# LEARNER AT THE CENTER OF A NETWORKED WORLD

TRUST

INTEROPERABILITY

DIGITAL LITERACY

ACCESS

# LEARNER AT THE CENTER OF A NETWORKED WORLD

The Aspen Institute Task Force on Learning and the Internet invites you to view the digital version of this report at www.aspentaskforce.org.

THE ASPEN INSTITUTE

MacArthur Foundation

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## FOREWORD

**We are living** in a time of transformational opportunities. Technology has been the driving force behind dramatic advances occurring in every sector of society. Industry after industry has seen traditional business models challenged as customers connect directly with suppliers or one another and the line blurs between consumers and creators. The digital revolution has turned passive viewers into active users.

America is at an inflection point with respect to reshaping learning, teaching, institutions and indeed how we deliver these to individuals—of every age. In our country, the quality of education today will determine America's strength in the future and help individuals secure their own prosperity.

Yet, according to international tests, American students are falling farther behind their counterparts in other countries, which suggest that our 18th and 19th century model of education is not working as it should in the 21st century.  Nearly half of all Hispanic and African American fourth graders are functionally illiterate. They are two and a half years behind white students. Even many students who make it through our secondary education system and enroll in college find they must take remedial courses before they can begin their college studies.

Manufacturing and factories which influenced subjects, teaching models and even classroom design have been replaced by an economy of creating, developing and selling across a vast array of platforms. The jobs of today, and tomorrow, will require an entirely new system of learning—online and offline, in traditional settings and in the real world, inside and outside walled classrooms.

This report sets forth a vision that stems from the premise that the learner needs to be at the center of novel approaches and innovative learning networks.  It argues that we need to embrace innovation to create a diverse system of educational opportunities that can help each and every child reach his or her full potential.

New learning networks allow learners and teachers alike to connect directly to resources, people and activities. Teachers likewise will utilize networking for preparing classes, connecting to students and parents, and learning from and with other professionals. A new era is expanding the possibilities for inspiring, mentoring, assessing and credentialing learning for students of all ages.

This starts with putting the focus on the student. For today's students, learning does not start when they enter their homeroom or end when the dismissal school bell rings. Kids can attend class anytime, anywhere, in courses tailored to their own learning style,

and at their own pace. We can create an education system where instead of time being the constant with learning the variable, the constant is mastery of content and the variable is time. If the opportunity for personalized learning were made available to all students—and we believe that it can be—we could realize the potential for improving academic performance for all students, substantially reducing the disparities that have long been a troubling aspect of the American educational system.

This is the education every student can and should receive.

To address these and many other important issues, the Aspen Institute, with support and guidance from the John D. and Catherine T. MacArthur Foundation, established a high level Task Force on Learning and the Internet. We were honored to serve as the Honorary Co-Chairs of that Task Force.

We are very grateful to the members of the Task Force, ably co-chaired by our colleagues John Bailey and Maria Teresa Kumar. We thank Connie Yowell and the MacArthur Foundation, and the Aspen Institute Communications and Society Program, for bringing this project to fruition. We appreciate the support they received from Penn Hill Group, Swell Creative Group, and Richard Adler for their in depth work and support, and to Robert Rothman for his support

with writing.  And we very much value the many contributions from the public dialogue and the outreach interviews that the Task Force undertook. These are also detailed in the Appendix.

After a year of study, outreach to many stakeholders, public input, and internal deliberations, the Task Force has arrived at the following report and recommendations for action. While this report conveys the sense of opportunity of the Task Force's deliberations, understandably, not every member agrees with every sentence or point in the report. This represents a shared sense of a vision based on our belief that students must be at the center of education.

Good teachers have always put the learner first.  But this vision goes further.  If the learner is at the center of the learning process—a proposition that seems obvious, but has not always been easily realized in practice—then learning networks are individualized and centered on that learner and his or her collaborators.  In America, everyone needs affordable access to sufficiently robust networks and the opportunities they offer. The system needs to be interoperable so that learners can seamlessly move among learning platforms, providers and networks, and have credentials that follow them. Learners need digital literacy skills to navigate these networks from their first click. They need to learn in "trusted environments" that will protect children's safety and privacy online without

compromising their ability to learn. And the myriad of institutions involved in providing learning opportunities—from schools to afterschool programs, from museums to libraries, from online course providers to parents and in-person tutors, need to adapt to be part of these learning networks and support these new ways of learning. This Report explores each of those concepts and makes recommendations for actions that we hope everyone will join in taking.

We commend this vision to you. If you, as we, support this vision, then you will see that much needs to be done to improve the learning processes and opportunities offered to our students. We hope that in the months and years ahead you will become part of this movement. We urge you to place students—the learners—at the center of your thinking about this topic and the exciting future our country holds. Our children and our nation are depending on it, and deserve nothing less.

**JEB BUSH**
HONORARY CO-CHAIR

**ROSARIO DAWSON**
HONORARY CO-CHAIR

## PREFACE

**After funding a series** of research projects on the nature of learning over the past decade, the John D. and Catherine T. MacArthur Foundation came to the conclusion that 21st Century learners had new and powerful ways to connect to their academics, their peers and the vast array of resources now available to anyone anywhere. The opportunities these learners have to adapt a large network of resources inside and outside the classroom to their own particular learning styles and to collaborate with others can solve many legitimate concerns of parents and educators alike.

But a series of barriers could frustrate this promising future. Many are without the tools or resources to engage. Even when the resources are present, they often operate in separate silos, making it difficult to move across the landscape of learning. And sometimes the reactions to legitimate problems such as safety and privacy can result in overreactions that prevent the openness and movement that a learner needs online. These opportunities and concerns led the MacArthur Foundation to support the non-partisan Aspen Institute Communications and Society Program in the formation of a Task Force to envision learning in this rapidly changing environment and to suggest ways to address barriers to realizing that vision.

With this guidance, and financial support from MacArthur, the Communications and Society Program assembled 20 diverse leaders in education, technology and the civic sphere to reimagine learning. The Institute asked the Task Force to understand the potential of new learning landscapes, and to address the tensions of values inherent in fostering learning and innovation, on the one hand, and safety and privacy, on the other. What measures could best reconcile these tensions, or at least move the conversation forward?

We were fortunate to get two leadership teams to co-chair the Task Force. Jeb Bush, Honorary Co-chair, and John Bailey, Co-chair of the Task Force, both connect to this topic through their work for the Foundation for Excellence in Education. And actress Rosario Dawson, Honorary Co-chair, and Maria Teresa Kumar, Co-chair of the Task Force, lead Voto Latino. We are grateful for their significant leadership skills in bringing the larger group to consensus on both the vision and the recommendations in this report.

They and the other members of the Task Force, whose biographies appear in the Appendix, worked together through four in-person roundtable meetings, multiple virtual meetings, commissioned outreach to the learning community and to the public, and by their individualized editing, to create this set of recommendations. We appreciate the commitment that each Member brought to the process.

The vision of learners at the center of their learning networks has potentially broad and significant implications.  If learners are truly at the center, there needs to be more and better efforts to make sure that every learner has access to the hardware, software, tools, content and literacy necessary to take advantage of this vision.  Technology needs to work for the learner wherever and whenever he or she uses it.  The Task Force uses the word "interoperability," which is exactly what is needed: the technology should revolve around the learner, not the other way around.  And the learner should possess the digital age literacy tools to use and understand the media in both the virtual and physical worlds.  These literacies will also help one keep safe and private in the digital world, elements of a "trusted environment" that the Task Force found necessary for effective learning, but one that needs to allow for openness and innovation as the learner moves throughout the system.

We at the MacArthur Foundation and the Aspen Institute are pleased that this Task Force of 20 outstanding individuals could arrive at a unanimous report.  We understand that not every Task Force member may agree with every statement in the report, but they have all agreed to this vision, the general principles and the specific action steps that could bring about that vision.

The next step is for governments, public officials, school districts, educators, community activists, parents and students all to move forward to bring these Action Steps to reality.  We commend them to you to act in ways you see fit.  Only by wide constituencies acting together will we move to the next era of educating our populace. We add our thanks to those expressed in the Foreword by our Honorary Co-Chairs: to the Task Force members, our consultants Penn Hill Group, Swell Creative Group, the Aspen Institute Communications and Society Program staff, primary writer Richard Adler, editorial consultant Bob Rothman, Connie Yowell and the many others at the MacArthur Foundation and the Aspen Institute who brought this report to fruition.

So that the reader is not confused, this report emanates from the Aspen Institute Communications and Society Program, which looks at the societal impact of information and communications technologies, thus does not necessarily reflect the viewpoints of other Aspen Institute policy programs. The MacArthur Foundation was pleased to support the work of the Program in this regard.

We hope you will read, reflect on, and support this report.

**JULIA STASCH, INTERIM PRESIDENT**
*John D. and Catherine T. MacArthur Foundation*

**WALTER ISAACSON, PRESIDENT AND CEO**
*The Aspen Institute*

## EXECUTIVE SUMMARY

**The Aspen Task Force** on Learning and the Internet, with support and guidance from the John D. and Catherine T. MacArthur Foundation, is a group of 20 innovative and respected minds in technology, public policy, education, business, privacy and safety. The Task Force's goal was to understand the ways in which young people learn today and to optimize learning and innovation within a trusted environment. From there, the Task Force defined how parents, teachers, young learners, businesses and nonprofits can expand new learning opportunities, online and off-line, and inside and outside the classroom.

After a year of study, outreach to stakeholders, public input and internal deliberations, the Task Force believes that a new vision of learning is emerging. But to ensure that young learners are able to take full advantage of the opportunity, we must resolve serious issues of trust, safety, privacy, literacy and equity of access. To help resolve some of these challenges, the Task Force has highlighted five essential principles and twenty-six action steps with the intention they be used as a guide for action—a tool to help those who wrestle with these issues at the local, state and federal levels to tackle them with new insights, clarity, and efficiency.  A visual of how each stakeholder—government, parents, educators, school district leaders, students, foundations, non-profits and businesses—can take action is included in this summary.

The five essential principles for creating safe, optimized and rewarding learning experiences for young learners are as follows:

# Learners need to be at the center of new learning networks.

We first make recommendations for actions that will truly put learners at the center of the networks that can enhance and accelerate their learning. Parents and teachers need support to help them integrate new methods of learning into and outside the classroom. Community organizations, including libraries, museums and other civic and cultural institutions must become full-fledged participants in learning networks.

# Every student should have access to learning networks.

We recommend steps that are needed to ensure equity of access so that all young people can pursue their learning goals. This includes every student having adequate connectivity—including reliable broadband connections—as well as access to the hardware, applications, digital age literacy and high-quality content necessary to support their learning.

# Learning networks need to be interoperable.

We believe that learning networks need to be maximally interoperable to ensure that valuable educational resources are not isolated in separate silos and that innovations can be shared across networks. Interoperability is also important to allow students to move freely across networks to assemble their learning objectives and to receive credit for all learning accomplishments, wherever they occur.

## Learners should have the literacies necessary to utilize media as well as safeguard themselves in the digital age.

We also believe that all learners and educators need a sufficient degree of digital age literacy, where media, digital and social-emotional literacies are present, to be able to use these learning resources to learn through multiple media confidently, effectively and safely. Every student must have a chance to learn these vital skills.

## Students should have safe and trusted environments for learning.

We focus on steps needed to create a trusted environment that will protect children's safety and privacy online without compromising their ability to learn. Parents should be able to trust that their children's personally identifiable information is safe, secure and won't be used in ways other than to help their academic progress. We argue for a shift from a negative, fear-based approach that attempts to insulate children from all harm (and may also create barriers to valuable resources) to a positive approach that will enable students to pursue learning experiences online without fearing for their safety or privacy.

# SUMMARY OF TASK FORCE RECOMMENDATIONS AND ACTION STEPS

*The icons in this section represent the stakeholder—government, parents, educators, school district leaders, students, foundations, non-profits and businesses—most suited to that action.*

| | |
|---|---|
| 🏛️ | **GOVERNMENT** |
| 👪 | **PARENTS** |
| 🍎 | **EDUCATORS** |
| 🏫 | **SCHOOL DISTRICTS & LEADERS** |
| 🎒 | **STUDENTS** |
| ✒️ | **FOUNDATIONS** |
| 🤲 | **NON PROFITS** |
| 💼 | **BUSINESSES** |

## LEARNERS NEED TO BE AT THE CENTER OF NEW LEARNING NETWORKS.

### RECOMMENDATION 1

**Redesign learning environments to empower learners to learn any time, any place, and at any pace, both in school and beyond.**

**Action A:** Invest funds to develop next-generation models, strategies, tools, services and platforms needed to enable effective student-centered learning networks.

**Action B:** Support pilots for new competency-based learning approaches that recognize knowledge, skills and competencies achieved in or outside of schools.

**Action C:** Disseminate case studies and evaluations of effective programs and best practices in advancing student-centered learning through learning networks and competency-based approaches.

