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RAISING THE BAR: HOW EDUCATION INNOVATION CAN IMPROVE STUDENT ACHIEVEMENT

HEARING

BEFORE THE

SUBCOMMITTEE ON EARLY CHILDHOOD, ELEMENTARY AND SECONDARY EDUCATION

COMMITTEE ON EDUCATION AND THE WORKFORCE

U.S. HOUSE OF REPRESENTATIVES

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RAISING THE BAR: HOW EDUCATION INNOVATION CAN IMPROVE STUDENT ACHIEVEMENT

Thursday, February 14, 2013
U.S. House of Representatives
Subcommittee on Early Childhood, Elementary and Secondary Education
Committee on Education and the Workforce
Washington, DC

The subcommittee met, pursuant to call, at 10:02 a.m., in room 2261, Rayburn House Office Building, Hon. Todd Rokita [chairman of the subcommittee] presiding.

Present: Representatives Rokita, Kline, Petri, Roe, Thompson, Roby, Brooks, McCarthy, Scott, Polis, and Wilson.

Also present: Representative Miller.

Staff present: Katherine Bathgate, Deputy Press Secretary; James Bergeron, Director of Education and Human Services Policy; Heather Couri, Deputy Director of Education and Human Services Policy; Lindsay Fryer, Professional Staff Member; Barrett Karr, Staff Director; Krisann Pearce, General Counsel; Mandy Schaumburg, Education and Human Services Oversight Counsel; Dan Shorts, Legislative Assistant; Nicole Sizemore, Deputy Press Secretary; Alex Sollberger, Communications Director; Alissa Strawcutter, Deputy Clerk; Brad Thomas, Senior Education Policy Advisor; Tylease Alli, Minority Clerk; Jeremy Ayers, Minority Education Policy Advisor; Meg Benner, Minority Education Policy Advisor; Kelly Broughan, Minority Education Policy Associate; Jody Calemine, Minority Staff Director; Tiffany Edwards, Minority Press Secretary for Education; Jamie Fasteau, Director of Education Policy; Brian Levin, Minority Deputy Press Secretary/New Media Coordinator; Scott Groginsky, Minority Education Policy Advisor.

Chairman ROKITA. A quorum being present, the subcommittee will come to order. Well, good morning, everyone. And welcome to the first hearing of the Subcommittee on Early Childhood, Elementary, and Secondary Education in the 113th Congress.

I would like to thank our witnesses for joining us, first off. We appreciate the opportunity to get your perspective on the innovative ways schools and education leaders are utilizing technology and implementing creative reforms to help raise the bar on student achievement.

And Mrs. McCarthy, before we begin, I would also like to say it is an honor to serve with you. I look forward to a great term on this committee, a great hearing, first off, and everything in between.

Mrs. MCCARTHY. Well, thank you. And I am looking forward to working with you. We have a great opportunity to work on things to make a difference in our children's lives.

Chairman ROKITA. I think so as well. I hope so. And I think we have a lot of commonality here, a lot of good bipartisanship.

As a father of two young boys myself, I know today's kids learn differently than previous generations. I can tell that by the toys that are in our living room versus the toys I had and tools I had when I was a kid. They are more adept at effortlessly figuring out new technology and seamlessly incorporating it into their daily lives.

Recognizing the wealth of technology now at our fingertips, several states are working to alter the way education is delivered to students. In Utah and Georgia, for example, state leaders have approved extensive online learning programs, with coursework that can be used in addition to the education a child receives through the traditional methods.

Now this blended learning model, as it is called, provides students face-to-face interaction with a teacher while supplementing their education with online instruction. I find it fascinating.

Online coursework has also become increasingly popular for students who are interested in classes that may not be offered at their current school, or who need additional assistance in certain subject areas. As online coursework becomes accepted in more states, additional families I think across the country will be able to use these digital classes to customize their child's education, hopefully at a lesser cost.

Virtual schools, which are currently offered in twenty-eight states, provide another option for families seeking additional choices. In the 2011-2012 school year, more than half a million students were enrolled in virtual schools, either part-time or full-time, a 16 percent increase from the previous school year.

For children in rural areas, or whose schools otherwise aren't able to fully support their needs, virtual schools provide a critical opportunity to keep learning and stay on track for graduating fully prepared for college or the workforce.

In my home state of Indiana, if I can brag just a little, leaders have taken steps to expand access to blended learning programs and virtual schools, including virtual charter schools. In 2011, Indiana legislators took action to allow more of these innovative online institutions to seek sponsors in districts throughout Indiana to start their own public programs.

With 610,000 students currently on charter school wait lists, virtual charter schools can provide a lifeline to children who are desperate to escape an underperforming school but cannot access a brick-and-mortar charter school.

As we have said many times in this committee, helping ensure families can make choices about their children's education is the key to strengthening our education system as a whole. I applaud the state and local education leaders who have embraced digital

learning policies, and hope more states and school districts will pursue these options in the near future.

In the past, my colleagues and I have supported policies to provide states and school districts additional flexibility to allocate funds to help support education innovation. And I look forward to continuing exploring similar proposals in the 113th Congress, and to a productive conversation this morning about the impact of blended learning and other digital education technologies on student achievement.

And of course, I will now recognize my distinguished colleague, Mrs. McCarthy, for her opening remarks.

[The statement of Chairman Rokita follows:]

Prepared Statement of Hon. Todd Rokita, Chairman, Subcommittee on Early Childhood, Elementary and Secondary Education

As a father of two young boys, I know today's kids learn differently than previous generations. They are more adept at effortlessly figuring out new technology and seamlessly incorporating it into their daily lives.

Recognizing the wealth of technology now at our fingertips, several states are working to alter the way education is delivered to students. In Utah and Georgia, for example, state leaders have approved extensive online learning programs with coursework that can be used in addition to the education a child receives in the traditional classroom. This blended learning model provides students face-to-face interaction with a teacher while supplementing their education with online instruction.

Online coursework has also become increasingly popular for students who are interested in classes that may not be offered at their current school, or who need additional assistance in certain subject areas. As online coursework becomes accepted in more states, additional families across the country will be able to use these digital classes to customize their child's education.

Virtual schools, which are currently offered in twenty-eight states, provide another option for families seeking additional choices in education. In the 2011-2012 school year, more than half a million students were enrolled in virtual schools either part-time or full-time, a 16 percent increase from the previous school year. For children in rural areas, or whose schools otherwise aren't able to fully support their education needs, virtual schools provide a critical opportunity to keep learning and stay on track for graduating fully prepared for college or the workforce.

In my home state of Indiana, leaders have taken steps to expand access to blended learning programs and virtual schools, including virtual charter schools. In 2011, Indiana legislators took action to allow more of these innovative online institutions to seek sponsors and districts throughout Indiana to start their own public programs. With 610,000 students currently on charter school wait lists, virtual charter schools can provide a lifeline to children who are desperate to escape an underperforming school but cannot access a brick-and-mortar charter school.

As we have said many times in this committee, helping ensure families can make choices about their children's education is key to strengthening our education system as a whole. I applaud the state and local education leaders who have embraced digital learning policies, and hope more states and school districts will pursue these education options in the near future.

In the past, my colleagues and I have supported policies to provide states and school districts additional flexibility to allocate funds to help support education innovation. I look forward to exploring similar proposals in the 113th Congress, and to a productive conversation this morning about the impact of blended learning and other digital education technologies on student achievement.

Mrs. McCARTHY. Thank you. First, let me say that I am looking forward to serving with my chairman and working in a bipartisan manner on the issues this subcommittee will be addressing this Congress.

I see that our chairman, Mr. Kline and Ranking Member Mr. Miller are here. So I don't know whether they are watching us or what. But we will show——

[Laughter.]

But anyway, I would also like to welcome and thank our esteemed panel of witnesses for joining us today. At this point of time, there is little doubt that technology has the potential to enhance and in many ways redefine the educational field.

Much of today's workforce seamlessly incorporates technology in every day work. Moreover, the skill set needed to work with technology are no longer considered out of the ordinary.

As such, teachers and school leaders alike must incorporate real world technology in education programs nationwide, so students can remain competitive in our global economy.

Earlier, I mentioned that technology has the potential to enhance education. And I do not choose that word lightly. Technology in the classroom is only helpful if we make a legitimate commitment to it. Technology, if used sparingly and without proper direction and instruction, can distract and deter from the classroom studies.

We can avoid these pitfalls through fostering teacher and school leader improvement and through family engagement, two of my priorities this Congress.

Because students learn at different paces and have varied access to technologies in their personal time, it is absolutely critical that teachers and school leaders be trained in digital learning practices and have the support of legislators at this pursuit. Such training must be tailored to work for all students, especially our country's most vulnerable populations, including those who might not have strong computer skills.

The federal government has a role to help facilitate such investment through appropriations. And equally as important, the federal government has a role to listen and heed the advice of local teachers and school leaders, who can speak to what methods have proven to be effective.

I cannot emphasize enough the importance of the federal government listening to what is working locally. This general idea is the cornerstone of legislation that I plan to refresh in this Congress. And that is the Teachers at the Table Act.

In regards to family engagement, I have championed legislation that has called for the Department of Education to establish an Office of Family Engagement, and for flexibility for states to set aside Title I funding to support local engagement centers. I believe such flexibility will ultimately lead to families becoming more responsive to children's studies.

The more families are engaged, the more likely they are to reinforce the skill sets their young ones are learning on a daily basis. Technology can lengthen the traditional school day in fun, different ways. With well trained educators teaching, with innovative devices, and families involved in the process, I believe we can realize the potential of technology in education.

I am eager to hear from each of you as the witnesses on some state and local initiatives, as well as from Assistant Education Secretary Shelton, who I hope can speak to the federal approach.

Thank you.

And thank you, Mr. Chairman. And I yield back the rest of my time.

[The statement of Mrs. McCarthy follows:]

Prepared Statement of Hon. Carolyn McCarthy, Ranking Minority Member, Subcommittee on Early Childhood, Elementary and Secondary Education

Let me begin by saying I am looking forward to serving with my Chairman and working in a bipartisan manner on the issues this Subcommittee will be addressing this Congress.

I would also like to welcome and thank our esteemed panel of witnesses for joining us today.

At this point in time, there is little doubt that technology has the potential to enhance and in, many ways, redefine the educational field.

Much of today's workforce seamlessly incorporates technology in every day work.

Moreover, the skill-sets needed to work with technology are no longer considered out of the ordinary.

As such, teachers and school leaders alike must incorporate real-world technology in education programs nationwide so students can remain competitive in our global economy.

Earlier, I mentioned that technology has the "potential" to enhance education.

I did not choose that word lightly.

Technology in the classroom is only helpful if we make a legitimate commitment to it.

Technology, if used sparingly or without proper direction and instruction, can distract and deter from classroom aims.

We can avoid these pitfalls through

- fostering teacher and school leader improvement and
- through family engagement—two of my priorities this Congress.

Because students learn at different paces and have varied access to technologies in their personal time—it is absolutely critical that teachers and school leaders be trained in digital learning practices and have the support of legislators in this pursuit.

Such training must be tailored to work for all students—especially our country's most vulnerable populations including those who may not have strong computer skills.

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I am eager to hear from each of the witnesses on some state and local initiatives as well as from Assistant Deputy Secretary Shelton who I hope can speak to the federal approach.

Thank you.

Mr. Chairman, I yield back the rest of my time.

Chairman ROKITA. Thank you, Mrs. McCarthy.

I also want to welcome all the members of the committee here this morning.

Pursuant to Committee Rule 7-C, all subcommittee members will be permitted to submit written statements to be included in the permanent hearing record. And without objection, the hearing record will remain open for 14 days to allow statements, questions

for the record and other extraneous material referenced during the hearing to be submitted in the official hearing record.

Hearing no objection.

It is now my pleasure to introduce our distinguished panel of witnesses.

First, Mr. John Bailey is the executive director of Digital Learning Now. Mr. Bailey has previously served at the White House as special assistant to the president for domestic policy during the Bush administration, where he coordinated education and workforce policy. He also served as the nation's second director of educational technology.

Mr. Preston Smith is CEO and president of Rocketship Education, which he co-founded in San Jose, California, in 2006. He served Teach for America at Clyde Arbuckle Elementary School, where he earned the distinction of teacher of the year. He has also served as founding principal of LUCHA Elementary School in San Jose.

Ms. Holly Sagues—good morning—is the chief policy officer for Florida Virtual School. Ms. Sagues taught in a traditional classroom for 8 years before joining the school in 1998. She developed and taught four online courses, and served as chief information officer, before assuming her current position as chief policy officer.

And Mr. Jim Shelton, my apologies, sir, I didn't get to introduce myself personally to you earlier this morning. Thank you for being here. Mr. Shelton is the assistant deputy secretary for innovation and improvement at the U.S. Department of Education.

He manages a portfolio that includes most of the department's competitive teacher quality, school choice and learning technology programs, housed in the Office of Innovation and Improvement.

Before I recognize each of you to provide your testimony, let me briefly explain our lighting system. You will each have 5 minutes to present your testimony. When you begin, the light in front of you will turn green. When 1 minute is left, the light will turn yellow.

When your time has expired, the light will turn red. Sounds simple, not necessarily for us. [Laughter.]

At that point, I ask you to wrap up your remarks as best as you are able. After everyone has testified, members up here will each have 5 minutes to ask questions of the panel.

So without further ado, I would like to recognize Mr. Shelton for 5 minutes.

Excuse me. Okay. My first meeting as chair here in this chair, and I already messed up.

We are going to go with Mr. Bailey. Thank you.

STATEMENT OF JIM BAILEY, EXECUTIVE DIRECTOR, DIGITAL LEARNING NOW

Mr. BAILEY. I have always wanted to be Jim, though. [Laughter.]

Members of the subcommittee, thank you for the opportunity to address you today. Never in recent history has the work of this subcommittee been more important.

Our nation's economic growth is based increasingly on human capital rather than physical capital. As a result, the policies and priorities involving education and job training will be critical in shaping the future of our country.

Innovation in business and society is linked to harnessing the opportunities offered by new technologies and innovations. Technologies have changed virtually every sector from business to entertainment to healthcare. Yet our education system remains, by and large, the same as it was 100 years ago.

It is evident that a one-size-fits-all education system doesn't fit today's generation of students. Students learn at individual paces. They want to be challenged. They want to be engaged. And they want an experience personalized just for them. But our current system is not offering that.

Digital learning is a tool that helps fulfill the two great premises underlying our nation's education system: providing equal access to education opportunities for all students and ensuring that those opportunities are high quality. Online learning can bring highly effective teachers to students wherever they are located. Technologies can help scale courses, content, resources, tools and services.

Former Florida Governor Jeb Bush regularly calls on state policy makers and leaders to use these new opportunities offered by technology as a catalyst for new models and new approaches to learning and to school. It is not about buying computers. It is not about adding a layer of technology over the current system.

It is about redesigning schools and classrooms and instruction from the ground up with a focus on the individual student. Digital learning enables customization and personalization of education for each student. Students can learn anytime, anywhere, in their own style and at their own pace.

The Internet is challenging any model that has traditionally bundled service by offering a dizzying array of unbundled alternatives that consumers can assemble in their own unique groups. The music industry is a perfect example of this.

Music traditionally has been bundled into albums. Albums were bundled into others and sold at physical stores. Now consumers can pick from any one of 20 million songs that are individually sold on iTunes, Spotify or Amazon.com, and put together their own playlist.

Education is also subject to those forces. Consider that the Florida Virtual School offers more than 120 courses. The Khan Academy offers a library of over 3,900 video tutorials on everything from arithmetic to physics.

BetterLesson offers a database of more than 450,000 files for teachers and 100,000 complete lesson plans. There are more than 3,900 children's ebooks that are soon to be available on Scholastic's new Storia app. And the OER Commons offers more than 42,000 open education resources. All these being available to be unbundled for students' personalized education.

All this is challenging the way that we think about choice and options for students. Digital learning is rapidly opening up choices available to students, not just over which institutions they attend, but over what courses they can choose from on a course by course basis.

All this is creating new quality opportunities and options for students among, within and outside of school.

The challenge facing the digital learning revolution is that we have faced a patchwork of antiquated laws and regulations that

limit or arbitrarily restrict these opportunities for students. These barriers take three primary forms:

The first is limitations. Some states are imposing arbitrary caps on the number of students who can enroll in online learning. Caps and limitations are a poor substitute for a rigorous quality system that measures provider effectiveness based on student outcomes, such as completion rates, proficiency, student growth and other measures.

