emphasis during the recent national education summit with Governors and CEOs and higher education and K–12 public school leaders who are all concerned about high schools. We have joined this America Diploma Project, and there are commitments that must be made in terms of writing standards, providing assessments, ensuring that students are ready to go to college or to work, and higher education will make a commitment to ensuring that once they admit students, the students can graduate from college.

We are very excited about all of these initiatives, and we commend what you are doing with the Subcommittee in really trying to get your hands around what to do with high schools. One of my CEOs said, I know that there are people who think it is cruel to raise expectations and to have stakes attached to high school graduation. He said, I think it is more cruel to turn students loose after high school into a world of higher education and business, both of which are unforgiving and unrelenting, and they are not prepared.

We are very excited to be a partner with public education in Oklahoma and look forward to sharing any tips or advice we might have based on our experiences with you.

Chairman CASTLE. Thank you.

[The prepared statement of Dr. Hudecki follows:]

**Statement of Phyllis Hudecki, Executive Director, Oklahoma Business and Education Coalition, Oklahoma City, OK**

My remarks will focus on the specific involvement by Oklahoma business leaders in education reform. The business community in Oklahoma recognizes the economic and social imperative for having a strong, high quality public education system. During early 2000, several CEO's from some of Oklahoma's leading businesses began the Oklahoma Business and Education Coalition (OBEC). The organization, now five years old and sponsored by 31 companies, is designed so business and education leaders work together on an agenda agreed upon by representatives from both communities. We started with infrastructure issues such as supporting the development of a statewide student data system, benchmarking curriculum standards and analyzing alignment of state tests with state standards. With each initiative OBEC partners with public entities such as the state education agency, the higher education system, the legislature, or the governor, and provides matching funds to support the cost of the effort.

While most of the work of OBEC has been focused at the state level, we have one program with direct impact on students in local high schools. During 2003, Oklahoma was chosen as one of the first six implementation states for the State Scholars Initiative. OBEC coordinates the initiative which involves getting local business leaders to make presentations to eighth graders encouraging them to take more rigorous courses in high school. We have had immediate results indicating the successful impact of this program. For example, during the year prior to starting the State Scholars Initiative, Ardmore High School had only seven students signing up for high school physics, so the class was cancelled. During the first year of the Scholars pilot the enrollment jumped to 34 in the physics class. Similar results have been reported for foreign language and lab science classes. We plan to expand this program statewide and have been exploring partnerships with the Native American Tribes to help us reach students in rural areas of the state.

OBEC also advocates for higher standards and expectations for high school graduates. Today, Oklahoma students can earn a diploma by meeting minimal standards, far below what it takes to be ready for college or new economy jobs. During the most recent legislative session, OBEC partnered with Governor Henry and other education leaders to support passage of a landmark education reform bill, ACE (Achieving Classroom Excellence). Major provisions of the legislation include:

- College prep curriculum as the default curriculum, starting in 2006–07
- Beginning in 2008–09, high school students must pass four out of six end-of-instruction tests to receive a high school diploma
- Eighth grade mastery of reading and math standards
- State paying for high school students concurrently enrolled in college coursework

While passage of the legislation was monumental, the real challenges are still in front of us. Implementation issues will be worked out through a task force consisting of both education and business leaders. OBEC will remain vigilant in making sure the standards remain high and funding is provided to ensure support for student success.

Based on our experience in Oklahoma, business-led coalitions can be pivotal in education reform. We have a huge stake in the success of our schools and their graduates. We provide continuity to state education policy which is often subjected to shift in direction as policymakers change after each election.

Oklahoma is not unique, however. Other states have vital leadership provided by business leaders who want to improve education. Several months ago, Oklahoma Governor Brad Henry and I attended as well as others, the National Summit on High Schools, co-sponsored by Achieve and the National Governors Association. Business leaders played a key role in organizing the summit, the fourth such event over the past decade and the first to focus exclusively on the urgent need to redesign our high schools.

Forty five governors attended the Summit, along with K-12 and postsecondary leaders and corporate CEOs from some of the most powerful companies in the nation. They confronted sobering data on the performance of our schools and the impact that is having on our global competitiveness. For example:

- One third of high school students drop out without earning a diploma, and the numbers are much worse in urban schools where nearly half of 9th graders won't complete high school.
- A sizeable number of those who do graduate are unprepared for the demands of college and the workforce. According to one study, only a third of high school graduates are college ready.
- Nearly a third of high school graduates who go to college have to take remedial courses in reading or math, and most students who take such courses drop out without earning a college degree.
- In a nationwide poll conducted by Achieve earlier this year, employers estimated that 45% of high school graduates are lacking the skills necessary to work in their companies.
- In terms of our international competitiveness, the U.S. ranks 16th out of 20 OECD nations in our high school graduation rate and 14th out of 20 in our college graduation rates.

The business community finds this data deeply disturbing and in states across the country we are joining with reform minded governors and educators to close the achievement gap. But in order to do this we must first close a different kind of gap—a gap in the expectations we've set for our students and schools.

