

EDUCATING OUR CHILDREN TO SUCCEED IN THE GLOBAL ECONOMY

FIELD HEARING OF THE COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS UNITED STATES SENATE ONE HUNDRED TWELFTH CONGRESS FIRST SESSION ON EXAMINING EDUCATING OUR CHILDREN TO SUCCEED IN THE GLOBAL ECONOMY

JULY 15, 2011 (PORTLAND, OR)

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EDUCATING OUR CHILDREN TO SUCCEED IN THE GLOBAL ECONOMY

FRIDAY, JULY 15, 2011

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

The committee met, pursuant to notice, at 10 a.m., at Gilbert Heights Elementary School, 12839 SE Holgate Boulevard, Portland, OR, Hon. Jeff Merkley presiding.

Present: Senator Merkley.

OPENING STATEMENT OF SENATOR MERKLEY

Senator MERKLEY. Welcome, everyone. The committee will come to order.

This is a field hearing of the Health, Education, Labor, and Pensions Committee, and I appreciate everyone coming to participate.

I think we all understand that education is critical to the success of our children, and education is critical to the success of our future economy. And yet, as a Nation, we are struggling. We are becoming the first generation of adults whose children are getting less education than we got.

We are becoming the first generation in which our children often do not get hands-on experience through shop classes, a generation in which we are losing in many schools our music classes, even our gym classes, things that aren't connected directly to No Child Left Behind testing. We have testing that perhaps has some elements that are valuable but has a lot of shortcomings.

All of this is going to be part of the discussion over the reauthorization of the Elementary and Secondary Education Act. And the expertise that all of you bring from the front line is very, very helpful in going forward and trying to seize this moment of the reauthorization to have the best possible supportive framework in terms of national policy.

So that is why we are holding this hearing. It is a hearing that comes in addition to conversations that I have been holding with educators throughout the State, as I proceed on my annual 36-county tour. And we very much expect right now for ESEA to be marked up later this year.

Now, given the nature of the Senate, nothing is a sure bet. But we want to be prepared. Senator Wyden and I want to be as prepared as possible to be fully engaged in that conversation.

I want to thank Superintendent Grotting and Principal Cherie-Anne May for hosting this hearing at Gilbert Heights Elementary

School. This is the school that I came to when I was in elementary school to compete in sports—baseball outside, basketball inside. And it is good to be back.

We have in Oregon a high unemployment rate. It is above the national average. Unemployment for those who have not gotten a high school degree and/or gone on to vocational school or a college degree is much higher than for those who have seized the various pathways in education.

Our skills as a Nation, as they relate to skills in other countries around the world, are slipping. And we are now ranked 14th out of 34 countries for reading skills, 17th for science, 25th for mathematics. That is not a path for either the success of our children in a knowledge-based economy or the success of our future economy. So it is key.

I am not going to elaborate on what is right and wrong about the current No Child Left Behind law because you all are the experts. And Susan and I are here to learn as much as possible from your expertise.

I want to introduce Susan Lexer, who is my legislative assistant specializing in education. And also please note that as you work with my team on issues of education, feel free to call Susan at any time. Susan has her business cards, and her phone number is on our Web site. And so, seize that channel as you have input on how we can make things work better.

I also want to introduce my Oregon State director, Jeanne Atkins, Jeanne, why don't you just step forward a little bit? Jeanne runs my Oregon State team. And feel free, if you are not certain about how to find the right person on my team for the issues that you are concerned about, to contact our office here in Portland. We have field offices around the State as well.

We are going to be splitting this hearing into two major components. One is a panel on ESEA, Elementary and Secondary Education Act, and the second is on STEM issues. That is science, technology, engineering, and mathematics. And so, I am going to proceed to do very brief introductions of our witnesses. I am going to introduce both sides. Then we are going to split our time between the two topics.

Starting with Don Grotting, superintendent of David Douglas School District. Then we have Mary Cadez, assistant superintendent of Salem-Keizer School District.

Rachael Harms, a teacher from Salem, OR. Vanessa Otterlee, a parent. Heidi Sipe, superintendent of Umatilla School District. Beverly June Hollensteiner, superintendent of North Bend School District in North Bend, OR.

Eduardo Angulo, chairman and executive director of Salem/Keizer Coalition for Equality. Tony Hopson, executive director of Self-Enhancement, Inc. I greatly enjoyed the tour that he asked to come and see and the work that was being done on the ground there.

On our STEM panel, we have Dr. Roy Koch, provost and vice president for academic affairs, Portland State University. Ms. Morgan Anderson from Intel. Melinda Knapp, mathematics teacher and recipient of the Presidential Award for Excellence in Mathematics and Science Teaching, from Bend, OR.

Nathan Fuller, is a student. He will be a senior now at Cleveland High School, and he is a participant in the FIRST Robotics team. And I had a chance to come and see their team in action, the Pigmice.

[Laughter.]

He will have his own story, I am sure, about how it became the Pigmice.

Nancy Stueber, president of Oregon Museum of Science and Industry. And Beth Unverzagt, director of the Oregon After School for Kids program.

The committee has received your full written testimony for the record, and we will have 5 minutes for each person to summarize the key points that you wish to contribute. This being an official hearing, we have the official timing device. And basically, when the red light comes on, time is up.

The yellow comes on with a minute to go, so that will give you a sense to wrap up.

The record will remain open for 10 days for submission of additional statements, and I will remind people of that at the end as well.

With that, we are going to jump right in. We do have enough time for everyone to have the full 5 minutes, and I may interject a few questions or thoughts along the way.

Don, would you like to kick it off?

STATEMENT OF DON GROTTING, SUPERINTENDENT, DAVID DOUGLAS SCHOOL DISTRICT, PORTLAND, OR

Mr. GROTTING. Yes, first of all, thank you, Senator, for coming back to the school district where you were educated, but also where his children continue to be educated. So we really appreciate you coming home.

No Child Left Behind has been responsible for public education recognizing and acknowledging the achievement gap that exists for children of poverty, color, children having learning disabilities, and identified as English language learners. It has caused educational facilities and educators to identify the challenges that exist among these groups and as also responsible for starting to close the achievement gap.

I truly believe without No Child Left Behind legislation that we would not be where we are today. It has provided a sense of accountability.

Having said that, I also believe that No Child Left Behind has failed through the measurement of adequate yearly progress to recognize the individual challenges of various learning environments, institutions, and students. A school and a student are deemed to succeed or fail based on a specific measurement. There is minimal consideration for individual student or institutional growth.

In addition, the legislation does not adequately address the challenges or differences that exist among our students with disabilities or English language learners. All students simply have to jump over the same bar at the same height, even though it may not be physically or mentally possible.

Having attainable and rigorous standards and accountability measures that address each child is imperative. Each child has an

unlimited capacity to learn. The key variable is determining their starting point and then measuring and providing growth milestones for each child.

While we are setting the bar too high for some students, I would also maintain we have not set the bar high enough for other students, and they are not being challenged to reach their potential. In addition, we must have goals that can be realistically achieved and maintained.

In 2014, every child, every institution will not achieve AYP under the current accountability and measurement standards. We must have rigorous goals that can be achieved.

Finally, accountability needs to be embedded within each institution. Best practices, proficient teaching, professional development, outstanding educational leadership should become the expectation, not the exception. When institutions and educators are provided adequate resources but continue to fail students, consequences and interventions need to be implemented. Time is of the essence for every child to be educated.

On a final note, I truly maintain that we must address our birth to kindergarten population before any significant and sustained improvement will be realized in the K–12 system. We continue to react to a widening achievement gap, rather than addressing the source of the problem.

Having every student kindergarten ready, as well as having full-day kindergarten for every child, will truly decrease the possibility of a child being left behind.

I want to thank you for your time and consideration in trying to make a positive difference in the lives of all children in the United States.

[The prepared statement of Mr. Grotting follows:]

PREPARED STATEMENT OF DON GROTTING

NCLB has been responsible for public education recognizing and acknowledging the achievement gap that exists for children of poverty, color, children having learning disabilities, and identified as English Language Learners. It has caused educational facilities to identify and recognize equity, cultural, and other differences and challenges that are responsible for impacting and widening the achievement gap.

NCLB has failed through the measurement of Adequate Yearly Progress to recognize the individual challenges of various learning environments, institutions, and students. A school and a student are deemed to succeed or fail based on a specific measurement. There is minimal consideration for individual student or institution growth. In addition, the legislation does not adequately address the challenges or differences that exist among our students with disabilities or English Language Learners. All students simply have to jump over the same bar at the same height even though it may not be physically or mentally possible. Having attainable and rigorous standards and accountability measures that address each child is imperative.

Every child has an unlimited capacity to learn. The key variable is determining their starting point and then measuring and providing growth milestones for each child. While we are setting the bar too high for some students, I would also maintain we have not set the bar high enough for other students, and they are not being challenged to reach their potential. In addition, we must have goals that can be realistically achieved and maintained. In 2014, every child and every institution will not achieve AYP under the current accountability and measurement standards. We must have rigorous goals that can be achieved.

Finally, accountability needs to be imbedded within each institution. Best practices, proficient teaching, and outstanding educational leadership should become the expectation, not the exception. When institutions and educators are provided adequate resources, but continue to fail students, consequences and interventions need

to be implemented. Time is of the essence for every child being educated. On a final note, I truly maintain that we must address our birth to kindergarten population before any significant and sustained improvement will be realized in our K–12 system. We continue to react to the widening achievement gap rather than addressing the source of the problem. Having every student kindergarten-ready, as well as having full-day kindergarten for every child, will truly decrease the possibility of a child being left behind.

Thank you for your time and consideration and for your efforts in making a positive difference in the lives of our children.

Senator MERKLEY. Thank you.

And if I turn the clock back a few years ago, we had a big push to try to create enough resources so that all parents, who were eligible to have their children in Head Start—to help get ready for school—were able to do so. Did we see any significant impact from that?

Mr. GROTTING. Yes. We have data that is showing if we can impact students, 3- and 4-year-old students, to be kindergarten ready, the more of those students that have that availability, we are making gains.

For every student that comes to first grade unable to read, we are failing seven of them. Those are the kids that are dropping out of our schools. We simply do not have—well, we don't have enough resources. But also even with the resources that we have, it is not making the difference that it should make.

So a child's brain is 90 percent developed by the age of 5. And so, all of that information up to entering school, it is just imperative that they have the background knowledge, the skills, and the education necessary. Otherwise, they are going to continue to be left behind.

Senator MERKLEY. Thank you.

Ms. Cadez.

**STATEMENT OF MARY CADEZ, ASSISTANT SUPERINTENDENT,
SALEM-KEIZER SCHOOL DISTRICT, NORTH BEND, OR**

Ms. CADEZ. Senator Merkley, it is an honor to be invited here today to present our views to you and your team on the reauthorization of ESEA. And thank you for the opportunity.

In considering the reauthorization of the ESEA, we would offer the following from Salem-Keizer Public Schools. College- and work-ready is our primary goal for our 40,000-plus students in the Salem-Keizer district. We want our students prepared for the rigor of the postsecondary college or university experience or to have them possess the skills—academic, technology, and relational—to enter the workforce in a living-wage job.

We know that quality teaching is at the epicenter of our success and the means of achieving our goal with our students. In Salem-Keizer, we do know what it takes to recruit, retain, and support a high-quality and vibrant teaching team, and our student results in the past 5 years demonstrate that our plan is working.

Given that information, it is our hope that the reauthorized ESEA will support our efforts and help us by providing the resources for the following. Professional development for our teams that is relevant and part of the day-to-day school process so that the application of new strategies and programs are embedded in the classroom where they are needed, and there are supportive in-

structional coaches or peers to help sustain those new programs and strategies.

Continuation of a mentor program to support teachers within their first 2 years in the classroom, especially those in our high-need schools, so that we can provide them with monthly network seminars that help them problem solve and build a professional cohort that they can call on when needed.

The expansion of this program to a third year would strengthen what we are currently doing. In addition, re-induction and intensive work with struggling teachers is also a priority for Salem-Keizer.

Time for teachers to work in professional learning communities so that they can problem solve and plan interventions together for students who are not being successful or showing the growth that they desire. We know this works when our teachers can collaborate.

A renewed, meaningful, and relevant performance evaluation system for teachers, administrators, and other members of our educational team, one that is current, validated, and reliable in providing information on performance and growth, aligned to the goals and objectives of our district's strategic plan.

We are currently engaged in this work with the CLASS Project with Chalkboard with funding from the Teacher Innovation Fund grant. We are hoping to link this to a performance-based, incentive pay system this coming year for our teachers. One of our major concerns for us is the sustainability of this type of work.

We also are hoping for provision of extended day programs for our students such as our second language learners and students from poverty who need more opportunity and time to be successful. Saturday school and summer academy programs have provided rich opportunities for our students who need extra time for doing deeper training with our teachers. Last summer alone, 400 teachers received additional training in literacy in math and science in our summer academy programs.

Also providing increased resources for technology so that we can stay current in our efforts to have our students become comfortable with and successful users of technology. Common professional standards and licensing requirements from State to State so that teachers can be more mobile, and we can access the staffing resources we need to be successful.

We would also encourage higher standards for supplemental education service providers, if they are continued to be used as part of the NCLB requirements.

As my colleague has already said, we need funding for all-day kindergarten programs and pre-K programs so that all children have the opportunity to be ready for school. Currently, we have tuition-based, parent-funded all-day kindergartens in two of our schools, and we have two other schools, one with funding from a private donor and one with funding from a grant. However, that often leaves out our neediest students in the schools that do not have these options available.

Focus on additional funding to level the playing field for our lowest performing schools. Making these options available through competitive grants often directs the focus of the team to grant writ-

ing and management rather than the planning and execution of the work.

We would like to encourage elimination of the school choice provision. It is not used as much as it was anticipated to be used. It is often not used for academic opportunity, but for sports and extracurricular activity under the guise of academics.

Elimination of or at least reduction of the high-stakes multiple choice testing requirement. It does little to inform instruction, consumes a lot of instructional time and a hefty amount of our financial resources. We want to be accountable. We would like to see this type of testing replaced with performance-based and authentic assessment and use multiple measures to get a more balanced picture of student growth.

Thank you.

[The prepared statement of Ms. Cadez follows:]

PREPARED STATEMENT OF MARY CADEZ

Senator Merkley, it is an honor to be invited here today to present our views to you and your team on the reauthorization of the ESEA. Thank you for the opportunity.

In considering the reauthorization of the ESEA we would offer the following from Salem-Keizer Public Schools:

College and work-ready is our primary goal for our 40,000 + students in Salem-Keizer District. We want our students prepared for the rigor of postsecondary college or university experience or to have them possess the skills (academic, technology, and relational) to enter the workforce in a living wage job.

We know that quality teaching is the epicenter of our success with our students and the means of achieving our goal with our students. In Salem-Keizer we know what it takes to recruit, retain and support a high quality and vibrant teaching team. Our student results in the past 5 years demonstrate that our plan is working.

It is our hope that the reauthorized ESEA will support our efforts and help us by providing the resources for:

- Professional development for our teams that is relevant and a part of the day-to-day school process so that the application of new strategies and programs are embedded in the classroom where they are needed and there is the support of instructional coaches (peers) to help sustain those new programs and strategies.
- Continuation of a mentor program to support teachers within their first 2 years in the classroom (especially those in our high-need schools) and provide them with monthly network seminars that help them problem solve and build a professional cohort that they can call on when needed. The expansion of this program to a third year would strengthen what we are currently doing. In addition re-induction and intensive work with struggling teachers is also a priority.
- Time for teachers to work in professional learning communities so that they can problem solve and plan interventions together for students who are not being successful or showing the growth that we desire. We know this works when teachers can collaborate.
- A renewed meaningful and relevant performance evaluation system for teachers, administrators and other members of our educational team. One that is current, validated and reliable in providing information on performance and growth aligned to the goals and objectives of our district strategic plan. We are currently engaged in this work with the CLASS Project with Chalkboard with funding from the Teacher Innovation Fund Grant. We are hoping to link this to a performance-based incentive pay system. One major concern is the sustainability of this work.
- Extended day programs for our students such as second language learners and students from poverty who need more opportunity and time to be successful. Saturday school and summer academy programs provide rich opportunities for our students who need extra time and for doing deeper training with our teachers. Last year alone 400 teachers received additional training in our summer academy programs.
- Increased resources for technology so that we can stay current in our efforts to have our students become comfortable with and successful users of technology.

- Common professional standards and licensing requirements from State to State so that teachers can be more mobile and we can access the staffing resources we need to be successful.
- Higher standards for Supplemental Education Service Providers if they are to continue to be used.
- Funding for all day kindergarten programs and pre-K programs so that all children have the opportunity to be ready for school. Currently we have tuition-based parent-funded opportunities that often leave out our neediest students.
- Focus on additional funding to level the playing field for our lowest performing schools. Making these options available through competitive grants often directs the focus of the team to grant writing and management rather than the planning and execution of the “work.” Frequently the timeline requirements of the grants are too short and do not allow us to produce quality products and validated long-term results.
- Elimination of the school choice provision. It is not used as much as it was anticipated to be used and is often used not for academic opportunity but for sports and extra curricular under the guise of academics. It is in fact at times causing a “resegregation” of our schools.
- Elimination of or at least reduction of the high stakes multiple choice testing requirement. It does little to inform instruction and consumes too much instructional time and a hefty amount of financial resources. We want to be accountable. Replace this type of testing with performance-based and authentic assessment along with multiple measures that provide a more balanced picture of student growth. The current assessment system focuses the school’s energy on math and reading often to the exclusion of other content areas that are not tested in this format such as: writing, science, social studies, art and foreign language, not to mention PE and Music.
- Elimination of the requirement for the portion of the title I funds that are based on levels of per pupil spending by the State. This only reinforces the wealth-based inequalities that already exist between districts.
- A couple other measures built into the current Act do not serve us well in communicating clear results to the public on our schools and should be eliminated: the designation of persistently dangerous schools (the rules are different depending on the State and/or the district) and thus any meaning that might be gained is lost; and attendance is too big a factor in a school’s performance report card and there is no accountability for parents.

A closer return to the original purpose of the Act would be our preference where the conditions of the Act respond to the neediest of our students who need access to opportunity. Again thank you for this opportunity to share our ideas.

Senator MERKLEY. Thank you. Thank you very much.

And let me ask you a couple followup points there.

Ms. CADEZ. Certainly.

Senator MERKLEY. First, you mentioned that you are putting a lot of emphasis both into college preparation, but also into workforce preparation. Have you been able to sustain in this budget environment the shop classes, other classes that are part of that workforce preparation for kids who are choosing a different track than a college track?

Ms. CADEZ. No. We have had to reduce the number of career tech programs in the district fairly significantly. Although we are still providing the same range of programs, it is also causing students to have to use interdistrict transfer to move to a different high school to access those programs.

Senator MERKLEY. Then I want to emphasize the point that you made about grant writing, that the funds being shifted from, if you will, formula grants into competitive grants means that now the school district has to become expert grant writers. And school districts don’t have necessarily the resources and times to be immersed in that world.

Do you think there is some amount of competitive grants that make sense in terms of driving pilot programs and experimentation?

Ms. CADEZ. Absolutely. I think innovation and experimentation are critical, and I think that some grant writing is fine. But I get a little concerned when we are moving and what I am hearing is there may be more moved to competitive. And we get into a situation there where we are spending an inordinate amount of time doing grant writing and grant management.

Senator MERKLEY. And then you mentioned the school choice issue, and this is part of the punitive structure of a school being labeled unsuccessful, if you will. And do you have a story on how that has affected a school in your school district?