Low performing programs should be shut down. Cyber charter school authorizers should use their authority to close down low performing charters when not performing.

Outdated regulations is the second. Digital learning models need the flexibility from outdated regulations such as seat time and class size restrictions, and they need the freedom to provide end of course exams throughout the year.

And last is finance. Policy makers need to rethink the way that we finance K-12 education. Our traditional system finances institutions, not learning. As students begin to increasingly assemble a portfolio of education from both traditional and online providers, the funding must be flexible enough to follow the students to the provider of their choice, down to the individual course level.

While most of these barriers best addressed by state and local policymakers, there are opportunities for the federal government to help accelerate the digital learning revolution.

First, provide incentives for states to eliminate arbitrary barriers to online learning and blended learning. This principle has been used in the past with Race to the Top, with i3 and with other grants, including the charter schools grants to help with funds awarded on a competitive basis to incentivize state action.

Ensure that federal funds follow the student. As school choice becomes more and more about not school choice but course choice, funding needs to be able to follow a student to a traditional school and then to some of the online providers that this student selects.

And we need to modernize our education broadband programs. Programs such as the E-rate should be modernized, streamlined and better aligned to the reform agendas being put into place by our nation's governors. Broadband and modern devices are needed to support not just richer digital learning experiences, blended learning experiences and online experiences, but also for the next generation of assessments that states are putting into place.

It is urgent that we reform our system of education into one that prepares each student with the skills they need to secure high paying jobs, participate in democracy, and engage in the world.

Thank you very much.

[The statement of Mr. Bailey follows:]

Prepared Statement of John Bailey, Executive Director, Digital Learning Now

Members of the subcommittee, thank you for the opportunity to address you today. Never in recent history has the work of this subcommittee been more important. Our nation's economic growth is based increasingly on human capital rather than physical capital. As a result, the policies and priorities involving education and job training will be critical in shaping the future of our country.

In my remarks today, I want to focus on several major digital learning trends that are reshaping the way we structure education and deliver instruction as well as the

policy challenges that limit these innovations in helping more students and teachers.

Digital Learning

Innovation in business and society is linked to harnessing the opportunities offered by new technologies. Technology has given us an unprecedented around-the-clock access to information and services that are changing the way we live and work. Technologies have changed virtually every sector from business to entertainment to healthcare. In each instance, these digitally enabled revolutions are empowering individuals with more information, greater and more convenient access to options, and more personalized experiences.

Yet our education system remains, by and large, the same as it was a hundred years ago. Students growing up in an app-based, personalized world are confronted by a system of education designed in an industrial era based on an agriculture calendar. With so many options in their personal lives and so few in their traditional classroom, it's no wonder so many students have become disinterested and disengaged in the learning process and are dropping out in alarming numbers.

For example, a recent report from the Center for American Progress concluded that many students in the traditional school system are simply not being challenged.[1] Thirty-seven percent of fourth graders surveyed throughout the country said their math work is often or always too easy. Almost a third of eighth graders reported reading fewer than five pages a day for school, and 39 percent of 12th graders said they hardly ever write about what they read in class.

It's evident that a one-size-fits-all education system doesn't fit today's generation of students. Students learn at individual paces. They want to be challenged. They want to be engaged. And they want an experience personalized just for them. But our current system is not offering that.

Our education system needs fundamental transformation, not just incremental improvement. Technology has the power to customize education so each and every student learns in his or her own style at his or her own pace, which maximizes the chances for success.

Digital learning is a tool that helps fulfill the two great premises underlying our education system: providing equal access to educational opportunities for all students and ensuring those opportunities are high quality. It holds the promise of extending access to rigorous, high quality instruction to every student regardless of where they live, income level, or special needs. Truly improving student achievement will depend on the ability of our K—12 system to harness the potential of digital learning.

Digital learning models also offer an approach to ensure every child has a quality education. Online learning can bring highly effective teachers to wherever students are located. It can bring quality books and text to assist with student literacy. Digital learning models are often held to higher quality standards than traditional courses, where they are paid only after a student completes a course and passes an assessment.

Former Florida Governor Jeb Bush regularly calls on state leaders to use the new opportunities offered by technology as a catalyst for new models and approaches to learning. It is not about buying computers. It is not about spending more money without changing the system. It is about redesigning schools from the ground up with a focus on the individual student.

Digital learning enables customized and personalized education for each student. Students can learn anytime, anywhere, in their own style and at their own pace. They can advance to the next level or grade when they are ready, not when the class on average is ready. Advanced students will not get bored and struggling students will not get left behind.

Digital learning empowers teachers with real-time data so they can pinpoint weaknesses and differentiate instruction to address them.

Digital learning expands opportunities and options for students. It provides access to classes for students that might not otherwise have the opportunity to take them, such as Advanced Placement. It gives rural students access to world-class instructors for courses that would not otherwise be available.

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[1] "Do Schools Challenge Our Students? What Student Surveys Tell Us About the State of Education in the United States," Ulrich Boser and Lindsay Rosenthal, Center for American Progress, July 2010. *http://www.americanprogress.org/wp-content/uploads/issues/2012/07/pdf/state—of—education.pdf*

What is holding us back from experiencing this digital revolution isn't technology. It is that we're not modernizing our laws and regulations to allow teachers and students to take full advantage of these new digital models of learning.

Most state laws never envisioned a time when a student in Pennsylvania could take a course taught by a teacher in Florida through a charter school model that was developed in California.

Instead of technology disrupting the system to create new models, our entrenched system has constrained technology and forced it to conform to our old models. We need to change that. We need to create the policy, funding, and regulatory space for these innovations to be tried, evaluated, and when successful, scaled.

In 2010, former Florida Governor Jeb Bush and former West Virginia Governor Bob Wise co-chaired the convening of the Digital Learning Council to define the policies that will integrate current and future technological innovations into public education. The Digital Learning Council united a diverse group of more than 100 leaders from education, government, philanthropy, business, technology, and think tanks to develop the roadmap of reform for local, state and federal policymakers. This work produced a consensus around the 10 Elements of High Quality Digital Learning which were released at the 2010 Excellence in Action National Summit on Education Reform in Washington, D.C.

Digital Learning Now! is a national campaign to advance policies that will create a high quality digital learning environment to better prepare students with the knowledge and skills to succeed in college and careers. Our work is focused on building support for the 10 Elements of High Quality Digital Learning, which provides a roadmap for reform for lawmakers and policymakers to integrate digital learning into education.[2]

The Unbundling of Education

Two of the most exciting areas within digital learning is the growth around online learning courses and resources as well as blended learning.

To understand the opportunities and challenges offered by digital learning, one has to fully appreciate the broader change being introduced by the Internet. The sectors and business models that have been most disrupted by the Internet are those that serve bundled services. The Internet is challenging any model that has traditionally bundled service by offering a dizzying array of unbundled alternatives that consumers can bundle on their own.

We have seen these forces at work most notably in the music industry. Music has traditionally been bundled into albums, and albums were bundled with others and sold at physical stores. Consumers were limited to what was available at the store and had to buy an entire bundle to get the one or two songs they wanted. Now, innovations like iTunes and other music services are unbundling albums by allowing consumers to purchase individual songs and create their own playlists. Instead of being required to buy an entire album, consumers are free to pay for only what they want. And instead of being limited to only the music available in a store, consumers now can pick from 20 million songs available on iTunes, Spotify, or Amazon.com's music service.

Education is also subjected to these same forces. The Internet is making it easier and cheaper to not only access resources but distribute content including textbooks, data, videos, lessons, and entire courses. When combined with new web-based tools and cloud-based systems, students have more educational opportunities than ever before.

Consider that the Florida Virtual School offers more than 120 courses. The Khan Academy offers a library of over 3,900 video tutorials on everything from arithmetic to physics. BetterLesson's database holds more than 450,000 files and 100,000 complete lesson plans. There are more than 3,900 children's ebooks available on Scholastic's new Storia app. And the OER Commons offers more than 42,000 open education resources and tools.

All of this is challenging the way we think about choice and options. We traditionally think of school choice as institutions that bundled education services: traditional schools, magnet schools, public charter schools, and private schools. The choice has traditionally been about selecting one institution over another—in essence, picking one album of music over another. Digital learning is rapidly opening up opportunities to unbundle these education services and courses. As a result, the choice available to students is not just over which institutions do they attend but what courses they can choose from on a course by course basis. All of this is creating new quality options for students among, within, and outside of school.

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[2] Digital Learning Now, *http://www.digitallearningnow.com/*

To illustrate this, consider a pioneering law in Utah that was passed in 2011. Legislators and advocates drew upon Digital Learning Now's 10 Elements of High Quality Digital Learning to develop a policy that drives choice to the course level where students can select courses offered by multiple public and private providers throughout the state. The law allows dollars to follow students to the course of their choice. The law does not cap participation, and importantly, it funds success rather than just seat time. A pay for performance element allows online-course providers to receive 50 percent of the state's per-pupil funds for a given online course up front and the remaining 50 percent only when a student successfully completes the course. It is a bold policy that seeks to not only expand options but also tie public education expenditure to student success.

Louisiana offers another example thanks to the recent passage of Gov. Bobby Jindal's sweeping education reform package. Students will have the option to select courses from a state approved catalog as part of the new "Course Choice" program. The law also specifies that funds must follow the student to the online course with providers paid in part based on completion of the course, not just enrollment. Students in schools that receive C, D, or F grades in the state's accountability system are eligible to select courses. Students in A and B schools can participate too if schools they attend don't offer the classes or if the school allows them to opt into a course.

Blended Learning

This trend of unbundled courses and content is also driving a new innovation commonly referred to as blended learning. This broad term covers a number of models that operate under a single umbrella definition. First, the student learns in a supervised brick-and-mortar location away from home at least some of the time. Second, the student experiences online delivery with some control over the time, place, path, and/or pace.[3] In essence blended learning is about combining the best of face-to-face instruction with the best of online courses, content, and systems.

Today's typical classrooms are most often marked by a single teacher teaching to a group of students. The challenge is that the teacher inevitably has to "teach to the middle" which means some students that could progress faster are held back and those that are struggling fall further behind. Teachers often want to differentiate their instruction for their students, but it becomes practically impossible given the time constraints and limitations of resources.

Blended learning blows up this model by using sophisticated technology which is able to assess where each student is on a learning progression toward challenging college and career standards and then develop a customized playlist of activities and assignments. These systems often suggest small group assignments for students and also flag students who need more one on one attention. Teachers are still essential in this model, but their time is better spent working with the students who need more support and helping to facilitate the work in the smaller groups. Technology does not replace the teacher in this model. Instead, it empowers the teacher with better data and with the chance to better use the scarce time they have with the students they have.

The Innosight Institute is maintaining a growing catalog of these models.[4] One thing is clear. These student-centric, flexible, and results-based blended learning models are demonstrating success in some of our most challenging and chronically underperforming school systems. Often, these schools are taking advantage of the innovations offered by blended learning technology platforms and combining them with the regulatory freedom offered under charter school laws and other teacher reforms to develop entirely new models of education.

Delivering Results

These new innovations are still relatively new but early results are promising.

• In 2009, the U.S. Department of Education published a meta-analysis of evidence-based studies of K-12 and postsecondary online learning programs and found that "students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction.

[3] "Classifying K-12 Blended Learning," Heather Staker and Michael B. Horn, Innosight Institute, May 2012 *http://www.innosightinstitute.org/media-room/publications/education-publications/classifying-k-12-blended-learning/*

[4] Innosight Institute's Blended Learning Universe database, February 2013, *http://www.innosightinstitute.org/media-room/publications/blended-learning/database/*

* * * In addition, online learning has the potential to improve productivity and lower the cost of education, reducing the burden on taxpayers."[5]

• Rocketship Education is the leading public school system for low-income elementary students based on California assessment results. An SRI study examined the progress of nearly 600 students and found that students who had greater access to adaptive learning platforms achieved significant gains in overall mathematics scores.[6]

• KIPP Empower Academy's kindergartners showed impressive mastery of all subjects by the end of the 2010-11 school year. At the beginning of the 2010-2011 school year, 36% of KEA kindergartners were reading at a proficient or advanced level as measured by the STEP literacy assessment. By the end of the year, 96% were proficient or advanced on the STEP.[7]

• The blended learning system Read180 is helping students achieve up to two years of academic growth in one year. A rigorous evaluation that met the high standards set by the U.S. Department of Education's What Works Clearinghouse found that the program delivered real results.[8]

• A randomized controlled study that met the What Works Clearinghouse standards found that students attending schools that offered a specific online Algebra I course scored higher on the assessment than those enrolled in a traditional class. Even more impressive is that the study also found positive effects on future advanced mathematics course taking: in schools that offered the online Algebra I course, 51% of the eligible students went on to participate in an advanced mathematics course sequence by tenth grade, compared with 26% of eligible students in control schools.[9]

Digital Learning Barriers

The challenge facing the digital learning revolution is a patchwork of antiquated laws and regulations that limit or arbitrarily restrict these opportunities for students. Policymakers at the federal and state levels must reduce the barriers to innovation that further inhibit a student from receiving a high-quality education through digital learning models.[10] The barriers take three forms:

1. Limitations: Some states are imposing arbitrary caps on the number of students who can enroll in an online course, the number of online courses that they can enroll in, or where they can take an online course from. Massachusetts imposes limits on the number of online schools that can be approved in the state as well as various arbitrary student enrollment restrictions. Arkansas has a cap on the number of students that can enroll in a virtual school even though there is a longer waiting list. Caps and limitations are a poor substitute for a rigorous quality system that measures provider effectiveness based on student outcomes such as completion rates, proficiency, student growth, and other measures. States should leverage the lessons learned from developing multiple outcome measures for school accountability and the multiple measures used to measure teacher effectiveness to better measure the success of online programs. Low performing programs should be shut down. Cyber charter school authorizers should use their authority to close low performing cyber charters.

2. Outdated Regulations: If policymakers wish to provide modern learning options to students, they will need to modernize their regulations which were mostly developed in the 19th and 20th centuries and still assume education takes place in a traditional school. Digital learning models need flexibility from outdated regulations such as seat time and class size restrictions and they need the freedom to provide

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[5] "U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies, Washington, D.C., 2010. *http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf*

[6] "Evaluation of Rocketship Education's Use of DreamBox Learning's Online Mathematics Program," SRI International, August 2011: *http://www-static.dreambox.com/wp-content/uploads/downloads/pdf/DreamBox—Results—from—SRI—Rocketship—Evaluation.pdf*

[7] "Year One Results," KIPP Empower, 2011: *http://www.kippla.org/empower/Year-One-Results.cfm*

[8] "Scholastic Read 180 Intervention Report," IES What Works Clearinghouse, October 2009: *http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=571;* Striving Readers Program Evaluation, U.S. Department of Education, November 2011 *http://www2.ed.gov/programs/strivingreaders/index.html*

[9] "Quick Review of the Report 'Access to Algebra I: The Effects of Online Mathematics for Grade 8 Students,'" IES What Works Clearinghouse, March 2012: *http://ies.ed.gov/ncee/wwc/pdf/quick—reviews/algebra—032712.pdf*

[10] For more information on state barriers to digital learning, visit the state-by-state report card provided at Digital Learning Now: *http://www.digitallearningnow.com/nations-report-card/*

end of course exams throughout the year. States such as Ohio and Pennsylvania have used "innovation waivers" to eliminate regulations that hold back innovation and better services for students.

3. Finance: Policymakers need to rethink the way we finance K-12 education. Our traditional approach finances institutions, not learning. As students begin to increasingly assemble an education portfolio with both traditional and online providers, the funding must be flexible enough to follow the student to the provider of their choice, down to the individual course level.

While most of these are barriers best addressed by state and local policymakers, there are opportunities for the federal government to help accelerate the digital learning revolutions.

1. Provide incentives for states to eliminate arbitrary barriers to online and blended learning. This principle has been used in most federal competitive grant programs with funds awarded based on state action. However, few of these programs address online and blended learning. For example, while Race to the Top provided an incentive for states to eliminate arbitrary charter school caps, it did not go a step further to require states to remove barriers such as online school caps or seat time regulations. The federal government can prioritize states and grant recipients that implement smart effective quality control policies or use a blended learning approach to accomplish the grant's objectives in improving literacy, STEM, or other subject.