According to Achieve, only a handful of states require their students to take a rigorous set of math and English courses in order to earn a high school diploma. In most states, students can graduate without college and work ready skills. Even states that have put high school graduation exams in place typically only require students to demonstrate eighth or ninth grade competency.

That's why one of the main action steps that emerged from the National Education Summit was the establishment of the American Diploma Project Network, a group of 18 states, including Oklahoma, that have committed to close the expectations gap and restore value to the high school diploma. Governors, K-12 commissioners of education, business leaders, and higher education officials in these states have pledged to take four decisive actions:

First, they will raise high school standards to the level of what is actually required to succeed in college or in the workforce. This will require our postsecondary institutions in each state to work together to be more transparent about the knowledge and skills entering freshman must have in order to enroll and succeed in credit-bearing rather than remedial courses. And it will require employers and colleges together to verify that the state's standards for high school students measure up.

Second, the states will require all students to take a rigorous college and work-ready curriculum. Research conducted by Achieve and others show that students need the math skills taught in a good Algebra II course to be well prepared for both college and work. Yet only 3 states require students to take Algebra II in order to earn a high school diploma.

Third, the American Diploma Project states will develop tests of college and work readiness that all students will take in high school. Testing is important at the high school level, but we must make sure we give tests that provide useful information to students, families and schools. One of the most important tests college-bound students take is a placement exam—the one that tells them if they can enroll in real college-level courses, or must take remedial classes. Students typically don't take those exams until they arrive at college at the beginning of their freshman

year. Each year about one third of first year college students are surprised to learn they must take, and pay tuition for, courses that won't even earn them credit. Imagine if students got to take those tests while they were 11th graders, and could make up any skill deficiencies while still in high school, before they enroll in college. They'd be better prepared, and save taxpayers and families money at the same time.

Fourth, these leadership states will hold high schools accountable for graduating all students ready for college and work, and hold colleges accountable for the success of the students they admit.

The hearings this subcommittee is holding about high school reform are very important. I commend you for taking the time to educate yourselves and the American public about the steps we must take. I understand that you may not take up legislation on this issue until later in this session, perhaps as part of the NCLB reauthorization where you can deal with high school issues in a comprehensive fashion.

Yet there is a simple but very important step you can take sooner, and I urge you to consider it. Consider, as part of the Higher Education Act reauthorization, providing incentives for all 50 states to follow the lead of the 18 states in the American Diploma Project. Modest amounts of money can provide the impetus for the governors and business leaders to bring postsecondary and K-12 education leaders together to align high school standards, assessments and curriculum with the demands of college and work.

It is vital that states are encouraged to aim high with their standards and testing programs. There will be many pressures on them to lower standards, but by lowering our expectations we will do a real disservice to our students. The standards in the real world are unforgiving. By helping all states set the right expectations for what high school students should learn, Congress will ensure that broader reforms enacted later will pay off.

Business leaders nationwide are steadfast in their desire to raise expectations for high school graduates so that they can compete with their peers around the globe. We know that the nature of work is changing. We know that the competition is more intense. We know that other countries, including China and India, are demanding more of their high school students. And we know that our graduation rates in high school and college are flat lined. If we don't raise our expectations, young people won't survive in this market or earn a living wage.

We do young people no favors by handing them a high school diploma when they do not have the skills they need to succeed. We owe it to them to aim higher.

Thank you for inviting me to share some of our experiences in Oklahoma.

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Chairman CASTLE. We appreciate the testimony of all of you, and I will lead off the discussion here. Let me just say one thing. It is not a question, but I mentioned it, and a couple of you referenced it as well. If I was the czar and I was in charge, and believe me, nobody is a czar in this place, and I was writing legislation for high schools, I would start with a universal definition of graduation rates and the reverse of that, the dropout rates, if you will. The confusion about that, because the States use different standards, is unbelievable. And it is quite difficult if you ever tried to get into it and grasp it, and it is highly deceptive and very unfair. You deal with it when you get to high school. I think that is a tremendous problem.

I am going to ask you, Ms. Sterling, an impossible question, and asking for a brief answer, and if you can't answer, we will go from there. Every item I read about women in education indicates they are graduating from high school at a high rate, certainly going to college at a higher rate now than men, academically exceeding men in many, if not common, instances across the country. Why is there a lack of interest in computer sciences or maybe broader technology among women? Is there something we can do about that, or just something innately that they are going to have to do about it? To me there is great economic opportunity there, and academically women do every bit as well, if not better, than men. Why do we have to focus on that?

Ms. STERLING. Thank you, Chairman Castle. That is my favorite question.

Women are entering college at 58 percent higher than men. And women are quite prevalent in many of the academic communities and are outpacing men in biology and law, and they are seeing it in pharmacy schools.

Women don't know what computing is, especially if you have to declare a major your first year coming in. What women see in their high school experiences is that the people that gravitate toward high school computer science courses are interested in writing games and hacking computers. They see that geek element, and it is a bit repulsive, especially to women who have such broad interests and to well-rounded men who have broad interests. They see the lifestyle in this negative stereotype, of if you become a computer science major, you are going to live in a lab and sit in front of a terminal for your 4 years of college.

