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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.

[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

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 not about adding a layer of technology over the current 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.

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.

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

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.

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

[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/

[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

- 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

[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/

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 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.