2. Ensure federal funds follow the student. As school choice becomes more and more about taking some courses in a traditional school and some online, these models need funding streams that are flexible to follow the child to the course provider.

3. Modernize our education broadband programs. Digital learning is more than just laptops, tablets, and broadband connections. But these devices and broadband infrastructure form an important base from which digital learning programs can be built. Programs such as the E-rate should be modernized, streamlined, and better aligned to the reform agendas being put into place by our nation's governors. Broadband and modern devices are needed to support not just richer digital learning experiences but also next generation assessments states are putting into place.

The fact is that education is the only sector in the U.S. still debating the merits of using technology to improve its mission and explore new innovative models for learning. As a result our kids are being left behind. It is our moral imperative to better serve these students and that requires us to be open to new approaches and models. It is urgent that we reform our system of education into one that prepares each student with the skills they need to secure high paying jobs, participate in democracy, and engage the world.

Chairman ROKITA. Thank you very much.

We will now hear from Mr. Smith, please. You are recognized for 5 minutes.

Hit your microphone there.

STATEMENT OF PRESTON SMITH, CEO & PRESIDENT, ROCKETSHIP EDUCATION

Mr. SMITH. There we go. Thanks. Thanks, John.

Good morning. Thank you for granting Rocketship Education the opportunity to participate in the hearing. Thank you for your time.

I am going to spend my time describing Rocketship and our story, and how our K-5 public charter schools are succeeding.

Rocketship's successes speak directly to your key concerns, primarily blended learning. So first a brief overview of Rocketship.

Our mission is to eliminate the achievement gap in our lifetime. It is a really bold statement, but it is what inspires us every day in our work. We were founded in 2006. Today, we have a network of seven K-5 charter schools serving 3,800 Rocketeers in low-income districts in and around San Jose, California.

We are expanding rapidly. We are opening between one and three schools each year. And by the year 2017, we hope to serve over 25,000 Rocketeers and families.

Keep in mind, our students come from the poorest of the poor families. Over 90 percent of our Rocketeers qualify for federally funded lunches. And over 80 percent of our Rocketeers are learning English as a second language.

And yet despite these hardships, our students have achieved outstanding performance. This past year, over 80 percent of our Rocketeers were proficient or advanced on the math standardized assessment, which is equivalent to the most affluent school districts in California.

And we achieve the success with the public funding, just like traditional schools.

So how do we do it? There are three core pillars that we have: personalized learning, transformational teachers and leaders, and engaged parents.

First, we believe that every student has unique needs. It is our job at Rocketship to figure out the right lesson, the right Rocketeer and the right time, and deliver it. As a former teacher, I found that incredibly challenging. And thus upon co-founding Rocketship Education, I knew that we needed to focus on how we would rebuild elementary schools from the ground up.

And we also knew that we would have to aggressively evolve and innovate upon the traditional public school model. Our theory at that time was simple, but it was also radical. We thought that if we could integrate technology, tutoring and enrichment together in something we called a learning lab, and if we did that purposefully into the school day to support teachers' instruction, that it would be powerful.

In the learning lab, online learning and tutors provide an engaging basic skills instruction, so that our teachers can focus on critical thinking and creativity and other skills in the classroom.

We then further personalize instruction using customized learning plans which are reassessed every 8 weeks based on student data. Based on that data, we refine and adjust the plans. And this means that we are continually tailoring our instructional methods—so the independent online learning, the tutoring and teacher-led instruction and practice, to ensure that each student is learning at their own pace and the optimal environment.

We have learned over the years that placing these tools, especially online learning, in the hands of great teachers can accelerate student learning. And when used in a targeted manner, these adaptive and assignable online programs can greatly boost student achievement.

Our unique approach allows students to realize a year and a half of growth per year, 1.5 years of growth. And this has led to Rocketship currently being the highest performing low income elementary school system in the state of California.

Finally, giving our children and our Rocketeers access to online programs enables them to achieve computer literacy, a critical skill in the 21st century. The Rocketship model allows our Rocketeers to leap over the digital divide.

The second pillar to our model is transformational teachers. At Rocketship, we are striving to make teaching the best job in America. We hire amazing teachers and leaders. We pay them an average of 30 percent more than the school districts, and we surround

them with a ton of on the job professional development and coaching.

Teachers and leaders are at the core of our model.

And our last pillar is parent engagement. We believe that the first teacher and the primary teacher of our Rocketeers are their parents. To that end, we make sure that every parent in our school receives a home visit every single year.

Parents are involved in teacher selection. And not only that, we engage with our parents as leaders, so that they can go forward and advocate within their community, so that they can make sure that there is educational options far beyond Rocketship and beyond fifth grade.

So that is our story. Perhaps most important for today's hearing is that Rocketship's model can be adopted by many other schools across the country. The Rocketship model, and more specifically blended learning, is something that any school, any district can implement. And if done with focus and with a focus on learning and mastering content, not just on technology, it is powerful.

Further support from individuals like you and the federal government is critical to making this happen, so that we can better meet the needs—and unique needs—of every child in this country, and one day, we can eliminate the achievement gap.

Thank you.

[The statement of Mr. Smith follows:]

Prepared Statement of Preston Smith, CEO and President, Rocketship Education

Founded in 2006, Rocketship Education is a public charter school network for grades K through 5. Our mission—and it's bold—is to eliminate the achievement gap in our lifetime. Today, we have a network of seven schools serving 3,800 students, or Rocketeers, in low-income school districts in and around San Jose, CA. Rocketship is expanding rapidly, opening between one and three new schools each year. In the fall of 2013, we will expand into Milwaukee. In addition to Wisconsin, we have been approved to open schools in Tennessee, Indiana, and Louisiana. By the year 2017, Rocketship will serve over 25,000 low-income students.

Rocketship's students come from the poorest of poor families. Many students receive federally funded school lunches. Often, both parents work two jobs just to stay afloat, and in many families, English isn't even the primary language spoken at home. Despite these hardships, our students achieve outstanding performance on standardized tests. For example, on the 2012 California math test, 80 percent of our students scored at proficient or advanced levels, on par with the highest-income districts in the state.

Rocketship achieves our success with public funds just like traditional public schools.

There are three core beliefs, or pillars, that contribute to our success: personalized learning, transformational teachers and engaged parents.

Personalized Learning

First, we believe that every student has a unique set of needs. Rocketship's objective is to deliver the right lesson, to the right Rocketeer, at the right time. We customize each student's schedule with traditional instruction, technology, and tutoring. An extended school day ensures that in addition to state-mandated seat time requirements, each child spends at least an hour or more, working on a computer with a personalized learning program, or in small groups with a tutor. Online learning and tutors provide engaging basic skills instruction so that our teachers can focus on higher-order skills such as critical thinking, reasoning, and creativity. They also free up time for teachers to conduct more in-depth remediation and targeted intervention with individual students or small groups.

When we founded Rocketship, we knew that in order to achieve our mission we would need to innovate aggressively and continuously in order to provide the type of public education that we believed our students and communities deserved. Our

theory was simple yet radical, in the idea that technology, tutoring, and enrichment—a Learning Lab—could be integrated purposefully into the school day to support the efforts and accomplishments of teachers and better personalize learning for students.

For our first five years, Rocketship purposefully divided classroom instruction from our Learning Lab. Our intent was to learn how to realize personalized learning in a systematic manner before making it the responsibility of the teacher. We also knew that online learning was still in its initial stages, but again, as we began to explore content we discovered that this learning modality again granted us the opportunity to meet the unique needs of students and further personalize learning while also better maximizing our teacher's expertise and time.

We then further invest in the instructional expertise of our teachers as they build customized learning plans for our students. Progress is monitored in eight-week cycles, at which point teachers analyze student data and then refine and adjust these plans to guide further innovation. This means that we can continually tailor instructional methods—independent online learning practice, tutor-led small group remediation, and teacher-led instruction and practice—to ensure that each student is learning at his or her own pace in the optimal environment.

A suite of online learning programs allows us to provide engaging content and practice for students of different ages and skill levels. Consistent across all of our programs is that they are interactive, standards-based and linked to the Common Core, and adaptive or assignable.

Placing these tools in the hands of great teachers can accelerate student learning. When used in such a targeted manner, these adaptive and assignable online programs can greatly boost student achievement through basic skills acquisition and practice.

In addition, more and more at Rocketship, we are focusing on how we are able to integrate data from the online programs, maximize small group learning time, and structure our Rocketeers schedule in a manner that ensures we customize each student's schedule with traditional instruction, technology, and tutoring. Currently we are exploring the next iteration of our instructional model that will focus on integrating all of these instructional modalities (online learning, tutoring, traditional classroom instruction, small groups, and more) so that the amazing things that happen each day in each space can now come together under the guidance and instructional leadership of our incredible teachers and school leaders.

We believe our unique approach allows students to achieve an average of 1.5 years of growth towards grade-level proficiency each year and the results bear this out as Rocketship is the highest performing low-income elementary school system in California.

Finally, giving children access to online programs enables them to achieve computer literacy—an essential skill for anyone living in the 21st century. Our students' involvement with Learning Lab is a valuable means for them to leap over the "digital divide" even if they do not have computers at home.

Transformational Teachers

The second pillar is about transformational teachers. Rocketship strives to make teaching the best job in America. We hire great teachers, we pay them an average of 30% more than the school district, and we surround them with on-the-job professional development, support and coaching. Each year, the teacher, school principal and the academic dean create a professional growth plan, with revolving seven-week objectives. Every week, each teacher is observed (and often videotaped) in class by the academic dean. The dean and the teacher then review the video together to see what can be improved. Sometimes, feedback occurs in real-time: the teacher wears wireless ear buds, while the dean speaks quietly into a microphone in the back of the class, making suggestions to improve the lesson. This means our teachers get very, very good at what they do, very, very quickly. It also fosters collaboration and community. Our teachers feel part of a team and enjoy helping each other. With our rapid network expansion, Rocketship teachers have many professional growth opportunities—they can move into leadership roles as deans or school principals, or as regional superintendents.

Engaged Parents

Rocketship's third pillar is about engaged parents. Rocketship supports parents as leaders at home, as leaders within our schools and as leaders within their communities. Each year, every family receives a home visit from the Rocketship principal and the student's teacher. The home visits give Rocketship a crucial sense of context for the student; they also foster a collaborative partnership with parents. Parents are welcomed into the schools as volunteers, although volunteering isn't re-

quired. Parents also take part in the hiring process of new teachers and hold monthly community meetings, which average over 75 percent attendance. We support our parents in building strong support networks at our schools and we are proud that they go on to advocate for community-wide change to improve educational options for all children in their communities.

A Proven, Repeatable Success Story

Rocketship is continuously innovating in all three pillars—excellent teachers and leaders, personalized learning, and engaged parents. Our continuous innovation is core to our success. We believe that every child has the potential—given a great foundation—to go farther than previously imagined.

We also believe the Rocketship model can be adopted by other schools across the country. Since our founding, Rocketship has welcomed visitors and observers to our campuses, and we believe that our three pillars can be applied broadly to public education. In fact, the scalability of the Rocketship model is allowing us to grow rapidly and open new schools each year. That's why we believe we are fulfilling our mission to eliminate the achievement gap in our lifetime.

Chairman ROKITA. Thank you, Mr. Smith.

Ms. Sagues, you are recognized for 5 minutes.

STATEMENT OF HOLLY SAGUES, CHIEF POLICY OFFICER, FLORIDA VIRTUAL SCHOOL

Ms. SAGUES. Chairman Rokita, Ranking Member McCarthy and committee members, thank you for inviting me to testify and for taking the time to engage in thoughtful discussion about how we might continue to improve student achievement.

Florida Virtual School serves Kindergarten through 12th grade public, private, and home-educated students free of charge as part of the Florida public school system. FLVS is the only statewide Florida school district with five schools, three part time schools and two full time schools.

During the 1996 school year, Orange County, Florida, piloted a Web school with five online courses. The Florida Department of Education acted as a catalyst and initially encouraged a partnership between Orange and Alachua Counties.

In November 1996, the Florida DOE provided the two districts with a $200,000 Break the Mold School Grant to develop the Florida High School Project. Following an intensive 6-month period of planning and development, Florida High School officially launched with seven staff members in 1997.

In 2000, the school changed its name to Florida Online High School, and then ultimately to Florida Virtual School in 2001.

In the 2003-2004 school year, FLVS initiated partnerships with Florida school districts in order to increase the capacity of students who could be served online through an in-state franchise program. For 2011 and 2012, there were a total of 31 franchises, which encompass 55 school districts.

The in-state franchise program operates as an extension of Florida Virtual School. The franchise uses all of the FLVS systems. And the franchise staff is trained in FLVS policies and procedures.

This continual growth pattern in student enrollments directly with FLVS and with the in-state franchise is evidenced in both the program's success in providing educational choice to students and the need for e-learning.

From the $200,000 grant in 1996, FLVS has grown to a budget of $214 million for the school year 2012-2013 and has become the

model for distance learning initiatives across the globe. FLVS is affiliated with all 67 Florida school districts and also serves students in the remaining 49 states and in more than 65 countries worldwide.

The FLVS faculty, consisting of support staff, full-time instructors and adjuncts has increased to more than 2,000. All FLVS instructors are certified teachers in the state of Florida.

FLVS delivers more than 120 courses, including core academics, credit recovery, electives, world languages, honors courses, and advanced placement. Florida Virtual School is fully accredited through AdvancED. Our core course curriculum is NCAA approved. And all courses meet or exceed Florida Sunshine State Standards, National Standards and are being converted to Common Core Standards.

Driven by performance-based funding, FLVS only receives funding for students who successfully complete courses. In the 2011-2012 school year, more than 149,000 students successfully completed over 314,000 half credit courses. To date, Florida Virtual School has served more than 600,000 students. And more than 1.2 million half credits have been successfully completed.

Florida Virtual School has a strong focus on its core mission, which is to deliver a high quality, technology-based education that provides the skills and knowledge students need for success. FLVS was founded on the belief that every student is unique and learns at a different pace. Student advancement is based on demonstrated competency, not on seat time in a classroom.

At FLVS, students work at their own pace and advance from one level to the next to achieve mastery of a subject. This allows for a student to accelerate their learning or, if needed, take more time to master the course.

With online learning, curriculum and scheduling choices are no longer limited to local school offerings or a student's zip code. Access is offered 24/7/365, from any place with an Internet connection.

The delivery of instruction at FLVS is both exceptional and unique, as instructors work one-on-one to personalize each student's learning experience. Students communicate with teachers regularly via phone, email, online chats, instant messaging, discussion forums, webcams, texting and social networking sites.

As online education evolves, FLVS continues to lead the way with creativity and innovation. This year, a number of FLVS digital innovations have emerged, including eight supplemental mobile application products that align with our courses, development of phase II of the campus-wide mobile app called goFLVS, and a new game-based SAT review app called Word Joust.

As one FLVS student stated, "Mine is not your typical classroom, it is a door to the world."

Not only does the quality of education received through FLVS prepare students for success after they have completed their courses, the flexibility and innovative class delivery provides students the opportunity to launch their dreams while still pursuing their education, achieving success in both.

Thank you for the opportunity to provide testimony. I look forward to fielding any questions you may have.

[The statement of Ms. Sagues follows:]

Prepared Statement of Holly Sagues, Chief Policy Officer, Florida Virtual School

Chairman Rokita, Ranking Member McCarthy and committee members, I am Holly Sagues from Florida Virtual School(r) (FLVS(r)). Thank you for inviting me to testify about Raising the Bar: How Education Innovation Can Improve Student Achievement. I have been with Florida Virtual School for 14 of the 15 years it has been serving students. My plan is to share with you our experiences and, more importantly, why we think innovation is transforming education.

I want to thank the Committee for taking the time to engage in thoughtful discussion about how we might continue to improve student achievement.

Florida Virtual School, the nation's premier online public school district, serves Kindergarten–12th grade public, private, and home educated students free of charge as part of the Florida public school system. FLVS is the only statewide Florida school district with five schools—three Part Time schools (Kindergarten–5th, 6th–8th, and 9th–12th) and two Full Time schools (Kindergarten–8th and 9th–12th).

During the 1996 school year, Orange County, Florida, piloted a "Web School" with five online courses. The Florida Department of Education (FLDOE) acted as the catalyst in initially encouraging a partnership between Orange and Alachua Counties. In November 1996, the FLDOE provided the two districts with a $200,000 "Break the Mold" school grant to develop the Florida High School (FHS) project. Following an intensive six-month period of planning and development, FHS officially launched with seven staff members in 1997.