Dispelling those myths earlier is something that the media, public sector, private sector and teachers need to do, because once women understand that computer science is actually this underlying set of tools where they can make a huge societal impact and change, they understand that, yes, they can design intelligent user interfaces and work in artificial intelligence and machine translation and really fulfill their professional and personal goals. There is a huge image change campaign that we need to work on at the earlier levels.

Chairman CASTLE. Let me ask perhaps the others, since you had a chance to answer that, I always worry about—and I cite some of these—I have visited a lot of the businesses in Delaware and outside of Delaware, and I have seen a lot of the business efforts in terms of education, and I worry about the communication or lack of communication amongst each other with the education people who are there. Is it truly a coordinated effort. I worry about what we are doing. Huge amount of money and effort being put into it. I worry that your corporations have a committee that makes the decision to do something, but it is not the best thing you could be doing.

Are you talking to each other? Do you have a network so you are actually talking to each other and talking to the educators? Do you have an assessment of what you are doing to determine if it really makes sense that these kids are improving, or is it a gut reaction or anecdotal reaction to what you hear?

Mr. WATSON. I will take a shot at that. We consider all of the things that we do around education not successful if they aren't partnerships. We work very closely with superintendents, with principals, with teachers and also with students to get feedback to help determine what direction we need to take in terms of our programs. We also work very closely with other corporations, including Microsoft and a number of companies that we have partnered with, around initiatives. So the answer to that is yes.

Mr. SHORE. I would like to agree with what he said because I think you touched on something.

Chairman CASTLE. I am a little bit of a "doubting Thomas," in case if you didn't understand the edge of my question.



Mr. SHORE. We don't want to waste our time and effort, and we are not teachers, and we are not principals and not superintendents, and we are not teaching in the classroom, but we receive the product of what is coming through our system applying for jobs. It is very important for us to be able to have good communications with the educators, because we, over the years, found out that we can create this incredibly wonderful—what we think are wonderful programs to fund and support, and we think we are doing incredible things, go to the school and say, we would like to help, but here is something that doesn't tie in at all with their strategic planning.

A few years ago, we started doing strategic planning, and I am talking about how businesses are involved, like the Durham Public Education Network, the partnerships like she was talking about. And we do strategic planning now at the same time as the schools, so we understand what their strategies are, what their goals are, and how they are going to be rewarded or penalized for not meeting their goals, and we tend to follow along with that. But it is a very difficult line to walk because you want to make the biggest impact for your dollars, and if you are not in lockstep, in some cases you are not going to be able to do that.

That is one thing we are dealing with the U.S. Chamber, with the Business Education Network is to be able to start capturing a lot of what is going on around in various States, because—and I am not sure we need to create any new programs. There is a lot out there that works now.

Dr. HUDECKI. I would like to respond to that. The work we are doing in Oklahoma is coordinated for our agenda with the education leadership. But on a national level, it occurs to me that there is quite a large network facilitated by ACHIEVE, an organization made up of Governors and CEOs, and that agenda is very much focused on high school reform right now, and there are 18 States that are partnered in that. And so the businesses, Governors and education leaders from the States that are participating in the America Diploma Project network are very much focused on communicating about standards, expectations, and literally sitting down and hammering out in each State the standards expected for students to be successful when they graduate from high school, the way we are going to measure and assess that knowledge, and the way that higher education and the workplace will be dealing with that.

In Oklahoma, for example, our CEOs will look at those standards and verify and publicize that they have agreed to those. Higher education will be at the table as well as the State superintendent and public education representatives.

So there are a couple of examples of concerted efforts. I am sure there are some that aren't, but at least the big ones are working together.

Ms. STERLING. I share your cynicism, because at Microsoft, we knew we didn't know it all, and we were never going to be able to capture all the practices that were out there. The biggest missing piece we have had is the assessment piece and knowing if what we are doing has impact, which has actually formed the National Cen-

ter for Women and IT because we need the metric and assessment piece.

Chairman CASTLE. Of course, there are other elements that go into assessments besides what you are doing, which makes it complex, which I understand. I am not going to ask this question now, but later, and that is this: When I visit with my schools and look at the finances of the schools, I learn there is a tremendous amount of disparity there on how schools do. I am talking about schools, not school districts or what the Federal Government is doing, or what the State government is doing, or what their local taxation is, but just how they manage the money and what they do. And it seems to me—and frankly, I have seen schools right next to each other where one is coming along very well, and the other one isn't doing well at all. And I found out that they managed their money very well in terms of where they placed it with respect to teachers or whatever. And it seems to me that if there is anything the corporations probably have an advantage over education, it may be in the area of managing money and finances, et cetera.

I wonder if you venture into that. Mentoring and a lot of the other things you do are fine. Do you enter the finances? I don't mean asking for more money by coming to Congress. Ms. Woolsey asks me for that all the time. But in the general sense of trying to help these schools.

Hold that, and I will try to get back to it in another round. I am going to yield to Ms. Woolsey.

Ms. WOOLSEY. And he usually says no.