**Action D:** Develop new assessments and tools to convey evidence of student achievement through learning networks, such as badges or other new credentialing, and encourage states to develop mechanisms, such as portable data backpacks, that can assist with the collection and secure storage of student credentials, work and outcomes.

**Enhance the ability of educators to support and guide learners in a networked learning environment.**

**Action E:** Invest in research and professional training to better prepare educators for changing roles in supporting students' use of new and existing learning networks.

**Action F:** Align teacher quality policies and professional development funding to ensure that educators have the necessary support, resources and skills to leverage technology and to enhance learning for their students.
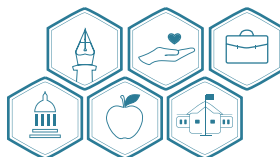
**EVERY STUDENT SHOULD HAVE ACCESS TO LEARNING NETWORKS.**

**RECOMMENDATION 3**

**Build an infrastructure that will connect all students in all of the places they learn.**

**Action G:** Base the bandwidth needs of schools, libraries and other institutions, not on the needs of the institution as a whole but on the collective needs of all learners that they serve.

**Action H:** Build innovative partnerships among the public and private sectors to bring broadband access to all learners.

**Action I:** Ensure that all learners have access to appropriate devices that connect them to learning opportunities through a wide range of options that include BYOD (bring your own device), leasing and cooperative purchasing strategies.

**Action J:** Provide pathways to high-quality content, courses and educational experiences through platforms, applications and curation efforts by educators, students and parents.

**Action K:** Develop appropriate and effective filtering policies.

**Action L:** Expand access to learning technologies for students with learning differences.

## LEARNING NETWORKS NEED TO BE INTEROPERABLE.

### RECOMMENDATION 4

**Support the maximum feasible degree of interoperability across learning networks.**

**Action M:** Adopt open standards and protocols that simplify and promote interoperability of learning resources.
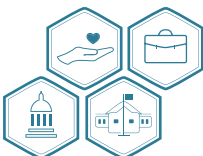
**Action N:** As a condition of funding, require developers of learning networks and learning resources to make provisions to ensure interoperability.

## ALL LEARNERS SHOULD HAVE THE LITERACIES NECESSARY TO UTILIZE MEDIA AS WELL AS SAFEGUARD THEMSELVES IN THE DIGITAL AGE.

### RECOMMENDATION 5

**Adopt policies to incorporate digital, media and social-emotional literacies as basic skills for living and learning in the digital age.**

**Action O:** Fund and pilot new credentialing systems to recognize and support the acquisition of digital age literacies.
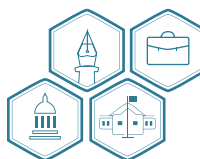
**Action P:** Fund the development and use of online programs and innovative peer platforms to build digital age literacies in adults, youth and parents.

**Action Q:** Research existing state educational curricula that already include digital age literacies to identify best practices and gaps that need to be filled.
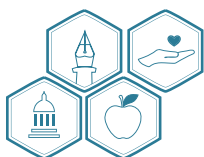
**Action R:** Ensure that digital age literacies are incorporated in the Common Core State Standards implementation.

**Action S:** Make digital age literacies required skills for all educators and expected of parents.

**Action T:** Along with Action Z, integrate risks related to digital life into all existing risk-prevention education programs.
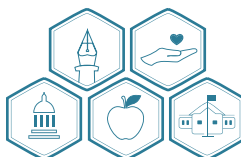
## STUDENTS SHOULD HAVE SAFE AND TRUSTED ENVIRONMENTS FOR LEARNING.

**RECOMMENDATION 6**

**Create Trusted Environments for Learning.**

**Action U:** Foster collaborative efforts at all levels to establish principles of a Trusted Environment for Learning.

**Action V:** Invest in deeper research and studies on the efficacy of existing federal privacy laws, such as COPPA, CIPA and FERPA, as well as various state laws, and seek recommendations on how to improve and modernize them or develop more effective alternatives to support learning networks.

**Action W**: Re-examine federal and state regulations governing collection and access to student educational data to provide appropriate safeguards that protect against specific harms relating to learners' privacy and security and, at the same time, accommodate the future of learning tools and services.

**Action X:** Design, implement and evaluate technology-based approaches to providing a trust framework that addresses privacy and safety issues while permitting learners to pursue online learning.

**Action Y:** Fund public awareness campaigns about the importance of and methods for acting safely and responsibly on and off-line.

**Action Z:** Arm learners with the capability to protect themselves online through both appropriate risk-prevention education and teaching digital, media and social-emotional literacies.

# Learner at the Center of a Networked World

# INTRODUCTION

The digital revolution has transformed almost every aspect of society. No facet of this revolution has more potential than its ability to change the way people learn. The availability of a vast array of knowledge and resources at the click of a mouse or the touch of a screen, together with the ability to connect instantaneously with peers and mentors across the street and across the globe, make possible completely new learning environments and experiences. These opportunities are highly engaging and collaborative, and they are based on learners' own interests and strengths. Students can truly learn any time, any place and at any pace.

However, our traditional system of education is rooted in a model first developed in the Industrial Age. It assumes that knowledge is transferred from an external source—teachers, books and schools—to a student. Students are grouped by age, and progress is often based on the amount of time they spend in class and not on how much they have learned. In most instances, any learning that takes place outside class does not count for credit, nor is it even formally recognized.

This long-held model is struggling to engage a new generation of students for whom learning is happening all the time—online, off-line, in classrooms, as well as after school, in libraries and at museums. The connected learner can access tutorials, lessons and entire courses online while participating in afterschool programs such as code academies and maker labs.

To maximize these learning opportunities, young people must be fully connected. Students need to connect easily with others who can support their learning and to have the ability to share their ideas widely and safely. They need access to broadband, devices and software as well as to high-quality content and the literacy skills to support their full participation. They need to prepare for the world of bits, networks and entrepreneurship.

Our digital environments—social networks, mobile apps, online games and participatory websites—also require trust. Trust in the information, in the relationship between student and teacher, and in the medium itself. And learners need the skills to understand and respond appropriately to the risks they may encounter on the Internet.

It is time for a new vision of learning—one that includes but is not limited to formal schooling—that captures the transformation the Internet presents. And it is time for a roadmap toward achieving that vision for all young people, particularly those who have been least well-served. If we don't align these transformations, too many of our youth will lack the skills for modern jobs, and our individual and national economies will suffer. This new vision, then, is the charge of the Aspen Institute Task Force on Learning and the Internet.

Our goals, and the goals of this report, are to begin to describe the potential of this new learning environment, to set a vision and framework for lifelong learning, and to identify barriers for making this vision a reality. And, not least of all, our goal is to recommend actions to overcome the barriers separating students, parents and teachers from this vision.

This report is our call to action. The vision we describe is bold and urgently needed. It is achievable. And it is absolutely essential if all young people are to be equipped for lifelong success and if we as a society are to realize the transformative potential of the Internet.

## A NEW CULTURE OF LEARNING

As adults, we know firsthand how much information is shared on a daily basis by emails, text messages, images or shared website links. At one time this seemed overwhelming, but over time people mastered a new set of skills to take advantage of and leverage these new technologies. At the same time, young people are adopting these new tools more rapidly. They are sending two orders of magnitude more text messages than adults, dwarfing even our email inboxes in volume.

In a 2011 book, *A New Culture of Learning*, Douglas Thomas and John Seely Brown (a member of the Aspen Institute Task Force) described the kind of learning necessary in this new environment as "whitewater learning"[1] —the ability to acquire useful knowledge and skills while at the same time practicing them in an environment that is constantly evolving and presenting new challenges. They argue that our learning environments need to match the speed and degree of change happening in the world around us.

Rather than systematically accumulating static "stocks" of knowledge, students now need to learn how to actively participate in "flows" of knowledge by engaging with others in the construction of new knowledge. This kind of knowledge is often put to use at the same time it is learned. It is most effectively acquired through solving problems with others in an environment that offers an abundance of challenges and unlimited opportunities. In this new world, curiosity and creativity become critical skills (or dispositions) that motivate students to seek answers to the questions that most interest them—an ability that will serve them well throughout the rest of their lives.

The "whitewater learning" environment is characterized by several key features:

***The Creation of New Knowledge.*** The shift from mass, mainly one-way, media that are consumed to interactive media that encourage participation and activity, and the recent rise of social media that actively encourage participation, mean that individuals are evolving from passive consumers of content to active creators and contributors. The Internet offers access to an array of digital resources that provide the means for creating and sharing content with others. This can be as simple as exchanging text messages with a friend or updating a Facebook page, or as elaborate as producing a video for YouTube, coding for a new game or publishing a personal blog. Online interactive games are based on mastering increasingly difficult levels of challenges, accomplishments that often require planning and collaboration with others.

One of the characteristics of the new media is that they blur the lines between once-distinct categories of information. Media such as these are often seen merely as social tools or sources of entertainment. But they can also provide the means for valuable educational experiences if they are used to pursue a personal interest or to learn something new. These tools allow students to collaborate with one another on lessons, projects and other learning activities. Technology is also helpful for remote, rural or low-income learners with little or no access to advanced educational opportunities at any age. Students can have access to Advanced Placement courses never before offered, learn necessary languages and tools for tomorrow's economy and gain more access to the creative economy. Learners who are first learning the English language or are their family's first high school or college graduates will now have low-cost opportunities that were not afforded to previous generations.

Learning in this new environment is not a solitary activity but frequently involves participating in learning communities, sharing the process of discovery with others with common interests. The most powerful types of learning involve not just acquiring knowledge but also collaborating with others to solve problems or create new knowledge. And in education, it offers opportunities not just for students but also for teachers who can participate in online communities around the subjects they teach, crowdsource new lessons plans, or create and share new content.

***Agency.*** Increasingly technology is helping students chart their own unique pathways of learning subjects as well as adjusting the pace of their learning. To take advantage of these new environments, learners must move from the passive absorption of content to a new sense of agency that enables them to find a path that makes sense for their individual interests and learning styles. Educators and mentors need to guide and support them in that quest.

Agency is highly motivating for students. But the Task Force recognizes that not all learners are able to exercise the same level of agency. Some young people have the background, the family support and the "questing disposition" that equip them to be confident independent learners, while others, many with fewer advantages, are less prepared to orchestrate their own learning experiences. In addition, students of different ages will be at different cognitive stages that will determine the extent to which they can operate on their own.

These differences need to be recognized and taken into account if the benefits of new learning opportunities are to be truly inclusive. In some cases, self-motivated young people will be able to pursue their interests on their own, effectively mobilizing online and off-line resources to further their personal learning goals. In other cases, learners will need to be supported by schools and other community institutions that recognize the power of this kind of learning and are willing to integrate them into their existing activities. Today, stories abound of students once disengaged from the education system who are now re-engaging and thriving. They found

opportunities to explore their interests while learning subjects such as the arts or coding. The skills and knowledge they have gained have then allowed them to succeed in the intellectual economy.

It will be important for learning institutions and professionals to consider how individualized learning can apply to all communities, fostering equity in educational outcomes rather than exacerbating divides. In addition to empowering young people to learn, helping them to develop a strong sense of agency may be the most effective means of keeping them safe online as they follow their interests.

*Learning Networks.* Learning that is active, engaged and personalized does not take place in a cloistered environment. Rather, it is made possible by a web of environments that includes libraries, museums, schools, afterschool programs and homes. Online resources that can support learning include tools such as search engines, blogs, wikis, podcasts, videos, social networks, massive open online courses (MOOCs), open educational resources and specialized communities of practice. Broadband connections, both wired and wireless, along with a variety of access devices ranging from desktop computers to smartphones, provide the "on-ramps" that make these resources widely available. And, of course, people continue to play critical roles, both online and off-line, in inspiring, guiding and protecting students' learning. Teachers and parents have vital roles in ensuring that each new generation of students gets the education that they need, safely and securely, even as peer-to-peer connections are enabling new forms of social learning.

Learning networks not only provide access to a virtually endless array of learning opportunities, but they can offer learners multiple points of entry—both inside the classroom and beyond it—that provide highly individualized pathways toward career, civic and academic success. They can support acquiring traditional content and skills and also inspire students to be creative, thoughtful problem solvers. Learning networks facilitate student learning through the pursuit of their own interests, at any time and at any place. They also represent a powerful new means for individualizing instruction within existing educational institutions.

The current reality is that many learner networks are fragmented, organized within silos and not interconnected. Our education system is organized primarily around the learning that occurs within a school and does not capture or recognize the learning that takes place outside of school. New learning networks connect it all.

*Digital Learning.* Digital learning is the catalyst that allows next generation models of learning to become the transformational change needed to personalize education, give students more agency and expand access to new learning experiences. Digital learning tools also enable teachers and students to assess learning at any point so that students can move on to the next level or get additional help when struggling. (See the sidebar New Learning in Action.)