In 2000, the school changed its name to Florida Online High School and ultimately to Florida Virtual School (FLVS) in 2001. Originally operating as a recurring line item in Florida's legislative budget, FLVS became fully funded via the Florida Education Finance Program (FEFP) in the 2003-04 school year.

Also in the 2003-04 school year, FLVS initiated partnerships with Florida school districts in order to increase the capacity of students who could be served online through an in-state franchise program.

For 2011-12, there were a total of 31 franchises which encompass 55 school districts. The in-state franchise program operates as an extension of FLVS. The franchise uses all of the FLVS systems, and the franchise staff is trained in FLVS policies and procedures. The continual growth pattern in student enrollments directly with FLVS and with in-state franchises is evidenced in both the program's success in providing educational choice to students and the need for e-learning.

From the $200,000 grant in 1996, FLVS has grown to a budget of $214 million (including the Health Insurance Fund) for the school year 2012-13 and has become the model for distance learning initiatives across the globe. FLVS is affiliated with all 67 Florida school districts, and also serves students in the remaining 49 states and in more than 65 countries worldwide.

The FLVS faculty, consisting of support staff, full-time instructors and adjuncts has increased to more than 2,000. All FLVS instructors are certified teachers in the state of Florida. In addition, 125 FLVS instructors now hold National Board Certification.

FLVS delivers more than 120 courses including core academics, credit recovery, electives, world languages, honors, and 16 Advanced Placement(r) (AP(r)) courses. Florida Virtual School is fully accredited by Southern Association of Colleges and Schools/AdvancEd. Core course curriculum is NCAA approved and all courses meet or exceed Florida Sunshine State and National Standards and are being converted to Common Core State Standards.

Driven by a performance-based funding model, FLVS only receives funding for students who successfully complete courses. In the 2011-12 school year more than 149,000 students successfully completed 314,593 half credits. To date, Florida Virtual School has served more than 600,000 students and more than 1.2 million half credits have been successfully completed.

Florida Virtual School has a strong focus on its core mission, which is to deliver a high quality, technology-based education that provides the skills and knowledge students need for success. FLVS was founded on the belief that every student is unique and learns at a different pace. Student advancement is based on demonstrated competency—not on "seat time" in a classroom. At FLVS, students work at their own pace and advance from one level to the next to achieve mastery of a subject. This allows for a student to accelerate their learning, or if needed, take more time to master the course.

With online learning, curriculum and scheduling choices are no longer limited to local school offerings or a student's zip code. Access is offered 24/7/365 from any place with Internet connection.

The delivery of instruction at FLVS is both exceptional and unique as instructors work one-on-one to personalize each student's learning experience. Students communicate with teachers regularly via phone, email, online chats, instant messaging, discussion forums, webcams, texting, and social networking sites.

As online education evolves, FLVS continues to lead the way with creativity and innovation. This year, a number of FLVS digital innovations have emerged including: eight supplemental mobile application products that align with FLVS courses, the development of phase II of the campus-wide mobile app called goFLVS and the new game-based SAT review app called Word Joust; a new story-based pilot middle school math course; and the launch of a new content tool called Octane, in collaboration with the Learning Management System provider UCompass, that launches key content from within course pages.

These innovations and successes throughout the year did not go unnoticed. Based on Algebra I end-of-course assessment data released by the Florida Department of Education, FLVS students outperformed the state by 15 percent in Achievement Levels 3, 4, and 5. The recently released 2012 Advanced Placement Exam results revealed that FLVS students outperformed the state of Florida in overall averages by 14 percent and global overall averages by 2 percent. In the Advanced Placement courses, FLVS serves every kind of student imaginable; yet, the completion rates remain one of the highest in the industry, proving that a wide variety of students can succeed with individualization, personal care, and a flexible pace.

Also this year, alongside UCompass, FLVS was awarded a Silver IMS Learning Impact Award; Pam Birtolo, Chief Officer of Education Transformation for FLVS, was inducted into the United States Distance Learning Association (USDLA) Hall of Fame; and FLVS was named a Learning 100! organization for its focus on professional learning and development. In addition, Julie Young, President and CEO for FLVS, accepted two educational awards: the 2012 Dr. Carlo Rodriguez School Choice Award and the Florida Diversity Council's Multicultural Leadership Award. These awards and honors truly validate how Florida Virtual School lives its mission and vision every single day.

The legislative landscape continues to help shape virtual learning. Effective July 2012, not only is Florida Virtual School able to provide the Full Time option to Kindergarten through 6th grade students, but FLVS is now able to provide these students part-time offerings as well. In addition, FLVS Full Time students are now eligible to participate in interscholastic extracurricular activities at the public school to which the student would be assigned to according to district policies. In June 2013, FLVS will be able to grant diplomas, for the first time, to students graduating from FLVS Full Time. Furthermore, our FLVS Global division, by legislative mandate, may license FLVS courses to schools across the country and around the world. Revenue generated from these endeavors is invested back into improving educational outcomes for Florida students through research and development of courses. It is this legislation and others that provide to students the needed options and access to choose online learning before entering middle or high school.

Students come to FLVS for a variety of different reasons such as to better their grade, accelerate to graduate on time or to get ahead, to take a course not offered at the school such as Advanced Placement courses, to learn at their own pace, or to balance extracurricular activities.

Florida Virtual School students come from all walks of life. FLVS students are public, private or charter school students; medically homebound students; homeschool students; student athletes; student performers; working students; and students of families in the military or with international commitments.

Students that have attended or are currently attending Florida Virtual School include:

- Aly Raisman, an Olympic gold medalist in gymnastics at the 2012 Summer Olympics.
- Lexi Thompson, the youngest-ever female winner of an LPGA tournament.
- "Little Gator" Noah Cornman, who tours the United States racing his Bandolero race car at speeds near 70 miles per hour.
- Luke Marks, ranked 16th among all surfers in Surfer magazine's "Hot 100" feature, which highlights the best young surfers on the planet.
- Bailey Madison Hotte, an actress who starred with Billy Crystal and Bette Midler in the movie "Parental Guidance."
- Ashley De La Rosa, a finalist on "The Voice" season two.
- Shannon Magrane, a finalist on "American Idol" last season.
- Laura McKeeman, Miss Florida 2012.

• Zach Marks, the creator of GromSocial.com, a social networking site for kids by kids.
• Bailey Reese, founder/president of HeroHugs.org.
• Willow Tuffano, who collected and sold other people's trash, saved her money, and purchased her first house at the age of 14.
• Brendan Santidriam, a young autistic man who loves movies, placed third in the 2012 Florida Department of Education's statewide Literacy Public Service Announcement contest.
• Aditi Hota, recognized as "The Best and Brightest Student" in Leon County, FL, is a thriving junior at Harvard University majoring in mathematics.
• Drew Willis, a student who struggled in school for some time before being diagnosed with a brain tumor, is doing well and thriving in his FLVS online learning environment.

As one FLVS student stated, "Mine is not your typical classroom, it's a door to the world." Not only does the quality of education received through FLVS prepare students for success after they've completed their studies, the flexibility and innovative class delivery provides students the opportunity to launch their dreams while still pursuing their education—achieving success in both.

The Florida Virtual School commitment is that the student is at the center of every decision made. This is not just a line on a piece of paper. This is what the entire FLVS team lives and breathes every day.

Thank you for this opportunity to provide testimony. I look forward to fielding any questions you may have on this topic.

Chairman ROKITA. Thank you, Ms. Sagues.

Mr. Shelton, you are recognized for 5 minutes.

STATEMENT OF JIM SHELTON, ASSISTANT DEPUTY SECRETARY FOR INNOVATION AND IMPROVEMENT, U.S. DEPARTMENT OF EDUCATION

Mr. SHELTON. Good morning, Chairman Rokita, Ranking Member McCarthy and members of the subcommittee. Thank you for the opportunity to be here today.

You are starting to get a portrait from the other distinguished panelists about the potential of learning technology to impact learning in the field. I would like to spend my time focusing on a few other examples, but also on the role it can play not only in improving general education, but also securing our role in international leadership, both educationally and economically, for future generations.

See, I believe that advances in learning sciences and technology provide the United States with a unique opportunity to achieve our aspirations to expand educational access, increase individual opportunity, strengthen national competitiveness and propel economic growth.

But none of these things are inevitable. It actually requires that we act.

To be blunt, we have reached another Sputnik moment, one which challenges federal, state and local leaders, and educational stake holders to have the vision and courage to do what is necessary to retain and some would say, reclaim American education and economic leadership.

Learning technology can and will transform education in at least three core ways, if we act. First, learning technology will greatly expand access and equity. Second, it will transform teaching and learning. And third, learning technology will dramatically accelerate and enhance research and development. Not just about education and technology, but about education overall.

Let me speak first to the issues of equity. The reality is that many children across this country don't have access to high quality educational opportunities. Education technology is starting to intervene. In rural areas, it is providing access to A.P. courses and foreign language courses, college level courses, other learning experiences that were, heretofore, unaffordable or inaccessible to the students in those areas.

The Niswonger Foundation is doing this work in Tennessee based on a grant they got from the i3 Program. Across the globe and here in the U.S., students are using online videos and exercises to increase learning time, to actually get the support that they need from volunteer or professional tutors online, where they can't get those things or afford those things on their own.

Tens of thousands of students, as you said, are already enrolling in virtual schools. They are doing so because of a variety of circumstances. Some are home schoolers. Some are chronically ill. Some are doing it because they have other life circumstances get in the way.

Children in our DoDEA Schools are benefiting from it around the globe to get access to courses they wouldn't have access to otherwise in their schools. Students with disabilities in a variety of different ways are getting access to learning content that they wouldn't be able to access without these new technologies.

These are all great examples. But the reality is that we can provide this unprecedented equity and access only if we create the opportunity for those who do not have access to the technology and use it to meet their needs.

The second core shift is going to be the shift in teaching and learning itself. And you have heard about the ability of technology to do several things. One is the ability to actually transform the learning experience for the student by actually making it personalized.

Teachers walk into classrooms every day with somewhere between 15 and 60 students in their classroom. Secondary students see 100 to 150 students a day. And we ask them to go into these classrooms of students that have different levels of preparation, different language backgrounds, different culture backgrounds, different social contexts, and to meet each student with the perfect content and instructional approach.

And in many cases, we ask them to do this with outdated textbooks, colored markers and whatever creativity they can muster that day to provide a great opportunity for learning for their students. There is no other sector in this country that we ask to perform this way.

If we provide teachers with the tools that they need, we can not only increase their ability to be successful, but extend the reach of the most successful teachers.

Yesterday, I had the opportunity to do an online convening, just really briefly, with a bunch of folks focused on education technology. And one of them asked me, who would you rather have, a teacher that is amazing or a teacher that is subpar using technology? You always want the amazing teacher.

But the question is, can you take all of our teachers' capabilities to the next level, so that it doesn't take heroics to actually teach each of our students?

Let me end quickly by focusing on the role that we have to play in improving research and development, so that we can provide the kinds of tools that our teachers are going to need. These things are not going to emerge just by bubbling up from the bottom.

The reality is that three decades ago, Benjamin Bloom demonstrated that one-to-one tutoring produced two sigma improvement over classroom instruction, two standard deviations, so a 50th percentile student is brought up to the 98th percentile.

The problem is we haven't figured out how to afford that model. Technology, for the first time, is putting us in the position where we can actually personalize education for every child, putting the right resources in every teacher's hand, at the right moment to meet that student's need, to pique their interest, to allow them to explore.

These are things that are all in our hands. But we haven't invested properly. Most growth sectors invest anywhere from 10 to 20 percent in research and development. Mature sectors, 2 to 3 percent.

Education invests 0.2 percent in research and development. And our research agenda is fragmented.

So we have the opportunity now to reclaim American leadership by building up the kinds of infrastructure that is required, by doing the kinds of research and development that is required to put us in the position, as it has before, when we were asked the question what we were willing to do to win—so far, we have answered the question, whatever it takes.

The question is do we really mean what we say about education? Thank you.

[The statement of Mr. Shelton follows:]

Prepared Statement of Jim Shelton, Assistant Deputy Secretary for Innovation and Improvement, U.S. Department of Education

Chairman Rokita, Ranking Member McCarthy, and Members of the Subcommittee, greetings and thank you for this opportunity to testify today.

I would like to speak with you about two related topics:

- First, the potential of technology to fundamentally transform education, dramatically altering the levels and pace at which we develop America's human capital—our people.
- And second, the vital role of technology in ensuring our international leadership and affirming America's global standing educationally and economically for future generations.

Advances in the learning sciences and in technology provide the United States with a unique opportunity to achieve our aspirations to expand educational access; increase individual opportunity; strengthen national competitiveness; and propel economic growth. However, realizing these opportunities will require new and improved approaches to both educational innovation and the investments and infrastructure to support it. To be blunt, we have reached another "Sputnik Moment", one which challenges Federal, state, and local leaders, and educational stakeholders, to have the vision and courage to do what is necessary to retain America's educational and economic strength.

Learning technology can and will transform education in at least three core ways:

1. First, learning technology will greatly expand access and equity;
2. Second, it will transform teaching and learning; and
3. Third, learning technology will dramatically accelerate and enhance research and development in education.

Increasing Access and Equity

Let me speak first to the issue of expanding access and enhancing equity. If providing our young people with access to learning through technology does nothing else, it will dramatically increase opportunities to learn and excel for all students, especially those isolated by geography or income and those simply hungry for more than their schools are able to offer.

• In rural areas, entities such as the Niswonger Foundation, which is a grantee of the Department of Education's Investing in Innovation Fund, have used technology to enable students to access foreign language instruction and materials, Advanced Placement and other college-level courses, and a variety of learning experiences that were previously unavailable or unaffordable in many isolated geographic areas.

• Both here in the U.S. and across the globe, students are using technology to obtain extra support during and after school from recorded videos and online exercises available through web-based resources, as well as from peers and personal tutors provided through online networks.

• Tens of thousands of students are enrolling in virtual schools and online courses. The flexibility of virtual schools and online courses can benefit all students, but it particularly helps students in unique circumstances like those who are chronically ill, or behind in their credits. Florida Virtual Schools, the only school system in America that gets paid only when the students learn, is serving almost 200,000 students.

• The Department of Defense Education Activity's Virtual High School allows military-connected students around the world to enroll in courses that would otherwise not be offered in their school. In select instances, students in a remote area are joining live classes offered in larger high schools via video-conference. A one-to-one student-to-device ratio in pilot schools is geared toward easing transition and increasing access for military-connected students.

• Federal civil rights law requires that all educational programs offer equal access to students with disabilities, and numerous new technologies especially target and benefit such students, giving accessibility and universal design new meaning for thousands of students.

All of these innovations, and these are just a few of the examples, are providing opportunities to learn and excel that were often out of reach for millions of students before technology began leveling the playing field. Creating unprecedented equity and access to education alone will make investing in digital infrastructure and learning tools worthwhile; but there are many other benefits.

Transforming Teaching and Learning

The second core shift that technology will accelerate is a fundamental transformation of teaching and learning—which in many respects has been remarkably static for much of the last century. At the most basic level, open, free, and proprietary digital content can be kept up-to-date, and revised and improved at any time. It can replace traditional textbooks, lowering costs and eliminating the back-breaking backpack. It already has moved beyond digitized books to create new media with linked or embedded dictionaries, encyclopedias, assessments and videos, and simulations to give students multiple ways and chances to understand and master content.

We should not underestimate the impact of even seemingly simple innovations. How many students have missed a key concept because the class moved on before they understood, or because the text was too difficult or because they didn't carry home their heavy books that day? How many times has the fear of being embarrassed prevented a student from asking the teacher to explain a concept for the second, let alone the third or fourth time? These issues are real. They impact learning. And new technology-enabled tools and resources hold the potential to ensure that children do not fall behind in the most basic ways.

But, as the record of many sectors of the economy shows, real transformation does not come from replicating old processes using new technology. Real innovation emerges when technology is leveraged to change and improve products or processes in ways that were impossible or impractical without the technology. I could spend many hours on this topic alone, but let me focus on a few obvious examples of how this applies in teaching, learning, assessment, and research and development.