You know, I think we can give Bill Gates a lot of credit for the discussion we are having today because it was his announcement a few months ago that he was going to India to hire his top 20 new engineers, at least in the last couple of years, and the awakening that we had to get better and sharper at all of this. So we can thank him for that. And thank him for you, Ms. Sterling, for putting effort into girls in technology.

Ms. WOOLSEY. I have legislation called Go Girl. And the legislation emphasizes girls starting in the fourth grade and getting them and their families prepared and interested in at least considering science, math and technology as they go on in school, because fourth-graders, they start losing interest. And part of that, I believe, is because, as you said, girls have so many interests, and sitting in front of a computer playing very violent computer games is not something that very many girls are going to find interesting. So we have to find different ways.

What I am going to ask you is at what age do you think it is smartest to start getting young girls—I think they should be young girls or young women—interested in science, math and technology and computing? How do we get their parents interested? How are teachers responding to extra emphasis on girls? And how is Microsoft, with your monies for technology, how much of that is focused on women?

Ms. STERLING. Thank you, Congresswoman Woolsey.

I don't think you can start early enough with priming women's interest in technology, because you can give a cell phone to any 5- or 6-year-old now, and they probably know how to turn it on and know they are supposed to talk into it. Children are so much more

adaptable than my generation was at technology. I went to college without the Internet, and I couldn't imagine going back to grad school without it.

The earlier we can start, the better. I have been working with the Girl Scouts to see how early can we start looking at things like the very interesting technology badge. If you have a tech badge, you have to have teachers and parents who can teach the tech badge, and that is sometimes a harder issue. That is really rolling the rock uphill, changing the adult's perception as well.

I don't think you can start early enough in this space. Certainly a lot of early childhood development and cognitive studies show that students do need—they excel in these areas that are continuous, relevant and adaptive. This is what we are basing the School of the Future on. Just for one example of that, students nowadays in middle school have four to seven e-mail addresses. When they turn on a computer, they have six different applications going. They know how to manage multiple windows. We need to make sure that the content and the opportunities are there to capture that shorter adoption and adaption span that students have.

In terms of Microsoft specifically, I didn't quite understand your question about our investment.

Ms. WOOLSEY. You said something like \$35 million invested in technology. I mean, that is not all focused on girls. Is there a special cut for focusing on females?

Ms. STERLING. Out of that \$35 million, the basis for that is to lift all boats, obviously. We know what works for women in making computing more attractive also works for men. If we can broaden the pipeline, this is wonderful across the board. There are certain funds within that. I, for one, have a several-million-dollar budget that is devoted specifically to females and looking at retention and attraction programs with women.

Ms. WOOLSEY. What funding mix do you get, private, State and any Federal, in your programs? Mr. Shore.

Mr. SHORE. Primarily for us it is joining with other companies, to get to the Chairman's point a few minutes ago, to address issues in fairly large projects that are much bigger than just one company can help to fund. Sometimes it is a combination of things.

Ms. WOOLSEY. Mostly private?

Mr. SHORE. Mostly private. And it runs the gambit, so to speak, depending on what we are talking about doing in our local school systems. It is hard for a major company to pick individual schools because there are so many of them. We tend to work with the community education foundations and the statewide network, and we help work with the department of public instruction and come up with the programs. A lot of times it is a mixture of different funding sources.

Ms. STERLING. Congresswoman, we have a mix of funding options. The High School of the Future is something we are adding personal capital, mental capital, human capital. We have open head count dedicated to this and to helping the Philadelphia School District basically understand strategic business practices, but they themselves are actually funding the changes. So we are looking for that kind of coalition between public and private partnerships.

We also work with organizations like NCWIT, where all the high-tech companies will fund a membership coalition like the Workforce Alliance, and we will decide to do one or two major research projects to stretch our dollars the furthest.

Mr. WATSON. Most of ours are private partnerships. We are going to be a partner with NGA in their high school initiative, though. Other than relationship partnerships, from a funding standpoint, that is something new for us to fund.

Dr. HUDECKI. And our organization is funded totally from private funds. But when we start any type of adventure with an initiative or a project, if something we are working on with the State, the State department of education, we typically have matching funds from the public sector. We also have a small amount of Federal money given to us to start the Oklahoma Scholars, the State Scholars Initiative. And the agreement was we would have seed money for 2 years, and then the State or our organization would continue that with private-sector funding.

You might be interested to know, in Oklahoma we have a very large population of Native Americans, and the tribes have indicated an interest in helping us spread the State Scholars Initiative to the rural parts of the State. We are excited to work with the tribes in a formal fashion.

Ms. WOOLSEY. Thank you, Mr. Chairman, for letting me go over.

Chairman OSBORNE. [presiding.] Thank you, Ms. Woolsey.

And, Mr. Shore, I would like to start with you and ask you a couple of questions. Obviously your company has devoted a lot of time and resources in education. And have you done any evaluation of the impact of these efforts? Do you have any outcomes that you have been able to observe?

Mr. SHORE. That is the one thing we ask ourselves all the time, are we being effective with our funding. And it is a little difficult to know exactly how you are doing because we are not in the classrooms teaching the kids. We are depending on helping to make teachers and the classrooms more effective and have better outcomes.