# New Learning in Action

A few examples of projects that are underway in communities around the country give a sense of how this new form of technology-enabled learning is being implemented both inside and outside schools and illustrate some of its key components:

## YOUMEDIA

You Media is building a network of sites to support connected learning. Located in libraries, museums and other community-based organizations, these sites are described as "inspiration zones," "production zones" and "exhibition labs" that allow students to acquire new technology skills and connect their interests and academic experiences with groups of peers. YouMedia sites have been established in Chicago, Washington, Miami, New York and Philadelphia.[2]
➡ **youmedia.org**

## FIRSTLINE SCHOOLS

Firstline Schools are recognizing the potential of blended learning to increase student achievement through enhancing personalization, FirstLine School's CEO Jay Altman launched an effort to design and implement a Rotation blended-learning model in the fall of 2010. Segments of students' days at Arthur Ashe Charter School are designated for English and math in the computer lab; students cycle through whole group teaching, computer-based exercises and small group support for targeted remediation.
➡ **firstlineschools.org**

## CHICAGO'S 2013 SUMMER OF LEARNING

Chicago's 2013 Summer of Learning recruited over 100 community organizations ranging from universities and museums to gyms, zoos and parks to offer young people a wide variety of learning opportunities with a particular focus on STEAM (science, technology, engineering, art and math) subjects. A project website helped youth find activities based on their age, category of interests, available programs and whether they preferred online or off-line options. Participants earned badges (alternative credentials) and had an opportunity to showcase their work at the end of summer.
➡ **chicagosummeroflearning.org**

## THE EDIBLE SCHOOLYARD PROJECT'S EDIBLE SCHOOLYARD NETWORK

The Edible Schoolyard Project's Edible Schoolyard Network is an Open Educational Resources (OER) sharing platform that supports over 7,000 educators who are integrating "edible education" into their classes. The open-source site encourages and enables the sharing, remixing and adaptation of user-generated and evaluated, standards-based lessons and teaching tools. These OER focus on growing, cooking and eating across K-12 grade levels, academic disciplines and learning environments, combining traditional academic content with hands-on skills development and sensory exploration to support a more comprehensive learning experience.
➡ **edibleschoolyard.org**

## GLOBALORIA

Globaloria is a K-12 open online course created with the mission of providing all communities, no matter their geography or socioeconomic status, with access to STEM and computing education opportunities. Having served over 11,500 learners across eight states, Globaloria's curriculum utilizes learning-by-doing processes that cultivate learning among students on a large scale. Their courses enable students to master complex coding using industry-standard tools while also challenging them to develop creative innovation skills so learners become investors and leaders in the global knowledge economy.
➡ **globaloria.org**

## BYOTnetwork

BYOT network in Forsyth County, Georgia, is intended to "transform schools and classrooms" into learning communities with personalized technology tools. Tim Clark, Coordinator of Instructional Technology for the school district, has created a program that teachers can opt into that encourages students to bring their own devices—laptops, tablets or smartphones—to school, making them instant experts and giving them a sense of agency and self-determination. As of 2013, more than one-third of classrooms in the district were participating in the BYOT program.
➡ **byotnetwork.com**

## IZONE

Izone is working with New York City public schools—a total of 400 schools by 2014—to use technology to develop new models of personalized learning. iLearnNYC is promoting online content, real-time data and educational technology as resources for teachers, administrators, schools and parents. iZone360 encourages sharing of practices between schools and within the community. In 2013, a third iZone project, Innovate NYC Schools, sponsored a software challenge with cash awards for applications and games to support instruction and student engagement.

➡ **schools.nyc.gov/community/ innovation/izone/default.htm**

## HIVE Learning Networks

Hive Learning Networks are citywide laboratories where educators, technologists and mentors design innovative, connected educational experiences for youth. Currently operating in New York, Chicago and Pittsburgh, each network brings together a consortium of community organizations to offer innovative learning opportunities to middle and high school age students.

➡ **hivelearningnetwork.org**

## THE PROVIDENCE AFTER SCHOOL ALLIANCE

The Providencee After School Alliance is promoting collaborative, inquiry-based, hands-on learning through two year-round programs: The AfterZone offers middle school students expanded learning opportunities at schools and other community locations, and The Hub continues the program for high school students. PASA has introduced a system of digital "badges" for youth to gain recognition for their achievements.

➡ **mypasa.org**

# Key Components and Properties of Connected Learning

| CONNECTED LEARNING KNITS TOGETHER THREE CRUCIAL CONTEXTS FOR LEARNING: | |
|---|---|
| **PEER-SUPPORTED** | In their everyday exchanges with peers and friends, young people are contributing, sharing and giving feedback in inclusive social experiences that are fluid and highly engaging. |
| **INTEREST-POWERED** | When a subject is personally interesting and relevant, learners achieve much higher-order learning outcomes. |
| **ACADEMICALLY** | Learners flourish and realize their potential when they can connect their oriented interests and social engagement to academic studies, civic engagement and career opportunity. |

| CORE PROPERTIES OF CONNECTED LEARNING EXPERIENCES INCLUDE: | |
|---|---|
| **PRODUCTION-CENTERED** | Digital tools provide opportunities for producing and creating a wide variety of media, knowledge and cultural content in experimental and active ways. |
| **SHARED PURPOSE** | Social media and web-based communities provide unprecedented opportunities for crossgenerational and crosscultural learning and connection to unfold and thrive around common goals and interests. |
| **OPENLY NETWORKED** | Online platforms and digital tools can make learning resources abundant, accessible and visible across all learner settings. |

# LEARNING NETWORKS

learner

museums

libraries

after
school

schools

home

online

Digital tools can extend learning beyond the confines of the school. Marina Gorbis, Executive Director of the Institute for the Future, has argued that digital technology is bringing about a fundamental shift that is:

> [B]reaking learning (and education overall) out of traditional institutional environments and embedding it in everyday settings and interactions, distributed across a wide set of platforms and tools, which include a rapidly growing and openly [licensed] content commons (Wikipedia is just one example), on-demand expertise and help (from Mac Forums to Fluther, Instructables and WikiHow), mobile devices that take information into the physical world and makes it available any place any time, [and] new work and social spaces (TechShop, meetups, hackathons, community labs) that are evolving as important learning spaces.[3]

Technology continues to evolve and become more powerful, adding new capabilities to support learning. Network connectivity is increasingly ubiquitous. New types of hardware are integrating computing and communications capabilities in innovative ways. Computing in the cloud makes it possible to provide supercomputing power to even simple devices. And the technologies of artificial intelligence, machine learning and natural language processing are creating new forms of "cognitive computing" that can act as intelligent guides for students and more rapidly analyze student work.[4]

These tools and the ever continuing advances in technology are helping to create a new learning ecosystem. A 2013 report from the KnowledgeWorks Foundation describes the emerging structure as one in which "learning adapts to each child instead of each child trying to adapt to school."[5] The report predicts that "personalization [of education] will become the norm" and that "learners and their families will create individualized learning playlists reflecting their particular interests, goals and values."[6]

The key to this transformation is that **the learner is at the center of the process,** supported by peers, mentors, parents and educators, using networks that go beyond the traditional schools to support their learning. And because it is digitally based, all learning can be captured and credited, no matter when or where it occurs. As a byproduct, the wealth of data that is generated on student learning can also be used productively by educators and students to customize programs for individual learning.

## TOWARD A NEW LEARNING ECOSYSTEM

This new learning ecosystem, then, represents a significant shift from traditional conceptions of how education is organized and delivered. The goal is to empower learners and educators to achieve more. This is necessary to encourage lifelong learning, to foster the skills and dispositions necessary for the 21st century workplace, to instill innovative thinking and to enhance citizens' ability to engage in civic affairs.

While it has been described by many names, perhaps the most evocative is "connected learning," which is *socially embedded, interest-driven and oriented toward educational, economic or political opportunity.*[7]

Connected learning takes place online and off-line, within schools and beyond. It occurs when "a young person is able to pursue a personal interest or passion with the support of friends and caring adults, and is in turn able to link this learning and interest to academic achievement, career success or civic engagement."[8] Thus, connected learning implies that learners are able to find the resources they need and connect with peers, mentors and institutions that can advance their learning. The Aspen Task Force has drawn from the connected learning framework in its research and deliberations.

The Task Force understands that change is often difficult. The approach to learning envisioned in this report raises numerous issues that need to be addressed. But the Task Force believes that the potential of the new networked environment for learning deserves broad support because of the opportunity it presents to accelerate and enhance learning for everyone. It can enable our education systems to become what our economy needs, our society demands, and our students deserve: the transformation of an individual's learning environment to a broader learning ecosystem.

## COMMUNITY VOICES:

**This ship has sailed—the world is moving on and technology is part of it. We do not want to leave the school system behind. We need to keep driving toward where we want everyone to be versus waiting until everyone is ready. The end goal will involve the Internet, and there needs to be a framework for it.**

▶ SANDRA MOSCOSO, PARENT, DC PUBLIC SCHOOLS

America's vibrant entrepreneurial culture has demonstrated the power of innovation to bring benefits to the public and drive economic growth. And activists working in the public interest have been responsible for valuable social innovations. This same spirit of innovation can also be a source of positive change in learning.

# THE CHALLENGES TO CREATING A NEW CULTURE OF LEARNING

In its research, and in discussions with many groups and individuals, the Task Force heard real excitement about the potential of the new network-based culture of learning. But it also heard a number of concerns expressed by parents, educators, policymakers and young people themselves about the potential role of technology in learning. These concerns must be acknowledged and addressed. Among the concerns:

▶ Technology can be isolating and can hinder a child's social, emotional and physical development.

▶ Not every child will thrive with self-directed learning.

▶ The growing use of technology for learning may increase the opportunity and achievement gaps between well-off and disadvantaged students.

▶ Adults worry that young people are less safe online and that technology poses potential threats to a child's privacy and safety.

▶ Parents and teachers who are unfamiliar with new technology are not well equipped to support its use by young people.

▶ A significant percentage of children have limited or no access at home to computers or smart devices; this hinders their opportunities to participate in these new forms of learning.

▶ It is difficult to assess the quality of online educational materials.

▶ Teachers and educators are already overwhelmed with demands and are not prepared to handle the additional challenge of new technology.

▶ The integration of technology in schools will cause disruption, and there is no guarantee it will improve education.

▶ Technology will replace teachers.

▶ Schools rely too much on "seat time" and not enough on actual learning.

▶ Technology will take away resources from traditional education.

▶ Beyond digital media, students still like interacting with educators and learning from books—they want it all.

▶ School district leaders fear that alternative learning options and technology will result in reduced funding for schools and districts.

These fears and concerns are real. But they are not insurmountable. We have spent over a year exploring these issues and seeking to identify the most promising options for reconciling the opportunities and potential hazards.

The emerging learning ecosystem holds great promise for today's generation of learners. The Task Force sees this new culture of learning as a way forward for the country at every level—supporting individual empowerment, economic development, increased qualifications for jobs, social advancement, improved civic governance and even increased global competitiveness. But much remains to be done to make these opportunities a reality while still addressing the legitimate concerns voiced above.

Based on our deliberations, the Aspen Task Force recommends action in five specific areas in order to realize its new vision of learning. The following sections of the report present the Task Force's findings and a summary of its recommendations:

1.  We make recommendations for actions that will truly **put learners at the center of the networks** that can enhance and accelerate their learning. Teachers need support to help them integrate new methods of learning into the classroom. Community organizations, including libraries, museums and other civic and cultural institutions, must become full-fledged participants in learning networks. Parents continue to have an important role to play as enablers of and guides for their children's learning experiences.

2.  We recommend steps that are needed to ensure **equity of access** to the resources that young people need to pursue their learning goals. This includes having adequate connectivity, including reliable broadband connections, as well as access to the hardware, applications and high-quality content and courses necessary to support their learning. When we say "everyone," we mean *everyone*.

3.  We believe that learning networks need to be maximally **interoperable** to ensure that learning assets are not isolated in separate silos and that innovations can be shared across networks. Interoperability is also important to allow students to move freely across networks to pursue their learning objectives and to receive credit for all learning accomplishments wherever they occur. Interoperability also empowers educators and parents to have flexibility and control regardless of which providers they choose.

4.  We also believe that all learners and educators need a sufficient degree of **media, digital and social-emotional literacies** to learn through multiple media confidently, effectively and safely. Every student must have a chance to learn these vital skills.

5.  We focus on steps needed to create a **trusted environment** that will protect children's safety and privacy online without compromising their ability to learn. Parents should be able to trust that their children's personally identifiable information is safe, secure and won't be used in ways other than to help their academic progress. We argue for a shift from a negative, fear-based approach that attempts to insulate children from all harm but may also create barriers to valuable resources to a proactive approach that will enable students to pursue online learning experiences safely.