More than three decades ago, Benjamin Bloom demonstrated what he dubbed the "two sigma problem"—sigma meaning standard deviation. Bloom showed that a student in a given subject, learning through 1:1 tutoring, outperformed students in a traditional classroom by two standard deviations—meaning a student in the 50th percentile would instead be in the 98th percentile. To put this into context, if the U.S. performance improved by just one standard deviation on international assessments, we would be the highest performing nation in the world, and our students

performing in the lowest 10 percent would be performing at the level of our current top-quartile students. There is no disputing these findings or the magnitude of their implications, yet until now we have been unable to close the gap between the traditional classroom and the individualized instruction that might solve the "two-sigma problem." Our challenge is to find a way to affordably provide each child this opportunity.

Every day, teachers go into classrooms of anywhere from 15 to 60 students and struggle to match each student with the content, instructional approach, and supports to ensure each student's personal engagement and success. The average secondary school teacher will try to tailor instruction for more than 150 students a day, knowing that each student has a task complicated not only by different levels of preparation and interest each student brings to school, but also by different language and cultural backgrounds and social contexts. In far too many classrooms, we are asking our teachers to meet these demanding goals with little more than an outdated textbook, some colored markers and whatever creativity they can conjure to make the best use of the few hours of the day their students are in front of them. Given these challenges, it is easy to see just how extraordinary our most effective teachers are; and how important it is that we equip all our teachers with the tools to enable them to teach all their students effectively.

Technology holds the legitimate potential, perhaps for the first time, to affordably personalize American education—on a national scale. It enables us to put the right information, tools, and resources in a teacher's hands, so that she can meet a student's needs and pique her interests. However, just as important, technology can enable students to progress through material at their own pace, identify, and explore their passions, and take extra time and access extra support when they need it. In short, new advances in education technology can enable students to take ownership of their own learning, while also enhancing a teacher's capacity to be a facilitator and mentor for such empowered students. What is inspiring is that there are classrooms throughout our country where both students and teachers are using technology to accomplish all of these things.

From flipped classrooms, where online instruction is delivered out of class so teachers can help students with "homework" during class, to blended schools that combine face-to-face teaching methods with computer-based methods, to thoughtful implementations of project-based learning, teachers, schools, and systems are using technology to rethink traditional roles and to personalize teaching and learning. They are using data to better target student needs and access educational content—enabling students to learn at their own pace and in the ways that suit them best. Teachers are using games to teach collaboration and complex problem-solving skills to deepen learning for all students.

To cite one example, teachers in the Mooresville Graded School District in North Carolina—which provides a laptop for every 4th through 12th grade student using primarily digital curricular materials—use technology as a catalyst to make learning more interesting, build better relationships among students, teachers and parents, and ultimately improve student and school performance on almost every metric. The district—one of the lowest funded districts in the state—has become the second highest performing district in the state, with graduation rates over 90 percent and millions of dollars per year in new college scholarships. And they accelerated achievement and attainment while sustaining a 10 percent reduction in state funding. Veteran Mooresville teachers talk about how their initial skepticism turned into enthusiasm and how now they "can't imagine going back."

Meanwhile, millions of teachers and students have begun using technology-based platforms to support their daily learning lives. Through such platforms, teachers have access to a constant network of support from other teachers in their local community and across the country. Students connect with their teacher, fellow students, and their work, with a tool that they find as well-designed and compelling as Facebook but that actually helps them be productive and achieve. Using such tools, with their associated opportunities for social networking and peer- or group-learning, also helps students engage in deeper learning and further develop 21st century skills such as problem solving, critical thinking, and communication that are critical to success.

Hundreds of thousands of students with visual impairments and significant reading disabilities have been provided access to instructional materials in accessible formats available for download to computers, tablets, or mobile devices. These innovative products and processes have resulted in more timely delivery of educational materials and increased ease of use and access.

Accelerating Research and Development in Education

Third, I want to talk briefly about how technology can accelerate research and development in education. Both in early learning and higher education, the evidence of the potential of technology-enabled education is mounting.

A quasi-experimental study documented that young children using digital numeracy games in Head Start centers demonstrated significantly greater learning gains than children who did not have the same access. Numerous studies of post-secondary course redesigns leveraging technology have documented that students not only achieved at significantly higher levels of persistence and performance than the control groups, but did so in about half the class time. One particular experiment conducted by Nobel laureate Carl Wieman that studied multiple professors using a new course redesign found that the most significant performance gains were made by the instructor that historically had the lowest student performance. The technology-driven redesign brought that professor up into the range of all other professors.

Finally, I would be remiss if I did not mention that the military has utilized the learning sciences and technology to produce truly remarkable learning gains in the area of Information Technology career and technical education—enabling new recruits, after just 16 weeks of training, to successfully compete with experts with seven to ten years of experience in solving highly complex technical problems such as diagnosing and debugging an enterprise network. These results are preliminary, but they raise profound questions about the conventional wisdom on teaching, learning, and the capacity to acquire technical skills.

These are all wonderful examples of the potential of the learning sciences and technology to transform education. However, many of you may recall hearing before that this transformation was imminent, only to be disappointed when it failed to come to fruition. So the obvious question is: why will it be different this time?

Leading investors and entrepreneurs say that innovation happens at scale in healthy ecosystems. The good news is that the macro forces underlying the education technology ecosystem are all moving in the right direction. Unlike the situation even five years ago, conditions are ripe for science and technology to produce dramatic gains in opportunity, productivity, and student outcomes. Specifically, the convergence of at least seven trends supports rapid technological transformation in education: (1) ever more powerful and lower cost devices, such as tablets, netbooks, and laptops; (2) high-quality digital content in courses, videos, simulations, and e-books; (3) cloud computing and broadband are putting powerful applications and rich content on almost any device at any time, without the need for local training or technical support; (4) big data collection and analysis to improve the speed and precision of decision-making and help identify what works; (5) increasing comfort across all age groups with using technology; (6) accelerating breakthroughs in neuro, cognitive and behavioral science; and (7) significant pressure to improve the cost effectiveness of public dollars.

The bad news is that it is well-documented that significant gaps remain in the U.S. system for education technology, and historic challenges persist, although there are opportunities to make smarter, more strategic uses of education technology. A number of factors combine to form a difficult market, causing entrepreneurs and investors to either stay away or treat the education sector as a hobby or charitable endeavor, leaving the incumbent providers with little competition or incentive to improve. For example:

- The Federal Communications Commission's E-rate program has successfully increased internet connectivity to nearly 100 percent of schools from less than 10 percent when the program was created. However, non-Federal organizations have estimated that few schools have the bandwidth to support the applications and uses of today, and fewer still have the devices to allow teachers and students to significantly change the ways in which they work. Achieving a critical mass is vital to transforming any school or system which will not happen without further investment.
- Technology markets require scale, as noted recently by Jim Coulter, the founder of TPG Capital and the co-Chair of the LEAD (Learning Education by Advancing Digital) Commission. The education technology market provides neither the easy access of a large consumer market nor the efficiency of a large institutional market. Complex and bureaucratic purchasing processes make K-12 education difficult to navigate by any but the most experienced providers with the largest sales forces. Further, lack of information and understanding about which tools actually improve student achievement makes purchasing decisions and product differentiation based on performance and quality extremely difficult. But there are ways to address these shortcomings. Building on the examples of Maine and Pennsylvania, whole states or consortia of states can organize to aggregate purchasing power, lower prices, and

demand different and better products. And various non-profit and for-profit providers are attempting to develop user-friendly interfaces to become a trusted source for those making decisions about which educational resources to purchase or use.

• Longstanding skepticism of technology in education, combined with inadequate training and support, has also thwarted the widespread adoption and use of education technology. This challenge has been exacerbated by products that were poorly designed, too many of which have been difficult to use and produce dubious results, or products that have been inaccessible to students with disabilities. As a result, we must focus our efforts on providing evaluated, proven tools in which teachers have confidence, and think comprehensively about how to prepare teachers around the country to integrate these technologies into the classroom.

• Finally, underfunded and unfocused Research and Development (R&D) in this area has limited advancements and, as a result, precluded the kind of leadership evident in other sectors.

• All levels of government chronically under-invest in education R&D—high-growth industries invest 10-20 percent of sales revenues in R&D; many mature industries invest 2-3 percent. Only 0.2 percent of national K-12 spending is devoted to R&D.

• The U.S. Department of Education provides no exception to that general trend of under-investment in education R&D. The trajectory of educational innovation would be accelerated exponentially by increasing our investment in the science of learning and learning technology R&D.

• Going forward, while the public sector invests in model schools or systems, the private sector, both philanthropic and for-profit, can invest in classroom-level innovations that actually work for students and teachers.

These obstacles are substantial but they can be overcome if we have the will to win the global race for economic and educational competitiveness. We have every motivation to do so. Our students and our country deserve no less. Further, opportunities abound to build on progress already in motion. For example, the Department of Education has used competitive grant funding through the Investing in Innovation (i3) Fund and the Race to the Top-District competition to support innovative strategies, interventions, and tools centered on technology. And, the Department of Defense Education Activity has developed a professional learning framework to be introduced in school year 2013-14, which focuses on creating student-centered, technology infused 21st Century classrooms and schools.

Given the advantages of access and equity, the urgent need to transform teaching and learning for all of our nation's students, and the opportunity to better align and invest in R&D, there is every reason to move ahead rapidly. I will briefly cite three reasons:

1. First, national competitiveness—Countries that are already outperforming us educationally and economically are also ahead of us in the transition to technology-supported learning. Countries such as Singapore and South Korea have recognized that investing in technology enables them to move up faster to higher levels of performance in workforce development, including teaching their students to be creative and innovative, traditionally America's hallmarks. Many of these countries have already made national commitments to realizing their visions.

2. Second, we want to retain international leadership in education technology. The rest of the world has realized that the key to long-term economic success is human capital development. Yet many countries cannot build enough schools or train enough teachers to meet the new demand. To address this challenge they are turning to technology. Today, education is a $5.7 trillion market and growing. The U.S. is primed to export learning technology, but other countries are not standing still. There will be a new equivalent of Google or Microsoft to lead the global learning technology market. I want it to be a U.S. company.

3. Finally, and most important, the educational needs of our children are unmet. We have known for the better part of three decades that we have been cheating our nation's future—that our students are capable of much more than we are enabling them to do. The delivery of education must be more exciting and relevant to reflect the best of what school can be. We owe our children and we owe our nation the best possible education, and it is in our power to provide it.

Like so many other times in our history as a nation, we are confronted with the question: what are we willing to do to achieve our goals? Our historic answer has been "whatever it takes." It is time to give that answer once again.

Thank you, and I am happy to answer any questions that you may have.

Chairman ROKITA. Thank you, Mr. Shelton.

We will now recognize committee members for 5 minutes of questioning each, starting with Chairman Kline.

Mr. KLINE. Thank you, Mr. Chairman. I want to add my thanks to the witnesses for being here. It is really, really exciting testimony. Really exciting stuff. I am pretty sure I want to be a Rocketeer today. Just terrific, very, very exciting.

I want to get to a couple questions here in a second, but I was sitting here thinking about how this innovation is unfolding, and how each of you, in your different capacities, have grabbed it, and the progress that is being made. And it reminded me of many, many years ago, decades ago, a long time ago, when I was in the Marine Corps.

And I was at Marine headquarters. And I remember there was a process that was going on, a procurement process to figure out what computers and operating systems the Marines ought to get for their offices around the world.

And while they wrestled with this and did briefing papers and sent it up and had it reviewed and sent it back, and then rethought it and then repriced it, the offices in the Marine headquarters itself were already in their second generation of computers, because the innovation was moving so fast.

So people figured out a way to just get what they needed. They used operations and maintenance funds, instead of procurement, went out and bought it. Now that resulted in a fair amount of confusion because some people wanted one operating system and some another. But the point is, is that we were frozen in a paradigm and a model and couldn't figure out how to break out of it.

And we here on this dais and in the government department, we get kind of frozen, too, as we struggle through. And you are out there changing things, closing gaps, making things happen. So it is very, very exciting to hear from you.

And I know there is a lot of bipartisan interest here in what you are doing. We don't always have bipartisan agreement, you would be shocked to hear, on things. But there is a lot of agreement that you are doing some really fantastic stuff.

And Mr. Bailey, your testimony, you talked about policy barriers, things that are getting in the way. It could be an antiquated system. It could be old Marines, whatever. But there is something out there.

And some of those things is the model we use now that checks seat time instead of actual learning and things, and we need to grapple with those, the department does and so forth. But some of them you mentioned, enrollment caps and limits on expansion of online options.

That seems to be a different kind of barrier. Who puts those barriers in place? And how are some people getting around them?

Mr. BAILEY. That is a great question. I would say these barriers come in sort of two different forms. There are unintentional barriers of just sort of regulations that have been around that assumed a certain model of schooling, that now you have new technology models and new models of education, like Rocketship, Florida Virtual, other online models, that are starting to challenge that.

And you think about it, when a lot of our regulations and laws were put in place, they never dreamt of a time when a student in Washington, D.C., could be taught by a teacher from Florida through a charter school model that originated in California.

And that confounds all sorts of different—you know, where does that teacher need to be certified? What types of requirements, regulations do they need to be under? What jurisdiction?

There are just sort of questions there that states I think are wrestling with.

The second type of regulations, the caps and others that you mentioned, are really sort of coming out as a way of trying to constrain some of this innovation, because I think people get nervous about quality. And the caps are just a very poor substitute for having good quality metrics and measures and evaluations in place to make sure that, you know, good providers and good options are scaled, and ones that just aren't delivering results for kids are sort of pushed back.

Those concerns come from all sorts of different angles, from schools worried about losing funds, from just the traditional model being threatened by some new innovations. And change is scary for some people.

And so that manifests itself in enrollment caps, in the number of online schools that can be offered in the state. That is a current regulation in Massachusetts.

There have even been very strange caps and requirements, where some students were only limited to online options that were offered within their district, which would be sort of telling someone, like, you can shop online at Amazon if you lived in Seattle. It just sort of breaks down and holds back the shear opportunity to have what Jim was just talking about, bringing in some of the best and brightest teachers and experts from around the world, but also other resources and courses from around the world.

Mr. KLINE. Thank you very much. I see my light is getting ready to turn red.

I yield back, Mr. Chairman.

Chairman ROKITA. Thank you, Mr. Chairman.

I now recognize Ranking Member Miller for 5 minutes. Excuse me. That is right, my bad.

Mrs. McCarthy for 5 minutes.

Mrs. MCCARTHY. Thank you.

Mr. Smith, you know, reading your testimony and then hearing what you just said, you mentioned that you were able to pay your teachers even more money than I guess the local teachers are getting. You also mentioned the high scores that your students are achieving, which I recommend, which I am very proud about hearing that.

And blending the learning environment requires attention to detail and flexibility. We understand that now. And it seems as though you are dedicated to these principles, which I am very glad to hear.

You mention that basic skills are honed in with tutors and online learning, while higher order skills are still reserved for traditional teacher/student interaction. And I agree with that.

I was wondering how—and one more question in there, how do you deal with students with disabilities? I have learning disabilities. And when I went to Silicon Valley years ago, I said why aren't you doing more not only for adults, like we carry that for the rest of our life, but for the students that are in there that learn differently?

How do you deal with that? And how do you come up with the model that you came up with?

Mr. SMITH. That is a great question. So we do have special education students. We actually call it at Rocketship ISD, or integrated service delivery. So we want to really make sure that those students are not identified as special ed, but rather a part of the core group.

So all of our students are mainstream, meaning they participate in the general classroom. But this is an area where online learning has really been helpful to us, not only in the content that we can offer, because there is specialized content. So we use some different online programs for students depending on their needs, especially for our ISD population.

And then also the ability for the data—when I was talking about the ability of technology is not necessarily the silver bullet, but it gives the teachers the ability and the tools to really identify what a kid needs.

And so the data we get from the online programs, especially for our special ed students, really helps the teachers target and then customize their plans for the next 8 weeks.

And in addition, a lot of our students have—some have one-to-one aides, or we have other special education teachers as well.

Mrs. MCCARTHY. One of the things that I wanted to follow up with, the teachers, when you hired the teachers, did they already have a high understanding of computer and online teaching? Because I am wondering if our universities are even teaching that. I haven't seen too much of that.

So is it an intense course that you offer to the teachers? Or do they have to be a certain aptitude, you know, towards computers and online teaching? Explain that to me.