There are a number of initiatives. We have funded the Hill Center, which is a school for learning disabilities. What we have done is—and we do it with the public school teachers statewide. The Hill Center staff teaches public schoolteachers on how to deal with kids with learning disabilities. So we see the improvement in those teachers in those classrooms with the ability to handle kids who learn a little differently. We hear test scores going up and see the kids doing better in class. And it boils down for me are our students doing better? Is their achievement better? If it is, then we are funding the right things in the right way. But we haven't figured out how we are going to say we have been successful in that. It is a tough issue for us.

Chairman OSBORNE. Thank you, Mr. Shore, and I am not going to ask you any questions, Ms. Sterling, because Ms. Woolsey grilled you enough. But I would comment that Tom Vander Ark from the Gates Foundation was here last week, and Tom was talking about a boy problem, and which I think the Chairman has already alluded to. We appreciate your efforts and what you are trying to do for women.

Mr. Watson, I would like to ask you a question regarding your e-Learning Initiative, and particularly what this has done for low-income and minority students. Have you directed any of that in those areas?

Mr. WATSON. Mr. Chairman, I think it is really too early for us to be able to answer that question. We have got about 30,000 students in our Southern States who are currently enrolled in virtual high school courses. The vast majority of those are in the State of Florida; in fact, about 20,000 of the 30,000 are in the State of Florida.

Mr. WATSON. We do know this, we do know that some of the poor, low-income school districts, for example, in—let's just take, for example, in the area in south Florida around Lake Okeechobee, where advanced placement courses, where college calculus, for example, may or not be offered, those students, with the use of virtual learning, now have the ability to take courses like that from a teacher at Leon High School in Tallahassee.

So we know it is going to change the outcome. I think it is a little early to be able to say that it has been dramatic differences, but it is coming.

Mr. OSBORNE. Well, thank you. I serve a very rural area, and we find that some of our students in very small towns are not able to take advance courses, and so we feel E-learning is very important.

Dr. Hudecki, I am always interested in what is going on in Oklahoma, being from Nebraska. And I know that you commented on some legislation I believe that had been passed where you were indicating that all ninth graders would take a college prep program unless their parents requested otherwise. And I wonder if you would comment on that a little bit more because it seems kind of ambitious to me. And obviously, when you look at the numbers, not all ninth graders are going to go through a college program. And I realize that ninth grade is kind of early to make that decision as to who will and who won't, but what did you decide or why did you back that type of initiative?

Dr. HUDECKI. For several years we have had an initiative in place from our higher education system called the Oklahoma Higher Learning Access Program, OHLAP, which was intended to fund economically needy students to be able to go to college, and it required them to participate in a core of courses that would be considered a college prep course. The track record for those students is very, very, very good. And they are kids, again, from economically disadvantaged families. Once they get into college the data shows that they have better success.

So we thought that since we don't really know which kids are going to go to work or to college, and inevitably, in Oklahoma about 80 percent of our kids at some point within 6 years after graduation do go to college, either a 2-year or 4-year college, so we thought it would be better to cast a broader net and really have every student prepared the best that we could prepare them when they leave high school, since we don't know which way they are going to go. So it will help them if they are going to the workplace, it will also help them if they are going to college.

The important part of that whole initiative, as we all know, will be giving them the remediation and the intervention they need in

high school. We think it does not make sense for students to enter a 2-year college, a technical college, or 4-year university and find out at that point they are not prepared; we think it is better to find out in 10th or 11th grade that they still have gaps in terms of their knowledge and skills, and fix it at that point rather than waiting until they are turned loose.

Mr. OSBORNE. Thank you. I think there is somebody else that wants his Chair, and I will give it back to him.

Chairman CASTLE. [Presiding.] Mr. Kind is recognized.

Mr. KIND. Thank you, Mr. Chairman. I want to thank our guests today for your testimony on this very important topic, one that is, fortunately, receiving a little bit more attention throughout the country.

You know, it is no surprise that those of us serving on the Education Committee feel very deeply about the quality of education, the education reform that we need to take. Sometimes it is hard though to engage the rest of our colleagues in Congress with the number of issues that are coming through our offices and across our desk each and every day, and that is why it is so vitally important for businesses, large and small, throughout America to weigh in and let your voices be heard.

Ms. Sterling, Bill Gates has been very, very helpful recently in regards to the statements he has made, especially targeting the need for high school education reform in this country. I had a chance to have lunch with him about a month ago when he was coming through Washington and we talked a little more about that, and I asked him to be even more blunt in order to get this country to wake up in regards to the reforms that we need to take by basically stating that either you do this or companies like Microsoft won't be able to hire our children when it comes time for graduation. This is going to be true for other companies throughout the country.

But it would also be helpful for the CEOs of this country, those involved in education reform, to expend a little bit of political capital when it comes to budget time around this place. I mean, we recently passed a budget last week that calls for over \$800 million in cuts for No Child Left Behind and, as Ms. Woolsey pointed out, a 40 percent cut in education technology funding. And it is nice to be talking about this, but when the real leverage occurs it would also be helpful if there was a little bit of political capital spent in regards to support for a lot of the education program in the funding. Because part of the problem has been a funding issue, especially since Washington now is trying to pass on mandates to the local level but without providing the resources to get it done. And that, I think, is going to be very important.