# TASK FORCE RECOMMENDATIONS AND ACTION STEPS
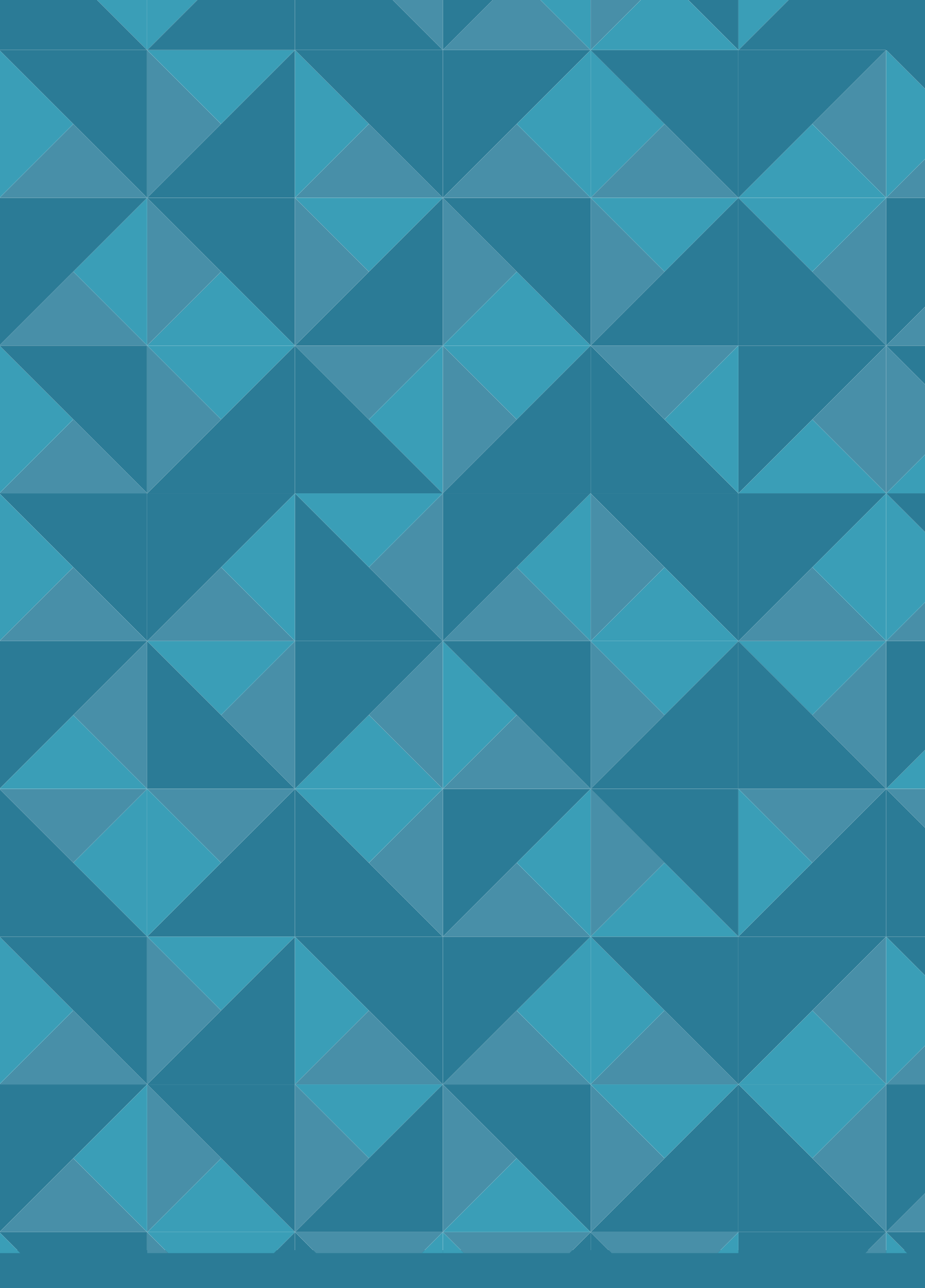
# Learners need to be at the center of new learning networks.

# THE TASK FORCE FINDS:

- While educators are often learner-centered in what they do every day, educational systems are not always geared that way. Many, if not most, students still learn in classrooms that follow an educational model developed in the 19th century. The United States must create a system for the 21st century that is able to meet the unique needs of each individual learner and that takes advantage of every resource and opportunity inside and outside of a school.

- Digital technology can help the education system move beyond the factory model of education and empower students, teachers and parents with a personalized learning experience in a way that was never previously possible. Digital media provides new opportunities for learners to pursue their interests and find educational resources, experiences, and courses any time and any place.

- Experiences outside of the classroom are important sources of learning. More effective models are needed to expand learning beyond the school through connected networks that bring opportunities together into a seamless, integrated experience.

- Competency-based approaches to assessment and credit-granting can ensure that all learning counts, no matter where or when it occurs. But implementing these approaches will require modernizing the way education is organized and regulated.

- Educators and other professionals have always played a critical role in inspiring and supporting learners, and they are vital to a learner-centered approach. The importance of skilled, dedicated teachers to guide students' learning increases under this new model, even as their role evolves from instructing groups of students to guiding individualized or collaborative learning experiences and providing more intensive assistance when needed.

New digital technologies give students the ability to participate in networks that enable them to pursue their individual interests and learn at any time, in any place and at any pace, both online and off-line, in school and beyond. These "learning networks" can provide direct access to a variety of educational resources. Within these networks is an expanding variety of providers, including schools, museums, libraries, colleges, universities and afterschool programs. There is also an explosion of resources ranging from e-books and websites to virtual worlds and engaging multimedia content, as well as connections to peers, mentors, parents and teachers who will support learning.

The emerging learning networks are at once expansive and broad but also highly individualized. Much of their power comes from their ability to customize the learning experience to individual users or small groups, enabling them to choose the pathways that are most appropriate to their needs and diverse learning styles. These new networks can accelerate learning and enable all students to realize their full potential, creating a strong foundation for success as workers, citizens and family members.

Making this exciting new form of learning succeed will require the active support of all parts of the public and private sectors. In order to create an infrastructure that will support students as they engage with learning networks, parents, educators, government, industry and philanthropy, all need to work to modernize educational institutions, regulations, tools and services. This will include development of new pedagogies, new tools for both students and teachers and new competency-based approaches to measure and give credit for knowledge and skills acquired through nontraditional means.

In addition to the participation of the formal school system, this transformation will require the involvement of a broad range of informal educational institutions—libraries, museums, science centers, afterschool programs—that have important roles to play in supporting learning networks.

## COMMUNITY VOICES:

**The sage on the stage style of teaching is coming to a rapid end. In a competency-based model where teachers have to customize education all the time, they become more like a manager of educational opportunities for kids instead of the sole provider of information.**

▶ STEVEN BOWEN,
COUNCIL OF CHIEF
STATE SCHOOL OFFICERS,

To achieve this new vision, stakeholders must address the challenges learners face today. In some cases, learners have limited access to education outside the school walls, while in-school learning is too tightly bound by time and place and too often presumes that all students learn at the same pace. New, informal networks can support a more customized learner-centered approach to education, but mindsets and policies must evolve to support this new approach and help accelerate its adoption.

# THE TASK FORCE RECOMMENDS:

**1**

**Redesign learning environments to empower learners to learn any time, any place and at any pace, both in school and beyond.**

### Action A: Invest funds to develop next-generation models, strategies, tools, services and platforms needed to enable effective student-centered learning networks.

The Institute for Education Sciences at the U.S. Department of Education funds millions of dollars of research that is primarily focused on providing evidence of "what works." While that is an important goal, there is a need to develop new, innovative approaches that could fuel accelerated change and help educators understand how to transform education systems. While some steps have been taken to support education reforms through the Investing in Innovation (i3) Fund and the proposed ARPA-ED program, new private, public, and philanthropic funding should allow for more development and scaling of transformative educational models, devices, tools and systems.

### Action B: Support pilots for new, competency-based learning approaches that recognize knowledge, skills and competencies achieved in or outside of schools.

Students learn in different ways, at different speeds and through different pathways, both online and off-line, which may also vary by subject for each student. Yet these differences are not taken into account by current credentialing schemes, many of which give

too much weight to how much time a student spends in the classroom.

To allow competency-based learning models to evolve, state policy needs to provide flexibility around seat time and other requirements that govern when a child must be in the "line of sight" of a teacher. Institutions of higher education need incentives to recognize competency-based transcripts. Flexibility will be needed in existing teacher certification and evaluation systems. And states, districts and schools need concrete road maps for building new systems that are inclusive of all learning styles, consider all stakeholders and allow for anytime/anywhere learning both in and out of school.

Development of sound principles should lead to efforts by government and philanthropies to support pilots for implementation of these new systems for learning. These pilots should be designed to be iterative and to respond to what's working in context. These pilots should:

▶ *Include a range of institutions, actors and organizations in implementation.*

An enormous benefit of competency-based systems is their ability to leverage learning anytime and anywhere and to take advantage of experts throughout the world and in the community beyond the school walls. For example, learning that happens after school in a library can count for credit, and students who want to master a language not offered at their school can find online classes in that language. The ability for these partnerships to take hold in the system should be built at the outset.

► *Consider all learning styles as new systems are developed.*

Students with learning differences may require varying levels of support when education systems move to competency-based systems with more self-direction and personalized learning. Some students may respond best to direct, explicit instruction, for example, while others may thrive in collaborative spaces or self-paced digital environments.

### Action C: Disseminate case studies and evaluations of effective programs and best practices in advancing student-centered learning through learning networks and competency-based approaches.

Parents, educators and students have different levels of understanding about digital media learning environments. We need to help people visualize and understand what the ideal learning environment looks like, the benefits of a transformed environment and the challenges in getting there. Communities can use these case studies and evaluations to inform and guide the creation of digital media environments that suit their needs. These models will, in turn, encourage schools and other learning institutions to adopt or adapt to these new approaches.

### Action D: Develop new assessments and tools to convey evidence of student achievement through learning networks, such as badges or other new credentialing, and encourage states to develop mechanisms, such as portable data backpacks, that can assist with the collection and secure storage of student credentials, work and outcomes.

New methods of more fine-grained assessment of student accomplishment are now available. These include real-time assessments embedded in new learning platforms and education games. In addition to traditional academic credentials, there is also a growing array of badges that document the acquisition of specific skills or learning experiences. One of the advantages of badges is that they can recognize learning no matter where it occurs.

To date, badges have been mainly used in out-of-school learning projects, such as Chicago's 2013 Summer of Learning. Several colleges and universities, including Northern Arizona University and Southern New Hampshire University, are developing competency-based degree programs that involve giving credit for specific skills rather than for completed classes.[9] At the end of 2013, with support from the Lumina Foundation, a Competency-Based Education Network (C-BEN) involving up to 20 institutions of higher education, was established to serve as a platform for sharing experiences and identifying best practices.[10] Meanwhile, the Mozilla Foundation, with support from the MacArthur Foundation, has developed an Open Badges Infrastructure[11] that "makes it possible for badges

issued by different companies and communities to be interoperable and shareable across the web." Open SUNY (opensuny.courseites.com/) is an early exemplar of a traditional higher education system employing Mozilla's Open Badges. Common Sense Media is using badges as part of its "digital passports" aimed at building digital literacy (digitalpassport.org).

Policy makers and education leaders need to establish reliable and secure mechanisms for capturing, storing and reporting students' academic progress based on their learning experiences in a variety of settings across a variety of networks. This may involve the development of enhanced learner profiles that are capable of representing student accomplishment on a more granular level while still maintaining a student's privacy. It could also involve the creation of secure, portable "data backpacks" containing detailed evidence of their owners' learning levels, preferences, motivations and personal accomplishments. In addition to containing traditional transcript data, these backpacks would include supplementary information that gives a more holistic view of student learning and provides feedback loops to strengthen learning that takes place across networks.[12] Data backpacks also can help build trust among parents, students and educators.

Ultimately, though, this is not a problem just for educators. Employers, as well, need to think through and explain what they look for when hiring. Specifically, what kind of credentialing will they value and base hiring decisions on? To facilitate this process, as the world transitions to more accurate

credentialing, the Task Force suggests that industry officials and experts gather regularly to define what credentials outside of the traditional route they will find most helpful in hiring and maintaining a workforce. Similarly, educators and others who provide alternative credentials should engage with business leaders to keep up to date about the progression of skill sets necessary for jobs of the future.

# 2 Enhance the ability of educators to support and guide learners in a networked learning environment.

### Action E: Invest in research and professional training to better prepare educators for changing roles in supporting students' use of new and existing learning networks.

While many teachers are skillful in using digital technologies and in providing personalized learning experiences for students, most teachers were educated at a time when the dominant model was lecture-driven and textbook-based. Research is needed to generate new pedagogical approaches for a networked learning environment and to develop new ways of preparing teachers to thrive in such environments.

There is also a need for additional research on policies to support the shift to a new learning environment. Specifically, state policymakers need to rethink teacher-certification policies that fail to take into account the changing roles of teachers, as well as evaluation practices that do not consider teachers' roles in forging links with other institutions. While there are some promising exceptions—Florida has been working to integrate competency components into teacher training for over a decade, passing a law in 2013 that provides a framework for offering a competency-based certification program—more work is necessary in this area.