Mr. SMITH. So most of our teachers are really open to technology. I think that is kind of the world we live in now. Everybody is very familiar with it. I think the bigger need that we have with our teachers is less about training and understanding on actual technology. It is more on data.

So we have separate online programs that provide personalized lessons to students. It is really then taking that data from the programs and understanding what the students have mastered, and then as the teacher, what are your next steps and what are you going to do in terms of modifying your instruction, your groupings and your lesson plan.

So that is a real key skill that we have to develop for our school leaders and teachers.

Mrs. MCCARTHY. And one follow-up question, you said that basically you look at the students every 8 weeks.

Mr. SMITH. Correct.

Mrs. MCCARTHY. And you were a regular school teacher at one time. Tell me the comparison, when you go in and test the students

at 8 weeks, and information you get. I am a data person. I never understand why we can't get the data even faster.

And going back to the school models that we are under right now, how long would you have to reevaluate students you had that did not get online learning?

Mr. SMITH. Yes, just to even clarify a bit more, we actually now are getting to the place where we are getting daily or weekly data. So we are giving students assessments online through some of the content, where we can actually in real time—so we can teach a lesson, see if a student has mastered it or what groups of students haven't. And the next day or even in the next part of the classroom, actually modify groupings and modify instruction.

So we have gotten down to that level. And we are doing that right now.

When I was a regular, traditional public school teacher, which was about—it was about 7 years ago, typically, we would assess two, maybe three times a year. But it wasn't as integrated into our schedule.

Mrs. MCCARTHY. Now you say that you work in some of the poorest schools in certain districts. Do they go home with, like, a computer or an iPad or anything like that? And let's face it, a lot of the parents might not have the technology that they can use to be with their child as they are learning.

How do you address that?

Mr. SMITH. Yes, you nailed it. It is a large challenge for us. So connectivity in low income neighborhoods is a real challenge. A lot of the families don't have wifi or wireless access.

And then the costs, so in California I think it is 49th in terms of funding. So buying tablets and those sorts of things for our kids really isn't an option.

So what we have done is we have computer access and wifi at our schools. So we have an extended day. And we also offer an after school or before school program. So we have the kids come in and we are starting to send home online homework.

So that is what we have started to do, but the connectivity is a real challenge, and then the cost of the devices, we are still waiting for those to come down.

But our hope is in about 2 to 3 years, every student would have a device and connectivity where they could go home and access the content at home as well.

Mrs. MCCARTHY. Thank you. My time is up.

Chairman ROKITA. Thank you.

Dr. Roe is recognized for 5 minutes.

Mr. ROE. Okay. I thank the chairman for recognizing me. First, I learned something—first of all, Happy Valentine's Day. Obviously some of our members got the memo and dressed appropriately.

Secondly, I learned today that a Marine could actually use a computer. That was pretty interesting, from the chairman.

The other that I think technology can do is it can take off the 50 pound pack that my 9 year old grandchild has to walk around with. And I almost couldn't pick up her pack the other day when we picked her up from school.

I want to start, Mr. Shelton. You are very aware in Tennessee—and Mr. Bailey, I will say, we didn't get it all wrong all those years

before. We did get to the Moon with a slide rule. We did invent Penicillin and a bunch of other things. So we didn't get it all wrong, all that 100 years.

But it does need to be changed. There is no question. And in Tennessee, we have a gentleman who lives in Greenville, Tennessee, Scott Niswonger, who personally took it upon himself to improve the educational outcomes of people in rural east Tennessee and the mountains.

And this man funded himself a distance learning program. And now the Department of Education, through an i3 grant—I think it is $18 million dollars. We have been able to expand that.

And I have absolutely seen the benefits of that. There is no question.

And I want to say something else to Mr. Miller. George—then President Bush and I think Speaker Boehner recognized that low income children—it was not acceptable to say that these children couldn't achieve what other kids could.

So thank you, George. It hasn't worked out exactly right, but the concept is correct.

And I think, Mr. Smith, you have proven that, that we shouldn't expect any less. There are some other hurdles and challenges. And I am going to ask you about those in a minute. But I think you have proven that it can happen.

And thank you for that leadership torch and putting that concept out there.

What we have done in rural east Tennessee, if you are in a small rural high school—one of our high schools has 52 students. Well, you can take Chinese in there. Some of the people where we are think we speak Chinese, from where I am.

But anyway, you can take French, German, calculus, whatever. I visualized a class where the biology class was actually talking to a diver in the Great Barrier Reef while they were under water; unbelievable things.

And we have seen obviously the dual enrollment with college level classes, with college being so expensive. So this model that I have seen in east Tennessee has worked amazingly well.

But it started with a vision of a private individual, just like Mr. Smith, you did.

And I guess the question I have for you is, how do you pay your teachers 30 percent more? And how do you get the best teachers?

That is a challenge we all have. I was the mayor of the largest city in my district. And that is a challenge for us.

Mr. SMITH. Yes, it is a challenge for us to. We are always looking for great teachers. So if you know some, send them to California.

We have a recruitment team. So we aggressively recruit teachers. And we also partner with Teach for America. So we have a strong partnership there as well.

And so that has been really helpful in us finding the talent.

And then your first question, again?

Mr. ROE. How do you pay? How do you——

Mr. SMITH. Oh, the compensation?

Mr. ROE. Yes. How do you pay those?

Mr. SMITH. So what we have been able to do is we have found that we can change the ratio of students. So we can actually serve more students with fewer teachers if we really leverage technology.

And so that is what we have found, is that through technology, we can individualize or personalize the learning, which allows us to serve more students.

Mr. ROE. One of the things I found in the personalized learning I have seen is that instead of—like we have a TCAP scores, Tennessee Achievement Scores. And instead of kids getting all in a twit and teachers getting all in a twit when May comes, and nobody does anything—we are teaching all that stuff.

You are able to evaluate a child almost weekly. And they don't even really know they are being evaluated, which I think is much more accurate than a kid sweating a test and the teacher worried about that, and they are going to get evaluated am I a good teacher or a bad teacher based on what this outcome is.

And I wonder if you had the same experience, that kids—I think they do respond to it.

Mr. SMITH. Yes, absolutely. And not only that, I think, to your point, it really empowers our teachers, because they know what a student is struggling with and then they can figure out how to game plan towards that. And so the student is successful. And that makes every teacher feel great.

Mr. ROE. I think the technology now—and the textbook is horrendously expensive. And obviously five or six textbooks is going to cost more than an iPad or any device. I mean, you can get them for $150 now.

And I wouldn't know why we couldn't transition to that for these kids, and get rid of textbooks. I think they are on the way out.

I don't know whether you all do, but I certainly do.

Mr. SHELTON——

Mr. SMITH. I hope so. We could save some money.

Mr. ROE. Any comments you would have about the northeast Tennessee experience?

Mr. SHELTON. Sure. One, it is a great example of where we have got all these guys across the country, these great examples that wind up being small. And what we have to figure out is how we take them to scale.

And so his initial work set a stage for doing something tremendous. And the results have been phenomenal to date, 39 percent increase in the kids taking college level courses, expansion in the foreign languages.

But now it has actually been evaluated and is something that can be expanded across the country. We just need to do more of that kind of work.

Mr. ROE. One last comment.

Chairman ROKITA. I am sorry. The gentleman's time has expired.

Mr. ROE. Yes. And it is the last comment. It is the problem in medicine and education, what has held us up, it is the way we have always done it.

Chairman ROKITA. Thank you, doctor.

And now Ranking Member Miller for 5 minutes.

Mr. MILLER. Thank you, Mr. Chairman. I want to thank you and Mrs. McCarthy for putting together this hearing. I think this is

probably one of the most valuable hearings we have had in a long time.

I have always been all about equity. That is why I threw my cards in with President Bush and John Boehner—Speaker Boehner now—on No Child Left Behind. And I think that the testimony here this morning suggests this is the best opportunity to provide that equity that we have seen as a nation in our history for these children.

And it is not just providing that equity. It is also their ability to take advantage of it. And that is what is really exciting.

Mr. Bailey, you have laid out some of the barriers to people trying to hold back the future.

Mr. Smith, I have been watching you from the East Bay for a long time. And your success and the excitement is amazing.

And the Florida Virtual School, you know, you are addressing some of the issues of scale.

And Mr. Smith, I am watching you on scale, because others have gone where you are now treading. And we will see. And I say that as a cheerleader, not as being negative.

But Mr. Shelton, this leads me to you. I have spent a lot of time in my many years on this committee, 38, 39 years on this committee, talking to DARPA from time to time about what they could do to help us in education.

And before it really was laborious. And it was really a problem for them, sort of where to make the insertion to think about how you direct this. And they always outlined some very simplistic things that they could do that would be helpful.

But today, this is a very different world in terms of how we think about research. We now have data that we have never had before. You know, we have big data, whatever the hell they are talking about now—in the rest of the world. But it seems to me that, for all the reasons maybe Mr. Bailey laid out, our research within the department, at the federal level in conjunction with the private sector and others, has to be much more nimble than we have been in the past. We have got to be able to sort of, you know—what is that term when they are looking for terrorists who go down a rat hole or something?

You know, you have got to go where the leads take you. And you have to have the flexibility to go there, and also the flexibility to say, this isn't working out, let us look over here.

Because here you have it all sort of in front of you. You have all the entrpreneurism. You have people trying to ramp it to scale and addressing and integrating students who before were simply left out. There are a lot of ways to do that. But they were being left out.

I have a school in my district that is named after my father for the most profoundly disabled students in our area. And yet I am watching technology creep up on these kids and getting them ready to go into mainstream schools, and they would have never gone there 3 years ago.

And so I am asking you. I am trying to think about how we take education research. I have been working on legislation, doing it on a bipartisan, thinking about how you create sort of an ARPA-Ed or however—you know, we have ARPA Energy, whatever this would

be labeled. But that kind of concept that you also have the right to fail in looking at these promising technologies or promising avenues for schools.

Because the DARPA has every absolute right to fail and they move on. They are not punished. They are given more money to fail, because we know that that is sort of what advancement is.

Mr. SHELTON. So, thanks for the opportunity. I mean, the great thing about DARPA is they do fail, but they also succeed. And when they do, they produce things like the Internet and GPS, the Stealth Fighter, the Drone, things that change the world forever.

And so the opportunity that we have—you know, and the Department of Defense still spends another $70 billion on traditional R&D, because that part is necessary as well.

DARPA actually gives us a good example of what is possible when you do this kind of directed development, particularly in education and training. And so I will just do it quickly through a story.

They partnered with the Navy because the Navy was having a problem finding I.T. specialists that could actually maintain their ships. The good ones that they had for 3 to 5 years were too good, and they would get attracted into the private market because they would make three times as much money. And the new recruits were not actually useful to them when they came out of training.

And the Navy went to the folks at DARPA. And the folks at DARPA simply said, well, this is easy. You just have to be able to get your kids that come out of the 16 week training to be as good as your 5 to 7 year experts.

A number of years later, they have now done it. And this is documented by the Institute for Defense Analysis. They have taken cohort after cohort after cohort now of new recruits and, in 16 weeks, had them be able to compete successfully on knowledge tests, on performance tasks and out on ships, where they are competing well with folks that have 17 years of experience.

That is the kind of breakthrough that is possibly, that questions everything that we think we know about teaching, learning and intellectual potential. And that is the kind of work we should be doing every day in education. We can get those kind of breakthroughs.

Mr. MILLER. Thank you.

Thank you, Mr. Chairman. I would like to follow up with you on this. And might I ask that—and staff can look it over, but I would like to ask permission to insert into the record the report "Raising the Bar: How Education Innovation Can Improve Student Achievement," by the Alliance for Excellent Education?

[The information follows:]

"Raising the Bar: How Education Innovation Can Improve Student Achievement"

House Subcommittee on Early Childhood, Elementary, and Secondary Education

Written Testimony

Bob Wise
President
Alliance for Excellent Education

February 14, 2013

Chairman Rokita, Ranking Member McCarthy, and Members of the Subcommittee:

I am pleased to have this opportunity to submit testimony on the importance of innovation in strengthening student achievement and preparing all students for the workforce of tomorrow. The Alliance for Excellent Education (Alliance) is a national, nonpartisan, nonprofit organization whose mission is for every child to graduate from high school, college- and career-ready. The Alliance's work focuses on strengthening the nation's high schools, and over the past several years its efforts have emphasized the need to expand the effective use of technology in the nation's classrooms in order to increase student achievement.

While the term "innovation" can be broadly defined, this testimony will focus on technology-driven innovation in support of teaching and learning. Specifically, the following topics will be discussed:

- Why is the effective use of technology needed in America's classrooms?
- What are the components of an effective digital strategy?
- What is the federal role in supporting innovation?

Why is the effective use of technology needed in America's classrooms?

Education leaders are facing the confluence of three challenges that together call for innovative, technology-enhanced approaches to school reform.

Challenge one: Increasing need for high student achievement

Too many students fail to graduate from high school, college- and career-ready. More than 20 percent of the nation's students do not graduate on time, if at all.[i] Among those who do graduate, only one-quarter are prepared for college.[ii] One-third of students must take remedial courses when they begin their postsecondary education[iii], meaning they are paying college prices for the high school education they should have received.

This poor preparation is taking place at a time when the economic demand for a highly educated workforce has never been greater. By 2018, two-thirds of the nation's jobs will require a postsecondary education; however, projections indicate that there will be a shortage of 3 million individuals with the required postsecondary credentials to fill these positions.[iv] Already, in the midst of today's historically high unemployment, 3.6 million jobs are unfilled, likely because candidates lack the requisite knowledge and skills to meet the needs of employers.[v] The demands of the knowledge-driven economy are far outpacing the production of prepared students from the nation's schools.

Challenge two: Shrinking budgets

States and districts must meet the demand for a more effective education system in the midst of declining resources. During fiscal year 2011, twenty-three states implemented midyear budget reductions; among these, eighteen states reduced funding for K-12

education.[vi] Between 2008 and 2012, thirty-five states have reduced per-pupil expenditures.[vii] Moreover, as the members of this Committee are well aware, the ability of the federal government to provide new financial support in the area of education is extremely limited. In fact, the Department of Education is facing the prospect of its largest funding cut in history, a reduction of $2.6 billion (5.9 percent), unless Congress acts to prevent sequestration.

Challenge three: The future of teaching

It is well understood that teachers are the most important school-based factor influencing student achievement. However, access to effective teaching remains widely uneven and inequitably distributed. The teaching profession faces multiple challenges while serving at the front line of improving outcomes for students. For example, there continues to be high turnover and frequent layoffs in the field of teaching: nearly 300,000 teacher jobs have been lost since 2008. Additionally, today's typical teacher has just one to two years of experience, compared to fifteen years in 1987.[viii]

What are the components of an effective digital strategy?
When used effectively as a part of a comprehensive strategy to enhance teaching and learning, technology can be an effective tool to address the aforementioned challenges facing students and schools.

An effective digital strategy includes three key components: teaching, time, and technology.

Teaching: It must be made very clear that technology is in no way a replacement for teachers. To the contrary, the most promising use of technology is by effective educators that implement digital learning strategies to personalize instruction and enhance the educational experience for the modern student. Technology can be used to create a learner-centered environment that utilizes data to establish learning goals, assess student progress, and provide students with a system of support. The optimal use of technology to enhance education is through blended learning strategies that enhance instruction and help students advance at their own pace based on competency and mastery.

In addition to the use of technology to support instruction, digital learning can also be an effective tool for strengthening educator effectiveness. For example, technology and digital learning can increase professional learning opportunities by expanding access to high-quality, ongoing, job-embedded resources to improve student success. Peer-to-peer lesson sharing and better use of data and formative assessment, combined with less emphasis on "sit and get" professional development sessions, eliminate the limits of geography and time. These ever-increasing resources offer teachers vast new opportunities to collaborate, learn, share, and produce best practices among educators in school buildings across the country.

Time: The confines of the traditional school day need not be a barrier to learning. Students learn at different paces, and the traditional education model that expects each

student to learn the same material within the same time period under the same instruction is in need of substantial reform. Digital learning offers the opportunity for students to spend more time with course material they find challenging, or to advance at a faster pace once concepts are mastered. Technology affords students and teachers the ability to use time differently, including the ability to utilize extended learning opportunities outside of school to enhance academic achievement.