But when you talk about education reform, and this is true even at the high school level, I don't see how we can move forward without some serious thinking about home reform as well, because so many of the habits the students bring to the classroom start in the home. And I had the opportunity over the Easter recess, along with Mr. Hinojosa here and Ms. McCarthy on the Committee and Buck McKeon, to go to China for a couple of weeks on a higher education tour. And what was really striking in regards to our visit over there is how hungry they are for education, how committed they

are. And you walk away from a trip like that almost feeling a little bit sorry for those Chinese students. Many of them are single children in a family, bearing the full weight and pressure from their parents who are hovering over them each and every day to perform well in the classroom. And it is not just their parents, but it is both sets of grandparents that are hovering over them, making sure that they are doing everything they can to excel in the classroom, given the level of competition over there, but also the realization of how important education is. And I am not quite sure whether or not we can figure that out to encourage the right type of habits starting at the home—turning off the TV, getting the kids away from the Game Boys, and maybe some of these high-tech toys that they have become very fond of recently—but we also have to try to figure out that a little bit.

And I agree with you, Mr. Chairman, that a good place to start is having a universal definition on graduation rates that deal with the dropout, but it is a first step. We have got to figure out a way to encourage kids to stay in the classroom, to perform well and to graduate.

And one of the more interesting ideas I recently heard is for every child born in this country, set up an education fund for them right away and fund it for the next 5 years, and provide some matching funds or private funds to go into that account as well. And it would be in their name and it could grow for the next 12 to 13 years, and it would be there for them under the condition that they graduate from school and that they are performing well in school. And maybe we could target it to the higher needs area, make it needs-based or something like that, but we have got to try to incentivize graduating in this country again and performing while even in the high school years.

Let me just leave this question to you because the administration has also been thinking about high school reform. What they would like to do is just extend the principles of No Child Left Behind to the high school level, which to many of us gives us pause or hesitation because it sounds like a lot more Federal mandates going back to the local level to try to incentivize the reform that has to take place. Obviously the concern with huge budget deficits is that the resources won't follow the mandates, and we are going to get into the same type of problem we currently have with No Child Left Behind.

But based on your experience, do you think it is going to be necessary for the Federal Government to place requirements to or establish mandates or to provide the guidance in order to spur the type of education reform at the high school level? Or are these school districts in the high schools capable, with your assistance, with the help of local officials, State government to do this on their own?

And I will just leave that open to anyone who wants to touch that.

Mr. SHORE. Well, I will touch it—

Mr. KIND. Gingerly, I am sure.

Mr. SHORE. Gingerly. There are—it has been mentioned two or three times today about having consistency among States, if you will, in terms of standards so you know what high school diploma

means from State to State. As a company like ours, we are hiring people not just from North Carolina, not just in Philadelphia. We are interested in what the standards are and what the education is like in every State because we are recruiting, as we all are, from every State. So we want it to mean the same thing.

But I think the whole, whatever you call it, No Child Left Behind, I think the whole standards and accountability effort is becoming so ingrained now, and I think the expectation level for high schools is getting greater, and I just see it in our own community, that I think with the pressure from the business community and with support from the business community and a lot of others, I think we are seeing changes being made without having legislation in place yet. I think it would help bring consistency if there were something there, but I am not sure not having it is going to keep good things from happening.

Dr. HUDECKI. I would like to offer that in Oklahoma, at least in terms of the State policy I just described a while ago, I think we are ahead of the Federal Government, but not every State is there. And in no way am I going to speak for our education leadership in the State on this particular issue, but I would say that the work that we are doing with the 18 States that are in the American Diploma Project led by Achieve may be on to something that is voluntary. It may take a modest amount of funding from each State to push that, but it wouldn't be a real big leap if the Federal Government entered into some type of arrangement by providing a modest amount of money to each State to participate in that program. You could do it under the Higher Education Act or whatever you want to, but that would be not terribly expensive. And it would give States kind of a template from which to work with Governors, business leaders, and higher education and public school leaders to come together and really ratchet up the standards and assessment. So that might be some food for thought for you.

Ms. STERLING. Mr. Congressman, we also believe that everybody is needed in this equation. We supported the bipartisan efforts behind getting No Child Left Behind passed. We are supportive of the Higher Education Act. And while school districts and corporations are certainly not going to wait to try to do something innovative in the space and find out new things that work, this is all of our responsibility.

Mr. KIND. Thank you, thank you very much again. Thank you, Mr. Chairman.

Chairman CASTLE. Thank you, Mr. Kind.

Mr. Hinojosa is recognized.

Mr. HINOJOSA. Thank you, Mr. Chairman.

I also want to commend you for coming to talk to us today on the issue of math, science and engineering, which are very, very important to us in Texas.

I want to direct my comments and questions to Sarah Sterling of Microsoft.

It is no secret that we are losing or competitive edge in producing experts in math, science and engineering, and we must redouble our efforts to engage young people in those fields. If we do not engage and provide quality educational opportunities for the fastest



growing population, Hispanic Americans, we will be permanently ceding leadership in this area.