Ms. CADEZ. I don't have a specific story, but I can tell you that currently about 400 students exercise the school choice option. And what is happening there is it is mostly for sports or for some of the enrichment programs that they want to access at another school. It is taking the best and brightest students out of some of our lower performing schools.

McKay High School would be an example of that in Salem-Keizer. And McKay High School is currently a SIG grant recipient and undergoing a transformation, and they have had some incredible results this year under that opportunity.

Senator MERKLEY. Thank you very much.

Ms. CADEZ. You are very welcome.

Senator MERKLEY. Next we have Rachael Harms.

STATEMENT OF RACHAEL HARMS, TEACHER, SALEM, OR

Ms. HARMS. Senator Merkley, thank you for the opportunity to share our experiences with you and your team. It is an honor to be here today.

Each day in Salem-Keizer Public Schools' 40,000 bright young people come through the doors, depending on us to prepare them to enter the workforce or to be college-ready by the time they graduate from high school. We have made tremendous growth doing that.

We know that having an effective teacher is the most important thing in each of our students' lives and the single most important factor in increasing student achievement. In a paper published by Eric Hanushek last month, he stated,

"The key element defining a school's impact on student achievement is teacher quality. Replacing or increasing the effectiveness of the bottom 5 to 8 percent of teachers in the United States could move the United States near the top of international math and science rankings. Professional development matters."

Although 98.9 percent of our teaching staff is highly qualified, we are striving for 100 percent. We look closely at teacher performance and offer support to those teachers who require additional opportunities for growth and development in order to provide the high-quality teaching that our students deserve.

Our Office of Staff Quality works alongside teachers who need this additional support. Although the costs associated with this intensive intervention for teachers can be high, the cost of allowing marginal teaching is even higher.

We place highly qualified teachers in our high-need schools, but every student needs and deserves the very best teacher we can pro-

vide. We must be sure our teachers are getting the professional development they need in order to meet our students' needs.

We endeavor to provide high-quality, job-embedded professional development that includes coaching and followup. This deepens the content knowledge of each teacher, providing them with the research-based instructional strategies to assist students in meeting rigorous academic standards and prepares teachers to use various types of formative assessments appropriately.

With coaching, we know that what they are learning and practicing is more likely to be consistently applied in the classroom. Coaches also facilitate learning labs, professional learning communities, and data study teams as they study and reflect on the progress of each student.

In the past year, our district has endured over \$58 million in cuts from our general budget. We have maintained our core value of increased student achievement as our highest priority and have, therefore, preserved our instructional coaching program, knowing that this is one of the best things we can do to support teachers. We have made huge gains in the last several years, and we don't want to jeopardize the momentum that we have.

Without title I and title II-A funding, this valuable program would be lost. In the words of our superintendent, Dr. Sandy Husk, "When times get tough, we don't take away the very thing that helps us do our jobs better." Again, professional development matters.

During the 2010–11 school year in Salem-Keizer schools, 1,413 paraprofessionals and 1,835 licensed teachers took part in at least one professional development opportunity. But many of these 3,248 educational professionals were involved in multiple and ongoing training in addition to working with their instructional coach. This powerful approach to professional development is showing results, as evidenced by our increased student achievement and supported by our teacher surveys and professional development evaluation feedback forms.

We make every effort to ensure that our teachers have equitable technology available in their classrooms and they know how to tap the potential of each tool. Technology should enhance student learning and make teaching easier and more enjoyable. It is an amplifier. It makes good teachers better.

With the proper professional development, teachers can realize the potential of the technology available to them and maximize its effectiveness. Without the professional development, technology is either underutilized, or fear of failure keeps teachers from using it at all.

Educational technology—tools such as document cameras, SMART Boards, MP3 players, Web-based instructional software—in conjunction with sustained, ongoing job-embedded development has proven very successful in our district. In the last 2 years, we have been the recipient of two title II–D competitive grants and will begin a final title II–D competitive grant in the fall. We have seen increased student achievement, better attendance, lower discipline incidents, increased homework completion, and a host of other indicators that show that when these tools are placed in the

hands of excellent teachers, both teachers and students benefit more from education in the classrooms than without these tools.

Our teacher retention rate for teachers in their first 2 years in the profession has moved from 59 percent to 89 percent. And this year, we had no losses of first- or second-year teachers, except for those lost due to our reduction of force.

This growth and retention of new teachers is due largely to our mentor program, which consists of teacher induction, ongoing supportive mentors with a minimum of 90 hours per new teacher, observation and feedback, learning labs, a targeted focus on professional teaching standards and professional growth, and intentional and intensive analysis of teacher practice and moving that practice forward. Without this intensive support to our new teachers, we would continue to lose half of our new hires and the investments we have made in each of them.

Additionally, we are taking another look at how we approach our teacher performance evaluation system and are engaged in meaningful collaboration with the CLASS Project and our Teacher Innovation Fund schools to link multiple measures of student growth to a performance-based incentive pay system.

All these initiatives are proven to be effective, but require adequate funding, which we can't support through general dollars alone. It is my hope that as you consider the reauthorization of ESEA, you will provide adequate and stable funding for this important work to continue.

Senator MERKLEY. Thank you very much.

You used, in your opening comments, both the term "highly qualified," which is in the current No Child Left Behind legislation, and the notion that an effective teacher is the biggest factor. A lot of the conversation in reauthorization is that maybe the emphasis on qualified is not as important as an emphasis on effective.

Many of the things you have been talking about sound to me like they are about effectiveness, not just qualified in terms of program completed and so forth. But do you want to elaborate very briefly on that conversation?

Ms. HARMS. Sure. I think it is very possible and has happened where we can have a teacher who is deemed highly qualified, but isn't necessarily effective. And by using professional teaching standards, such as the InTASC standards, where we can show growth along a continuum, much like we expect of our students, through coaching, we are able to produce very effective teachers who can say here is the target that I am aiming toward, and here is the growth that I am making as a teaching professional.

Senator MERKLEY. But it sounded to me that much of what has gone on is trying to break down the silo in which teachers often find themselves. Especially in those early years, you are alone in the classroom. But now you are really emphasizing mentoring programs and other strategies that make a teacher less of an isolated entity? Is that the correct sense of it?

Ms. HARMS. Yes. We are focusing very heavy on intentional collaboration, not just random groups getting together. But very focused work together as a professional learning community to increase effectiveness as teachers.

Senator MERKLEY. In your elementary schools, do the teachers talk about each student each week with each other?

Ms. HARMS. Yes.

Senator MERKLEY. Yes, they do?

Ms. HARMS. We have data study teams, and they do. They take the responsibility of every student, not just the ones in their classroom.

Senator MERKLEY. OK. Let us turn to Vanessa Otterlee, a parent. Welcome.

STATEMENT OF VANESSA OTTERLEE, PARENT, SALEM, OR

Ms. OTTERLEE. Thank you for having me.

As a parent, I feel too much time and effort and financial resources are put into multiple choice testing for NCLB. Some of the resources used for testing should be used to provide support to teachers and time for them to plan together.

Extended day programs at our schools benefit the neediest students and provide them with opportunities that they might not otherwise experience. Full-day kindergarten programs are available through parent tuition-based programs at some of our schools. However, the full-day kindergarten experience should be available to all students in the district.

School choice options under NCLB don't appear to do much for students or for schools, as some of the best and brightest students are leaving their neighborhood school for reasons that are not related to the academic offerings at the school and improvement, such as sports and music programs.

The SIG grant, the School Improvement Grant, and their turnaround efforts at our McKay High School have produced some super student achievement results this year. However, I don't feel it is reasonable to think that a school can be fully transformed within 3 years. More time is needed.

I have witnessed firsthand the benefits of providing training to the instructional assistants in the district and having those serving in the title I schools be highly qualified, and I believe that this has had considerable benefit for our students. I have strong feelings that we should require that level of training for instructional assistants in all of our schools.

Thank you.

[The prepared statement of Ms. Otterlee follows:]

PREPARED STATEMENT OF VANESSA OTTERLEE

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reasonable to think that a school can be fully transformed within 3 years. More time is needed.

I have witnessed firsthand the benefits of providing training to the instructional assistants in the district and having those serving in the title I schools be “highly qualified” and I believe that this has had considerable benefit for our students.

The benefit of the funding for the district received through ESEA is to provide opportunity for all students—even our most needy.

Senator MERKLEY. Thank you very much.

When you talked about too much time on testing, have you seen this through the lens as a parent through your children, or as a parent involved in the school, holding conversations?

Is it the type of test, or is it the time on the tests? Do you have anything you want to add on that?

Ms. OTTERLEE. I hear it mostly from my own students, but also other parents that it seems that we are just testing them to death. That they are taking the focus off of everything else.

Senator MERKLEY. OK. Thank you.

Ms. OTTERLEE. Thank you.

Senator MERKLEY. Thank you.

And next, we have Heidi Sipe, superintendent of Umatilla School District.

Heidi, welcome.

**STATEMENT OF HEIDI SIPE, Ed.S., SUPERINTENDENT,
UMATILLA SCHOOL DISTRICT, UMATILLA, OR**

Ms. SIPE. Thank you for the opportunity to share my experience with the No Child Left Behind Act.

Clara Brownell Middle School has emerged as a strong example of the challenges of NCLB mandates. CBMS is a minority-majority school with 91 percent of students qualifying for free or reduced lunch. CBMS made AYP in 2007 and 2008. In 2008–9, it was approximately four English language learners shy in the target for language arts. Thus, the entire school did not make AYP, despite exceeding the targets in all other subgroups for both language arts and mathematics.

In 2009–10, CBMS made AYP and again exceeded the targets in all subgroups. Despite this success, Clara Brownell continues to be labeled a school in need of improvement because it has not made AYP for two consecutive years. The failing label is damaging to staff, students, and community morale.

Even more damaging than the label are the sanctions, such as the requirement to offer supplemental education services, or SES. As a district with schools in need of improvement, we must set aside 20 percent of our title I allocation to offer SES. To do so, we were forced to reduce two teachers from our school system.

I believe reauthorization should eliminate SES due to the following experiences. I will use examples based on this school year with two of the most commonly selected SES companies.

School districts are required by NCLB to provide instruction via highly qualified, certified teachers. SES companies have no minimum requirements. Neither company I will discuss requires their tutors to be certified teachers, nor possess a college degree of any type. Both companies use school district facilities to provide their services. We do charge \$25 per day for this.

Both offer incentives to students. This year, our students were offered iPods, Wiis, and Xboxes. Districts are not allowed to control the materials, assessments, nor instructional strategies of SES providers. A sampling from one company in the month of February provides the following information.

A tutor, who is not a certified teacher, worked with a first, third, and fourth grader together for 1 hour. A report of student progress for the day states, "Went over program and split into groups, discussed what they expect of tutoring." Our district was required to pay \$165 for that hour of service.

This provider shares monthly progress reports. The following comments, all from tutors with no formal education training, were reported. S.R., third grade,

"She took the math test and scored a first grade level, but I believe she works at a third grade level. We worked on a few basic second grade worksheets, which she aced. So we moved on to third grade basic addition and subtraction."

V.B., first grade, "We also worked on some second and third grade vocab, word searches, crossword puzzles, and word scrambles."

The district was charged \$55 per hour by this company for a first grade student to complete second and third grade word searches and crossword puzzles, neither of which have academic value.

The next company charges \$65 per hour per student. On May 3, 2011, this company provided 1.5 hours of instruction to 15 students during a 2.5-hour period of time. Students ranged in age from kindergarten through the seventh grade. Though the reports only show one tutor's name, we were told there would be a ratio of five students to one tutor. So I must trust that there were three tutors present.

For this 2.5 hours of tutoring time, the school district was forced to pay \$1,462.50, for 2.5 hours. Bill charges for the month of May totaled \$14,602.15 for 15 students. The average cost to the district for a 2.5-hour day for the month of May was \$1,040.

This company advertises tutor pay between \$16 and \$30 per hour per tutor. Assuming \$30 with an additional 30 percent for payroll costs and three tutors per day, payroll for the tutors for the month would be \$4,3087. Building use fees for the month would be \$375. That leaves this company with \$10,840 for the month for curriculum, overhead, incentives, and profit.

Situations such as this are being replicated across the Nation. Is this a good use of our Federal funds?

Our afterschool program can provide 168 hours of instruction to students per year with a certified instructor, same ratio, 10 to 1. To staff this service would cost us \$3,663 for the year.

At \$65 per student per hour for staffing, this program would cost us \$109,200 for 10 students, not \$3,600. What is the \$105,000 difference? Profits. And I apologize.

[The prepared statement of Ms. Sipe follows:]

PREPARED STATEMENT OF HEIDI A. SIPE, ED.S.

I transitioned from teaching to educational administration in 2002 with the charge of implementing the mandates of *No Child Left Behind* throughout our school district. The Umatilla School District is a rural district on the banks of the

Columbia River in the northeastern corner of Oregon. Umatilla schools serve the poorest student population in Oregon with 84.62 percent of the K–12 student body qualifying for free/reduced lunch. The majority of students in Umatilla are Hispanic and many are English Language Learners. When the first AYP reports were released, schools within Umatilla district boundaries produced less than satisfactory results. Since 2002, Umatilla educators have implemented focused, data-driven, school improvement teams to improve instruction for students. Improvement efforts have resulted in strong student growth at all levels as reflected on AYP reports.

While all Umatilla schools have shown marked improvement, Clara Brownell Middle School (CBMS) has emerged as a strong example of the strengths and challenges, of the *No Child Left Behind* mandates. Clara Brownell Middle school serves 316 high poverty (91.22 percent of students qualify for free/reduced lunch) students in sixth, seventh and eighth grades. As one can see in the following charts, Clara Brownell Middle School was once a school with less than acceptable student performance, however, due to focused improvement efforts, CBMS has become a school with strong student performance in all student subgroups.

Historical Performance of Clara Brownell Students as Reflected on AYP Reports

	2004–5	2005–6	2006–7	2007–8	2008–9	2009–10
English/Language Arts:						
All Students	42.37	45.43	73.55	71.75	72.31	73.13
Economically Disadvantaged	36.97	37.79	68.35	66.86	68.34	69.24
Limited English Proficient	28.55	29.64	55.02	52.29	57.14	61.58
Students with Disabilities	31.23	28.95	38.87	64.15	67.52	61.57
Hispanic origin	31.76	34.10	63.60	62.95	66.12	67.93
White	60.36	63.92	91.71	90.93	89.24	89.16
Math:						
All Students	56.94	67.22	73.42	75.98	79.94	82.19
Economically Disadvantaged	51.38	60.90	68.68	71.5	76.8	79.44
Limited English Proficient	39.59	50.27	56.17	62.07	64.73	70.36
Students with Disabilities	n/a	n/a	41.79	57.18	64.15	64.43
Hispanic origin	42.79	54.54	64.12	67.33	74.81	78.34
White	78.95	87.68	90.81	94.74	95.13	96.06

Note: In 2004–5, 2005–6 and 2006–7, the AYP targets were 49 percent in mathematics and 50 percent in English/language arts. In 2007–8, 2008–9 and 2009–10, the AYP targets were 59 percent in mathematics and 60 percent in English/language arts. Text in boldface indicates a failure to make AYP in the specified subgroup, text in lightface indicates making AYP in the specified subgroup.

In 2004, the school began a collaborative restructuring process. Teacher leaders and school administration worked together to identify student needs (based on assessment data) and develop strategies to meet student needs. Focused staff development was provided to all staff members and monitored by instructional coaches and peer feedback was provided during walk-through visits. In addition to specialized coursework during the day, after-school programs and summer school options were developed for students. School culture issues were addressed in coordination with associated student body leaders to encourage the school to become focused on learning and celebrations of academic success. When this work began, involved parties were told to be patient and stay focused as it would take at least 2 years for the results of the work to reflect on State assessment results. In the 2006–7 school year, the school reflected in the results of the improvement efforts when English Language Arts student performance jumped from 42.37 percent in 2004–5 to 73.55 percent in 2006–7.

Despite increasing AYP targets, in 2007–8 and 2009–10, CBMS made AYP and in 2008–9, the school was approximately four Limited English Proficient students shy of meeting AYP. Despite the success of Clara Brownell students, CBMS is classified as a school in year 4 of School Improvement under NCLB mandates and thus, must abide by various sanctions such as Supplemental Education Services and restructuring.

Though the district offers a strong after-school program for students, the Umatilla School District must set aside 20 percent of its title IA allocation to offer Supplemental Education Services to students of poverty of schools in improvement sanctions. The chart below compares the after-school program offered to Clara Brownell Middle School students by the district and Advantage Point Learning's Supplemental Education Services. It is important to note that Supplemental Education Service providers are not required to instruct students toward State assessments and can instead set goals based on their own assessments which are often not aligned to the goals/standards of the school. In one recent example during the 2010–

11 school year, a 6th grade student was working on place value (ones, tens, hundreds) in his supplemental service time despite having mastered this skill in the first grade according to multiple school assessments. Many Supplemental Service providers recruit students with promises of expensive prizes. In the 2010–11 school year, various SES providers advertised Wiis, Playstations and iPods to students when recruiting. The services provided by Supplemental Service providers are expensive and divert funding from classrooms toward private companies with varied results for students.

	Umatilla School District After-School Tutoring	Advantage Point SES
Qualifications of Tutors	Oregon State Certified Teachers	No minimum certification requirements (http://www.advantagepoint.org/Page.asp?NavID=26)
Cost to District/Hour	\$21.62 (salary+payroll benefits)/hour .. Wage per hour/teacher: \$16.63	\$65.00/student/hour Advertised wage per tutor/hour: Between \$19 and \$30/hour (http://www.advantagepoint.org/Page.asp?NavID=26)
Cost to District/Hour for 10 Students.	\$21.62	\$650.00
Total Instructional Hours Offered Per Student Each Year.	Approximately 168	Approximately 22
Staffing Cost to District Per Year for 10 Students.	\$3,632.16 (168 hours of instruction/student for small group of 10 students by certified teacher).	\$14,300 (22 hours of instruction/student for small group of 10 students by tutor)
Meals	Full supper is offered to all participating students.	Not offered.
Transportation	Busing is provided for all participating students (District paid).	Not offered.
Incentives	Not offered	iPod Shuffle, iPod Nano, iPod Touch, Visa Gift Cards
Program Availability	First week of October through first week of May, 4 days per week. Offered to all Clara Brownell Middle School students.	Dependent upon student schedule. Services end when student has reached \$1,431.00 (approximately 22 hours of instruction/assessment). Services offered to low-SES (free/reduced lunch qualifying) students only.
History of Effectiveness	The last full program audit found students who attended 30 or more demonstrated the following success: <ul style="list-style-type: none"> • 95 percent of students passed the Oregon State Assessment in math. • 81 percent of students passed the Oregon State Assessment in reading. • Students showed an average gain of 10.4 rit points in math. • Students showed an average gain of 6.6 rit points in reading. 	A+ Advantage Point Learning served 1,170 Oregon students in 2009–10. 94.2 percent of these students met or exceeded their academic goals. Throughout our organization, we helped over 3,200 students in the Pacific Northwest develop reading and math skills. In Reading, the average grade equivalency gain was 1.8. Math students demonstrated an average grade equivalency gain of 2.6. (Information supplied by Advantage Point Learning). Note: Goals are not required to align with Oregon State Assessments.
Notes	In addition to payroll costs, curriculum materials and supplies for this program are approx. \$2,500/year.	All program data supplied here is representative only to services provided to Umatilla School District. Services/qualifications may vary by location.