Technology: Hardware, software, devices, and online instruction, services and support are all tools that can be employed as a part of a comprehensive digital strategy that more effectively uses time and concentrates on supporting teachers in providing effective instruction. It should be noted that a key factor in the delivery of effective digital learning is the need for all schools to have high-speed broadband access.

The following two examples illustrate ways in which digital learning strategies are being effectively utilized to support students and teachers:

Mooresville Graded School District, NC

The Mooresville Graded School District in North Carolina implemented a digital conversion initiative beginning in 2007. While involving a significant shift from print to digital content material and the deployment of an internet-accessible device for every student and teacher, the district's focus centered on changes in teaching and learning. Teachers and administrators participate in extensive, ongoing, and job-embedded professional development using a distributed leadership model. They learn how to maximize the potential of the technology to personalize learning. This includes utilizing digital content and resources in which students can become creators of knowledge and products, as well as implementing digital assessments that provide timely feedback to ensure the availability of data for planning and decision-making. During a district conference in the summer of 2011, teachers described challenges associated with the changes in instruction and the need to reinvent their lessons both to make them more student-centric and to take advantage of technology. Many described new roles as facilitators of learning and reported that they would not return to how they taught before the conversion. Not only is the shift in instructional strategies and learning evident in the schools and classrooms in Mooresville, but the district has made tremendous strides in student achievement. Mooresville is now third out of 115 school districts in North Carolina in student achievement based on state test scores, representing a dramatic jump from the bottom quarter of all districts just several years ago. The graduation rate has increased 25 percent in five years and is now the third-highest cohort rate in North Carolina. Mooresville has accomplished this with one of the lowest per-pupil expenditures in the state, ranking ninety-ninth out of the 115 districts.

Floydada ISD, Texas

Floydada ISD is a rural district in western Texas in which more than 86 percent of students are in low socioeconomic circumstances. The nearest community college is over seventy miles away. In 2004, Floydada began to implement the Technology Immersion Pilot, a 1:1 initiative in which the middle school students and teachers received laptops to

facilitate learning. In the following years, Floydada expanded the effort to include high school and elementary school students. Job-embedded, ongoing, and sustainable professional learning is at the core of the transformation of teaching and learning. Teachers and administrators report that this is not just about the technology; it is about a true change in instructional strategies, access to digital content and courses, and use of data and assessment to better understand the needs of students. Instruction often includes project-based learning and collaboration, as well as students as producers of knowledge and products. Middle school discipline referrals have been cut in half since the program's implementation, and Floydada's high school and middle school students have achieved double-digit gains in all core subject areas.

While increases in student achievement are important indicators of success, students in Floydada have other experiences that open their minds to new possibilities. Students have the opportunity to communicate digitally with national experts, such as NASA engineers; interact with people and experience places beyond Floydada; and take online college courses for credit while still in high school. Superintendent Gilbert Trevino observed that while previously "students couldn't see beyond the school district of Floydada," now they have an understanding of careers and opportunities outside the area. Floydada has also been able to apply funds to support students in taking online college courses. In SY 2010–11, seniors accumulated 450 college credits—a savings of $65,000 for the students and their parents—and two seniors will start college as sophomores. Half of the seniors are taking college courses and earning college credit while still in high school. In many cases, taking college courses in high school allows students to see themselves as successful college students—a significant achievement, since more than half of the adults in Floydada do not have a high school degree. Technology has completely changed the teaching and learning experiences for students in Floydada to ensure that they graduate prepared for college and a career.

What is the federal role in supporting innovation?

The federal role in education has focused on ensuring equity in educational opportunity. This focus on equity is critical, as the achievement gap persists, and the population of traditionally underserved students rapidly increases.

During the 1989-90 school year, 29 percent of the nation's K-12 students were students of color/Native students. Twenty years later, the percentage of the K-12 student population comprised of students of color/Native students rose to 45 percent.[ix] In twenty-two states, 40 percent or more of the K-12 population are students of color/Native students. In twelve of these states, students of color/Native students are the majority.[x]

The nation's changing demographics, combined with the increasing demand for effective education, make the federal role all the more important. Congress should support equity and excellence in education technology by passing the Transforming Education Through Technology Act (H.R. 521), legislation designed to ensure that states, school districts, and schools have the technological infrastructure and professional development needed to support college- and career-readiness for all students.

Technology/innovation must not simply be a tool used by the affluent to enhance their success; the federal government has the responsibility and opportunity to help ensure that all students benefit from the effective use of technology.

Conclusion

Technology offers a tremendous opportunity to enhance student achievement and prepare today's young people for the workforce of the future. Educators face a confluence of factors – employer demands for highly educated workers, decreased investments in education, and the need for highly effective teachers – that can be addressed through the effective use of digital learning. To do so, States, school districts and schools must employ strategies that integrate time, teaching and technology. The federal government can play an important role in assuring that the students who have traditionally been underserved by the nation's education system benefit from the promise of technology.

Additional Resources available at www.all4ed.org:

- *The Nation's Schools Are Stepping Up to Higher Standards Infographic*. This clickable infographic identifies four major challenges facing school district leaders and the essential elements necessary for developing a comprehensive digital strategy. (Available at: http://www.all4ed.org/criticalchallenges)

- *The Nation's Schools Are Stepping Up to Higher Standards* (November 2012). This paper identifies four major challenges that public school district leaders must systemically address in the next two years: (1) graduating all students college and career ready; (2) managing shrinking budgets; (3) training and supporting teachers; and (4) the growing technology needs of students and society. The report outlines the essential elements for developing a comprehensive digital strategy to help school district leaders make smart, far-reaching decisions to support teachers in K-12 public schools.
  (Available at: http://www.all4ed.org/files/SteppingUp.pdf)

- *Culture Shift: Teaching in a Learner-Centered Environment Powered by Digital Learning* (May 2012). Preparing all students to succeed in today's increasingly global economy and complex world requires a shift from a teacher-centric culture to learner-centered instruction. This report examines the characteristics of learner-centered instruction and the support that educators and schools will require to make such an approach work. It argues that a learner-centered approach will not succeed without a cultural shift throughout the education system that includes maximizing the potential of digital learning to meet students' needs.
  (Available at*: www.all4ed.org/files/cultureshift.pdf)*

ENDNOTES

[i] R. Stillwell and J. Sabel *Public School Graduates and Dropouts from the Common Core of Data: School*
[ii] ACT, *The Condition of College and Career Readiness* (Washington, DC: Author, 2010).
[iii] Computation by NCES PowerStats on 2/14/11 using U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).
[iv] A. Carnevale, N. Smith, J. Srohl, *Help Wanted: Projections of Jobs and Education Requirements Through 2018* (Washington, DC: Georgetown University Center on Education and the Workforce, 2010).
[v] U.S. Bureau of Labor Statistics, "Job Openings and Labor Turnover Survey," news release, February 12, 2013, http://www.bls.gov/news.release/pdf/jolts.pdf (accessed February, 13 2013).
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[vii] P. Oliff, C. Mai, and M. Leachman, *New School Year Brings More Cuts In State Funding For* Schools (Washington, DC: Center on Budget and Policy Priorities, updated September 4, 2012), http://www.cbpp.org/files/9-4-12sfp.pdf (accessed February 13, 2013).
[viii] R. Ingersoll and E. Merrill, University of Pennsylvania, original analyses for NCTAF of Schools and Staffing Survey.
[ix] B. DeBaun, *Inseperable Imperatives* (Washington, DC: Alliance for Excellent Education, 2012), http://www.all4ed.org/files/InseparableImperatives.pdf (accessed February 13, 2013).
[x] Ibid.

Chairman ROKITA. Without objection, gentleman.
Mr. MILLER. Thank you.
Chairman ROKITA. And gentleman's time has expired.
We will now hear from Mr. Thompson for 5 minutes.
Mr. THOMPSON. Thank you, Mr. Chairman.

Thanks to the panel for bringing your experiences in innovation and technology, because that is so important to the future, certainly to education. But it benefits all areas.

And Mr. Smith, let me say, as a recovering school board member, I had that same question Dr. Roe had, in terms of how you are able to consistently pay 30 percent more. Thanks for answering that question. That was helpful for me to understand that.

You know, one of the things I wanted to look at is, you know, right now, today, despite we have record sustained unemployment and under employment, but we still have, as I go around, manufacturers, businesses and industries that have these job openings.

And these are good paying jobs. These are jobs that, with the right kind of training, you can come out of a secondary program, some young people can step into. And so obviously I think there is a lot out there for business, industry, manufacturing. Even service industry have workforce needs.

And I happen to believe, actually, that applied education can be some of the most effective education, when I look at kids that are going through career and technical education programs.

But my question—and I will open it up to the panel—is what role is the private sector playing—business, industry, manufacturer, service industry—in supporting state and local school districts to expand their digital and online earnings? And I don't just mean access to equipment, technology, capital, but also to content, to, in terms of, I think, for me, I just see some exciting opportunities for kind of applied learning.

So why don't we start and we will just——

Mr. SHELTON. Sure. So actually you do see some innovative partnerships taking place around the country between employers and businesses, trying to build the pipeline, starting as early as high school, through either an industry certification or through the college system, directly into their most needed professions. There just aren't enough of them.

And they are not producing the resources that allow that to happen, the kind of instructional resources, the kind of experiential opportunities that people need to have so they can be scaled.

So the big step for us is to figure out how do we actually make it easier for businesses to get in this work, and not have to do the things that aren't their core business, make it easy for them to create the opportunity and then have people help them flesh it out into a real educational experience.

And then how do you build that into a kind like the kind of platforms that we have been talking about that can take it to scale?

Ms. SAGUES. That is really a great question. One of the things we are doing in Florida is we are really ramping up our industry certification programs, to try to get kids, you know, certified beginning in middle school and then building upon that, as they go through high school.

So we are working very hard to develop and integrate more courses that would take students to those industry certifications. And we have got, you know, great support at both the legislative level and at the private sector level to be able to do that.

So it is coming.

Mr. THOMPSON. Mr. Smith?

Mr. SMITH. Yes. In San Jose, we have something called SJ-2020, which is a measure by the city to eliminate the achievement gap by 2020. And so businesses in San Jose and Silicon Valley have really invested and stepped up in that regard.

And then I would also say, we have also seen, at least in Silicon Valley, a lot of entrepreneurs. So after their technology entrepreneurship, are actually engaging in ed-tech. So a couple people—Reed Hastings, founder of Netflix, he actually bought a company, Dream Box, which has been really helpful in kind of showing what is possible for online content, especially in the elementary space.

And then my co-founder, John Danner, has background in technology. He is actually going and starting an ed-tech company. So we are seeing that more and more. I think that is going to be the future.

Mr. BAILEY. Just to agree, but two other examples. I think you are seeing this a lot with technology certificates, especially with Microsoft, Apple, Cisco, that are working with schools as a way of offering these students a chance to engage in learning the skills and competencies outlined by these certificates and credentials.

But it is also a way of hooking them and helping them understand how math, science and the other subjects that, you know, they are expected to know in school, how that is applied. So the applied learning I think is crucial. It keeps them engaged, but also helps them bring them up to college and career ready.

Second, it is just to build on what Preston said, but we are seeing a wave of entrepreneurs and innovators coming out of Silicon Valley. Folks that gave us Google and Amazon and services that we all use every single day are now turning their sights and helping to problem solve challenges that teachers are facing, students are facing, and schools are facing.

So I think that also ties a little bit into what Jim and Congressman Miller were talking, too, about the R&D. But there is a flood of innovation coming out from people that want to solve and tackle education challenges. And it is great. We should be welcoming that and encouraging that.

Mr. THOMPSON. I will just close with a quick assumption. I know it is not safe to make any kind of assumptions. But, you know, we are talking about computers and iPads. I have to wonder whether the future of accessing this are, you know, kids with smartphones, you know, which—and not all children have access to that. I recognize that.

But those who do and as more have them, that is something they carry with them all the time. And they are very good at using them.

So thank you.

Chairman ROKITA. Gentleman's time has expired.

Mr. Scott is recognized for 5 minutes.

Mr. SCOTT. Thank you, Mr. Chairman.

I want to thank all of our witnesses for being with us.

Mr. Shelton, I want to follow up on the gentleman from California, our ranking member's question about R&D. I assume some of this stuff that is out there is effective and some is not effective. What is the Department of Education doing to make sure that local school boards get the right stuff?

Mr. SHELTON. Yes. I mean, one of the most important things overall that we have tried to do is to actually set a frame for saying, look, we have to be in the business of getting what works in the hands of our teachers and students, and that we need to get better at building an infrastructure that allows us to figure those things out more quickly and make it more transparent to the folks who are making decisions, be they school boards, be they superintendents, be they teachers.

And so we have done two things. One is to set up a policy framework and a grant program structure that allows for that to happen. That is the basic outlines of the i3 program.

But the second thing is to work with IES to very specifically build out their infrastructure to better populate the What Works Clearinghouse.

And then the third is to make these resources available to folks on the outside, and train them how to do the kinds of evaluations that you need to figure out how things are working.

I want to end on this point by saying, the good news for us in the space of learning technology is that the technology itself and the data that is the natural exhaust of doing this work creates unprecedented opportunities for evaluating them that we haven't had before. We can figure out much more quickly what works, what doesn't work, and what works in comparison to what, and what works for whom and in what context.

All of those are questions that we had to guess at before or went by ideology. We can now answer them empirically.

Mr. SCOTT. And you have that information available?

Mr. SHELTON. It is not available. These are the things that are being developed as people introduce products to the field and as people evaluate them and they evaluate themselves.

Mr. SCOTT. Now how much of this software is proprietary and how much of it is open source?

Mr. SHELTON. Right now, the market is still emerging. There is a good amount of open and free content that is available. There is a significant amount—obviously all of the existing publishers still have offerings that are somewhat online or some blended in some technology. And there are the entrepreneurs that we talked about.

I couldn't give you exact percentages. But it is still playing out.

Mr. SCOTT. And is this way of teaching taught in colleges as we train our teachers? Or do teachers need professional development to catch up?

Mr. SHELTON. Teachers need professional development to catch up. That is new teachers and that is existing teachers. Just as doctors when the new technology comes out, when the MRI was introduced, when the electronic health records were introduced, had to figure out how to use those tools, our teachers need to be trained to use those tools that they are introduced as well.

And once they are trained well, and frankly when the products are well designed, they find them empowering and they embrace them. And it allows them to do things they were never able to do before.

Mr. SCOTT. Thank you.

Ms. Sagues, your school is totally online?

Ms. SAGUES. Yes, sir. It is.

Mr. SCOTT. Can you comment on whether or not there is a loss in socialization amongst your students?

Ms. SAGUES. That is a wonderful question. And I would be happy to address it. We have a lot of different ways for students to interact, both online and then also in a face-to-face environment. So our school has a whole bunch of clubs, a lot of clubs that you would find in a traditional school. And our students will get together, you know, regionally for various types of field trips and things like that.

But in addition to that, students today are so socially active outside of the regular school day. For example, we serve a lot of home school students. And they are very, very active within their home school organizations.

We also have laws. Laws have been passed in Florida where any student who is an online student can go back to their regularly zoned school and participate in all of the sports, any club. They can go to the prom. They can do all of those things within their local community as well.

Mr. SCOTT. Thank you.

Mr. Smith, you have talked about reducing the achievement gap and alluded to the possibility of an expanded achievement gap based on access to technology. Do you work with the community groups like Boys and Girls Clubs and libraries, to make sure that students do have access to technology?

Mr. SMITH. Yes. We partner with local groups. I think that is a really important avenue.

Mr. SCOTT. And what else can be done to make sure that all students have access?

Mr. SMITH. Yes, I think a couple things that really gets to access in terms of price point, so for the device and then also the wifi connectivity. And as Mr. Bailey referenced, E-Rate, so I think there is some real potential there to expand that program or to use it in a way that would increase wireless access in local communities, especially low income communities.

Mr. SCOTT. You pay your teachers more. Are you able to hire better teachers?

Mr. SMITH. That is our hope. That is what we are trying to do. So yes. Yes.

Mr. SCOTT. Thank you, Mr. Chairman.

Chairman ROKITA. The gentleman's time has expired.

We will now hear from Mrs. Roby for 5 minutes.

Mrs. ROBY. Well, good morning. I am so excited about this hearing today. It aligns quite nicely with initiatives that we are taking in my home state of Alabama. And the State Department of Education in Alabama just recently recognized February is our digital learning month.

And so they are celebrating the innovative teaching and highlighting digital learning. And so thank you for what you are doing to expand upon that.