In my congressional office we have dedicated a lot of time to work with the University of Texas. Pan-American, in its GEAR-UP program, founding an initiative called the Hispanic Engineering Science and Technology Initiative, referred to as HESTEC. Every year we celebrate HESTEC week on campus there, and we bring together our leading corporations like yours, Microsoft, Dell, Lockheed Martin, Ford, State Farm, and many, many others. We bring our key Federal agencies like NASA, Department of Energy, National Science Foundation, and we dedicate an entire day to Latinas—daughters and mothers. You talked about there being 58 percent women starting college, well, we are trying to show them that there is a career path they could consider.

Additionally, we need a special focus on access to quality laboratory science in our high schools. During this last reauthorization of the National Science Foundation, I worked with Senator Kerry and Senator Kennedy to include a provision to improve our high school laboratories in the most needy school districts. As part of that effort, NSF has commissioned the National Academy of Science to study what a well-furnished high school laboratory of this 21st century should look like.

So I ask you, what do you see as promising practices in engaging young people in math and science? And what do you think is essential in one of these new modern high school laboratories?

Ms. STERLING. Thank you, Congressman Hinojosa.

I think you hit the nail on the head when you talked about the 21st century education and academic leadership. I also applaud the efforts at what the UT system has done. I am not very familiar with Pan-American, but I work a lot with University of Texas of El Paso, and it is always the women in the electrical and computer engineering department, University of Texas, El Paso, that always are first or second place in a service-learning competition that I work on with them. It is amazing how tied in they are with community needs and supplying engineering and computing solutions to NGO's, nonprofits, and other community centers in the area.

They are on to something that would work at the high school level, which is to—and something that Microsoft is hugely in favor of, and we are trying to work on this with our Partners in Learning Initiative, is bringing the tenets of engineering down to the high school level. When students get to college they are so excited with the college courses that are actually there. They get to pick these amazing courses that just the name of them excites them. There is a way to bring these advanced topics in engineering into high schools because what they need to see is that technology and the sciences and the maths and the engineering courses, tenets that are going to serve them later on, are things that are applicable to what they already know with a small basis in math and life sciences and physics. And what it also teaches is teamwork and the collaboration skills, the software skills they are going to need to succeed later on in life. And they work on projects. If we bring in engineering earlier into the curriculum, they work on projects where they see the end result, the tangible end results of these projects while they are already students. And they go, wow, I really

can have an impact, I am smart, I can produce this with the help of my teammates and classmates.

So we are very excited to bring in engineering principles early on and engage all students.

Mr. HINOJOSA. Thank you for describing what would work.

I would like to ask the last question to Dr. Hudecki of Oklahoma.

Susan Davis from California and I reintroduced the Graduation for All Act, and it now has more than 80 co-sponsors. This legislation provides States with the resources to target school districts with the lowest graduation rates. Funds are used to establish literacy programs at the secondary school level and provide onsite professional development for high school faculty through literacy coaches.

The legislation strengthens the accountability for graduation rates. We can't call high school reform successful if only half of our students benefit from increased rigor and raised expectations. Do you believe that this type of Federal legislation would complement your efforts to reform high schools?

Dr. HUDECKI. Well, on the surface it sounds like it would very much complement it. We discovered, through our work with business leaders that their expectations for what students ought to know and be able to do now when they graduate from high school are almost identical to the requirements to go into college. So it makes no sense whatsoever to have sorting mechanisms in place or different kinds of expectations for different types of students in terms of what they are going to do when they leave the school system.

So we are very much advocating that we educate all students to a higher level and want to define what that level is. So I think that would be a very good fit.

Mr. HINOJOSA. I am pleased to hear you say that you agree with that, but we need both your organization, the foundation, corporate America to support us with this legislation because it requires big funding to be able to get it done. Our authorization level request is for \$1 billion, and I think that it is going to take that type of investment to be able to move us forward and be able to compete.

With that, Mr. Chairman, I yield back.

Chairman CASTLE. Thank you, Mr. Hinojosa.

We have gone through a round of questions, and I don't want to prolong this too long, but I did have a couple of follow-up things I wanted to ask. And if the others want to, they are certainly welcome to as well.

I want to go back to what I stated before. We have arguments here, you sort of heard a little bit of it, do we underfund schools, are we not doing enough at the Federal level? I could argue that—I am not going to pick arguments here today—I believe that we do. But schools are basically funded at the Federal level, the State level, and obviously local property taxes for the most part. But I have noticed, particularly at the State level and at the district level and even at the school level, there is huge disparities in the way people actually manage those dollars.

And I attended a very interesting session on this at an Aspen Institute meeting, where I learned more about education than I do almost anything else I do, in which we really parsed this and

looked carefully at it. And they compared a couple of schools with about the same budget dollars coming in, but decisions being made very differently by the principals in the schools in terms of how the money is going to be spent. Do you have a band, do you not have a band; what do you do for labs; how many, you know, cafeteria workers do you have versus something else, or whatever. And it was proportionate to the academic achievement in the schools; those who put more into the educational aspect seemed to do a better kind of thing. And I have seen this again and again, that understanding those numbers and those finances is as important as what the finances really are.