Elements of the *No Child Left Behind Act* have had a profoundly positive impact on Clara Brownell Middle School. The emphasis on student subgroups, in lieu of overall student performance, led the school toward greater student success by forcing the school to closely examine and improve its professional practices for individual students. This change has greatly benefited students of poverty and English Language Learners. School improvement funding and Federal dollars have been essential in professional development support. Collaborative teams and strong professional development practices (paid professional development time, team time to review and utilize student data, instructional coaching and peer feedback during walk-through visits) have led to increased student achievement.

Elements of the *No Child Left Behind Act* have had a profoundly negative impact on Clara Brownell Middle School. Labeling schools as “failing” based on moving targets is damaging to the morale of staff, students and community members. Though

CBMS was just four students away from 3 years of AYP success, it is labeled as failing and identified as a school “in need of improvement.” In fact, with historical test scores in the top of schools with similar demographics, Clara Brownell Middle School is far from failing. A label does emotional harm, yet the sanctions that come with the label require significant resources and dilute other services to students. Of largest concern to me as a school leader is the lack of research behind the sanctions. Supplemental Education Services are costly, yet have unproven effectiveness. The models required as solutions in the School Improvement Grant (SIG) process are based on model schools—many of which also fail to make AYP. It is difficult to maintain staff motivation and morale when the sanctions they must work to avoid are severe and unproven.

As Reauthorization of the Elementary and Secondary Education Act moves forward, I urge our leaders to rely upon proven strategies to help our students succeed. Please maintain high expectations for student learning, transition from monitoring subgroup achievement to monitoring individual achievement, provide strong support for sustained professional development, offer funds for strong afterschool programs in lieu of unproven SES services, and avoid asking schools to change course without first giving them the time necessary for reforms to yield results. Education reform takes time and funding, sustaining the reforms takes reliable funding and continued momentum. Please consider an ESEA proposal that balances the need for action with the patience required for change to occur and the funding to allow reforms to be fully implemented and appropriately monitored. America cannot afford to continue to chase unresearched educational reforms.

Senator MERKLEY. Thank you so much for your testimony.

When you first shared this story with me when I was in Umatilla, it was just hard to believe. I want to emphasize some of the points you were making, to make sure I understand them.

You have companies that do direct mailings, they get your student list. They do direct mailings to families and say, “Hey, if you ask for us, we will give you an iPod?”

Ms. SIPE. Correct.

Senator MERKLEY. Or let us see, what is it, an Xbox?

Ms. SIPE. Xbox or Wii.

Senator MERKLEY. And I can tell you what my son would choose. [Laughter.]

My daughter would take the iPod. My son would take the Xbox. But the point is these are not in the structure of education. They are inducements to get students signed up so they can then charge you \$55 per instructional hour.

And did I understand correctly, when one tutor did one hour with several students, that that one hour for one tutor cost \$165—

Ms. SIPE. Correct.

Senator MERKLEY. Because they had multiple students?

Ms. SIPE. Correct.

Senator MERKLEY. One hundred sixty-five dollars.

Ms. SIPE. Correct.

Senator MERKLEY. And that tutor was not a qualified teacher?

Ms. SIPE. Correct. I have copies of all the billing sheets and goals in that—

Senator MERKLEY. I just so appreciate getting this on the official record because I want folks back in Washington to make sure they hear this story. I have not heard that testimony back in Washington, DC, and your core point is that these dollars could go through tutors you can hire who are qualified and in a far more effective manner and, thereby, really improve the extra support that kids might need. You can do far better in terms of structure than what we have right now?

Ms. SIPE. Absolutely.

Senator MERKLEY. Thank you so much.

Next we have Beverly Hollensteiner, superintendent of North Bend School District.

STATEMENT OF BEVERLY JUNE HOLLENSTEINER, SUPERINTENDENT, NORTH BEND SCHOOL DISTRICT, NORTH BEND, OR

Ms. HOLLENSTEINER. Thank you for inviting me today to talk about No Child Left Behind.

This is my 40th year in education. And when I started in 1970, there was no 94-142, which is special education. There was no Chapter I, title I, or now as it is known as No Child Left Behind. And there was no title IX, and there was no Eisenhower money for technology. Education was purely locally controlled, and each of the above programs that I mentioned added value to what we were able to offer our students within our schools.

I was very pleased when these programs came in. They brought staff development to our staff. They brought lots of extra services to our students. So Federal programs are an integral part of what we need and should have within our public schools.

As the years have passed, however, these programs have become more prescriptive about the materials to be used, the curriculum to be taught, the qualifications of the staff, and what academic success is. We seem to be losing the balance of responsibility between what the Federal, the State, and the local community has for the education of children. Each has a role, but more and more dictates are following the money from the Federal level and diminishing the role and responsibility of the other important partners.

As more and more schools fail under the guidelines of No Child Left Behind, more and more people will lose faith in their local schools. Thus, there will be less support for students in the community. Student success depends on the collaborative efforts of all of us. No Child Left Behind, I don't believe, supports this.

I have chosen four talking points about No Child Left Behind. First, AYP. It is a design for failure. For example, one of our schools has 88 percent of the students meeting the standard for reading, but only 20 out of the 41 special education students met the standard. Thus, the school would be reported as not making adequate yearly progress.

A district to the east of us will always meet AYP because they do not have enough students, the N number, to be statistically significant. So when this is reported in the local paper, North Bend doesn't make it. We fail. The district to the east of us will never fail because they don't have enough kids, and that is a real inequity when we look at the numbers.

Second, we are a mid-sized district with just over 600 students within our high school. So to meet the requirements of NCLB in all respects concerning "highly qualified" would mean that we would have to lay people off for one or two periods and hire another teacher for one or two periods who has the proper endorsement to teach a particular class.

For example, what has happened this year. We do not have enough students who have signed up for one particular content area, and then in another content area, we have more students

than what we have a person qualified to teach. So we have mis-assigned a teacher to teach two periods of a content with more students signed up, and we believe that this person will do an excellent job.

If we wanted to fully comply with No Child Left Behind, we would lay off a teacher for two periods, hire another teacher with the proper endorsement for those two periods for what could be maybe one or two trimesters out of the whole year. This is even more true for districts as they get smaller and smaller.

It is difficult, if not impossible to find staff who are willing to work under these conditions. And if we mis-assign, we must write a report and get permission from two different entities. Plus, we have to notify parents that we don't have highly qualified staff. It appears the district is failing to hire proper teachers for the children.

The supplant and supplement issue comes into play when we move programs designed to help students who are not making adequate progress into the upper grades. We use NCLB money at the K-4 level for increased reading instruction. As we move programs which help children who have difficulty learning into the grades above four, we must use district money to pay for these programs. When we do, we can't use Federal money for the same thing that we use district money to pay for.

So our older students are starting to lose out on the extra help because there is neither enough district money to fund all the grades, nor is there enough Federal money to fund all the grades. When students do not have the same level of help as they move through the grades, parents ask why. Again, the district is appearing to fail to provide what the students need.

Reporting requirements. We are required to write plans for everything and then followup with reports for everything. Sometimes the plans change mid-year. We are required to report on plans written for a year before the year is up. Thus, we end up explaining what is not working, what is working, before we fully implement it and then explain in the report how we are going to fix what has not been fully implemented.

It takes more than a year to determine if a plan is working and whether students are making sustained progress. We end up with plan after plan, report after report, and looking at short-time fixes that may or may not be fixes for students who are having difficulty.

I estimate for our district, of the 2,000 students we have, that we have at least three time FTE completing reports of some kind for No Child Left Behind. Are we failing our plans?

The goals of No Child Left Behind are the same ones we have for our students. We all want children to succeed by reading at high levels, by being able to use math at high levels, and by being people who can write at high levels. More of our students are meeting benchmark, yet we are reported as needing improvement, as if no progress has been made.

We have great teachers, yet not all are highly qualified under No Child Left Behind. We implement plans, but must report on the plans before they are finished and figure out then how we can manage to serve all of the kids equally without supplanting or supplementing incorrectly.

[The prepared statement of Ms. Hollensteiner follows:]

PREPARED STATEMENT OF BEVERLY JEANNE HOLLENSTEINER

AYP ACCOUNTABILITY

- The system is set for the majority of districts/schools (i.e. those with enough students for a statistical cell size) to eventually fail.
- 100 percent of all students meeting proficiency benchmarks is unrealistic for various reasons—high mobility rates; effects of economy on family stability; special needs that can't be overcome by better instruction.
- Proficiency level is a moving target—even if a district, school, or even student makes progress, it will never be enough because the expectation keeps increasing.
- Even with the implementation of growth targets, students with the most significant gaps have to make the largest gains to meet the targets. For students with a true cognitive disability this is unreasonable.
- Schools can raise achievement levels for all students, and be rated poorly because of a single subgroup.
- One of the district schools had 88 percent (188/213) of all students meet grade level benchmarks in reading, but will be reported to the public as not meeting AYP because only 49 percent (20/41) of the students with disabilities subgroup met the reading benchmark. The building has implemented intensive interventions for struggling students to help ensure that only those students truly needing special education are identified.
- Schools with smaller student populations, and consequently a smaller subgroup size can have fewer students meet and still meet AYP.

PAPERWORK ACCOUNTABILITY

- NCLB requires an excessive number of compliance reports, collections of evidence, and plans many of which are duplicated information, but frequently with their own template which generally changes from year to year and sometimes mid-year. Some examples are: District improvement plans, school improvement plans, district professional development plans, notebooks of evidence collection for each of the Federal grant programs, plans and end of year reports for Federal grant programs. Even in small districts coordinating this process can be a full-time job.
- In addition to the standard reports, there are improvement reports that have to be submitted yearly when a district or school is out of compliance with any of the requirements (highly qualified teachers, AYP, AMAOs, etc.)
- Improvement plans are required yearly and districts are required to explain what is wrong and what they are going to do to fix it. Sustainability can't be built on yearly plans and program changes take longer than a year to implement and evaluate.

FINANCIAL RESTRICTIONS

Supplement/Supplant

- There is no flexibility for districts to provide comparable (or even at a minimal level) staffing, professional development opportunities, programs, and technological support to non-title schools as schools having title I–A funds for that purpose.
- There isn't enough Federal money coming into the district to fund all schools so it becomes necessary to choose which grade levels should have additional services and to identify the services with the most impact. For most districts this means funding needs to target elementary schools. By the same token there aren't enough district/State funds to provide all the supports necessary at all levels. Because of the supplement/supplant restriction, students leaving the lower grades who may not be candidates for special education, but would continue to benefit from extra support may not get what they need to continue growing.
- Initiatives that benefit all students such as RTI and its screening, intervention strategies, and progress monitoring components are difficult to sustain at the upper grades without being able to support them with district funds. These types of programs are integral to the title schools. If Federal funds can't continue to be used in title buildings when these programs are moved to non-title buildings, they could become watered down or disappear altogether.

Spending Timelines/Permission

- It is assumed if money isn't expended by a certain date, it isn't needed. Districts who try to look at long range planning and create sustainable programs may have difficulty allocating money for a specific purpose when there is a possibility that

there won't be enough to continue the program for the following year. It is assumed that if the money isn't spent by end of a certain date the district doesn't need it. As a consequence, districts are forced into short term, year-to-year planning.

- Districts are being required to be very specific about how money will be spent. A few years ago, a budget narrative could request a certain amount of money for professional development that addressed an area of need based on individual school improvement plans. This year, not only did the area of PD have to be defined, but the school was expected to know exactly what that would be. Schools don't necessarily know in September what will be available later in the school year.

- All spending has to be justified and approved. Districts are not allowed to determine their individual needs if the needs fall outside of Federal and/or State approved programs.

- Budget narratives are written based on district/school needs identified in plans. If anything changes in the prospective plan, it is necessary to get permission to change the narrative. This can be frustrating and time consuming when busy people don't get emails answered and phone calls returned in a timely manner.

HIGHLY QUALIFIED

- This has been difficult to implement, especially in smaller schools and school districts. For example, if a teacher is "misassigned" to teach one class for which they are not formally endorsed/certified but the district believes the teacher does have the background to teach the class successfully, it must be reported to the State licensing bureau (TSPC) and to Oregon Department of Education. If the district and/or a building is in "In Improvement" status, meaning they did not meet the achievement levels required by NCLB, the district must write a professional development plan for the district and reduce the title I funds going to K-4 grades to increase reading skills and use that money to provide district-wide staff development in the area of deficiency (math in our case) as identified by the State testing.

- In small high schools, especially those under 700 students, we find ourselves with one or two periods of a particular subject area for which we do not have a "highly qualified" teacher. To address this issue, we have these choices: we can misassign someone within our staff who we believe has the skills to teach the class, try to hire a teacher to come in and teach one to two periods a day and "layoff" current staff for one or two periods, or drop the classes. We choose to misassign as we want students to be able to take the classes.

- Another issue is that Oregon's licensure categories do not match those found in NCLB, as I am sure is the case in other States. For example, Oregon has a "multiple subject area endorsement" which allows teachers to teach an array of subjects at certain grade levels, if social studies, for example, is not listed, then the teacher with "multiple subject areas," cannot teach social studies unless they take a test.

- The paperwork load in the personnel office continues to escalate as we must check the rules for NCLB and the State licensing, try to satisfy the requirements of both while also trying to work out school schedules that work for students and staff, and do the paperwork necessary to be in compliance.

INSTRUCTIONAL ASSISTANTS

- The "sight and sound" (Oregon wording) and "under direct supervision" (Federal wording) for the use of instructional assistants has also become an issue. Instructional assistants are critical to assist children who have reading difficulties in learning to read through practice of reading and/or review of skills taught by the teacher. As it is now, IA's must be within the "sight and sound" of a teacher who is also working with a small group of students, thus two groups or sometimes even three groups of students end up being in close proximity to each other which makes for a very noisy learning environment. The lessons prepared by the teachers for the instructional assistants to use as additional practice for students could be better implemented if they could use space further away from the teacher.

CURRICULUM AND MATERIALS

- Curriculum is another area of concern. Right now, identifying the "standards", the "essential learning skills" and the myriad of other identifiers for what students need to know and understand are being revised by individual States, by organizations that represent content (National Council of Teachers of Mathematics, for example) and by Federal Government. As high stakes testing becomes more and more of a reality, we need to have a well-defined curriculum with materials that support the curriculum so students can be assured they are learning what is necessary to do well on the tests. Since our populations of students is becoming more and more

mobile it is essential that as students move they are assured they are being taught a "core" curriculum.

- As money has declined for school districts so too has the ability to buy new materials and textbooks so many of us are using materials adopted more than 7 years ago and staff is having to spend time searching out materials that support what they are to teach and students are to learn.

Senator MERKLEY. Thank you. I am going to have you pause on that note.

How many categories under AYP do you analyze?

Ms. HOLLENSTEINER. Categories?

Senator MERKLEY. One is whether you meet it in special education. Then you have various categories of ethnic groups, etc. How many different ways is the data sliced?

Ms. HOLLENSTEINER. Oh, I can't go through all of those, but we look at all of those different areas. And looking at all of those areas, you can fail in any one of them. I can't tell you what they all are right now.

Senator MERKLEY. The number is 9 or 10 or something like that, right?

Ms. HOLLENSTEINER. Yes, it is a high number.

Senator MERKLEY. And is North Bend meeting AYP in everything, but the special education category?

Ms. HOLLENSTEINER. In the particular school I am talking about, yes, except for the special education. We don't have a very high number of students with different language learning issues and those kinds of things. We have a very low number.

Senator MERKLEY. And 88 percent is a pretty good overall rate for that particular school.

Ms. HOLLENSTEINER. Yes, 88 percent.

Senator MERKLEY. But nonetheless, the whole entire school is labeled as a failure, if you will?

Ms. HOLLENSTEINER. Right.

Senator MERKLEY. And this is a story we have certainly heard throughout the State. And it is a big deal.

Do you find that if the punitive structure of No Child Left Behind was taken away, does the data itself and slicing it in many different directions prove helpful to understanding the progress of the school and the service to different subgroups?

Ms. HOLLENSTEINER. Yes, I think it does. And I think that is one of the things that I liked about some of the Federal programs coming in because it did look at equalizing education for all students.

So, yes, I don't mind the slicing of it. It is just that one small category can bring down the whole school. It appears to the community as if we are failing again.

Senator MERKLEY. OK. Do you have the same observations as Superintendent Sipe, who noted the kind of dollars misspent, or not in the most effective strategy, for the tutoring process. Do you have similar sorts of experience?

Ms. HOLLENSTEINER. We haven't reached that point yet.

Senator MERKLEY. OK.

Ms. HOLLENSTEINER. And I say yet.

Senator MERKLEY. All right. Because you have to hit that third year, and then you are in that?

Ms. HOLLENSTEINER. Right.

Senator MERKLEY. OK. Thank you for your feedback on the reporting requirements.

We are now going to turn to Eduardo Angulo, who is with the Coalition for Equality. Great to have you.

STATEMENT OF EDUARDO ANGULO, CHAIRMAN AND EXECUTIVE DIRECTOR, SALEM/KEIZER COALITION FOR EQUITY, SALEM, OR

Mr. ANGULO. Thank you, Senator.

For 12 years, we have been working, helping parents gain the confidence and power they need to take control of their children's education by becoming active partners with their local schools. I work with mostly Latino farm workers, parents in Oregon.

Very few of these parents are fully proficient in English. Even fewer believe that their children are not capable of learning English and excelling academically. They have high expectations for their children. Unfortunately, this has not yet resulted in high achievement. I am here to represent, as best as I can, the point of view of these parents.

I am going to give you some background. In the 1997–98 school year, about 1 in 12, or 8.1 students in Oregon was Latino or Hispanic. Today, more than 1 in 5 students, or 20.5 percent are Latinos. In 2009, the number of students that needed English as second language instruction was 65,398, up from 13,425 in 1997–98.

The data makes it clear that the present and future of Oregon in schools will include a large portion of Latinos and English language learner students. Unfortunately, the State's public schools have room to improve in educating its Latino and English language learners population.

Currently, over half—yes, over half—52 percent and 51 percent, respectively, of Latinos and ELL students graduate in 4 years. The policy choices we make today will affect thousands of students and shape the opportunities available for them as adults and the economic forecast for Oregon.

Our recommendations for the reauthorization include high academic standards for all students, appropriate assessments to measure a student's achievement and progress, accountability for results. We support a fair system of accountability for all school districts and schools, accountability for all subgroups.

It is important to keep the current law focused on all the students. This means keeping the law's requirement holding the schools accountable for students based on income, race, ethnicity, disability, and English proficiency status. And of course, what is important to us is strong parental involvement.

Everyone understands that parents are the consumers and the main stakeholders of our Pre-K–12 public education system in America. They are the ones who monitor the academic progress of their children and make important decisions about their children's education.

Unfortunately, when we look at parents from low-income and minority communities, they have not had the power to shape public education reform the way more affluent parents can. Title V includes the local family information centers. It was just defunded.

This is a program that has helped build the capacity in parental, meaningful parental, involvement throughout Oregon and throughout the Nation.

Few can argue that the current version of No Child Left Behind or the ESEA has worked perfectly. However, the Salem/Keizer Coalition for Equality is prepared to make the case that it has made a positive difference for the parents we serve in the Willamette Valley and throughout Oregon.

No Child Left Behind has provided parents with tools to help transform the local schools. These tools are sunshine, transparency, and accountability for results.