### Action F: Align teacher quality policies and professional development funding to ensure that educators have the necessary support, resources and skills to leverage technology and to enhance learning for their students.

Adapting to a new style of teaching involves orchestrating the use of technology for learning among a group of students, each of whom may be working at a different pace. This will pose a real challenge to teachers who are used to more traditional classroom methods. But, fortunately, the same network technology that can enhance and accelerate student learning can also be used to help teachers make this transition.

The Open Educational Resources (OER) movement encourages teachers to harness educational resources that are released with copyright licenses allowing for their free use, continuous improvement and modifications by others. The world is moving fast, and OER enable educators to access, customize and remix high-quality materials that incorporate state of the art teaching methods, contributing their own insights along the way. The sharing and re-use of educational materials moves one step beyond digital and free to allow remixing and redistribution and thus allows teachers to exchange materials and teaching methods they have created.

College and university education departments will also need to transform their pedagogies to support the training of new teachers' styles and techniques.

# Open Educational Resources

## ISKME'S OER COMMONS

ISKME'S OER Commons is an open teaching and learning network that facilitates the discovery and improvement of high-quality digital resources that are free, open and available for a diverse range of learners. OER Commons, which features tools for standards alignment, rubrics for quality review and Open Author, an integrated, easy-to-use digital resource authoring and remixing environment, has served millions of users in over 193 countries around the world since 2007.
➡ oercommons.org

## CK-12

CK-12 addresses the growing costs of textbooks and the closed, outdated medium in which they are available. Focusing specifically on textbooks for U.S. K–12 schools, the nonprofit works with states and institutions to build web-based, collaborative "flexbooks" that are free to use and adapt in multiple formats. Over 90 textbooks are available for reuse under Creative Commons licenses.
➡ ck12.org

## LEADERSHIP PUBLIC SCHOOLS

Leadership Public Schools is a consortium of four urban charter high schools in the Bay Area that uses OER as a core philosophy and organizing process. Instructional resources are digital, editable and continually iterated through a process of "collaborative innovation." Staff regularly employ a design process to develop ed tech tools, curriculum resources, assessment strategies and general program improvement to address the challenges of their high-poverty, low-income high schools and similar schools around the world.
➡ leadps.org

## WIKISEAT

Wikiseat is an open-source platform for furniture design. Hands-on learning provides unexpected ways to explore abstract concepts in core subjects such as science, mathematics, English and literature. Students are encouraged to document their process and share it online, creating opportunities for crucial new 21st century literacies.
➡ wikiseat.org

## CONNEXIONS

Connexions is a repository and collaborative platform of materials that breaks down larger educational content, such as textbooks and courses, into basic building blocks known as modules. Each module has a corresponding web page, so educators can mix and match pages to create custom lessons. All 20,000 modules are licensed under Creative Commons, so they can be continually edited, translated and adapted.
➡ cnx.org

## THE KHAN ACADEMY

The Khan Academy offers over 5,000 instructional videos from basic algebra to advanced chemistry, biology and even the banking crisis. Three and a half million learners use the site each month. All videos are licensed under Creative Commons, with some already translated into Spanish, Arabic, Mandarin, Hindi, and more. The Khan Academy is currently exploring a system that awards learning points and badges as students progress.
➡ khanacademy.org

Other networks are also helping educators support each other in their professional development. New professional platforms are emerging that provide teachers with access to peer support and enable them to share resources. For example, **LearnZillion**, **BetterLesson** and **Share My Lesson** provide platforms that permit sharing of lessons aligned to the Common Core State Standards. **Net Texts**, an OER-based platform, provides tools for teachers to develop and share their curriculum.

## CLASSROOM 2.0 AND EDMODO

Classroom 2.0 and EDMODO are providing tools to connect teachers to peers around the world. In Australia, the country's 280,000 public school teachers are being linked together through a custom-built social network. The network allows teachers to find and get help from colleagues who are dealing with the similar issues. Participants have access to a visual "dashboard" that lets them see what discussion topics are most popular and find information of interest to them.[13]

Finally, online networks can and do support communications among teachers, parents and students outside the classroom. Just as parents can securely access medical records online, check their bank accounts or track the progress of a shipment, they should have the opportunity to monitor their child's progress, homework assignments and other activities assigned by teachers.
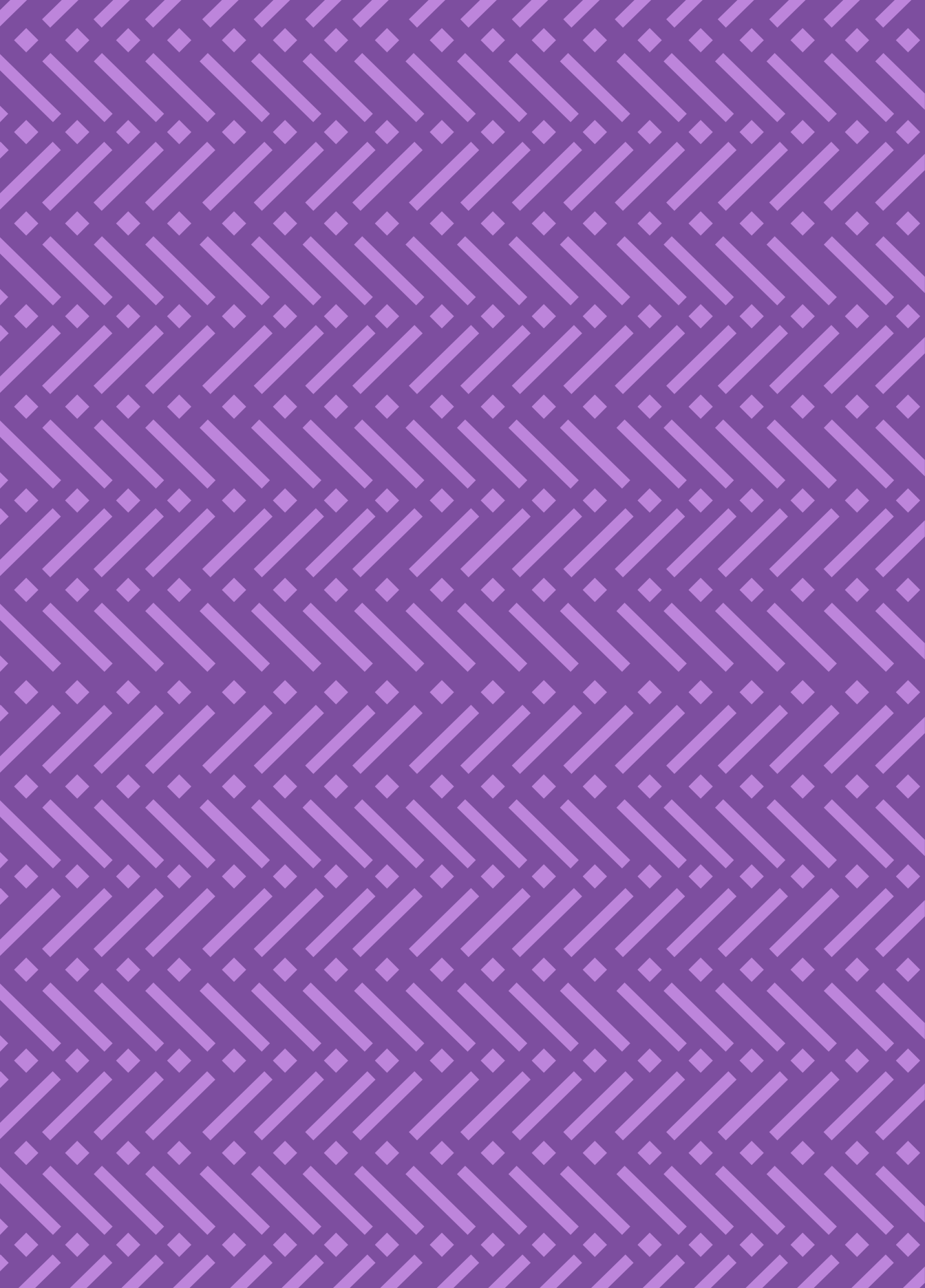
# Every student should have access to learning networks.

# THE TASK FORCE FINDS:

► To realize the benefits of the new learning opportunities, all young people need to be fully connected, which means having access to adequate broadband, hardware and software, as well as to sites, services and tools required for collaboration, creation and research. They also need access to high-quality content and the literacy skills to support full participation.

► Nearly all of the country's schools and libraries are now connected to the Internet at a basic level as a result of initiatives like the federal E-Rate program.

► As educational use of computers, tablets, smartphones, HD video, gamification, peer-to-peer networks, interactive telepresence and the other applications of the Internet have grown, so has the demand for higher-performance broadband connectivity. As a result, current Internet connections in schools and libraries are becoming increasingly inadequate to support individualized technology-based learning for all students.

► Current metrics indicate whether institutions (e.g., schools and libraries) are connected to broadband Internet; metrics need to be redefined to indicate whether individuals within the institutions have adequate connectivity.

► Since technology makes it possible to learn any time and any place, connectivity beyond educational institutions is also important. Yet, for various reasons, nearly one-third of U.S. households have not adopted broadband Internet service.[14]

► As mobile devices become an increasingly important means for accessing the Internet, there is a need to ensure access to broadband wireless networks. As technology advances, so must our schools. So new upgrades of devices, software and other high-technology learning opportunities as yet undeveloped will require continual investment and upgrades.

► Filtering policies that place restrictions on the applications, services and tools accessible in schools and libraries vary by district and community. While the intent is to keep learners safe, overly restrictive policies can unintentionally block high-quality content for learning. A student who can view Wikipedia has access to content, but a student who can't get to Google Docs or to a Khan Academy video on YouTube still effectively doesn't have the full promise of broadband. Filtering can cripple the potential of broadband in certain circumstances.

► Those with disabilities and learning differences may need special tools to access and participate in online learning.

In order for students to pursue their interests online, they need to have access to the resources required for learning. This begins with having physical connectivity to the Internet through a reliable, robust broadband connection. It is through broadband that students can access resources around the globe, or an instructor on the other side of the country, or expand their learning to times and places beyond the classroom. Broadband is also a vital mechanism for accelerating innovation and for fostering faster, more affordable distribution of services, content and tools for teachers and students.

Simply, learners need hardware and high-quality content to support their learning activities. And they need the literacy skills to be able to understand and navigate the digital environment.

Schools (and other community institutions) need to provide these resources along with the support structures that will help students use them well. But since learning often takes place beyond learning institutions, access to these resources at home and at other non-school locations is also important. Fortunately, the penetration of key technologies has increased as they have become less expensive, more powerful and easier to use. But real disparities remain, preventing all young people from enjoying the benefits of connected learning. Thirty percent of U.S. households have not yet adopted broadband service. Access to digital technology is lower among specific groups in society, including minorities, those with less education, rural residents, the elderly and the poor.

The current level of connectivity in schools and libraries is largely the result of the federal E-Rate program. Launched in 1997, E-Rate was designed to provide financial support to enable schools and libraries to get online. The program provides discounts of up to 90 percent to help eligible institutions obtain Internet access and internal connections. Eligible participants include public and private K–12 schools as well as all public and many private libraries.

Thanks to the E-Rate program, almost every school in the United States now has some connection to the Internet. But the use of computers and other smart devices in schools continues to expand rapidly, and thus far, the E-Rate does not cover their acquisition. While computers were once restricted to computer labs, Internet access is now available for 93 percent of the computers located in the classroom.[15] Overall, schools now provide, on average, one Internet-connected computer for every 3.1 students, with many schools adopting 1:1 models where every student and teacher has a device.[16]

As the use of computers, smart devices and the Internet has grown in classrooms, both in terms of the intensity of student use and the bandwidth requirement of the applications being used, the capacity of many of these links is falling behind demand. According to the Federal Communications Commission (FCC), "In response to a 2010 Commission survey of E-rate funded schools and libraries, half of respondents reported slower connection speeds than the average American home and 39 percent cited cost of service as the greatest barrier to fully meeting their broadband needs." In 2012, a survey conducted

by the State Educational Technology Directors Association (SETDA) found that nearly 80 percent of schools indicated that their broadband connections are inadequate to meet their needs.[17]

Substantial disparities in connectivity also exist among libraries. For example, while more than 90 percent of urban public libraries had broadband connections of at least 1.5 Mbps in 2007, less than half of rural libraries had connections that were that fast.[18] Among the many reasons this is significant is the number of families that rely on libraries as their primary venue for accessing the Internet.[19] Although average speeds have almost certainly increased since then, a gap between urban and rural libraries remains.