And that is what I asked when I stopped and didn't ask you to answer before, is to whether or not you know of any corporations or corporate entities that are actually helping with that aspect of it; that is, really analyzing and understanding the finances within a school, which I think corporations are particularly suited to do. And I am not asking for just a general answer, but do any of you know anything specific that is going on in that area within the framework of what you are doing or what anyone else is doing?

Mr. WATSON. We have—for the Atlanta Public Schools we have—well, we don't, Dr. Beverly Hall, who is the superintendent for Atlanta, has what she calls a CEO roundtable. And a number of CEOs from major corporations, and even some mid and small businesses, sit on this CEO roundtable and advise her on issues that are facing those businesses from a hiring standpoint. It gives her a chance to ask them questions about managing a business, which she is also the CEO of a large business.

So in that regard, IT professionals that work in the business have a chance to work with her IT people, finance professionals in the businesses have a chance to work with her finance people. So it is an opportunity for her, not as superintendent of the school but as the CEO of a large business, to interface with other businesses and have a chance for those professionals to work with her staff in that area, yes.

Ms. STERLING. Mr. Chairman, we also—a large component of our Partners in Learning program is to teach strategic business and financial processes to the academic arena, the practitioners, the teachers and the administrators. These are the exact same curricula that we teach Microsoft employees, developers and engineers that come in on how to be business savvy and how to have financial acumen.

Chairman CASTLE. Let me ask you another question—and this is back to my concern about both the knowledge and coordination of the various programs. And don't get me wrong, you are wonderful examples of what one can do, and I praise you greatly, and I praise, frankly, any business that is willing to get involved in helping making good our schools—and by the way, I do like Achieve a great deal. I think they are doing wonderful things in the country. But I also do worry about what the coordination aspect of this is. I don't know if there is a national clearinghouse for the various businesses that get into these projects. But as I said, I have been to schools and I have seen what some of the corporations are doing, and quite candidly I question that. To be really honest with you, Ms. Sterling, I really question what one high-tech company is

doing—not yours—but what one high-tech company is doing that runs pretty big things for schools. I just was unimpressed when I went to their school. And I am wondering, who is looking at this? The, schools, in my judgment, will accept any help you want to give them. If you are willing to give them computers and mentors, they are going to accept it. And they may be a little reluctant to critique it and to say this probably isn't the best way to do this, or whatever.

So I am not 100 percent confident that we are getting 100 percent out of all of the dollars being spent by all the businesses in this country—and I don't even know exactly what that total is—but from my judgment it is substantial. And the businesses have a huge vested interest in what is going on in the schools, but my concern is, you know, maybe you are watching your own particular programs. But my question to you, if you understand it, is broader than that, to what is happening on a broader level with all of the various business contributions to the schools. Is there any clearing-house or anything of that nature that is really looking at them and taking somebody aside and saying, you know, what you are doing is probably not the best use of your money and your personnel? Do you sense that happening anyplace out there beyond just what you are doing?

Ms. STERLING. Well, Mr. Chairman, I can certainly tell you about failures that I have done in a space when I go out and see, wow, I am going to do women's gaming camps in high schools and I am going to engage women in learning how to write games. And after a week of this they look at me and they never want to touch a computer again. So I have thrown good money after bad.

Chairman CASTLE. Is that the reason why no women are going into the computer business?

Ms. STERLING. And I cannot stress enough how all of the best intentions in the world are not solving our technical pipeline problem. And I cannot stress enough that as a country, we have fully backed National Center for Women IT as the assessment in metrics gatekeeper and benchmark organization because this is not our core competency. We need the social scientists to say quit doing that, it hasn't worked the last 17,000 times you have tried.

Chairman CASTLE. Anybody else?

Mr. SHORE. I think the Superintendent of Schools in Atlanta ought to be patted on the back because she is doing something that a lot of other superintendents aren't. We would love for a superintendent to come knock on our door. If I were a superintendent, the first thing I would do is meet with every CEO in the community and say, I have got some really difficult goals to meet, I can't do it by myself and I need your help. I don't think any business would turn that down. Rarely do we see superintendents coming to us. They don't pick up the phone and say I have got this. It is always the other way around.

We are going to do the best we can to try to help out because it is in our interest. We want good employees coming out of these schools. So we would love to see it more of a two-way street in terms of what I was talking about earlier, with a dialog in the partnerships actually having something that is two ways, so that—you

will waste your money and your time if you don't tie in with their goals and what they need to accomplish.

Chairman CASTLE. That is a good point, the reverse aspect of it; maybe they should be seeking help as well.

Ms. Woolsey, do you have anything further?

Ms. WOOLSEY. No, sir. Thank you very much. It was amazing.

Chairman CASTLE. Well, let me thank you all of you very much for being here as well. We will take all of the information you gave us and go through it and hopefully learn ourselves. But we appreciate—I know some of you came from a distance, so we appreciate you being here and we appreciate your contributions. And with that, we stand adjourned. Thank you.

[Whereupon, at 3:35 p.m., the Subcommittee was adjourned.]