Sunshine, lighting on low achievement scores, finally showing everyone that our kids are not being well served by the public schools. Transparency, letting us know who is teaching our children and whether or not they are doing a good job. And accountability, so that schools that are not doing well have to improve.

Thank you.

[The prepared statement of Mr. Angulo follows:]

PREPARED STATEMENT OF EDUARDO ANGULO

Good morning. My name is Eduardo Angulo. I am the Chairman of the Salem/Keizer Coalition for Equality. The Coalition is an affiliate organization of the National Council of La Raza (NCLR) and it engages in several activities on behalf of the residents of the Willamette Valley in Oregon. We have identified education as one of our major priorities, and have been in the business of helping parents gain the confidence and power they need to take control of their children's education by becoming active partners with their local schools.

I work with mostly farmworking parents in Oregon. Very few of these parents are fully proficient in English. Even fewer—I would say none—believe that their children are not capable of learning English and excelling academically. They have high expectations for their children. Unfortunately, this has not yet resulted in high achievement.

I am here to represent—as best as I can—the point of view of these parents. In my testimony today, I will discuss how strengthening accountability and parental involvement in the reauthorization of the Elementary and Secondary Education Act (ESEA) will help these parents and their children.

BACKGROUND

I would like to first provide some background on Hispanic and English Language Learners (ELL) students in Oregon and why getting policies right for these children is important for the Oregon public school system and its economic future overall. In the 1997–98 school year, about 1 in 12 (8.1 percent) students in Oregon was Hispanic. Today, more than one in five students (20.5 percent) is Hispanic. In the 1997–98 school year, the estimated number of students for whom English was not the primary language and who needed English Language Development (ELD) services was 13,425. In 2009–10, that number was 65,398. The number of students identified as needing ELD services has increased 32 percent per year. The data make it clear that the present and future of Oregon schools will include a large proportion of Latino and ELL students.

Unfortunately, the State's public schools have room to improve in educating its Hispanic and ELL populations. Currently, just over half (52.6 percent and 51.4 percent, respectively) of Latino and ELL students graduate in 4 years. The policy choices we make today will affect thousands of students, and shape the opportunities available to them as adults.

RECOMMENDATIONS FOR REAUTHORIZING ESEA

The right mix of policies can make a difference for these students. From the perspective of the Salem/Keizer Coalition for Equality, the reauthorization of ESEA must contain a focus on standards-based reform, which includes:

- **High academic standards for all students.** We believe that every child can learn and achieve at a high level. However, we must challenge all students to meet high standards and provide them and the schools they attend with the resources

to do so. We would oppose having separate, lower standards for Hispanic or ELL students. Instead, we would support targeting resources to schools that need them most to help students meet standards.

- **Appropriate assessments to measure student achievement and progress.** Policymakers, educators, parents, and students should know if students are meeting standards or making progress toward high standards. This means that tests must be aligned to the standards and should provide information to stakeholders about student performance. For ELLs, it also means tests must be accessible, and in some cases, should be in the language of instructions provided to students.

- **Accountability for results.** ESEA reauthorization must include a fair way to hold schools accountable for helping students meet standards and make progress. At the Salem/Keizer Coalition for Equality, we fear that without such a system, ESEA will return to the days in which States and districts will only have to report how they used funds, not whether or not taxpayer dollars actually produced results for students. We support a fair system of accountability for all districts and schools.

- **Accountability for all subgroups.** We also believe it is important to keep the current ESEA law's focus on *all* students. This means keeping the law's requirement holding schools accountable for students based on income, race/ethnicity, disability, and English proficiency status.

- **Strong parental involvement.** Everyone understands that parents are the consumers and main stakeholders of our Pre-K–12 public education system in America. They are the ones who monitor the academic progress of their children and make important decisions about their children's education. The parents I work with share this responsibility with parents from more affluent communities throughout this country.

Unfortunately, when we look at parents from low-income and minority communities, they have not had the power to shape public education reform the way more affluent parents can. Title V of ESEA includes the Local Family Information Centers (LFICs) program, which would provide resources to community groups to prepare parents for their responsibilities under ESEA to hold schools accountable at the local level. However, the LFICs program was never funded. LFICs must be maintained in reauthorization and adequately funded.

CONCLUSION

Few can argue that the current version of ESEA has worked perfectly. However, the Salem/Keizer Coalition for Equality is prepared to make the case that it has made a positive difference for the parents we serve in the Willamette Valley. No Child Left Behind has provided parents with tools to help transform their local schools. These tools are sunshine, transparency, and accountability for results. Sunshine lighting on low achievement scores, finally showing everyone that our kids are not being well-served by the public schools; transparency letting us know who is teaching our children and whether or not they are doing a good job; and accountability so that schools that are not doing well have to improve.

From the parents' perspective, things are finally changing for our children. NCLB has allowed parents to hold our public schools accountable and it has allowed us to be in the room to be part of the solution to closing the achievement gap. Now, our parents can confidently walk to their local public schools, knock on the door, and be invited to be part of the decisionmaking process. This has always happened in more affluent communities. Now it is starting to happen in a small farmworking community in the middle of the Willamette Valley in Oregon. ESEA reauthorization must build on this momentum for public education reform.

Senator MERKLEY. So tell me this, as you talk about the accountability, and No Child Left Behind has a series of measures after 3 years of nonperformance that start kicking in, do you think generally those strategies are on target, or are they counterproductive? In other words, when one component of what you are talking about is the visibility of results, the transparency, but another is what you do with those results, and how do you feel about the current set of measures written into NCLB?

Mr. ANGULO. We have over 8 million English language learners throughout our Nation. Fifty-two percent graduation rate for these kids throughout the Nation. I mean, the answer is we are just basically starting to figure out how to help these kids.

I was part of the Race to the Top design team in Oregon, and the brightest minds were around the table. For months, we worked on this grant development, and we came out almost last because the reality is that our public education leadership is just barely getting to understand clearly how to better help these kids and put their resources in helping these kids.

For us, we are involving parents because we believe that building the capacity in the parents, they can develop the collaborations that are needed with the teachers and with the superintendents and with the principals in order to better help. I mean, the English language learners in Oregon are our Latino students. We are disheartened by what is happening with our public education system, where we are to how they are serving our English language learners.

We need to have them to be at the center, along with the African-American kids, along with all the kids—the Asian kids—that are doing really badly as English language learners. They have to be at the center of education reform in Oregon and throughout our Nation.

Senator MERKLEY. Thank you.

Tony Hopson, executive director of Self-Enhancement, Inc.

STATEMENT OF TONY HOPSON, EXECUTIVE DIRECTOR, SELF-ENHANCEMENT, INC., PORTLAND, OR

Mr. HOPSON. Senator, thanks for the opportunity. It is good to see you again, and I look forward to seeing you soon in Washington, DC.

Senator, the facts are compelling. Every 26 seconds, another student drops out of school. We know that a third of our students drop out each year, a third graduate unprepared for college, and another third graduate prepared for college.

We also recognize that the poor children and children of color disproportionately represent the third that is dropping out, which contributes to the disparities in the criminal justice system, economic development, healthcare, and ultimately mortality.

The Nation seems to be paralyzed on what to do. So we spend billions of dollars annually to study, research, and theorize about what works. We talk about having great teachers and leaders in every school. We shout about equity and opportunity for all students. We insist that raising the bar and rewarding excellence will make the difference, and then we look for innovation and continuous improvement as the solution.

My frontline experience suggests to me that all of these are necessary, depending on what outcome you want and how soon you expect to achieve it. But nothing has occurred in the last few decades that lead us to believe that moving the needle on any of the above strategies comes soon enough. During my talk thus far, we lost another five students.

So what should we change within the ESEA? We should change the relationship between the school and the community. We need a paradigm shift in public education that recognizes the urgency and need for the public-private partnership that educates the whole child and supports the whole family. We must recognize that in

order for public education systems to be successful, they must include family, community, and school life.

In addition, how often can we actually point to someone who takes full responsibility for the success or failure of a student? Is it the parent, the teacher, the principal, the coach? Who is it?

Most often, you will find many of these individuals pointing fingers at each other. So ESEA must put a provision into law with accompanying resources that strongly encourages low-performing schools to partner with proven community-based organizations in a full partnership that provides a safety net that all kids need, but many fail to get.

Believe me when I tell you that those of us on the front line see and feel the pain. And Senator, you would not like the feel of the pain.

The answer does not need to be studied anymore. This, in simple terms, is about the safety net options and opportunities that kids either have or don't have. All kids stumble and all kids fall. The question is what support system are there to help that kid get up?

Either you have a support system in place or you don't. I contend that most low-achieving school students don't have this in place and, therefore, never get up. The key is to put that in place for every kid and then be accountable for the success or failure of that kid.

Let me give you an example. It was highlighted in the movie "Waiting for Superman," and in a conversation I had with Secretary Arne Duncan, he used this point as well, that 50 percent of the dropouts in America are coming from basically 2,000 low-performing high schools across the Nation. I believe that we should focus on not only those who dropped out of those schools, but also those who did not.

We should identify the reason why 50 percent of these kids actually made it in a low-performing school. I guarantee you it was because of a safety net—a strong parent, grandparent, teacher, coach, or a community that would not let that kid fail.

In my opinion, the best way to achieve this is through what we call an MSO, or multiservice organizations. The most notable of these today would be the Harlem Children's Zone. It is not a silver bullet, but it is a successful model, working with children and families that also partners with schools to get the desired outcome.

The innovation in Portland Public Schools is called Self-Enhancement, Inc. Like Harlem Children's Zone, Self-Enhancement, Inc., is a multiservice organization able to serve kids and families and bring an authenticity to the school-community partnership for lasting results.

Self-Enhancement, Inc., as a community-based program, partners with the local school district, individual schools, teachers, and the teachers union to provide the complete safety net for every kid that enrolls in the program. It is a program that works 24-7, 365 days a year, a program that takes full responsibility for the success or failure of each kid.

It is a 30-year-old program that touches over 3,000 kids per year, graduates 98 percent of the students enrolled in the program, and sends 85 percent to college. It is a program that produces positive, contributing citizens. Meaning that every kid in the program that

graduates from high school will complete a minimum of 2 years of college, vocational training, or work in a family-wage job.

We have proven that if we can provide each child with discipline, direction, support, and unconditional love—and combine this with what most schools provide every day—this will equal a positive, contributing citizen.

So, in conclusion, I first believe we must mandate that low-achieving schools partner with proven community-based organizations that represent the school's community in order to provide a complete safety net of family, community, and school life.

Second, we must look at identifying and scaling up authentic community-based organizations and multiservice organizations, like Self-Enhancement, Inc., that have proven track records in school communities in need, but that they also have the ability to partner with districts, schools, teachers, and unions to better provide the discipline, direction, support, and unconditional love necessary for maximum success.

[The prepared statement of Mr. Hopson follows:]

PREPARED STATEMENT OF TONY HOPSON

I would like to focus my comments today on two areas: First, based on my experience, what would be the single most important change that Congress could make as a part of the reauthorization, and second, what innovative programs or strategies developed locally that could scale up and be integrated into ESEA and benefit students across the country. The facts are compelling. Every 26 seconds, another student drops out of school. We know that a third of our students drop out each year, a third graduate unprepared for college, and another third graduate prepared for college. We also recognize that poor children and children of color disproportionately represent the third that's dropping out, which contributes to the disparities in the criminal justice system, economic development, health care, and ultimately mortality.

The Nation seems to be paralyzed on what to do. So we spend billions of dollars annually to study, research, and theorize about what works. We talk about having great teachers and leaders in every school. We shout about equity and opportunity for all students. We insist that "raising the bar" and "rewarding excellence" will make a difference, and then we look for innovation and continuous improvement as the solution.

My frontline experience suggests to me that all of these are necessary depending on what outcome you want, and how soon you expect to achieve it. But nothing has occurred in the last few decades that lead us to believe that moving the needle on any of the above strategies comes soon enough. During my talk thus far, we lost another five students. So what should we change within ESEA? We should change the relationship between the school and the community. We need a paradigm shift in public education that recognizes the urgency and need for the public/private partnership that educates the whole child and supports the whole family. We must recognize that in order for public education systems to be successful, they must include family, community, and school life. In addition, how often can we actually point to someone who takes full responsibility for the success or failure of a student? Is it the parent, the teacher, the principal, the coach? Who is it? Most often, you'll find all of these individuals pointing fingers at each other. So ESEA must put a provision into the law, with accompanying resources, that strongly encourage low performing schools to partner with proven community-based organizations in a full partnership that provides the safety net that all kids need, but many fail to get. Believe me when I tell you that those of us on the front lines see, feel, smell, and taste the pain. And Senators, you would not like the way it taste.

The answer does not need to be studied anymore. This, in simple terms, is about the safety net, options, and opportunities that kids either have or don't have. All kids stumble, and all kids fall. The question is, what support systems are there to help that kid get up? Either you have a support system in place, or you don't. I contend that most low achieving school students don't have this in place, and therefore, never get up. The key is to put that in place for every kid, and then be accountable for the success or failure of that kid. Let me give you an example: It was highlighted in the movie "Waiting for Superman", and Secretary of Education Arnie Duncan

uses the point as well that 50 percent of the drop outs in America are coming from basically 2,000 low-performing high schools. I believe that we should focus on not only those who dropped out of those schools, but also those who did not. We should identify the reason why 50 percent of these kids actually made it in a low-performing school. I guarantee you it was because a safety net—a strong parent, grandparent, teacher, coach or a community that would not let that kid fail. In my opinion, the best way to achieve this is through a MSO, or multi-service organization. The most notable of these today would be Harlem Children's Zone. It's not a silver bullet, but it's a successful model working with children and families that also partners with schools to get the desired outcome.

The innovation in Portland Public Schools is called Self Enhancement, Inc. Like Harlem Children's Zone, Self Enhancement, Inc. is a multi-service organization able to serve kids and families and bring an authenticity to a school/community partnership for lasting results. Self Enhancement, Inc. as a community-based program partners with the local school district, individual schools, teachers, and the teacher's union to provide the complete safety net for every kid that enrolls in the program. It's a program that works 24/7, 365 days a year; a program that takes full responsibility for the success or failure of each kid. It's a 30 year-old program that touches over 3,000 kids per year, graduates 98 percent of the students enrolled in the program, and sends 85 percent to college. It's a program that produces "Positive Contributing Citizens"—meaning that every kid in the program who graduates from high school will complete a minimum of 2 years of college, vocational training, or work at a family wage job. We have proven that if we can provide each child with discipline, direction, support, and unconditional love, and combine this with what most schools provide every day; this will equal a Positive Contributing Citizen.

So, in concluding, I first believe we must mandate that low achieving schools partner with proven community-based organizations that represent the school's community in order to provide the complete safety net of family, community, and school life. Secondly, we must look at identifying and scaling up authentic community-based organizations and multi-service organizations like Self Enhancement, Inc. that have a track record in the school communities in need, but also have the ability to partner with districts, schools, teachers, and union to better provide the discipline, direction, support and unconditional love necessary for maximum success.

You all have an awesome job to do. Somehow, I believe that your answers lie deeply rooted in individuals who claim the streets and communities which these kids come from. We need a mechanism that allows them to speak, participate, and support those they serve daily.

Thank you.

Senator MERKLEY. Thank you, Tony.

And I must say, Self-Enhancement, Inc., is an incredible institution, and under your leadership has done amazing things.

The model that you talk about in terms of partnership, I can imagine, if I am a parent with children in a nearby school, I can take comfort in that partnership. But there isn't a Self-Enhancement, Inc., in every community or every district. And that is where you talked at the end about scaling up.

But let us say in the absence of where there is that type of organization, are there other things we can do to keep children from getting lost in the system? I am calling it "getting lost." You referred to it as "support system, 365-day support system."

Mr. HOPSON. Yes, Senator. There are a number of programs throughout this State and across the Nation who attempt to do this.

The question is, how serious are you about it? A lot of folks pretend to do this work. In our world, we put our last name on every kid. A lot of folks pretend to provide support services for kids, but they are not following that kid home and are not prepared to deal with any of the issues that are going on at that home site.

Unless you are prepared to go that far, we cannot rectify this issue. We have got educators in this room that are doing great work every single day. But they can't go home and deal with this dysfunctional family situation and the fact that Johnny showed up

hungry and got younger brothers and sisters that are hungry, too. But yet we are trying to educate them and teach them math.

Those issues are not going to be dealt with in the school setting. We need programs like ours who do that business and do it well, and every school needs to identify an entity that can help them do that.

I think it is unfair that we charge our schools with the totality of educating the kid as if they are supposed to be teachers and social service workers at the same time. So I believe that in many circumstances this service that I am talking about is not available, and that is why you see the dropout rate as high as we see it today.

Senator MERKLEY. Thank you. Thank you very much.

And I want to thank the entire panel for your insights and for your work in so many dimensions of the challenge of bringing education to our communities and to our children.

We are going to shift gears now in our second hour to the science, technology, engineering, and mathematics side of the equation.

And Dr. Koch is going to kick us off.

STATEMENT OF ROY KOCH, Ph.D., PROVOST AND VICE PRESIDENT FOR ACADEMIC AFFAIRS, PORTLAND STATE UNIVERSITY, PORTLAND, OR

Dr. KOCH. Thank you, Senator.

It is a pleasure to provide comments on behalf of Portland State and President Wim Wiewel, especially related to some approaches that we believe are effective in addressing the challenges of improving student success in K-12, and in particular STEM education. So maybe I can serve as a sort of transition between those things.

We all recognize the important role that education plays in the success of both individuals and society. My remarks today will focus on how universities, working with school districts and many other business, civic, and social service organizations, can contribute to greater student success in K-12 and better preparation for and, therefore, greater success in higher education. And I will focus, in particular, on some comments on the STEM education.

As universities, we can and many do, including Portland State, contribute to improvement of student success in the Pre-K-12 system in several important ways. Obviously, we are responsible for the preparation of teachers, a very important component.

But we also lead and participate in research that addresses improved educational practices in student success, and in most cases, we do this working collaboratively with the community as well. And we have various programs that work directly with the school systems.

Rather than address specific programs, today I would like to focus on two key approaches that we believe will lead to increased student success and illustrate them by highlighting some of the work that we have been involved in lately. And you heard this theme from several of our previous speakers.

We believe that effective programs to addressing student success in the entire educational continuum have two important character-

istics. One is that they are collaborative, and the second is that they have an ongoing evaluation and assessment process.

For this work to be effective and to address the most important problems, it is essential that the university work with school districts for sure. But it also requires us to have a more holistic approach, engaging the entire community in identifying the important issues that need to be addressed and in promoting student success.

This approach recognizes the success of the student—it recognizes that the success of the student depends on what happens in the classroom, as well as the environment that exists in the home and in the community. It also recognizes that there are many organizations that can make contributions to improving student success and that a coordinated effort is much more effective.

The ESEA should promote this collaborative approach to identifying and solving problems related to improving student success.

With regard to evaluation and assessment, it is not sufficient to undertake programs aimed at improving student success. It is necessary to continuously and rigorously evaluate those programs in light of the educational and related outcomes that we expect.

Here are a couple of examples where we at Portland State and our community partners are approaching this issue of Pre-K–20 student success in this way. The first relates to our Cradle-to-Career Project. And when I say “our,” I mean the entire community’s Cradle-to-Career Project.

In Portland and Multnomah County, we are implementing the STRIVE model as one of the several demonstration sites around the country. This is a real example of collective commitment to the idea that academic success depends on attention throughout the development of the student and occurs both inside the classroom and within the community.