In June 2013, President Obama announced his ConnectED initiative that set an immediate target of at least 100 Mbps service to most schools and libraries, with a goal of providing speeds of 1 gigabit per second (Gbps) within five years.[20] The next month, the FCC took note of the changing connectivity needs of educational institutions and launched a review of its E-Rate program with the intention of increasing support for higher-capacity broadband in schools and libraries.[21]

In addition, the bipartisan LEAD Commission has also worked for over a year to accelerate digital learning in K–12 education. Its five-point blueprint urges federal, state, local, private and philanthropic sectors to expand the use of digital learning tools and resources in schools.[22]

These efforts point towards greater connectivity for each student in every school, but governments have not yet readied funding of student devices, or for support of those divides. Learner networks extend beyond the school, so it is important that broadband connectivity extend beyond schools and libraries. Between 2000 and 2013, home broadband access to the Internet grew from less than 5 percent of all U.S. households to 70 percent, according to the Pew Internet and American Life Project.[23] The overall growth in broadband penetration seems to have largely leveled off in the past several years, however, leaving nearly one-third of households with no broadband service.

And Pew found that significant disparities among different groups in the population still exist:

▶ 74 percent of white households have home broadband access compared to 64 percent of black households and 53 percent of Hispanic households;

▶ 89 percent of college graduates have broadband access at home compared to 37 percent of those without a high school diploma;

▶ Broadband penetration is much higher among those with a household income (HHI) of at least $75,000 (88 percent) than those with an HHI of less than $30,000 (54 percent); and

▶ 70 percent of urban residents and 73 percent of suburban adults have broadband compared to 62 percent of rural Americans.

# THE TASK FORCE RECOMMENDS:

**3 Build an infrastructure that will connect all students in all of the places they learn.**

## Action G: Base the bandwidth needs of schools, libraries and other institutions not on the needs of the institution as a whole but on the collective needs of all learners that they serve.

When the first efforts were launched to connect schools and libraries to the Internet, it was typical for these institutions to have—at best—one or two computers per classroom along with a group of computers in a learning center and/or library.

Today, the number of access devices per institution has multiplied severalfold. Many institutions now have Wi-Fi capabilities that permit large numbers of individual devices to be simultaneously connected to a broadband network. The Task Force's view of the future is a not-too-distant time when every student and every educator has a connected learning device, and possibly multiple devices, including laptops, tablets, smartphones and even wearable devices.

To fully realize the vision of the learner at the center of his or her learning networks, each learner will need sufficient connectivity to get access to the resources he or she needs at any time to meet his or her educational needs. Planning for an environment such as this will require a different set of calculations about the bandwidth needs of any educational institution, particularly given the high-bandwidth

demands imposed by new online courses, multimedia content and more sophisticated assessments. School buses could even be equipped with robust connectivity to support learning in transit.[24] Indeed, public "third places" tend to budget for at least one broadband device per customer, and private industry often budgets for two broadband devices per employee when planning for Wi-Fi.

## Action H: Build innovative partnerships among the public and private sectors to bring broadband access to all learners.

The federal E-Rate program has been instrumental in providing a basic level of broadband connectivity to America's schools and libraries. The Federal Communications Commission is currently in the process of reforming and expanding the E-Rate program to upgrade broadband to schools and libraries. The Task Force strongly supports the concept of E-Rate reform, as broadband connectivity to learners in schools and libraries is crucial to the vision of ubiquitous learning networks.

But private sector initiatives can also be helpful in expanding access to the Internet and reducing disparities. For example, Comcast's Internet Essentials program provides low-income families with broadband service for $9.95 a month, the option to purchase an Internet-ready computer for under $150 and free digital literacy training along with access to educational resources such as the Khan Academy, which itself is free to all. In its first two years of operation, it has provided affordable broadband service to more than 250,000 households.[25]

## HOME BROADBAND VS. DIAL-UP, 2000-2013

Percentage of American adults 18 years and older who access the internet via broadband vs. dial-up.

*Source: www.pewinternet.org/Trend-Data-%28Adults%29/Home-Broadband-Adoption.aspx*
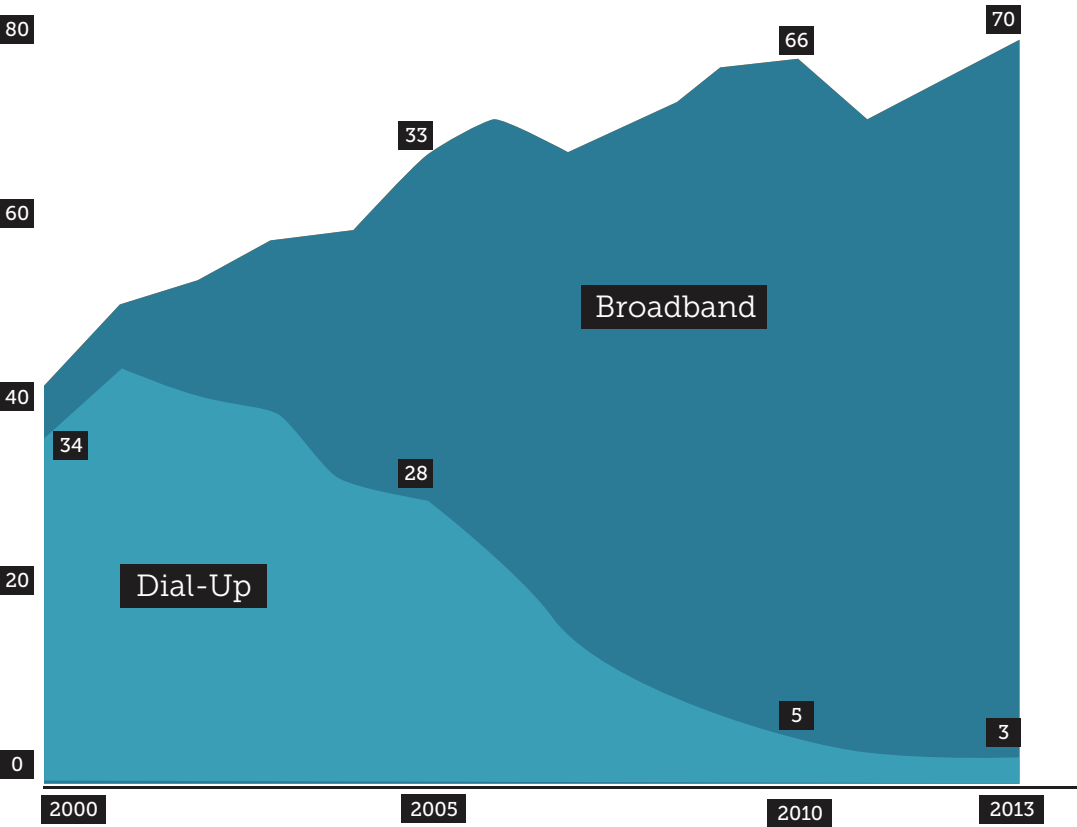
Public-private partnerships represent another promising approach to expanding online access. Several communities have developed partnerships to make local Wi-Fi networks more widely available to students. In Forsyth County, Georgia, for example, the local school district worked with the Chamber of Commerce to create a directory of free Wi-Fi locations in the community. Participating businesses are given a "free Wi-Fi" static cling to display in a prominent location at their business. A middle school in Manchester, Tennessee, that has equipped all sixth graders with iPads has convinced local businesses to open their Wi-Fi hot spots to students to maximize the benefits of their new technology tools.[26]

***Action I: Ensure that all learners have access to appropriate devices that connect them to learning opportunities through a wide range of options that include BYOD (bring your own device), leasing and cooperative purchasing strategies.***

The idea that every student would have on his or her desk a portable device that provides access to learning networks is still a novel one. But a small but growing number of school districts have undertaken efforts to enable all students to participate in personalized and collaborative learning by providing each of them with laptop computers or tablets.

Mooresville Graded Public School District, for example, is the third poorest in North Carolina, but is one of the highest performing school systems. The district reallocated budgets to pay for laptops, connectivity and digital textbooks for every student. Dropout

rates have fallen 50 percent, test scores have risen 20 percent and 85 percent of their graduates go on to college. Dr. Mark Edwards, Mooresville Superintendent, believes that all districts can afford to make a digital conversion by establishing priorities, aligning resources, thoughtfully re-purposing funds and looking for cost efficiencies as well as productivity gains.[27]

As a complement to these efforts, districts are also adopting "Bring Your Own Technology" (BYOT) or "Bring Your Own Device" (BYOD) policies, which allow students to bring devices from home for use in learning. But because of inequities in the availability of home devices and concerns over security and maintenance, these policies are not always feasible. In response, many districts are also purchasing the devices for their students. The math works for every student to have his or her own device. The schools will have to solve this problem, most likely, through a blend of BYOD and group purchasing by the school district.

A few years ago, Forsyth County Schools in suburban Atlanta piloted BYOD and began to allow students to bring their own laptops, phones and tablets to school—and put them to use. Speaking to a group of superintendents, Jill Hobson, Director of Instructional Technology, said, "You're already BYOT, but you won't admit it."[28] She was referring to the fact that, despite policies to the contrary, most students bring their own technology to school, but schools ask them to power down and pretend they do not. Every school is a bring-your-own-technology school, but only a few acknowledge and leverage the fact.

While the Task Force views these devices as critical components to supporting new individualized learning opportunities, we recognize that simply providing hardware is not enough to transform learning. As Jim Stigler, Associate Dean for Research and Innovation at UCLA Division of Social Science, has commented in reference to the Los Angeles School District rollout of tablets to students, "I would guess that 10 percent of success will be due to the iPad, 30 percent the software and 60 percent the teaching that goes with the iPad. As long as people think the iPad itself is the main ingredient for success, it will probably fail. But if we invest seriously in improving teaching and software, the potential is huge."[29]

### Action J: Provide pathways to high-quality content, courses and educational experiences through platforms, applications and curation efforts by educators, students and parents.

At present, it is not easy for students or educators to find the content and tools relevant to their needs. Some resources have been developed to help meet this need. A recent example is Software PhD, a website created by a college administrator that has been described as a "Yelp" for higher education software. Launched in 2013, the site allows participants to post ratings and discuss educational software products. The site's creator, Mark A. Baker of Whitworth University, developed it as a way to balance sales pitches from software companies with feedback from users.[30] Graphite is a website for preK–12 teachers developed by the nonprofit Common Sense Media to help preK–12 educators by providing

ratings and reviews of apps, games, websites and digital curricula contributed by other teachers. The Federal Registry for Educational Excellence (FREE) is a site created by the U.S. Department of Education that includes a directory of over 400,000 learning resources organized by subject and by standard. Gooru is a search engine specifically designed to help teachers internationally to find high quality interactive learning materials. New services like RankU are helping students find online higher education courses, while GreatSchools is providing ratings and reviews of schools in local communities. But more mechanisms to guide users to the most appropriate resources are needed that are trusted, easy to use and widely available.

### Action K: Develop appropriate and effective filtering policies.

The Child Internet Protection Act (CIPA) requires schools and libraries that receive funding from the federal E-Rate program to implement mechanisms that will block content deemed inappropriate to minors. In addition, many states have similar laws that require filtering by schools and libraries.[31] It is certainly true that the Internet contains a good deal of content that is not appropriate for young people and that, in the absence of protective measures, this content is just one click away for any Internet user.

But current filtering solutions are a blunt instrument that can restrict access to valuable tools for applications as well as objectionable content. This problem has been recognized explicitly in the

U.S. Department of Education's National Technology Education Plan:

> Ensuring student safety on the Internet is a critical concern, but many filters designed to protect students also block access to legitimate learning content and such tools as blogs, wikis, and social networks that have the potential to support student learning and engagement.[32]

The Task Force calls for fresh, creative thinking to resolve the problem of protecting children without overly restricting their opportunities to learn. It believes one of the best ways to elicit these ideas is through competitions that offer prizes for the best new solutions. This approach to stimulating innovation has not only been used successfully by the private sector (in competitions such as those sponsored by the X Prize, xprize.org), but also by government (see, for example challenge. gov). Competitions seem to be particularly effective in stimulating technical innovation. Consider, for example, the results of DARPA's challenges to design a self-driving vehicle and to build more capable robots[33] or the Netflix Prize for the best algorithm for identifying movies customers would like based on past preferences.[34]

***Action L: Expand access to learning technologies for students with learning differences.***

Ensuring full access is also an issue for students with learning differences. These kinds of needs are not always taken fully into account by program developers, but technology can also offer them promising opportunities for full participation in learning networks. Currey Ingram Academy's "learning commons" provides an interesting example of a public-private partnership to encourage collaboration among teachers and students. By empowering students to be critical and creative thinkers, it recognizes that every child learns differently.[35]

## COMMUNITY VOICES:

**21st-century kids are going to 19th-century buildings, so most of them have to power down to go to school.**

▶ STEPHEN BALKAM, FAMILY ONLINE SAFETY INSTITUTE

# Learning networks need to be interoperable.

# THE TASK FORCE FINDS:

▶ **Students need to have wide access to resources online, to connect easily with others who can support their learning and to have the ability to share their ideas widely.**

▶ **Learners must be able to pursue their interests and share their data across different learning networks in order to maximize their learning.**

▶ **Although there has been rapid growth in resources to support networked learning, much of this material exists in separate silos, proprietary formats or closed systems.**

▶ **Ensuring interoperability of learning networks and of the resources they contain is critical to maximizing their value, including their ability to be affordable and sustainable.**

In theory, broadband Internet provides students with virtually unlimited access to resources that they can use to further their learning. The Internet makes vast libraries of information available online as well as the riches of museums and other cultural institutions. E-science projects give students direct access to powerful tools (like telescopes and electronic microscopes) that they can use to engage in high-level research. MOOCs, which are openly accessible to all, provide access to courses from some of the country's top colleges and universities. Open Educational Resources, which are freely available for all to re-use, revise, remix or redistribute, allow

educators and learners to build on others' work, with appropriate attribution, rather than always starting from scratch. Online social networks make it possible for learners to find and collaborate with others with common interests.