And I have to say as a parent, Margaret, my daughter, she is in second grade. And I opened her backpack the other day and the fundraising materials had been sent home about raising funds for the iPads for her school. So it is just exciting to see how all this

is evolving in her little school in Montgomery County Public Schools, but also throughout the country.

So I am really excited.

Mr. Bailey, you referenced the standard, one size fits all education doesn't fit today's generation of students. And I wholeheartedly agree with you. And I think that what I would like to discuss or hear from you are what policy obstacles and federal burdens exist at the state level, that prohibit the expansion of the technologies.

Mr. BAILEY. Thanks. It is a great question. And it is a couple different sort of policies. One is, again, you have a lot of proxies for quality. So the whole idea of class size restrictions and making sure that it is only one teacher for every 25 kids or 30 kids is a way of trying to help get at—it is a proxy for sort of quality, in many ways, and doesn't fully sort of recognize what Preston was talking about here in terms of a lot of these blended learning schools, you can actually have more students in a class with a teacher, but it doesn't mean that that teacher is just lecturing to an entirely large class.

What is usually happening is that the technology is constantly assessing the students, and then giving some students individualized activities to pursue on their own with a computer. Some students are actually not using a computer but going off and doing small group instruction. And then a whole other group of students are getting flagged that need more one-on-one time with teachers.

So again, addressing some of these class size restrictions are really helpful. Anything that deals with the awarding of credit seems to be getting in the way of a lot of these new models, too. And it is because sometimes you have students, especially in the gifted area, that can pursue materials or actually progress faster than what their classmates are. But they are sort of held back because they can't demonstrate, the end of year exam can't be taken in December or January.

So, you know, what we have is a system that sort of awards credit based on time, not based on learning. And there is a lot of states and school districts wanting some freedom from those regulations to look at ways of awarding credit when the student can demonstrate that they know the material and progress on to higher level or send it at a faster pace.

And I am sure Preston and others have a couple ideas.

Mrs. ROBY. Well, and that is great, because what I am getting at is, as we meet towards the reauthorization—you know, the committee of the whole—for No Child Left Behind, how can we remove obstacles that exist in the current legislation that would allow for you to expand. So if anybody else wants to weigh in specifically about that, please do.

Mr. SHELTON. I was going to say, at the federal level, there is not a lot that happens around the caps and things like that. It all happens at the state level.

I think one of the things that we need to encourage people to look at is how to think about new accountability systems. Because those new accountability systems can actually allow them to give more freedom. We don't have to wait until attendance counts and end of year assessments and things like that to know whether stu-

dents are in school, whether they are making progress, whether their activity levels are high, whether they have mastered anything.

Florida Virtual Schools has a model where they get paid when the students demonstrate that they have learned. If we shifted to those kinds of models and encouraged those kind of models from the federal level, we might see a lot better accountability, and a lot more freedom for our people to innovate, because people would feel comfortable that the safety nets were there.

Mrs. ROBY. Great.

And Mr. Smith, real quickly, the yellow light is on. I just want to focus in a little bit on how do you motivate your teachers? I know that we touched on this. But you said, as I was walking in, you were talking about how new things sometimes scare people. And talk about how you motivate your teachers to get comfortable with this technology.

And then I heard Mr. Shelton say that you tend to see, once they get it, they run with it. But, you know, the new can oftentimes, there can be resistance because it is new.

Mr. SMITH. Yes, no, it is a big change management process. We are actually in the middle of actually more integrating our instructional online programs into the classroom. So we are in the middle of this at Rocketship.

So what process we are using is more kind of piloting things, so starting it small, having teachers come and observe, having focus groups where they are giving input, and really kind of gradually getting the experience of it. Before, we would just kind of go whole hog.

And we have found that that has been really, really pretty positive, and it helped us gain momentum. But it does take kind of a gradual incubation, letting them kind of experience it. And then also I think when they see the power with kids, right, nothing is a greater joy for a teacher than when you actually succeed and you see a kid gets it.

So I think with this personalized learning, when they see they can have such a powerful effect no so many students, and in the same day you can hit one small group to one-on-one, it is really powerful. And I think that really captures our teachers.

Chairman ROKITA. The gentlewoman's time has expired.

Mrs. ROBY. Thank you, Mr. Chairman.

Chairman ROKITA. Mr. Polis for 5 minutes.

Mr. POLIS. Before my time begins, Mr. Chairman, I wanted to inquire if there is going to be time for a second round of going through our panel?

Chairman ROKITA. No, sir.

Mr. POLIS. Okay. Then I will begin my time. And I want to make sure the clock has not begun yet, because I am just beginning and I am going to need every moment.

So first I want to thank the panel. Thank you. This is a very exciting way to start off the new session. It is exactly why I am so honored to be back on the committee. And what a wonderful subject.

So I want to start. I am going to focus on the federal role in this. Obviously we are federal legislators.

So I want to start with a question about how important is ESEA reauthorization, specifically around accountability? How important is it that we replace I think what we all acknowledge kind of failed AYP model with an updated model at the federal level, which presumably would include progress over time and other indicators?

I would like each of you to answer. And I would like you to say, if you can, "very important," "somewhat important," or "not important" that we replace ESEA's accountabilities provisions.

Mr. BAILEY, "very important," "somewhat important," or "not important?"

Mr. BAILEY. Very important.

Mr. POLIS. Okay, Mr. Smith?

Mr. SMITH. Very important.

Mr. POLIS. Ms. Sagues?

Ms. SAGUES. Very important.

Mr. POLIS. And Mr. Shelton?

Mr. SHELTON. Yes.

Mr. POLIS. Okay. Thank you. And again, in terms of looking at the federal role, this is clearly one where we have, I think, broad acknowledgement that we had a poor accountability model. Many would say it might be better than no accountability model. That is a separate discussion.

But we have one that I think policy makers on both sides of the aisle can replace. We have seen states lead the way under the waiver process. We have some great information out there. It really is critical.

I want, you know, based on your input, an answer to that question, that our committee work on the ESEA reauthorization, so that we can have a better accountability model.

Now I want to go to Mr. Bailey about specifically some of the barriers that you identified, limitations, outdated regulation and finance. So many of these reside at the state and local level. There is some perhaps of the finance piece that reside at the federal level. But limitations, outdated regulations are state and local.

I wanted to ask about your opinion of, at the federal level, programs like Race to the Top, that help reduce and encourage states to reduce some of these limitations and outdated regulations, as well as other things that the federal government might be able to do to encourage states and districts to reduce some of those limitations, outdated regulations that prevent your success.

Mr. BAILEY. So I think it is a great question. And I think some of Race to the Top is a good model, because Race to the Top created incentives for states to lower barriers, particularly around charter schools. But what it did not do is sort of—again, it just focused on charter schools. It left out all these other sort of new models coming out, with blending learning, with online learning and virtual schools and so forth.

So states could eliminate all the barriers to charter schools. But if they kept the caps on for a virtual school or an online program, they could still sort of compete. So it is a chance to, again, sort of capture state attention and drive some innovation there too.

I think your question around accountability with ESEA is actually a good example too of the caution of legislating and giving room for innovation, that, you know, back when No Child Left Be-

hind was signed into law, you only had two or three states that could actually calculate growth models. And there was no flexibility built into the law to allow growth and other sort of state innovations to be, you know, included in the accountability systems as technology sort of offered it.

So I think the key for reauthorization is how do you build in some flexibility, that as technology drives new ability to do accountability or pay for performance with programs, that that is allowed to be incorporated.

Mr. POLIS. And I want to go to Mr. Smith and ask about the federal role in his, in the inception and the expansion of your work, Title V specifically, and how that plays into your start and how that plays into your expansion.

Mr. SMITH. Yes. I am glad you brought that up. It has been critical. And I think Title V has been critical really to incubating other kind of entrepreneurs and new ideas in education. So it is critical.

Mr. POLIS. And part of what we do through the All-STAR Act, which I introduced last session, will do again, as well as the Charter School Reauthorization that passed the House overwhelmingly, with a bipartisan majority, is it looked at the Title V expenditures and said, not only will they help support this critical role of experimentation, what Mr. Miller referred to, and trying different things, not being afraid to fail, but also would allow replication and scaling of successful models.

So would it help you scale and replicate faster if there were some part of Title V funds that were available for replication and scaling up proven success?

Mr. SMITH. Absolutely. It is actually one of the conditions that we look at when we are looking at different states and cities that approach us and ask us to come.

Mr. POLIS. And let us say that there is a state that has not received Title V, like Nevada, for instance. Would that make it less likely you would go to that state?

Mr. SMITH. Absolutely. If it is missing, we ask local funders to make up the gap, which is significant.

Mr. POLIS. And what do you think of this concept that perhaps school districts ought to be able to directly do it or chartered entities? Or there ought to be some set aside at the federal level for interstate efforts that affect several states?

Mr. SMITH. I think it would be really great exactly for the reason you just mentioned in Nevada.

Chairman ROKITA. Gentleman's time has expired.

I will recognize myself for 5 minutes to ask a few questions. I really appreciate the conversation. I think all the members did. Thank you very much.

One of the other committees I sit on is the Budget Committee. And so my ears really perked up when I heard Mr. Shelton talk about the misdirected investment. He said a 0.2 percent increase in investment in technology. Did I get that right?

Mr. SHELTON. Actually, what I said is relative to other sectors, we under invest in R&D. We spend about 0.2 percent on R&D in education technology. That is about one tenth of what any mature industry spends or any——

Chairman ROKITA. Okay. So you were talking industry wide. You didn't mean the Department of Education budget?

Mr. SHELTON. Absolutely not.

Chairman ROKITA. Okay. All right, moving right along then. And do the other three of you have a comment on that, about R&D in the sector?

Agree, disagree?

Mr. BAILEY. Just, I think R&D is coming from all different angles. Again, you have new entrepreneurs coming in, trying out new models as nonprofits, as for-profit providers. And just I think it is creating an ecosystem of R&D.

The federal role definitely has a role with IES and others and some of their experimental grants. But it is also creating the space, room for schools and charter schools to try something, fail. And if it fails, it is okay. Shut it down and scale the high performing policy.

Chairman ROKITA. Do you see a future where there would be something like what we call three Ps, public/private partnerships, somewhat what we are doing now more and more with roads? Do you see that model working here?

Mr. BAILEY. Absolutely. I think it is critical. It is the way we tackle social challenges from health care to clean tech energy. We need to do that more in education as well.

Chairman ROKITA. So another thing that I was wondering about, and I have wondered about it before, but I am reminded as I hear Ms. Sagues' testimony and yours, Mr. Bailey, this idea of what I call critical thinking. And you may have a professional term for it.

But as I grew up, the idea that I was taught, especially in the later years, to problem solve, to look at the idea of being taught to think versus just being sent and receiving content. I clearly see, whether it is Mr. Khan's videos that I have seen or other situations—which are excellent, by the way. It is great for review, for getting content, those kind of things.

How do you teach critical thinking in a virtual world? Ms. Sagues?

Ms. SAGUES. That is really a great question. So the way our courses are set up, they are very project based. So students go in and they do sort of authentic projects in a lot of different areas. And they work very closely. We have what we call a high tech, high touch environment, where the teachers and the students work very closely together.

And our teachers actually, on a monthly basis, have to do what is called a discussion based assessment with our students. And they get into a very deep conversation about the content, deeper than what you can actually, you know, assess through a typical online assessment.

So we have a variety of different ways that we really try to dig in and get to that level with the students. And with the Common Core coming on board, that is exactly the shift you are going to see all across the country with the way content is going to be, you know, redelivered to students.

Chairman ROKITA. Common Core, perhaps another hearing.

Mr. Bailey, any add on to that? Quickly.

Mr. BAILEY. Just one, that I think you are seeing this new model coming out. It is not pure blended learning, but it is called the flip classroom. And it is rethinking the use of time. So students, instead of doing homework at night, are watching the videos and the lectures at night. And then they are coming into the classroom and that is where you get some of the critical thinking.

Because now, instead of the teacher having to lecture, they are able to jump right into classroom discussion, small group discussion, and sort of test out the reasoning and the thinking around that.

Chairman ROKITA. And not to leave Mr. Smith out, real quick? Because I got some other stuff. Anything to add? Okay.

But completely online wouldn't be as good as blended, though, for critical thinking. You disagree.

Ms. SAGUES. Well, I think that there are—I don't, let me just frame up the question maybe a little bit differently. I think there are times when online is absolutely the best way for critical thinking.

Chairman ROKITA. Okay.

Ms. SAGUES. And I think there are times when perhaps a blended model. And I think it depends on the student as well. So that is kind of the whole joy around the whole personalized learning for students, because now with technology, we can really dig in and discover how each child learns best, and then provide them with the tools that they need.

Chairman ROKITA. And what is the make up of your virtual school in terms of low income students? Did you say? I forgot.

Ms. SAGUES. In our part time schools, our low income students run right about 40 percent. And in our full time school, we are about 48 percent.

Chairman ROKITA. Thank you.

In what time I have remaining, I will try to be quick. Mr. Shelton, D.C. Opportunity Scholarship Program, I am sure you knew we were going to be interested in that. The principle investigator who wanted to do the review said that you need 700 more students. We don't have that. We have about 300 now.

What is the department doing to increase that number, so that we can get a grade here?

Mr. SHELTON. Sure. So we have worked really hard with the Children and Youth Investment Trust, which is the grantee, to put together a new recruitment and outreach strategy, so that they could actually recruit the number of students that are required, and also to streamline their processes around figuring out whether students are actually eligible for the program, because they actually have a significant amount of attrition.

They had some staffing changes. So they have I think a couple of bumps in the road on the recruitment this year. But their numbers are up over last year. And we will see what happens.

Chairman ROKITA. Any internal deadline to set for yourselves?

Mr. SHELTON. So we extended the deadline for the trust to be able to both calibrate their new applicants as well as get the renewals in place, in order to get the numbers up.

Chairman ROKITA. Thank you.

My time has expired. Excuse me, I offer the microphone to Mrs. McCarthy for the purpose of closing remarks.

Mrs. MCCARTHY. Thank you, again, Mr. Chairman, for holding this hearing. It was very informative.

And I want to thank all the witnesses. You know, from some of us that, yes, came into the computer world after 50, I am amazed on how fast I actually was able to learn it. But certainly looking at my grandchildren, when I got an iPad, that is who I went to to teach me how to use my iPad.

But I am getting there.

But I want to thank you again. And I truly am encouraged by some of the initiatives nationwide that are helping to involve our educational system. We have to come into the 21st century.

Today's global economy demands it. New and diverse skill sets from our professionals—and we need to invest in our children's equally to prepare them.

This Congress must make a commitment to updating and re-authorizing the Elementary and Secondary Education Act. Each day, each month, each year passes by without reauthorization is another day, another month and another year that this country, in my opinion, is failing our children.

I agree with our witnesses that we can not have 20th century ideas covering 21st century classrooms. Our federal government must be flexible, and eligible successful local programs to grow and exceed all expectations.

I am looking forward certainly to continue our work on this subcommittee to help provide more options to our nation's students.

I want to thank the chairman again. And I yield back.

Chairman ROKITA. I thank the gentlelady. I want to thank all the witnesses again for your time today, as well as the committee members for participation. I think it has been an excellent hearing.

Thank you for making it easy on me, being my first hearing as a chairman. [Off mike comment.] [Laughter.]

I will have no comment on that comment. As we wrap up, I just want to get one little thing on the record. And this goes to the line of questioning I had with Mr. Shelton. And again, I thank you, sir, for being here.

I don't know if you know. I am sure you have been briefed perhaps. We sent a letter about D.C. Scholarship. And we asked for a meeting, a meeting with staff to go over budgets and those sorts of things.

And we asked for a meeting by February 22nd. So I know that is coming. We haven't heard back from anybody. And we can't do our oversight job——

Mr. SHELTON. I will check on it and get back to you.

Chairman ROKITA. Thank you very much. When will you get back to us? [Laughter.]

Mr. SHELTON. Today is Thursday? By tomorrow morning.

Chairman ROKITA. Yes, sir. I like how you work, sir. Thank you very much.

And again, thank all the witnesses. I learned a lot today. And I appreciate your leadership in this sector, in this community, what you are doing for our future. It is our most precious asset. And you are all to be commended.

Thank you.
The hearing is now closed.
[Whereupon, at 11:27 a.m., the subcommittee was adjourned.]

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