It is a real collaboration between government, school districts, nonprofits, and our university. And the Cradle-to-Career organization has taken on the role of coordinating efforts, convening various community partners and school districts around the issue, and reporting on progress through the report card, a project that has now begun and will be issued on an annual basis.

A second project relates specifically to STEM education. A major challenge over the last decade that has been attracting the best and brightest students into STEM fields, both as practicing engineers and scientists, but also as teachers in the STEM disciplines. A particular aspect of this issue is that our current STEM majors do not reflect the diversity that exists in our society, and with our changing demographic, this presents an even greater challenge to meeting the needs for a trained professional workforce in the future.

At Portland State, we have a number of programs to promote and support participation in STEM disciplines. However, these programs only work if there is an adequate number of properly prepared and motivated students coming out of the K–12 system, and that is not currently the case.

So our most ambitious project to date is to develop what are called STEM education centers. These are a broad-based collaborative effort involving most of the Portland metropolitan region

school districts, Portland State University, the Oregon Health and Science University, other higher education institutions, and a number of our corporate partners, including Intel, who have been very supportive of this work.

In undertaking this approach, we are asserting again that the most effective way to improve student achievement in STEM, as well as in other areas, is to engage a broad-based set of stakeholders in a collective impact partnership to transform the teaching and learning in the whole school.

We believe that these approaches that we are taking in both cases will lead to systemic and lasting change and improvements in student success and that the ESEA really must support this kind of activity through supporting continuing improvement in the teacher education and the role of the universities and working with school districts and other community partners on these important issues.

Thank you very much.

[The prepared statement of Dr. Koch follows:]

PREPARED STATEMENT OF ROY KOCH, PH.D.

Senator Merkley, and members of the HELP Committee, thank you for the opportunity to submit this testimony. For the record, my name is Roy Koch, provost and vice president for Academic Affairs at Portland State University. It is my pleasure to provide some comments and suggestions on behalf of Portland State University and President Wim Wiewel regarding some significant challenges we see related to student success in the Pre-K–20 educational continuum, with a particular focus on K–12 and STEM education, and some of our activities, as an institution of higher education, in working with our community partners to address those challenges.

We all recognize the important role that education plays in the success of both individuals and the society in which we live. Our continuing progress as a democracy and our economic prosperity depend on a well-educated citizenry. Unfortunately, the United State has fallen behind many other countries in our educational attainment and we must increase both our efforts and our success in this area if we are to remain in a position of global leadership. Universities like Portland State can and do play a key role in this effort. My remarks today will focus on how Universities, working with community partners including school districts and many other business, civic and social service organizations, can contribute to greater student success in the K–12 system and better preparation for and therefore greater success in higher education.

As Universities, we can (and many, including Portland State, do) contribute to the improvement of student success in the Pre-K–12 system in several important ways including:

- The preparation and continuing support of teachers.
- Leading and participating in research to improve educational practices and student success both in the classroom and the community—in most cases working collaboratively with community partners, and
- Various service programs that directly impact K–12 students either through programs we support as a part of our educational mission through such programs as our senior capstone.

Portland State is deeply involved in all of these activities and we have integrated them into an institutional initiative we call SUCCESS—Schools, University and Community Committed to Educational Success for all Students.

Today, I would like to focus on two key approaches that we believe will lead to increased student success and illustrate them by highlighting our work at Portland State. Some of these activities are well underway and others are still in the developmental stage.

We believe that effective approaches to addressing student success in the entire educational continuum have two important characteristics:

- **They are collaborative.** For this work to be effective and to address the most important problems, it is essential that the University work with the schools districts. But it also requires a more holistic approach—engaging the entire community in identifying the important issues that need to be addressed in promoting student

success. This approach recognizes that the success of the student depends both on what happens in the classroom as well as the environment that exists in the home and the community. It also recognizes that there are many organizations that can make contributions to improving student success and that a coordinated effort will be much more effective. The ESEA should promote this collaborative approach to identifying and solving problems related to improving student success.

- **There is an ongoing evaluation and assessment process.** It is not sufficient to undertake programs aimed at improving student success, it is necessary to continuously and rigorously evaluate those programs in light of the educational and related outcomes that represent student success.

I can provide just two examples where we are approaching the issue of Pre-K–20 student success using these two criteria.

Cradle to Career. In Portland and Multnomah County, we are implementing the STRIVE model as one of several demonstration sites around the country. STRIVE was created at the University of Cincinnati and is a partnership connecting the education, business, nonprofit, civic, and philanthropic and community sectors in an effort to help every child achieve educational success from cradle to career. This is a real example of the commitment to the idea that academic success depends on attention throughout the development of the student and occurs both inside the classroom and in the community. This effort is a real collaboration of government (the city of Portland and Multnomah County), the school districts, non-profits and Portland State. This organization has taken on the role of coordination of efforts, convening various community partners and school districts around important issues, and reporting on progress through the “Report Card” that tracks progress on many important indicators of Student success. Portland State’s role in this is related to the research—that is, the collection and synthesis of data that goes into the report. We also played a key role in bringing the model to the community, convening discussions helping bring together the coalition that lead to the formation of the Cradle to Career initiative. With this coalition in place and with an effective tool to measure progress, it is now incumbent on the entire community to work toward identifying where our greatest efforts are required.

STEM Education. A major challenge over the last decade or more has been the challenge of attracting the best and brightest students into the STEM fields—both as practicing engineers and scientists and also as teachers in the STEM disciplines. A particular aspect of this issue that has received considerable attention is that our current STEM majors do not reflect the diversity of our society and, with our changing demographic, this presents an even greater challenge in meeting the need for trained professionals in the future. At Portland State, we have a number of programs to promote and support participation in the STEM disciplines, some with a particular emphasis on expanding participation from underrepresented groups. For example, we participate in the Association of Public and Land-grant Universities (APLU) Science and Mathematics Teacher Imperative (SMTI) aimed at expanding the number of science students who move on to K–12 teaching careers and the Lewis Stokes Alliance for Minority Participation, and NSF supported project that helps create resources aimed at increasing the participation and success of STEM students from underrepresented groups. However, these programs only work if there are an adequate number of properly prepared and motivated students coming to us from the K–12 system—and that is not the case.

Our most ambitious project to address the issue of both improving STEM education in the K–12 and increasing the numbers of student who are college-ready and motivated to pursue STEM majors and eventually careers as scientists, mathematicians and engineers is the development of a network of STEM education centers. This, again, is a broad-based, collaborative effort involving most of the Portland metropolitan regional school districts, Portland State, OHSU and other higher education institutions and a number of corporations who are supportive of this work, will benefit from the outcomes and are willing to provide leadership and assist in identifying support.

Briefly, in undertaking this approach we assert that the most effective way to improve student achievement STEM is to engage a broad-based set of stakeholders in a collective impact partnership to transform the teaching and learning cultures in whole schools. The goal of the partnership is to build pathways for students to matriculate through K–12 schools on a college and career readiness trajectory. The collective impact partnership should include long-term and sustainable participation by the school district’s administrative leadership, higher education STEM and school of education faculty, local businesses, community groups and informal STEM education providers.

Patterned after similar work in other States, the regionally located STEM Education Centers would support this transformation initiative. The STEM Centers

would serve as research and development hubs having the capacity to provide centralized teacher professional development and partnership development programming. The STEM Center would be the location for compiling improvement research data and generating and disseminating reports and publications from the work of the networked improvement communities. The Center would also provide regional student, teacher and administrator programming for targeted investments in STEM education (science fair competitions, summer and afterschool enrichment programming, K–12 teacher development workshops, principal and administrator workshops).

The regionally based STEM Education Centers would in turn be networked through the governor's office to establish a statewide STEM education initiative. A governor appointed STEM Education Investment Board would oversee the function and productivity of the statewide STEM education initiative.

These are two examples of how Portland State is working in collaboration with a number of community partners to address the important issues of education from Cradle to Career. We believe that the approach we are taking in both cases will lead to systemic and lasting change and improvement in student success and that the ESEA should support this kind of activity—through supporting continuing improvement in teacher education and the role of Universities in working with school districts and other community partners on these important issues.

Senator MERKLEY. Thank you.

And if I caught your comments correctly, you are making particular note of the fact that we don't have enough folks and enough ethnic groups involved in the STEM world. And you are particularly focused on trying to expand that.

Can you expand just a little bit—you mentioned the STEM education centers, how does that work?

Dr. KOCH. The STEM education center would be a center that is directly connected to a series of schools and would support what we like to call the transformation of STEM education within an entire school building. So working systemically with all the grades in that building and paying particular attention to the fact that all students are able to move forward and be motivated and capable in the STEM fields.

Senator MERKLEY. OK. So that center isn't part of how we develop more STEM teachers. It is part of putting those teachers into the field. And where are those right now?

Dr. KOCH. The one that we are beginning to develop, the earliest one, will be in Washington County. Although it works with all of the school districts in the Portland metropolitan region, it will focus on Beaverton and Hillsboro as a test site.

Senator MERKLEY. OK, thank you.

I have a feeling there are some other school districts here that are ready to sign up.

Dr. KOCH. We do have a lot of local school districts partnering on this project.

Senator MERKLEY. Ms. Anderson.

**STATEMENT OF MORGAN ANDERSON, NORTHWEST REGION
HIGHER EDUCATION AND GOVERNMENT AFFAIRS MAN-
AGER, INTEL, HILLSBORO, OR**

Ms. ANDERSON. Thank you, Senator.

We have a saying at Intel. "Innovation starts with education." Oregon is home to Intel's R&D center, as you know, and we are currently constructing a new fab that will become our most advanced microprocessor manufacturing facility, called D1X.

Oregon is Intel's largest and most complex site. We employ 16,000 people in Oregon, making us the largest private employer

in the State. And 2,000 of these employees hold a Ph.D. Yet we struggle to find these engineers not only in Oregon, but in the United States. We are not alone.

Change the Equation, a nonprofit organization made up of 110 CEOs, is equally concerned about STEM education in the United States. This organization is chaired by retired Intel CEO and chairman of the board Craig Barrett. And the Change the Equation has recently issued STEM vital signs for each State. The data that they issued is dire.

In Oregon, only 37 percent of Oregon fourth graders were proficient at the National Assessment of Educational Progress, or NAEP. Science scores were even lower for Oregon's fourth graders, with only 34 percent being rated as proficient. Their eighth grade counterparts scored very similar scores, and Oregon's numbers, unfortunately, were reflective of the U.S. average.

Fortunately, Oregon has joined with 41 other States in the Common Core movement, and we are raising expectations for student proficiency this school year. But there are other recommendations that Change the Equation made. They urged that Oregon focus on student achievement gaps and increasing teachers' content knowledge. And one point was that fewer than half of Oregon's eighth graders have a teacher with either a major or a minor in mathematics. So we are really struggling with finding those qualified teachers.

Intel's involvement in education is longstanding. We believe that students deserve the skills needed to become the next generation of innovators. We have invested over \$1 billion in the last decade to improve education, and we are actively involved in programs and advocacy to improve education and advance innovation.

We have two science competitions that we are quite proud of—the Intel International Science and Engineering Fair, which brings together 1,500 students from across the globe, and then we also support and sponsor the Intel Science Talent Search, which is America's oldest pre-college science competition. And the alumni of this program have made extraordinary contributions to science, including seven Nobel Prizes and three National Medals of Science. So very impressive alumni.

We also sponsor many local Oregon STEM programs, including the State science fair, housed at Portland State and managed by Portland State, the State-wide Lego robotics tournament, and also the STEM center that Dr. Roy Koch mentioned in his testimony. And I think these programs reflect just the nature of how important both inside and outside education programs are and that we need to have flexibility in ESEA in order to have full, strong education and STEM programs inside school and outside school.

Many of today's educational goals and requirements can be most effectively achieved by modernizing our educational practices and systems through technology. We embrace this vision and urge Congress and the Administration to make it a reality by including it within the ESEA reauthorization legislation as a separate direct-funded program, focused on improving education through technology.

ATTAIN, or Achievement Through Technology and Integration, would do this, and it would drive innovation and systemic reform

that leverages 21st century technologies, target low-performing schools, and assure students attain technological literacy by the eighth grade.

Second, we support meaningful and measurable infusion of technology and related professional development throughout all major ESEA programs, based on the recognition that technology will be the platform of choice for school reform and improvement efforts in the 21st century.

The future of Oregon and the U.S. depends on its ability to boost student performance in STEM so that our students are college- and career-ready and prepared to compete in the very competitive 21st century workforce. We ask that the reauthorization of ESEA includes additional support for STEM education and encourages technology to be based as a catalyst to improve education.

Thank you so much.

[The prepared statement of Ms. Anderson follows:]

PREPARED STATEMENT OF MORGAN ANDERSON

Thank you for this opportunity to testify on the reauthorization of the Elementary and Secondary Education Act. My name is Morgan Anderson and I am the Northwest Region Higher Education and Government Affairs Manager for Intel. I've worked on education programs and policies for the last 12 years to improve education and student achievement, particularly in the area of STEM. We have a saying at Intel, Innovation Starts with Education. Oregon is home to Intel's R&D Center as President Obama discovered during his visit to our campus in February. In addition to housing two fabs and currently constructing a new fab that will become our most advanced microprocessor manufacturing facility, Oregon is Intel's largest and most complex site. We employ 16,000 people in Oregon, with 2,000 of these employees holding a Ph.D. Yet we struggle to find these engineers, not only in Oregon, but in the United States.

We're not alone. Change the Equation is a non-profit organization that is made up of 110 CEOs that are equally concerned about STEM education in the United States chaired by retired Intel CEO and chairman of the board, Craig Barrett. Change the Equation has recently issued STEM Vital Signs for each State. The data is dire. In Oregon, only 37 percent of Oregon fourth graders were proficient on the National Assessment of Education Progress (NAEP), which sets a consistent bar for student performance across the States and tracks international assessments. That is far less than the 77 percent of the State's fourth graders who scored proficient on the Oregon State test. Science scores were even lower for Oregon's fourth graders, with only 34 percent being rated as proficient. Their eighth grade counterparts scored very similar scores, with 37 percent rated as proficient in math and 35 percent in science. These numbers are very similar to the U.S. average. Even the top 3 States, while better, only see a range of 42–56 percent of their students' proficient in these subjects. Fortunately, Oregon has joined 41 other States in the Common Core movement and has raised expectations for student proficiency for this school year. Change the Equation also urges Oregon to focus on student achievement gaps and increasing teachers' content knowledge. Fewer than half of Oregon's eighth graders have a teacher with a major or minor in math.

Intel's involvement in education is long-standing, and we believe that students deserve the skills needed to become the next generation of innovators. Intel has invested over \$1 billion to education over the last decade and we are actively involved in programs and advocacy to improve education and advance innovation. To help inspire the next generation of scientists and engineers, Intel sponsors two major science competitions. The Intel International Science and Engineering Fair (Intel ISEF) is the world's largest pre-college science competition and brings together over 1,500 young scientists from more than 50 countries. The Intel Science Talent Search is America's oldest and most prestigious pre-college science competition. Alumni of Intel STS have made extraordinary contributions to science including seven Nobel Prizes and three National Medals of Science. We also sponsor many Oregon STEM programs, including the State science fair and the statewide Lego Robotics Tournament. These enrichment programs work. One program we sponsor, Oregon MESA, boasts a graduation rate of over 95 percent with the vast majority of their students pursuing college. Because this program primarily works with under-

represented minorities, these statistics show that targeted programs can help close the achievement gap.

Intel fully supports the goals of creating a STEM Master Teacher Corps, including increasing student engagement in STEM, recruiting, training and supporting highly qualified and highly effective teachers and closing student achievement gaps. All of these endeavors will help prepare more students to be on track for college success and career readiness. The specific areas that this legislation would fund are aligned with policies and practices that have been proven to be highly effective, including providing funding for mentoring new teachers in STEM content areas, and providing professional development on effective STEM teaching methods. At Intel we understand the importance of investing in teachers and we have trained over 10 million on our Intel Teach Program, with 500,000 teachers trained in the United States to help build 21st century skills such as digital literacy, critical thinking and problem solving. With the success Intel has witnessed with science competitions, we are pleased that funding can support STEM-related competitions and hope that science competitions as well as robotics will be highlighted as examples.

Many of today's educational goals and requirements can be most effectively achieved by modernizing our educational practices and systems through technology. In a statement accompanying the release of his fiscal year 2011 Budget proposal, President Obama asserted that he "... strongly believes that technology, when used creatively and effectively, can transform education and training in the same way that it has transformed the private sector."

We embrace this vision and urge Congress and the Administration to make it a reality by including it within the ESEA reauthorization legislation as a separate, directed funding program focused on improving education through technology. ATTAIN, or Achievement Through Technology and Innovation, would ensure that teachers receive appropriate professional development on technology integration, educational agencies would have leadership capacity around technology and there would be equity in the distribution of resources. In addition, ATTAIN would drive innovation and systemic reform that leverages 21st century technologies, target low-performing schools and ensure students attain technological literacy by the eighth grade.

Secondly, we support meaningful and measurable infusion of technology and related professional development throughout all major ESEA programs, based on the recognition that technology will become the platform and infrastructure of choice for school reform and improvement efforts in the 21st century. Technology infusion should make technology a priority throughout the new ESEA with language reflecting mandatory technology spending. Enterprises in other sectors of our economy dedicate an average of 5 percent of their budgets for technology and related staff training and support, and ESEA should help lead our educational agencies toward this best practice.

The future of not only Oregon, but the United States depends on its ability to boost student performance in STEM so that our students will be college- and career-ready, and prepared to succeed in the competitive 21st century workforce. We ask the reauthorization of ESEA includes additional support for STEM and encourages technology to be used as a catalyst to improve education. Thank you.

Senator MERKLEY. Thank you very much.

One of the things you mentioned was the shortage of math teachers.

Ms. ANDERSON. Yes.

Senator MERKLEY. The President, in his State of the Union, talked about training 100,000 new teachers for science and mathematics. Meanwhile, however, let us say someone is coming out with a degree in mathematics right now. Could they get a job as a math teacher in Oregon, or has the drop in funding meant that they couldn't find a job as a teacher even if they had those skills right now?

Ms. ANDERSON. Yes. It is a struggle. And we know that all of our school districts have enormous budget cuts. I have served on the Graduate School of Education Board at Portland State, and they have a special program for math and science teachers. And they do struggle right now to place those teachers.

And the hope is, that when the economy turns around, those jobs will be waiting. We know we have a huge need for those teachers, and it is just matching the need with the money that is available, unfortunately.

Senator MERKLEY. So not only are they not being hired because of the budget, but there is also competition among employers. If you are capable in math, there is a pretty substantial demand in the economy, and how much of a challenge is that? Intel is going to hire away a lot of folks who might otherwise be math teachers.

Ms. ANDERSON. I am proud to say that we have a program at Intel that pays for our engineers to go back to school to become math and science teachers. So we are trying to get more educated and qualified folks in the classroom, helping to educate our next generation of kids.

Senator MERKLEY. Thank you very much.

And now we will turn to a mathematics teacher, Melinda Knapp. It is great to have you with us. And again, Melinda Knapp is the recipient of the Presidential Award for Excellence in Mathematics and Science Teaching and has come over the mountains from Bend.

Thank you.

**STATEMENT OF MELINDA KNAPP, MATHEMATICS TEACHER,
BEND, OR**

Ms. KNAPP. Thank you for having me.

I am actually a second-career math teacher. I studied engineering in my first life. So I am one of those people.