But too often these resources exist in separate silos or in closed systems, which limits their value, or in proprietary formats, which can be restrictive. If students are going to be able to assemble their own learning resources to create a personalized customized curriculum for themselves, they need the widest possible access to these resources and the ability to combine and "re-mix" them. Similarly, if they are to get credit for their learning experiences, a uniform system of accreditation is needed that works across all available platforms. And students need to manage their identity in different systems, through mechanisms such as "data backpacks." Over and above the value of any individual resource, great value resides in the ability of these resources to interoperate. It is impossible to have a seamless connected learning experience without interoperability, assured secure transferability of data and the persistence of one's identity.

# THE TASK FORCE RECOMMENDS:

## 4 Support the maximum feasible degree of interoperability across learning networks.

*Action M: Adopt open standards and protocols that simplify and promote interoperability of learning resources.*

The financial services industry provides an example of how the adoption of standards has made possible global networks for financial transactions. These range from the transfer of bank funds among commercial entities to networks that allow individuals to make deposits, get cash and perform other functions at ATMs anywhere in the world with a high degree of confidence in their security. Though not as advanced as financial services, and not without its own set of problems, the health care field is engaged in efforts to allow better sharing of secure personal electronic medical records while protecting patient privacy.

In education, the Common Core State Standards represent a major effort by a majority of states to create enough commonality in academic standards to make it possible to create common instructional resources and evaluate student performance across schools. Common Core also creates an "interoperability" of resources and instruction among states that was impossible when there were 50 different standards. This not only helps teachers but also makes it easier for content creators to develop materials once and share it across the nation. Even if a state does not adopt the Common Core State

Standards, there needs to be means for students to have access to resources across state borders.

There are many different strategies that can be pursued to enable interoperability across learning networks. These range from the adoption of templates to ensure commonality of format and structure for learning resources to the use of metadata tagging to simplify discovery and re-use of materials.

One promising effort to promote interoperability is the Learning Resources Metadata Initiative (LRMI), which has developed a schema for describing, or "tagging," materials on the web to help learners or educators find and use appropriate learning resources.[36] The LRMI has created a common framework that can be used to add education-specific metadata to learning resources that will be recognized by major search engines. The Ed-Fi Alliance (ed-fi. org) is also advancing the use of technology and standards that provide the foundation for enabling interoperability among secure education data systems designed to improve student achievement and teacher satisfaction. Finally, the voluntary Common Education Data Standards (ceds.ed.gov/) is the result of a national collaborative effort to develop voluntary, common data standards for a key set of education data elements to streamline the exchange, comparison and understanding of data within and across education institutions.

Furthermore, as noted in the discussion under Action D above, "data backpacks" or similar concepts of student-owned data can allow for mobility and

interoperability as students move from school to school or along their own learning networks.

This should include the use of protocols and open standards to transfer learning from source to learner, learner outputs to accreditation entities, or just to take one's school data with him or her, moving to another learning environment.

**Action N: As a condition of funding, require developers of learning networks and learning resources to make provisions to ensure interoperability.**

Funders can help to ensure the widest possible use of resources developed with their support by requiring the use of open standards that promote sharing. Funders should also consider supporting projects that focus specifically on creating mechanisms that enable sharing of resources.

All learners should have the literacies necessary to utilize media as well as safeguard themselves in the digital age.

# THE TASK FORCE FINDS:

▶ **One of the most effective ways of keeping young people safe online is to equip them with the knowledge and skills to understand and respond appropriately to the risks they may encounter on the Internet and mobile platforms.**

▶ **The same literacy skills that help keep young people safe online are also critical in enabling them to take full advantage of online learning opportunities.**

▶ **The literacies that young people need encompass media literacy, digital literacy and social-emotional literacy.**

▶ **Researchers have identified critical components of these literacies, and many schools now provide some training in these skills, but no widely accepted standards or curriculum exist for consistent teaching of these three literacies.**

Educators understand that students today need not only to master the basic skills of reading, writing and computation but must also develop higher-level skills. The Common Core State Standards, which 44 states have adopted, strike a balance between the basics and the 21st century skills—critical thinking, problem solving and creativity—that every child needs in order to thrive in a rapidly evolving, networked world.[37]

While these higher-level abilities are important, educators increasingly recognize that young people need additional competencies that enable effective use of the tools of our networked world: today's social,

digital media and technologies. Specifically, all students need to develop *digital age literacies.*

**Media literacy** refers to the ability to understand, interpret and use different forms of media: books, hypertext, videos, podcasts and much more. These media employ different grammars and vocabularies and require different skills for searching and producing as well as consuming. Media literacy requires users to understand the intricacies of intellectual property, from respecting copyrights to the importance of fair use to the ability to share, with attribution, under a Creative Commons license. Media literacy training started in the era of one-way mass media but has evolved to embrace today's multidirectional new media as well.[38]

**Digital literacy** refers to fluency in the use and security of interactive digital tools and searchable networks. This literacy includes the ability to use them safely and effectively for learning, collaborating and producing. It also protects against network-based crime such as phishing and malicious hacking.

**Social-emotional literacy** refers to the ability to "understand and manage emotions, set and achieve positive goals, feel and show empathy for others and make responsible decisions."[39] Educators and researchers increasingly recognize the importance of these abilities in learning in collaborative and social environments online or off-line.

Because so much of today's media is distributed digitally and is highly interactive or social, the literacies described above—digital, media and social-emotional— are becoming virtually inseparable. Together, we refer to them as the "digital age literacies."

# CORE COMPETENCIES OF SOCIAL AND EMOTIONAL LEARNING

## I.  Self-Awareness

The ability to accurately recognize one's emotions and thoughts and their influence on behavior. This includes accurately assessing one's strengths and limitations and possessing a well-grounded sense of confidence and optimism.

## II.  Self-Management

The ability to regulate one's emotions, thoughts and behaviors effectively in different situations. This includes managing stress, controlling impulses, motivating oneself and setting and working toward achieving personal and academic goals.

## III. Social Awareness

The ability to take the perspective of and empathize with others from diverse backgrounds and cultures; to understand social and ethical norms for behavior; and to recognize family, school and community resources and supports.

## IV.  Relationship Skills

The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. This includes communicating clearly, listening actively, cooperating, resisting inappropriate social pressure, negotiating conflict constructively and seeking and offering help when needed.

## V.    Responsible Decision Making

The ability to make constructive and respectful choices about personal behavior and social interactions based on consideration of ethical standards, safety concerns, social norms, the realistic evaluation of consequences of various actions and the well-being of self and others.

*Source: www.casel.org/social-and-emotional-learning/core-competencies*



SELF-MANAGEMENT · SELF-AWARENESS · RESPONSIBLE DECISION-MAKING · RELATIONSHIP SKILLS · SOCIAL AWARENESS · Social & Emotional Learning

# Defining Digital/Media Literacy

## ESSENTIAL COMPETENCIES OF DIGITAL LITERACY — Renee Hobbs

▶ **Access.** Finding and using media and technology tools skillfully and sharing appropriate and relevant information with others.

▶ **Analyze and Evaluate.** Comprehending messages and using critical thinking to analyze message quality, veracity, credibility and point of view, while considering potential effects or consequences of messages.

▶ **Create.** Composing or generating content using creativity and confidence in self-expression, with awareness of purpose, audience, and composition techniques.

▶ **Reflect.** Applying social responsibility and ethical principles to one's own identity and lived experience, communication behavior and conduct.

▶ **Act.** Working individually and collaboratively to share knowledge and solve problems in the family, the workplace and the community, and participating as a member of a community at local, regional, national and international levels.

*Source: Renee Hobbs, Digital and Media Literacy: A Plan of Action (A White Paper for the Knight Commission on the Information Needs of Communities in a Democracy, 2010) www.knightcomm.org/wp-content/uploads/2010/12/Digital_and_Media_Literacy_A_Plan_of_Action.pdf*

## NEW MEDIA LITERACY SKILLS — Henry Jenkins

▶ **Play.** The capacity to experiment with one's surroundings as a form of problem solving.

▶ **Performance.** The ability to adopt alternative identities for the purpose of improvisation and discovery.

▶ **Simulation.** The ability to interpret and construct dynamic models of real-world processes.

▶ **Appropriation.** The ability to meaningfully sample and remix media content.

▶ **Multitasking.** The ability to scan one's environment and shift focus as needed to salient details.

▶ **Distributed Cognition.** The ability to interact meaningfully with tools that expand mental capacities.

▶ **Collective Intelligence.** The ability to pool knowledge and compare notes with others toward a common goal.

▶ **Judgment.** The ability to evaluate the reliability and credibility of different information sources.

▶ **Transmedia Navigation.** The ability to follow the flow of stories and information across multiple modalities.

▶ **Networking.** The ability to search for, synthesize and disseminate information.

▶ **Negotiation.** The ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms.

*Source: Henry Jenkins, Confronting the Challenges of Participatory Culture: Media Education for the 21st Century (Macarthur Foundation, 2006) www.newmedialiteracies.org/wp-content/uploads/pdfs/NMLWhitePaper.pdf*

Psychologists and risk prevention experts suggest that these skills can also help protect young people from dangers such as bullying in physical environments as well as cyberbullying in the digital environment.

This Task Force views all three literacies as critical to learners' efficacy and as important capabilities in creating a trusted environment for connected learning.

***Literacy and Online Safety.*** Academic research and previous U.S. task forces have established digital, media and social-emotional literacies as important components of Internet safety education. For example, after a thorough research review, the 2008 Internet Safety Technical Task Force concluded that (1) the most salient risks that children encounter online are harassment and bullying, not contact with strangers, and (2) that a child's psychosocial makeup and home and school environments were better predictors of online risk than any technology the child uses.[40] These findings highlight the importance of social-emotional literacy to children's well-being in social environments both online and off-line as well as in connected learning.

Certainly the Task Force is aware of the tragedies of teen suicides and other unfortunate results from cyberbullying. While there are effects unique to the Internet—e.g., rapid distribution and its always-on nature—these crises and tragedies are not limited to online spaces. Whether on or off-line, students need social-emotional skills to cope and thrive both socially and academically.[41] Engaging an entire school community in social-emotional learning helps create a trusted environment for learning online and off-line.

The 2009–10 Online Safety and Technology Working Group (OSTWG) proposed a framework for online risk prevention education that includes teaching literacy skills. In its report to Congress, the OSTWG recommended that educators adopt the public health model of Primary/Secondary/Tertiary "levels of prevention" for Internet risk prevention, with the Primary level being basic literacy education, the

Secondary level being more targeted education for when problems arise, and the Tertiary level being specific prevention and intervention efforts with young people with established patterns of risk-taking in their lives.[42]

Unfortunately, current Internet safety education programs have largely failed to provide effective risk-prevention education. A 2012 report from the University of New Hampshire Crimes Against Children Research Center (CCRC) found that many current Internet safety programs "lack (1) research-based messages, (2) skill-based learning objectives, (3) opportunities for youth to practice new skills and (4) sufficient time for learning" and reported that "there is no evidence that the messages will succeed in making youth safer or help them make decisions that will improve their well-being." The report concluded that "Internet safety" has been presented as an overly "broad and shifting mix of concerns, which make it difficult to create comprehensive program logic around the entire problem."[43]

## DIGITAL AGE LITERACIES
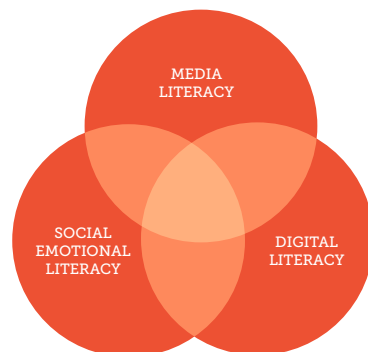


MEDIA LITERACY

SOCIAL EMOTIONAL LITERACY

DIGITAL LITERACY

# THE TASK FORCE RECOMMENDS:

## 5 Adopt policies to incorporate digital, media and social-emotional literacies as basic skills for living and learning in the digital age.

States and districts should adopt policies to ensure that digital, media and social-emotional literacies are taught as basic skills, not as an "extra" or an "afterthought." These literacies should be embedded into all appropriate core subjects rather than be taught as a separate course.

These digital age literacies encompass not just the technical skills but also competency in navigating the social nature of participatory media. Much as reading has always been a fundamental skill for successful learning, in today's world, media, digital and social-emotional literacies are critical to success.