I am a math teacher at Sky View Middle School in Bend, OR. And Bend-LaPine Schools is the seventh largest district in the State of Oregon. It has nearly 16,000 students who attend there, and the Central Oregon District spans more than 1,600 square miles. That is a 40-by-40 square. So we are pretty big. And many of the parts of our district are very rural.

I have been lucky enough to teach math for 7 years at Sky View Middle School and had the pleasure of teaching many hard-working students over the years. I am also fortunate to work with many dedicated professionals who share my love of teaching and learning.

This past May, I had the opportunity to spend a week in Washington, DC, with the 85 winners of the presidential award. These were all highly competent, highly effective teachers who work tirelessly to improve themselves to ensure they are the best math and science teachers they can be.

As awardees, we are tasked to serve as models for our colleagues, inspire our students and communities, and be leaders in the improvement of math and science education, and I take this task very seriously. I have the utmost respect for these teachers, who collectively have a wealth of experience and face many challenges.

As I spoke with the teachers from the different States, some common themes emerged. I had many discussions related to what high-quality teaching should look and sound like. We spoke about the need for intensive, ongoing professional development and the need for more support from school and district leadership.

Another common idea was the frustration over the overemphasis on high-stakes testing and how it was narrowing the curriculum.

All week long, we visited scientists and leaders from many agencies, including NASA, NSF, EPA, and each person stressed the importance of STEM education for our students' future. They each described how a teacher had inspired them and cultivated their love of science and math as they were growing up.

This message echoed much of what I was hearing from the 85 teachers that week. It reminded me of the importance of a highly effective, inspired teaching workforce, particularly in the fields of math and science, and not just at secondary level, but also elementary level.

Because I am a classroom teacher, my perspective is grounded in my day-to-day interactions with my middle school students and colleagues I work with. We see the impact of decisions that are made at national, State, and district level. When I say "we," I mean teachers and students. We are impacted directly when funding is cut, days are cut, and we are constantly overwhelmed by initiative after initiative.

My work over the past 5 years has focused on mathematics, professional development, and my leadership development necessary to move quality teaching and learning forward. My concentration on this work resulted from my own transformation about teaching and learning that allowed me to better understand the types of learning experiences we need for our students.

Because of my own experiences, I began to change my teaching practices. I now have the opportunity to collaborate and coach other teachers to facilitate improvement of their teaching practices. Here are some things that you might see and hear in an effective inquiry-based mathematics classroom.

Highly engaged students working in collaborative groups. Students asking why. Students talking in groups or during whole class discussions about their understanding or struggles with a particular concept or task or connection.

Students providing justifications about why their ideas work mathematically. Students generalizing their math ideas to other areas. Students applying mathematical concepts in real-life applications and problem-solving. Students of all levels of success contributing to the learning of all. Students making sense of math as mathematicians might. With sense-making comes deep understanding.

I have seen firsthand the difference a highly effective teacher with broad understanding of their content in an inquiry-based classroom can make for students. Students in these classrooms are more excited and engaged in their own learning. They understand more deeply and can apply their new knowledge in novel situations. They are true problem-solvers.

This is what our students need. This is what we need to do as leaders to help shape the problem-solvers of the future. This type of learning takes highly trained teachers.

So I would recommend a few things, just in closing. We should provide quality, sustained professional development experiences for all K through 12 science and mathematics teachers that will increase and deepen content knowledge, provide a variety of pedagogical approaches, and develop questioning strategies, which will advance higher order thinking of our students.

We should encourage leadership that supports teachers, improving their effectiveness as teachers in STEM fields. We should encourage higher education leaders to strengthen their K through 8 teacher education program to provide a deeper understanding of the content knowledge necessary to teach in STEM fields and apply this learning in real-world applications.

And last, we should invest in research on teaching and learning that will better inform development of science and math curricula and highly effective teaching approaches.

Thank you.

Senator MERKLEY. Thank you very much.

I wanted to get some sense. I loved math, and it could have been taught in any form, and I would have loved it. But the form was very different than what you were describing.

Ms. KNAPP. Very different.

Senator MERKLEY. I recall the teacher saying now here is the formula for cosine, and it is this angle to these sides. And, OK, here are 20 problems for your homework.

Now what you are describing sounds very different. And so, how do you make it work? Do you start out with a real-life problem on a wind turbine?

Ms. KNAPP. That is often how it starts, but that hooks or engages the kids. Because when it is real, they are interested. And the types of learning that I am talking about require all kids to be engaged in their own learning.

There is no sitting back. It is not passive. It is active. And in that, they develop deeper understandings of math. They can see the connections to other content areas, and they are just more interested. And it is doing math versus watching someone do math and then regurgitating that. It is really making their own understandings for themselves.

Senator MERKLEY. So what is it that kind of catches your students' imagination in the sense that it is relevant and not just some dry thing that they will "never use?"

Ms. KNAPP. I think what hooks kids a lot—I teach middle schoolers. They are very social, and this type of learning is very social. They learn from each other, through each other. I learn from them. They learn from me.

And I think just that social nature of the mathematics and that we are actually solving a real problem. It is very engaging for students and the fact that we are all doing this together. I find that that really hooks kids in a subject that is not often their favorite.

Senator MERKLEY. How did you make the choice to—you were a trained engineer, and you chose to go into teaching. What inspired you to make that transition?

Ms. KNAPP. That is kind of a long story. But in a sense, I felt like I needed to be in a more helping profession, and I felt like I could take my skills that I had studied in college and apply it in a different way that was more meaningful for me.

Senator MERKLEY. You have clearly done so in a very effective manner, and thank you.

Ms. KNAPP. Thank you.

Senator MERKLEY. Next we turn to Nathan Fuller, who is a student. He will be a senior at Cleveland High School and has been

very involved in the FIRST Robotics program. I had a chance to see some of the work that the Cleveland students were doing on the Pig mice team, and we have some of the work behind us here.

Are these robots going to run here now and perform for us?

Mr. FULLER. I think all their drivers are back there.

[Laughter.]

**STATEMENT OF NATHAN FULLER, STUDENT, SENIOR,
CLEVELAND HIGH SCHOOL, PORTLAND, OR**

Mr. FULLER. First, Senator, I would like to thank you for giving me the opportunity to speak to this committee today.

And in my 12 years of schooling, I have been to 7 different schools. I consider myself to have a pretty good understanding of the way our school system works. But sometimes I feel like our school system doesn't understand me.

I wanted to come here today for a number of reasons, but primarily because school is hard. School is hard not because you have a bunch of students who don't want to try. It is not hard because you have a bunch of students who aren't very intelligent. School is hard because students want to be inspired. They want to understand why they are learning what they are learning, and they want to be involved in the process.

My generation is that of the joystick generation. We are the Facebook generation. We are a generation that was born with technology in our minds, body, and soul. But our current form of education feels that the best way to involve technology is a document camera to replace a projector.

As Ms. Harms said, we need teachers to be taught how to use our technology, not just receiving technology grants and then discarding it. My sophomore year math teacher taught with a SMART Board behind a projector screen because he didn't have the technology and experience to actually use the technology he was given.

But there was something that keeps me involved, and that something has been FIRST Robotics. FIRST Robotics, or For Inspiration and Recognition of Science and Technology, is a program that was founded by the inventor, Dean Kamen. He invented the Segway.

We now offer four programs for kids from the ages of kindergarten to essentially the year they graduate from high school, the opportunity to work with industry professionals and engage in real application of STEM principles. After I joined FIRST Robotics, suddenly everything in school could be applied. I had an opportunity to look at physics and math classes like they were real. All of a sudden, learning projectile motion matter because I needed to learn how to kick a soccer ball into a goal that was 30 feet away.

I kept my grades up because I knew that I wanted to be an engineer or industrial designer when I grew up. And another thing is that students have something to stay in school for. We are a team. We are a family.

I believe that Mr. Hopson talked about a safety net. A FIRST Robotics team can be that safety net for a team and for an individual. I have multiple students who have helped other students with English papers, with math problems. We are all there together to provide an opportunity to compete, and if your grades aren't up,

you can't compete. So we all work together to pull everyone else through their high school experience.

I think this is something that is really powerful and something that you can only really see on a FIRST Robotics team.

I also would like to talk about what FIRST represents. We already talked about how it is an application, not just a teaching of STEM principles. But it is also a chance for students to meet well-educated adults who know exactly what they are talking about.

One thing that I think we don't see enough of in schools is industry involvement. There are a lot of industries out there, for example, I know Intel has already made a huge contribution. I, in fact, competed at multiple Intel FIRST Lego League regionals.

But another thing that we need to think about is I am an example of industry involvement. I am currently an intern at Autodesk, which is an industry leader in three-dimensional CAD software, or computer-aided design. I am there managing a number of other FIRST Robotics interns. And they are another example of how industry wants to get involved in creating professionals who are ready to work for them.

A great thing is that whenever you hear FIRST Robotics students talking about their experiences, they all want to work for their mentors. My favorite story of this is about a girl on my team who I have known for 4 years now. Her name is Emily Klockner. She is a beautiful, smart individual who worked for 3 years with a Boeing machinist.

She is currently enrolled in their tech prep program and plans to be a machinist for the Boeing Company. She found this goal through her involvement with the FIRST Robotics team.

FIRST is the kind of program that can give kids a direction and direct them into these STEM careers in a way that not many other things can. I want to emphasize that our teachers are doing an amazing job in teaching us content. But it is afterschool programs and other things that are going to give us the opportunity to truly apply those things in a competitive or just celebrated setting.

We need to celebrate students for their knowledge, not label them as geeks or nerds. This is what FIRST is all about. We create an atmosphere where kids are rock stars for knowing what a friction coefficient is. We need to create this kind of environment in our schools and especially in our afterschool programs.

Thank you so much.

[The prepared statement of Mr. Fuller follows:]

PREPARED STATEMENT OF NATHAN FULLER

Senator JEFF MERKLEY,
121 SW Salmon Street, Suite 1400,
Portland, OR 97204.

DEAR SENATOR MERKLEY: Thank you for the opportunity to voice my appreciation for all that you are doing, as you, your colleagues, and staff, work to reauthorize the Elementary and Secondary Education Act (ESEA). As a High School Student, who participates in the FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition, I know just how much STEM (Science, Technology, Engineering and Mathematics) principles and education can help you to succeed. I also know that it has become increasingly difficult for students to get experience in these fields as funding becomes ever more scarce.

Personally, I have gained and learned much through my experience in the FIRST program, and have come to care about not just my team but the organization as

a whole as if it were my family. When revising the ESEA, it is important to remember that not only are students a priority, but teachers need training and stipends for working after hours with students. To truly excel in STEM pathways students need to be led by experienced individuals who have the knowledge and skills required to not only teach but impress them. Working as an intern at Autodesk, Inc. this summer, I have witnessed the premium that industry is placing on students with STEM experience, and our schools need to reflect that.

The modern day class is taught to a test and a white board and PowerPoint dominate the stage. Only those of us who have had the opportunity and the time to participate in afterschool activities that give us an application for the subject matter are able get excited when traction coefficients are discussed. Only a FIRST robotics student can take the electrical lessons of a Physics One class and make them relevant to his afterschool activities. This is why I participate in FIRST, because if I did not I am unsure whether I could make it to graduation.

But not everyone dreams of being an engineer, we live in a world where you either go to college or are told that you have failed. The average age of the American Machinist is approaching 60 years of age, if we want to succeed in maintaining ourselves as the idea center of the world, we will need people to make those ideas. We need to stop failing students who dream of working on the parts of a 747, or welding bike frames. College is not for everyone, in fact for some it can be the ending of a brilliant future. We do not need to bring back the old shop classes of book shelves and table, but what we need is the modern shop class of welders, robots, and electric vehicles. This is our future, and this is why STEM matters.

Sincerely,

NATHAN FULLER,
Age 17—Team Captain,
FRC Team#2733 “The Pigmice”.

Senator MERKLEY. Nathan, thank you. And superb presentation. How many schools in the Portland area actually have a FIRST Robotics team?

Mr. FULLER. I believe we are around 12. In Portland or in the Oregon area?

Senator MERKLEY. In the Portland area.

Mr. FULLER. In the Portland area, I think we are around—

FEMALE SPEAKER. [Off-mike.]

Mr. FULLER. Yes, we have helped 40 robotics teams, but the high school teams, again, it is a huge financial strain. And currently, my team operates—we fundraised \$25,000 last year. We had no Federal or district money. It was all from industry grants and donations.

So, right now, we are running completely without the support of the school system, but I think that through a partnership you could see an incredible transformation of the robotics team giving back.

One of my favorite examples is I have a student on my team who is actually hosting a Lego robotics camp for the Somali refugees that attend Cleveland High School in the lower-income housing across the street from the school.

Senator MERKLEY. That is fantastic.

And I believe that David Douglas is about to get a FIRST Robotics team? And is Boeing the main partner in that? So that is great. That will be this coming school year?

Mr. GROTTING. We are in development right now. So we are going to try to get it up and going.

Senator MERKLEY. I think you have made the case that what happens outside of the classroom is as much a part of the education process as inside the classroom. And there is a challenge of resources. As you noted, your team is doing extraordinary work to raise \$25,000 a year, did you say? That is a lot.

Mr. FULLER. It is a lot of money.

Senator MERKLEY. It is a lot of money. Plus, in addition, all kinds of industry connections and contributions as well. So funding cash is part of the puzzle, but there is a lot more to it as well.

Thank you.

Mr. FULLER. Thank you.

Senator MERKLEY. Speaking of being outside the classroom, Nancy Stueber, president of Oregon Museum of Science and Industry, we would love to hear your thoughts.

**STATEMENT OF NANCY STUEBER, PRESIDENT, OREGON
MUSEUM OF SCIENCE AND INDUSTRY, PORTLAND, OR**

Ms. STUEBER. Thank you, Senator Merkley. Thank you for holding this field hearing and inviting me to testify.

I am here both as the president of OMSI, Oregon Museum of Science and Industry and a science center located here in Portland, but with a region-wide reach, and also as the president of the Association of Science Technology Centers, and that represents 440 science centers and museums worldwide, 7 here in Oregon, who are committed to excellence in science learning and innovation.

I wanted today to focus my brief remarks on one aspect that is often overlooked of what science centers and museums can provide. Many people think of field trips and lots of other opportunities for joyful learning experiences, but we also provide teacher professional development opportunities, and I focus on that today because of its relevance to your work now and because teachers are the most powerful ingredient in contributing to student success.

We all know that educating must encompass a wide range of support services, and teachers already look to out-of-school partners and science centers and museums. I can say that among our association members, we have 73,000 schools that we work with directly nationwide. That is 62 percent of the total schools in the country, and it represents 36 million students and 2 million teachers, about half of those schools serving a high percentage of underserved students.

So we are powerful allies in this work, and we believe that we have a lot to offer, both for helping gifted teachers excel and for helping to remove barriers for others with limited experience in teaching science. So our colleagues in Chicago report, like many of the school districts in the Nation, that 70 percent of the teachers teaching science in the middle school grades don't have a science degree or an endorsement in science.

So they have responded with an Institute for Quality Science Teaching that offers everything from professional development credit to a master of science education degree, and they have become an integral part of a broad school and district-wide educational improvements plans there in Chicago.

In Boston, our colleagues at the Museum of Science in Boston have developed K-12 engineering curricula that includes a network of teacher professional development programs that is available to be adapted nationwide. And that is especially noteworthy since Oregon has recently incorporated engineering into our K-12 science standards, and engineering will have a significant presence in the next-generation science standards.

I am proud to say that OMSI has the largest outreach program of any of these colleagues nationwide. We travel to seven States, and we also provide both the accreditation side, but really grounded, hands-on experience and practical resources for teachers. An example is a popular workshop called “No Hassle Messy Science with a Wow” that brings teachers in, gives them experience and confidence in lots of hands-on, inquiry-based activities that are aligned with standards. And they leave with a 460-page manual of activities that have all the setup instructions, all the age-appropriate explanations, and student handouts in English and Spanish ready to go.

We do that not only in urban districts, but in rural districts. We believe that rural districts, by definition, are underserved, and we work with partners like Libraries of Eastern Oregon and in collaboration with many partners providing afterschool programs, whether it is the MESA program at Portland State or the SMILE program at Oregon State or programs offered by Self-Enhancement, Inc., or FIRST Robotics.

So while we have many examples that we can point to, we cannot, as nonprofits, directly apply for funding through the current ESEA legislation, and that would be for funding for teacher professional development. We urge you to do all you can to expand the eligibility language in section 2131 of the existing statute to allow nonprofit organizations that have a proven track record of improving effectiveness of STEM teachers to apply directly for funding in partnership with a local education agency.

Again, we really appreciate your advocacy for STEM education, and all of us at OMSI, our colleagues nationwide, and all of our nonprofit community partners stand ready to assist you in this very important work of incorporating STEM.

Thank you.

[The prepared statement of Ms. Stueber follows:]

PREPARED STATEMENT OF NANCY STUEBER

INTRODUCTION

Good morning, Senator Merkley. My name is Nancy Stueber, and I am president of the Oregon Museum of Science and Industry (OMSI), a scientific, educational, and cultural resource center located here in Portland that is dedicated to improving the public’s understanding of science and technology. OMSI makes science exciting and relevant through exhibits, programs, and experiences that are presented in an entertaining and participatory fashion. I am also here on behalf of the Washington, DC-based Association of Science-Technology Centers (ASTC), a nonprofit organization of science centers and museums dedicated to furthering public engagement with science among increasingly diverse audiences. ASTC represents more than 440 science center and museum members—including 7 here in Oregon—in 42 countries, and encourages excellence and innovation in informal science learning by serving and linking its members worldwide and advancing their common goals. I serve as the president of the Association of Science-Technology Centers, and am honored to represent not only my institution, but the science center and museum field, before you today.

Before I continue, allow me to express my sincere appreciation to you for scheduling this morning’s field hearing here in Portland, and for the opportunity to testify before you and the committee. Even more importantly, I want to thank you and your staff for all of your efforts regarding the pending reauthorization of the Elementary and Secondary Education Act (ESEA) and for the leadership you have shown in addressing the monumentally important science, technology, engineering, and mathematics (STEM) education issues facing our young people—and our country—today.

I would like to begin by focusing on an often overlooked aspect of what science centers and museums contribute to America's educational infrastructure: teacher professional development opportunities. While school visits are often at the forefront of one's mind when they envision science centers—and I will address the multitude of options science centers provide to visitors of all ages a bit later in my testimony—the programs and services we provide for educators may not be. In fact, 82 percent of science centers offer workshops or institutes for teachers, aligning with research-based best practices and the recommendations found in Title IX, Section 9101(34) of ESEA. ASTC members reach 73,000 schools—62 percent of the total schools in the country—impacting 9,000 school districts, 36 million students, and 2 million teachers. Almost half (44 percent) of the schools served have a proportionally large population of underserved students. In addition, 75 percent of ASTC members report that they offer curriculum materials.

Clearly, effective classroom teaching is critical to helping children develop the essential thinking skills they require to weigh evidence, solve problems, balance risks and rewards, and make sense of their environment. And the need for additional support for teachers is strong: many teachers are assigned science as a subject to teach, without having a lot of science background themselves. The engaging, hands-on, inquiry methods that science centers have proven to be effective can be applied to the classroom; these methods are largely not taught in pre-service academic training, yet are an invaluable tool for teachers' effectiveness and student success.

Like science centers across the country, OMSI is doing our part to help teachers gain confidence, experience, and expertise when it comes to STEM teaching. I take great pride in the fact that OMSI has the largest science outreach education program in the United States. We offer teacher education programs and in-service workshops serving seven Western States; educational field trips and hands-on lab sessions in our eight interactive laboratories; camps and classes throughout Oregon and the Pacific Northwest for youth as well as families and adults; and community events exploring a wide range of relevant topics combining science, technology, engineering, mathematics, and the arts. At OMSI, we provide a variety of professional development tools for educators, from workshops and school partnerships to classroom activities and resources. These include:

No Hassle Messy Science with a WOW!, where participants experience a workshop chock-full of affordable, inquiry-based, and standards-aligned activities. Educators take home the 460-page manual *No Hassle Messy Science with a WOW: Chemistry in the K-8 Classroom*, which includes complete activity set-up instructions, scientific explanation for various age levels (grades K-8), extensions to broaden understanding, and student handouts in English and Spanish.

Science Inquiry, where participants learn how to move beyond conducting science activities in their classrooms to actually engaging their students in scientific inquiry. In this workshop, OMSI guides educators through the inquiry process, provides tools to modify existing activities and increase their inquiry potential, and offers templates and outlines to help students create work samples. Activities are aligned to Oregon science standards for grades 2-8.

Engineering Design, where teachers can try out some of OMSI's favorite design challenges and experiment with different materials as they explore ways to integrate the engineering design process into the classroom (grades 4-8). This workshop includes an introduction to LEGO NXT robotics and will address the new Oregon standards for engineering.

Expedition Northwest, a curriculum designed by OMSI educators that provides exciting standards-based science activities for grades 4-8. The program focuses on how water connects landscapes, people, and ecosystems across the region—from glaciers to rivers to oceans; from ancient floods to power generation. The program includes digital labs, online sharing of data, and teacher message boards.

No Hassle Messy Science with a Wow: Chemistry for the K-8 Classroom serves as an aid for teachers bringing chemistry to their elementary and middle school students. Together with the aforementioned workshop of the same name, it has brought science education to diverse audiences. Teachers, both nationally and internationally, have used this curriculum to inspire wonder in their students.

In the *OMSI School Ambassadors* program, which is designed to make it easier for schools to use OMSI's resources, a school faculty member becomes a museum ambassador, learning all about what OMSI offers and how it might benefit their school. Ambassadors serve as their school's representative to [3] OMSI, giving us feedback on how we can better meet their needs. Our goal is to have an OMSI Ambassador in every Oregon school.

I also want to note that in 2 weeks, OMSI will announce the recipients of a unique professional development and field trip scholarship opportunity. These scholarships—to be awarded to three schools in Oregon and southwest Washington—include year-long professional development support (minimum 30 hours per school) for science teachers and field trips to OMSI during the 2011–12 school year. The scholarship program is designed to positively impact students’ STEM learning by deepening the connection between classroom instruction and museum visits, all while providing extensive access to OMSI resources.

Many science centers have extensive programs or courses specifically designed to support the competency of classroom science teachers related to both content and pedagogy. These centers work closely with their local teachers, school districts, and universities to build supportive professional development programs that are designed to enhance the quality of a student’s science education experience while promoting the professional development goals of the teachers and the practical needs of the districts.

There are commonalities across these programs that account for their impact and—upon change to ESEA law to allow non-profit, community-based science centers to be eligible to compete for teacher professional development opportunities—could be replicated by dozens if not hundreds of other science centers across the Nation in partnership with their local school districts to improve the quality of science instruction in our K–12 schools. For example, in addition to providing informal science and engineering educational experiences, the Museum of Science, Boston has developed K–12 engineering curricula and a network of teacher professional development programs to deliver technology and engineering education across the country. This is especially noteworthy, as Oregon recently incorporated engineering into their K–12 science standards, and engineering will have a significant presence in the Next Generation science standards.

Common programming elements among science centers include:

1. Adherence to evidenced-based practices that is confirmed through extensive iterative evaluation.
2. Integration of national, State and local standards when applicable to ensure classroom relevance and applicability.
3. Extensive support of teacher use of human and material resources outside of the traditional classroom to broaden capacity to build student motivation and inspiration.
4. Partnerships with institutions of higher education and/or State teacher certificating authorities so that program participation advances professional credentials, needs and goals of teacher workforce.
5. Utilization of inquiry-based, hands-on activities for teacher use in classrooms.
6. Reflection of national recommendations in STEM learning that can impact student growth and achievement.

Educating must encompass a wide range of support services, and science teachers do not hesitate to reach out to science centers for instructional assistance. Likewise, science centers are well-positioned to target schools most in need of resources. They can help gifted educators excel, and, once again, remove barriers for others with limited experience teaching science. For example, in Chicago—like many school districts across the country—70 percent of teachers teaching science in the middle grades do not have a science degree or an endorsement in science. Responding to this need, the Chicago Museum of Science and Industry (MSI) provides science teacher professional development through its Institute for Quality Science Teaching. Teachers are able to obtain a Master of Science Education degree, a Middle School Science Endorsement, or professional development credit. Furthermore, science centers like MSI Chicago have become integral parts of broad school- and district-wide educational improvement plans in STEM subjects, designing coursework in accordance with topics identified in State standards.

RECOMMENDATIONS FOR ESEA REAUTHORIZATION

With valuable contributions like these in mind, I want to share several key recommendations regarding the Elementary and Secondary Education Act as you and your fellow members of the Senate Committee on Health, Education, Labor, and Pensions continue to work on its reauthorization.

First, I urge you to do all you can to allow nonprofit informal education institutions (such as science centers and museums) who have a proven track record of providing quality teacher professional development programs to directly compete for title II teacher quality funds. Under the current ESEA, districts and States may use title II teacher professional development for a variety of purposes, but all too often, the funds don’t reach non-profit education organizations—such as science centers—

that provide teacher professional development. Section 2131 of the existing statute establishes outlines which “eligible partnerships” are allowed to compete. Such partnerships must consist of an institution of higher education and a high-need local education agency (school district). It is only after that requirement is satisfied that eligible partnerships may also include other institutions, such as non-profit education organizations. In short, eligible science centers are considered as an afterthought in the law when they are often at the forefront of providing the congressionally intended activity of improving teacher quality.

The President’s fiscal year 2011 budget and the *Blueprint for Reform of ESEA* proposed a refashioning of the current Mathematics and Science Partnership program (Title II, Part B of ESEA). ASTC has been supportive of congressional iterations of this revamped language that would allow nonprofit organizations that improve the effectiveness of STEM teachers to apply directly for funding in partnership with a local education agency. Such eligibility language is included in both the STEM Master Teacher Corps Act of 2011 (S. 758), introduced by Senator Al Franken, and the Effective STEM Teaching and Learning Act of 2011 (S. 463), introduced by Senator Mark Begich, and is consistent with that which has also been included in the Department of Education’s Investing in Innovation (i3) program.

We also urge you to include technology and/or engineering teachers alongside math and science teachers as eligible participants in all programs enacted to recruit, train, mentor, retain, and further educate K–12 teachers. After all, we live in an engineered world. Engineering design creates the technologies that support our health, convenience, communication, transportation, living environments, and entertainment; our entire day-to-day life. Yet, technology and engineering design are not part of the mainstream curriculum. In most academic environments, the term “technology” is used to describe electronic devices. Most people do not understand that everything human-made, other than some forms of art, is a type of technology. Although students spend years in school learning about the scientific inquiry process, the process scientists use to discover the natural world, they never learn the engineering design process, which is responsible for most of the things that support their day-to-day lives. Science centers are ideal places to help educators fully integrate STEM concepts in their classrooms.

In addition, the science center field supports recommendations made by the President’s Council of Advisors on Science and Technology in *Prepare and Inspire: K–12 Education in STEM for America’s Future*. Specifically, we ask the committee to: (1) acknowledge the importance of educational innovation by endorsing initiatives like the Advanced Research Projects Agency for Education (ARPA–ED) and the aforementioned Investing in Innovation program, designed to stimulate the next generation of high quality educational experiences by new technology and other means for both in- and out-of-school learning environments; and (2) to ensure the recruitment, preparation, and induction support of at least 100,000 new math and science teachers over the next decade. We urge science center and museum eligibility in resulting teacher professional development opportunities and/or programs, to include both pre-service and in-service educators.

THE IMPORTANCE OF STEM EDUCATION

As you are well aware, there is a strong consensus that improving science, technology, engineering, and mathematics education is critical to the Nation’s economic strength and global competitiveness in the 21st century. Reports like the National Academies’ *Rising Above the Gathering Storm* (2005) and the recent offering from the President’s Council of Advisors on Science and Technology (PCAST), entitled *Prepare and Inspire*, have emphasized the need to attract and educate the next generation of American scientists and innovators, and have recommended that we increase our talent pool by vastly improving K–12 science and mathematics education. Clearly, in order to improve STEM education, we must draw on a full range of learning opportunities and experiences, including those in non-school settings.

In its report entitled *Learning Science in Informal Environments: People Places, and Pursuits*, the National Research Council (NRC) of the National Academies, Pursuits, said “beyond the schoolhouse door, opportunities for science learning abound . . .” The NRC found, among other things, that there is ample evidence to suggest that science learning takes place throughout the life span and across venues in non-school settings. Furthermore, the report highlighted the role of afterschool STEM education in promoting diversity and broadening participation, finding that non-school environments can have a significant impact on STEM learning outcomes in historically underrepresented groups, and that these environments may be uniquely positioned to make STEM education accessible to all. Out-of-school programs, such as those provided by OMSI, the MESA program at Portland State University, the

SMILE program at Oregon State University, Self Enhancement Inc., and 4-H, are key in reaching underserved populations that might not otherwise have access to STEM resources in school.

The informal learning environment is especially important when you consider that, by the age of 18, a child will have spent, at most, 9 percent of his or her lifetime in school. If a child spends about 6 hours a day in school, for each of the 180 days of the school year, he or she will spend little over 1,000 hours in school in a year, not including homework. Science centers and museums, along with nonprofits providing after-school programs, can help make hands-on, experiential learning an essential part of the many hours that remain.

SCIENCE CENTERS AS AN INTEGRAL PART OF THE NATION'S EDUCATIONAL INFRASTRUCTURE

Science centers are physical places where science and citizens can meet. Many have scientists on staff, and some feature research facilities on-site. Through exhibits and programming—such as lectures and science cafés—science centers help bring current research findings to the public while encouraging discussion and debate of current science issues. More and more, science centers are also getting members of the public involved in research projects themselves.

Science centers reach a wide audience, a significant portion of which are school groups. Here in the United States, 90 percent offer school field trips, and ASTC estimates that nearly 11 million children attend science centers and museums as part of those groups each year. Field trips, however, are just the beginning of what science centers and museums contribute to the educational experience of students and teachers alike. In the United States, 90 percent offer classes and demonstrations, 89 percent offer school outreach programs, 71 percent offer programs for home-schoolers, 41 percent offer programs that target senior citizens, and 40 percent offer youth employment programs. Furthermore, more than half offer after-school programs—especially noteworthy given that more than 15 million school-age children, including more than 1 million in grades K–5, are on their own after school. Research shows that kids who participate in such programs improved significantly in three major areas: feelings and attitudes, indicators of behavioral adjustment, and school performance. This translates, of course, to self-confidence and self-esteem, positive social behaviors, and accomplishment in school settings. Again, these activities are in addition to those already mentioned which focus on teachers.

ABOUT OMSI

As you know, the Oregon Museum of Science and Industry—like science centers all across America and all across the world—seeks to inspire wonder in people of all ages by creating engaging science learning experiences, making those experiences available to a broad audience, and providing compelling ways to explore the role of science in our world today. Major museum components that help us achieve that mission include: five exhibit halls; hundreds of interactive exhibits; eight laboratories; and two new permanent exhibits: *Science on a Sphere*, which projects dynamic real-time data from NOAA and NASA satellites on a globe, and *Innovation Station*, which explores the human side of technology and innovation. OMSI also features a 305-seat, five-story OMNIMAX® Dome Theater; the Harry C. Kendall Planetarium—which is the largest planetarium dome in the Pacific Northwest with seating capacity of 200; the USS Blueback, a 219-foot diesel electric submarine and the most modern U.S. submarine on public display in the country; and a 25,000 sq. ft. exhibit-building shop.

That shop helps feed the largest museum-based, traveling science exhibits program in North America. To date, OMSI has developed 45 interactive science traveling exhibits—including world-popular exhibits such as *Animation featuring Cartoon Network*, *Moneyville*, *Eyes on Earth*, *Brain Teasers*, *BUSYTOWN®*, and *Mindbender Mansion*—that have been featured at museums throughout North America and Europe.

ABOUT ASTC AND SCIENCE CENTERS

OMSI is a member of the aforementioned Association of Science-Technology Centers, a nonprofit organization of science centers and museums dedicated to providing quality educational experiences to students and their families as well as furthering public engagement with science among increasingly diverse audiences.

As you know, it is now more important than ever for us to do all we can to spark the interests of our young people in all that the STEM fields have to offer. For that reason, OMSI and literally hundreds of other community-based science centers throughout the country are providing unique educational programs that excite, ener-

gize, and enrich our understanding of science and its many applications, often in conjunction with—and support from—U.S. Federal agencies like the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the Institute of Museum and Library Services (IMLS), and the Department of Education (ED), among others.

Collectively, science centers and museums garner nearly 90 million visits annually worldwide. Here in the United States, visitors pass through science center doors nearly 63 million times to participate in intriguing educational science activities and explorations of scientific phenomena. The most recent *Science and Engineering Indicators* (2010) supports this data, finding that 59 percent of Americans visited a science center, museum, or similar Science centers come in all shapes and sizes, from large institutions in metropolitan areas—like my own, the Maryland Science Center in Baltimore, the Science Museum of Minnesota in Saint Paul, and the Museum of Science and Industry in Chicago—to smaller centers in somewhat less populated areas—like the Science Zone in Casper, WY, the Museum of Life and Science in Durham, NC, and Explora in Albuquerque, NM. ASTC member institutions range in size from 3,000 square feet of exhibit space to one that has more than 200 times that—nearly 650,000 square feet.

SERVING ALL YOUTH—THE ASTC YOUTH INSPIRED CHALLENGE

In closing, I want to draw the committee's attention to an effort to further expand upon the strong educational programs offered by science centers and museums. To better assist the Nation's youth in becoming the innovative and creative thinkers needed for the 21st century workforce, ASTC launched a major new initiative, the *Youth Inspired Challenge*, last September. The *Challenge*—extended to more than 300 science centers in all 50 States and across the world—sets a 3-year goal to engage thousands of youth, ages 10–19, in 2 million hours of science enrichment. Building on the valuable science education and youth employment programs ASTC members already offer, the goals of the *Youth Inspired Challenge* include: (1) increasing the STEM literacy of America's students; (2) expanding opportunities for STEM engagement of underrepresented groups, including minorities and women; and (3) moving America's students from the middle to the front of the pack in STEM achievement over the next decade. As part of the *Challenge*, ASTC and its member institutions will also collect, catalog, and share best practices for improving STEM literacy for all youth, and will measure and report success based on participation and reach of programs in specific audiences.

That process has already begun. I am pleased to report that 102 science centers representing 7 countries and 37 States—including OMSI, the Science Factory Children's Museum and Exploration Dome in Eugene, and the Science Works Hands-On Museum in Ashland—have formally accepted the *Challenge* to date. I look forward to keeping you and the committee abreast of these numbers—and even more importantly, our collective impact—as this initiative matures.

CONCLUSION

Senator Merkley, thank you once again for the opportunity to testify before you today. As you, your staff, and your fellow HELP committee members continue your efforts to reauthorize the Elementary and Secondary Education Act, I urge you to do all you can to recognize, highlight, and take advantage of the essential STEM-related contributions science centers and museums provide for students and teachers. The Oregon Museum of Science and Industry, Association of Science-Technology Centers, and hundreds of science centers and museums stand ready to assist you—and the country—in any way we can.

I would be happy to respond to any questions or provide additional information as needed by you and the committee.

Senator MERKLEY. Thank you very much.

When you have the teachers come in to learn these various exciting activities, do they actually do them there? Do they actually get their own hands dirty in the process of learning how to create that environment, how to replicate that in the classroom?

Ms. STUEBER. Absolutely. We believe that learning by doing is very powerful. And so, the teachers do that, and they do it not only onsite, but we are connected through distance learning technology.

So we are helping teachers in Halfway, OR, for instance, do the same activities that teachers in Portland might be able to do.

Senator MERKLEY. When you were talking, I was thinking back to a friend who described one of the ways that she first became really interested in science, and it was when a teacher did a demonstration. The teacher laid down on a bed of nails and then had the kids split bricks on top of the teacher to understand force.

I don't know if that is one of your—

Ms. STUEBER. We do that, yes.

Senator MERKLEY. Do you do that? That sounds very engaging.

Thank you so much for your leadership of OMSI and for OMSI's role in promoting and supporting education.

Thank you.

Ms. STUEBER. Thank you.

Senator MERKLEY. And now we turn to Beth Unverzagt. I apologize if I didn't get that right.

Ms. UNVERZAGT. You did pretty good.

Senator MERKLEY. Beth is the director of Oregon After School for Kids in Salem.

**STATEMENT OF BETH A. UNVERZAGT, DIRECTOR, OREGON
AFTER SCHOOL FOR KIDS, SALEM, OR**

Ms. UNVERZAGT. Right. Actually, statewide.

Senator MERKLEY. Statewide.

Ms. UNVERZAGT. Statewide. So like all of the other speakers, I want to thank you for the opportunity to be here and speak today, and I am thrilled that there are so many people that are interested in the reauthorization and in STEM.

Our work as the network, we are part of a national initiative. So there are 39 States that are developing statewide networks. We are funded by the C.S. Mott Foundation and by our Department of Education and our childcare division.

Our mission is solely to bring people together around expanding and supporting and advocating for quality out-of-school time. The network currently has 30 organizations, both State agencies and associations working together to improve the quality of afterschool for thousands of professionals that work in the field, and over 800 programs that offer both academic and enrichment opportunities for working families.

We provide training and technical assistance for our 21st century grantees through the Department of Education, and in my written statement, you will find the framework for science that the Department of Education is working on and developing with partners. And it really speaks to the partnership piece. So I am not going to go over that today because it is quite lengthy. But I think that taking some time to look at what our Department of Education is working on will benefit you.

Research has shown over the last two decades and confirms the impact of afterschool for children and families. We know what works. The research is in. It is done.

During my 6 years as the State director, I have visited hundreds of programs around the State. I have had numerous conversations around the policy issues and the barriers to quality programming. I have experienced the landscape of afterschool.

I have been to the most rural parts of Oregon, to the smallest schools, and they have inspired me because their dedication to the children and their communities is beyond belief. They are working for no money, and they are doing a fantastic job in caring for children.

On the national and State and local level, there is an increased attention around the demand for school systems and afterschool and summer programs to genuinely collaborate. The networks are an example of this.

We have, over the last couple of years, created Oregon After School Standards, core competencies for people who work in the field. We also had the opportunity to have a grant from CCSSO and NGA and have done the first-time ever landscape of afterschool.

I had the opportunity to speak directly with Superintendent Sipe and Superintendent Grotting when we were going through that process. So we know. We know quite a lot about where the programs are and who is working in them.

Your request today was to talk about STEM, and we see afterschool as the ideal setting. It provides smaller groups, longer time slots, and less formal environment. In looking at some of the research, 75 percent of the Nobel Prize winners echo the statement stating that their passion for science was first cultivated in non-school environments.

Another study just published by the Curry School of Education, the University of Virginia, speaks to something that I heard this morning at the roundtable, which is that—it was published in the *Journal of Science Education*, and it finds that sparking students' interest in science at an early age is more effective at steering them toward eventual careers in the STEM field than pushing high school students.

I also wanted to mention that Oregon has just been chosen as one of five States. A survey is going to be done of all of the STEM within this State by Change the Equation. It is 110 CEOs that are working together to look at science. We are excited that Oregon is going to be one of the five States.

What we believe is that we are ready. Oregon can scale up the science programs. In my testimony, my written testimony, I sent a graph of the kinds of science programs and that is just a portion of what has been identified. And whether it is robotics, rocketry, designing apps for mobile devices, gardening, water conservation, it is there, and it exists.

It needs to be coordinated. It needs people to learn to work together to accomplish these goals at school, afterschool, community-based organizations, and parents. We want to put some emphasis on the concept that expanded learning opportunities connected to the school day is not more school. So we really feel very strongly about hands-on learning and the process for hands-on learning.

The challenge of the widespread adoption of STEM and afterschool has, like with teachers, been the professional development piece. Too often professional development opportunities are limited to just teachers. We would like to see it opened up and coordinated with afterschool programs within the schools themselves.

It is an important step to collaboration. Program funds should not be tied just to innovation and research, but to quality design and delivery by well-trained, well-qualified staff.

Existing research tells us best practices for high-quality, effective design and delivery of programs. Time and duration matter. It needs to be part of the equation.

We also need coordination and communication between education providers, schools, afterschool parents. So ways in which to do that, we need to create opportunities that allow flexibility, understanding that you might have a very high-powered 4-H club in one community. You might have SEI in another community. You might have a faith-based organization in another community. All basically trying to do the same thing, which is to provide those supports and opportunities for the children and youth in their community.

We also believe that the most important thing for the reauthorization of ESEA would be to ensure that afterschool and summer learning opportunities remain the key funded program for 21st century. Already our State, every State has reapplied through the process. Language and guidance has been rewritten already. We believe that we need to continue the State allocations, as opposed to going to competitive grants.

We also encourage and support funding for a new title for science education that connects school and afterschool. Yesterday, your colleagues in the wonderful Federal Government submitted—Senator Barbara Boxer and Senator Murkowski—it was late yesterday—and Senator Murray from Washington introduced the After School for America's Children Act. It clearly outlines almost every single thing that we have talked about today. I would ask that you look at it and support it.

Thank you.

[The prepared statement of Ms. Unverzagt follows:]

PREPARED STATEMENT OF BETH A. UNVERZAGT

Research over the last two decades confirms the positive impact of afterschool programs on children, families and communities nationwide. At the national, State and local levels there is increased attention to and demand for schools and afterschool/summer programs to genuinely collaborate. That process will require multiple institutions and people to commit to being boundary crossers, to be open to creative solutions as they discover and design a new day for learning that supports all of America's children and youth.

In Oregon and across the Nation afterschool and summer learning programs have been able to provide engaging STEM education opportunities to young people by making science, mathematics, technology and engineering subjects come alive through hands-on, experiential learning. The Oregon afterschool network believes that the innovative programs and strategies that have been developed locally can and should be scaled up and integrated with ESEA to benefit students.

Whether robotics, rocketry, designing apps for mobile devices, gardening, water conservation, cooking, crime scene investigation (CSI) simulations, or other programs, out of school programs can complement school day lessons while encouraging students to embrace the scientific method, and have fun.

An expanded learning opportunity connected to the school day is NOT more school after school (Einstein's definition of insanity, after all) using project-, service- and place-based learning with culminating events such as exhibitions, presentations, and competitions (e.g., *FIRST* LEGO robotics, www.usfirst.org nationally or www.ortop.org in Oregon).

There are many challenges facing education from our perspective, and they are:

- The challenge to the widespread adoption of STEM afterschool has been the professional development opportunities for staff and consistent implementation

funding. Too often professional development opportunities are limited to teacher. Opening these opportunities up to afterschool educators would be helpful.

- Program funds not tied to “innovation” or “research” but to quality design & delivery by well-trained, well-equipped staff for both afterschool and certain in-school programs. Existing research does tell us the best practices for high quality, effective design & delivery of programs.

- Coordination and communication between education providers (schools, afterschool), parents, teachers and community both for better student access to programs, more effective delivery to students and for some form of accountability, preferably longitudinal tracking of student outcomes and the use of higher-order assessment than multiple-guess tests.

- Allow flexibility, so that if one community has a very active 4–H program and another has a very active school-based science club, each community gets to leverage its particular resources and does not have to re-invent any wheels, only connect them to the vehicle. This is particularly important for rural areas.

- Instructional time during the school day for STEM, emphasizing deeper rather than broader knowledge, using application of knowledge to integrate and contextualize knowledge and skills (answer “When will I ever use THIS in my life? Why should I care about THIS?” with engaging projects using math, science, engineering, computer, language & social skills).

- The most important thing for the re-authorization of ESEA would be to ensure afterschool and summer learning opportunities remain as the key funded programs under the 21st Century Community Learning Centers initiative in Title IV Part B of ESEA. We encourage and support additional funding for science education that connects school and afterschool/summer programs.

We are beginning to recognize that organized and intentionally designed non-school hour programs not only help keep communities safe, but they keep kids engaged in learning which supports collaboration, problem solving, creative thinking, and helps develop life skills and enrichment opportunities that they would otherwise not be able to access.

OREGON

Our Oregon Department of Education is currently drafting a Statewide Framework for STEM Education. The initial input for the framework was provided by representatives from business and education including organizations that focus on STEM education outside of the school day. We anticipate that the framework will be available for broader review in September 2011. The framework will:

1. Define STEM education and goals related to preparation for college, careers, and citizenship.
2. Identify critical components needed for improvement in STEM education.
3. Describe a mechanism for linking educators and communities interested in improving STEM education.

A brief summary of the existing work on each of these sections is included here.

PROPOSED DEFINITION FOR OREGON STEM EDUCATION

“An approach to teaching and lifelong learning that emphasizes the natural interconnectedness of the four separate STEM disciplines. The connections are made explicit through collaboration between educators resulting in real and appropriate context built into instruction, curriculum, and assessment. The common element of problem solving is emphasized across all STEM disciplines allowing students to discover, explore, and apply critical thinking skills as they learn.”

GOALS FOR OREGON STEM EDUCATION

- *Improve student performance in STEM related content;*
- *Increase interest in and improve preparation for STEM careers; and*
- *Become proficient in STEM concepts necessary to make personal and societal decisions.*

COMPONENTS OF OREGON STEM EDUCATION

Improving STEM education in Oregon will require more than a new curriculum, more professional development, or enhanced after-school activities. The Components of Oregon STEM Education describe the broader set of issues that need to be addressed so that the individual actions of schools, districts, State agencies, educational program providers, businesses, and communities provide maximum impact. Key components of Oregon STEM Education include Community Engagement, Ef-

fective Instruction, Effective Leadership, Evaluation and Research, Effective Learning Environments, and Coherent Standards and Policies.

Community Engagement

STEM education is the responsibility of a community that extends beyond schools. Business and industry has an interest in STEM education in order to grow a literate and innovative workforce. Wide ranges of organizations provide STEM learning opportunities through classes, competitive events, and mentorships. Parents and volunteers provide personal knowledge and experience that can engage and inspire students.

Engagement of the community in STEM education requires communication and collaboration. Community members who are not part of the school setting need to know how to interact with schools, teachers, and students in a meaningful and sustainable fashion. Schools need to understand what resources are available and how to best incorporate those resources into the educational setting. Collaborations between schools and communities can also provide positive support for policy.

Effective Instruction

Teachers are central to effective STEM instruction whether they are teaching science or mathematics in a school, coaching a robotics team, leading a 4-H club, or guiding a group through a museum. A STEM teacher can be someone who has completed a professional education program, attended training sessions, or accumulated life experience in STEM disciplines. They can hold a variety of credentials and teach in a variety of settings. STEM teachers create opportunities for students to make connections between science, technology, engineering and mathematics and use that knowledge and critical thinking skills as they problem solve.

In order to improve teacher effectiveness in STEM instruction teachers need professional development opportunities to improve their knowledge and skills. Additionally, teachers need to be able to collaborate with others on the development of STEM learning opportunities for students, improve practice through lesson studies, and have access to coaching support.

Effective Leadership

Effective Leadership is critical to ensuring equitable access to high quality STEM teaching and lifelong learning. Leaders may come from both inside and outside of the schools. An effective leader may be a teacher leader, a school level administrator, a district level curriculum specialist, a regional professional development provider, ESD or school district superintendent, State level education specialist, a community member, or an industry representative.

Effective Leadership requires the engaging of others about the importance of STEM, sharing success stories based on data, and building capacity by helping others succeed in providing STEM learning opportunities for students. Effective Leadership includes focused instructional leadership as well as developing and implementing coherent policies, advocacy for equity, providing and supporting effective learning environments, establishing and maintaining the infrastructure and facilities necessary to support teachers in the delivery of effective STEM instruction, building connections to community, parents, and businesses, and ensuring accountability at every level.

Evaluation and Research

Evaluation of the Oregon STEM Framework is essential for monitoring the impact of this work and fine-tuning based on lessons learned. Our ability to illustrate what STEM learning looks like and the impact on student achievement is imperative for developing sustainable STEM learning opportunities for our students. Research will help us as we provide training for leadership and teachers by providing information about successful strategies, efficiencies, and greater ability to communicate the importance of STEM to our students, parents and community members. Evaluation includes monitoring progress and lessons learned in addition to identification of best practices in STEM.

Effective Learning Environments

Both the physical and social environments influence STEM learning. With an emphasis on problem solving and critical thinking in STEM, students need to be part of a social environment that encourages dialogue with teachers and other students. Effective learning requires an environment that includes appropriate pacing of instruction, grouping of students and feedback. Careful consideration of physical layout of classrooms or learning environments, including appropriate tools and technologies, is required to support social aspects of learning.

Coherent Standards and Policies

Coherent standards and policies help remove barriers to implementation and provide support for development of interconnected STEM education programs. Standards define what is both expected to be taught and learned at each grade level. Coherent standards help support educators in understanding how to meet these standard expectations within a STEM learning environment.

Policies that influence STEM learning may be local, regional, statewide, public, or private. These policies need to be reviewed to make sure that they support rather than set up barriers to STEM teaching and learning.

LINKING STEM EDUCATORS

Oregon is engaging in a networking model for promoting changes in STEM education statewide that are effective and coordinated. Similar models are at various stages of development in other States such as Ohio, New Mexico, North Carolina, and Massachusetts. In these States, regional networks of schools are being formed to support coherent improvement in STEM education. This concept is identified by the Carnegie Foundation as Networked Improvement Communities and is described in some detail in a document that can be found at http://www.carnegiefoundation.org/sites/default/files/bryk-gomez_building-nics-education.pdf.

OTHER STEM EDUCATION RESOURCES

- Fall 2010 data reference links—<http://opas.ous.edu/Work2009-2011/State-of-Ed-OR-refs.pdf>.
- Exploring Engineering and Computer Science brochure, locally tuned for Oregon—<http://opas.ous.edu/Work2009-2011/Marketing/E-Week-explore-2011.pdf>.
- K–12 STEM education opportunities in & around the Portland Metro area—www.technosciencesupersite.org.

State Educational Technology Directors Association Class of 2020 Action Plan—STEM Whitepaper: <http://www.setda.org/web/guest/2020/stem-education>.

National Academies Press Successful K–12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics: http://www.nap.edu/catalog.php?record_id=131581. Reflect on your experiences (as an employer/ teacher/ administrator/ parent/ student) trying to get/working to offer encouragement for, and greater opportunities to Oregon students in science, mathematics, technology and engineering.

Senator MERKLEY. Thank you very much. Thank you for your testimony.

We have 10 minutes left. And during those 10 minutes, I just wanted to open this up. You have all heard each other and perhaps that produced some thoughts or comments or insights. I will ask you to keep it very brief so that we can bounce back and forth and utilize this last 10 minutes.

Anybody want to jump in? Anything on your mind from having heard this dialogue on either side?

Yes, Mr. Hopson.

Mr. HOPSON. I think there is two distinct sides of this, as we talk about STEM and being competitive internationally. I mean, I do believe that America, we all know, has fallen way behind. So STEM and the research and work around that is very, very necessary.

But it certainly doesn't need to be an either/or because many of us are dealing with the other end of the spectrum. We are just trying to get a kid graduated, trying to keep them in the school and become a positive contributing citizen.

So I think both are very, very important, and we do need to have emphasis on both because, as a nation, we can't compete unless we do a much better job on what the individuals across from me are talking about. But at the same time, if we can't keep more kids in school, we won't even have the sheer numbers to be able to compete.

Senator MERKLEY. OK. Thank you.

Yes.

Ms. SIPE. I appreciate all of the feedback today, especially regarding STEM and student supports. The one thing I would like to emphasize is to remember the needs of rural and remote students in these areas specifically.

As I watched the science demonstration, my 14-year-old son is a scientist, but he will never have access to this type of program because we do not have this program available, nor do we have mentors in our area to provide those services to kids. And so, if we are going to be requiring these types of activities, we need to remember access as well, please.

Senator MERKLEY. Thank you.

So it is important to recognize the challenges in a very different, rural community. Intel is a long ways away from Umatilla.

Thank you.

Go ahead and take the microphone so we can get you on record.

Mr. ANGULO. Thomas Friedman, the writer for the *New York Times*, had an article yesterday called "Start You Up." I happened to see him on C-SPAN at this Aspen Institute Fair of Ideas or a meeting of ideas, and he was talking about what is happening in our new global economy, of how our American students are just really falling further and further behind, compared with the Chinese and the South Koreans and the Germans and Russians.

You know, he talks about the skills of the future, and I just want to thank you, Mr. Fuller, because you are certainly putting us closer to that kind of thinking, that kind of changing the paradigm of public education in the United States.

Senator MERKLEY. Thank you, Eduardo.

Yes.

Mr. FULLER. I just wanted to respond to what Superintendent Sipe said. There is actually—having done a lot of fundraising work—there is a ton of money out there in industry looking to get science programs in rural schools and a great opportunity to reach out to I know that especially robotics teams, but also a lot of other organizations are very willing to help expand their programs.

If you would like to get in contact with one of us, I am sure we can find a way to get a robotics team somewhere in your school. I have found tons of money for rural schools. So it is out there. You have to know where to look for it.

Senator MERKLEY. Thank you very much, Nathan.

Ms. ANDERSON. I was just going to compliment Mr. Fuller on your amazing presentation. I think you are an amazing example of how important it is to hear from students. You are the reason that we are all here talking about education, and without your voice, we are missing a huge element.

Thank you so much. And again, you reminded us how important outcomes are. And Intel is an advocate for good assessments, but that is just a piece. We need to look at how we can make sure students like Mr. Fuller and others are able to connect and find the education pathway that they are going to take to be successful.

So we can't forget that there is life after K-12. We need to make the connections and make it a whole system.

Senator MERKLEY. President Stueber.

Ms. STUEBER. I appreciate the dialogue that you created this morning, and one of the most uplifting things for me about coming today is hearing from so many colleagues from so many different approaches, all with the same intent, which is helping our students.

I guess my inspiration would lead me to encourage you in this reauthorization language and in thinking about all the ways that we advocate for STEM to make sure the tent is very large. It will take all of us. The need is so great, and we all need to be growing in the same direction to be effective.

Your leadership and guiding legislation that enables that will be really valuable.

Senator MERKLEY. You know, one of the programs that is an afterschool program is Chess for Success. And Chess for Success is kind of at an opposite end of the spectrum, if you will, from the FIRST Robotics in that it is often run without any real cost resources—a classroom, a volunteer mentor, and some chessboards.

There was a study done on Chess for Success here in Oregon that showed it had a pretty positive impact. I just wanted to ask if anyone here has had association with that approach, as an additional enrichment program?

Yes, Beth.

Ms. UNVERZAGT. Yes, I have. There are many Chess for Success programs that are part of other kinds of enrichment and activity within a more comprehensive program. So they don't really stand alone. They stand in with other activities within schools, within the afterschool program.

There are hundreds of kids doing chess all over Oregon, and we see the same thing with Lego FIRST Robotics infused into the afterschool program itself. So they have both small first through third grade teams, and then fourth through fifth grade teams where Legos are a part of the 10-week curriculum.

And then we also see that there are providers like OMSI or Mad Scientist or others that are coming into and being part of more comprehensive programming.

Senator MERKLEY. While you have the microphone, are there other things in the afterschool enrichment world that are particularly transportable models into the rural areas that may not have, say, industrial manufacturing partners and so forth nearby?

Ms. UNVERZAGT. There definitely are. We see a lot of creativity. For example, one of our partners is Fish and Wildlife, and they offer all kinds of training and opportunities within rural communities. We have fishing in afterschool. We have safety classes.

There are lots of environmental things being done within rural afterschool. Some areas that have arts associations or arts organizations take really strong leadership in afterschool around the arts. So it really is a wide spectrum.

We are piloting a program that NASA created, which is After School Universe. So we are actually training with a particular curriculum that is going to go through sixth through eighth grade to 21st century and then also to SMILE and COSI, so the partners within science.

Senator MERKLEY. Time for one last comment. Anyone else—yes?

Mr. HOPSON. Just to respond to your question about Chess for Success, we have had some experience with that. But what I would say, as it relates to whether it is Chess for Success or Lego Robotics, there are pieces that we talk about—the who, the how, and the what.

Chess for Success is a what. Lego Robotics is a what. They are good what's, but they are only as good as the who that is running the program and how they interact with kids.

The key to all of this is the interaction with young people on a daily basis. What we do does have some relevance, but it is not the major part of this, as far as I am concerned.

There are a lot of different afterschool efforts all around the country that people talk about. But if you don't have the right who involved with that and how they have learned to interact with young people, it still would not be a success.

Senator MERKLEY. I think that that is right. Oh, do you have a comment?

Ms. UNVERZAGT. I am going to agree with Mr. Hopson that, in fact, the No. 1 thing that makes a program successful is the who. And research bears it out, No. 1. They need to be trained. They need supports so that they can continue to do that kind of outreach and support.

In your team, you have someone who supports you in your team.

Senator MERKLEY. On that final note echoed on both sides of the room, I think that is a good point to conclude this hearing.

Before I gavel the hearing closed, I really want to thank everyone for coming and attending.

Jeanne, I want to check in with you for a moment. Did folks have a chance to make a note on the way in if they want to followup with specific comments?

OK. Great. So I realize that in a formal structure of a Senate hearing, we don't have the open forum. So because that is not part of the Senate, we are going to followup with everyone who marked that they have comments and inputs on the sign-up sheet.

And if you didn't mark that but want to now, please connect with Jeanne Atkins on your way out, and we will make sure we followup with you.

Education is an undertaking of our entire society, certainly of those within our schools, those who are supporting programs within our schools, those are strengthening our families. It is the complete community effort and perhaps the very most important thing we do for the success of the next generation.

Thank you for being a part of this, both as participants in the audience and for those of you who served on the panel. I appreciate it very much and applaud the work you are doing and look forward to the ongoing conversation. Because this is not just one bill up before a legislature, rather this is an ongoing conversation about the health and quality of our society, success of our children, and the strength of our economy.

And with that, I will gavel closed this hearing of the Senate Health, Education, Labor, and Pensions Committee.
[Whereupon, at 12:00 p.m., the hearing was adjourned.]