### Action O: Fund and pilot new credentialing systems to recognize and support the acquisition of digital age literacies.

To encourage the development of digital, media and social-emotional literacies, states and districts should develop competency-based systems for recognizing the acquisition of these skills. For example, Autism Expressed (autismexpressed.com) is an online platform designed to teach digital literacy skills to students with autism. To "help students feel empowered by their new skills" and to reinforce students' progress, each lesson completed unlocks a "digital badge" that can be kept in a student's badge library.

Similarly, a program called DIG/IT in the New York City schools uses badges to document students' achievements in a course that teaches digital literacy along with financial literacy and college-preparation skills.[44] When students have the opportunity to learn digital age media, they can open up a new world of opportunities. For example, at one Nashville magnet school, a student-run music label, in partnership with industry experts, is helping transform a low-performing school.[45]



**Digital Badge for "Internet Basics"**
*Source: www.generocity.org/2012/for-students-with-autism-an-online-tool-to-level-the-playing-field*

### Action P: Fund the development and use of online programs and innovative peer platforms to build digital age literacies in adults, youth and parents.

A number of useful resources for teaching digital and media literacies can be found online. Several organizations have developed curriculum materials to support digital literacy training and put them online. For example, Common Sense Media has created a sequenced digital literacy curriculum that goes from primary through secondary grades and is freely available online in both English and Spanish (commonsensemedia.org/educators/scope-and-sequence). The lessons are explicitly aligned with the Common Core State Standards.

The New Media Literacies Program at the University of Southern California offers an online library of resources intended to help teachers incorporate media literacy training into traditional academic subjects (newmedialiteracies.org/teachers-strategy-guide). Its guide to *Reading in a Participatory Culture* provides downloadable materials that provide "strategies for integrating the tools, approaches and methods of Comparative Media Studies into the English and Language Arts classroom."

Several tech companies, including Google[46], Mozilla[47] and Microsoft,[48] have created materials to teach and provide resources for digital and media literacy.

And community-based programs such as YouMedia (youmedia.org) foster literacy skills by providing young people with hands-on training in the use of media, particularly to support collaboration and creative expression. YouMedia now has sites in Chicago, Washington, Miami, New York and Philadelphia, but most communities still do not have comparable facilities.

### Action Q: Research existing state educational curricula that already include digital age literacies to identify best practices and gaps that need to be filled.

Though the teaching of media, digital and social-emotional literacies is far from universal, there are many places where these skills can be learned. In some cases they are free-standing programs, and in other cases they are integrated into the curriculum for other subjects. However, there is a wide variability in how these programs are designed and implemented, and few programs integrate all three types of literacies. It would be extremely useful to look at the experience of programs across the country to determine what is working and where more needs to be done. Scholars such as Michael RobbGrieco and Renee Hobbs have provided useful overviews of the state of media literacy programs in the United States,[49] but more systematic research will help provide a more detailed account of the field and help identify gaps needing to be filled.

### Action R: Ensure that digital age literacies are incorporated in the Common Core State Standards implementation.

The Common Core State Standards, adopted by a majority of states in 2010 to improve the quality of education, do recognize the importance of these literacy skills and the need to integrate them broadly into what is being taught in the schools:

> To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, report on and create … print and nonprint texts in media forms old and new. The need to research and to consume and produce media is embedded into every element of today's curriculum.[50]

As this language suggests, digital and media literacy skills are being recognized as important for a wide range of purposes, including the ability to function successfully as a worker, as a consumer and as a

citizen. This recognition needs to be incorporated in the implementation of the standards by state departments of education, school leaders and teachers. They should be integrated into the Common Core and integral to teaching in states where Common Core has not been adopted as well.

### Action S: Make digital age literacies required skills for all educators and expected of parents.

If schools increase connectivity but do not shift resources and expectations around the use of digital media, then the connectivity efforts will be wasted. Teachers, as well as their students, need to be competent with digital age literacies in order to help their students take advantage of the new digital learning tools and become active participants in learning networks. This kind of literacy training should be part of all teacher-training programs and be incorporated into ongoing in-service training for working educators.

Parents should also have the skills and resources to help their children bolster digital, media and social-emotional literacies. Children are in front of electronic screens at increasingly early ages. Parents are looking for answers to what is best for their children in this environment. As the American Association of Pediatricians suggests, every parent should develop a family media use plan.[51] In that process, parents will want to become more literate in and comfortable with the new digital environment.

### Action T: Along with Action Z, integrate risks related to digital life into all existing risk-prevention education programs.

The 2012 study from the University of New Hampshire Crimes Against Children Research Center cited above found that the most common Internet safety education (ISE) programs in the United States "combine messages about any or all of the following topics: cyberbullying, problematic content (e.g., videos of fights, inappropriate pictures), Internet predators, sexting, spam, e-theft and illegal downloading." The authors of the study note that "most people would find it strange to have a one-hour presentation for youth that covered driving safety, safe sex, the dangers of drug use and plagiarism. Most of us would think that these very different issues needed to be handled separately using different educational tactics."

The Task Force believes that the various topics now lumped together under the rubric of ISE (e.g., sexting and cyberbullying) would be more effectively taught as part of existing risk-prevention education programs since these behaviors and risks aren't new as much as they are taking place in a new medium. Moreover, risk-prevention educators need training in social and digital media and in youth practices with these media in order to integrate digital practices and behaviors into their risk-prevention instruction.

All educators need to recognize the importance of literacy skill training as foundational to children's safety and efficacy online as well as off-line. As Task Force member Anne Collier has written:

> What protects children online is what protects them off-line. These are: life skills, literacies, and safeguards that are both *internal*–respect for self and others, resilience, empathy and a strong inner guidance system (sometimes called a moral compass)–and *external*–such as good modeling, parenting and teaching by caring adults, peer mentoring, instruction in digital and media literacy, social-emotional learning, protective technology used thoughtfully, family and school rules, well-designed digital environments, and well-established laws against discrimination, sexual harassment, bullying and crime.[52]

Finally, it is important that children and families who are dealing with the more serious issues and the outcomes from bullying/sexting seek help for social-emotional issues online just as they would in the physical world. School counselors, mental health professionals, therapists and psychiatrists should be a part of the overall solution and help develop the skill sets to move beyond these very real issues that may also impact a child's educational attainment and dropout rates.[53]

## COMMON SENSE MEDIA DIGITAL LITERACY CURRICULUM TOPICS

- Internet Safety
- Privacy & Security
- Digital Footprint & Reputation
- Self-image & Identity
- Relationships & Communication
- Cyberbullying
- Information Literacy
- Creative Credit & Copyright

## COMMUNITY VOICES:

**My company hires people based on skills, and a number of our best employees have no degrees. When we hire, we don't care about the degree but do care about an interest in lifelong learning. Badges would tell us more about an individual's ongoing commitment versus their degree five years ago.**

▶ JAMIE HOLLIER, ANNEAL
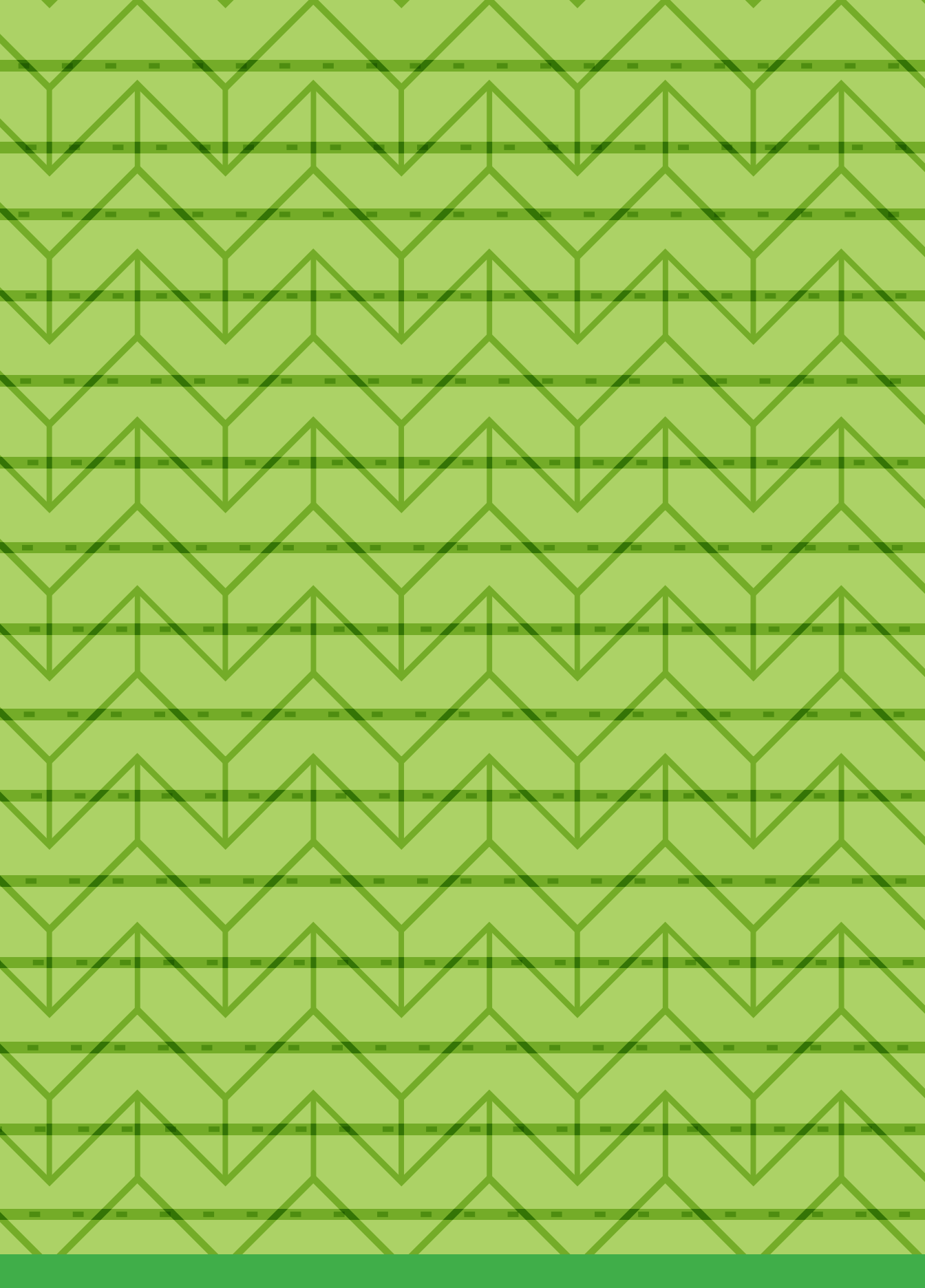
# Students should have safe and trusted environments for learning.

# THE TASK FORCE FINDS:

▶ Many online behaviors that have raised concerns among parents, such as bullying or stereotyping, are not new or unique to the online world but have their roots and analogs in off-line behaviors. Their remedies should be integrated into those already in place for dealing with real-world problems.

▶ Parents, educators and others responsible for the welfare of young people have real concerns about the safety and privacy of children online.

▶ To confidently pursue their learning goals, students need an environment where their safety and privacy are protected.

▶ Ensuring student privacy is especially critical in networked environments that involve multiple entities providing services to students.

▶ Data collection and use are crucial to fulfilling the vision of personalized learning, yet for some there is a lack of trust around the security and privacy of student data.

▶ Approaches to providing safety online that are defensive and fear-based are often ineffective and can have the unintended consequence of significantly restricting learning opportunities for young people.

▶ There is a need to explore alternative approaches that create trusted environments that protect learners' safety, privacy and security without compromising their ability to pursue their interests.

▶ Although technology is partly responsible for creating fear, it can be part of the solution by helping create trusted environments. But equally important is equipping learners, parents and educators with the skills to function online safely and effectively.

Realizing the benefits of learning networks will necessitate a commitment to establishing trust with teachers, parents and students that children will have safe experiences online and that sensitive personal information is securely protected. Trust is a prerequisite for learning that is based on students exploring online resources, taking online courses and engaging with different educational partners. Without trust, the ultimate success of networked learning could be in jeopardy.

Unfortunately, too much of the public discourse about children online emphasizes the dangers of the Internet and does not give enough attention to the positive potential of the technology as a tool for learning. Rather than relying on purely defensive measures for protection (like filtering and monitoring and other forms of restriction), parents and educators need to help create "trusted environments" that allow young people to pursue their interests safely.

A trusted environment exists when all stakeholders have confidence in using technology to engage in learning. It involves policies, tools and practices that effectively address the privacy, safety and security concerns related to learning online. It involves parents being able to trust that their children's personally identifiable information is safe, secure and won't be used in ways other than to help their academic progress.  A framework for trust will emerge from conversations among local stakeholders that grapple with key questions related to students:

▶ Safety: Am I physically and emotionally safe?

▶ Privacy: Is my data being used appropriately? Do I have access to my data and records? Do I have the ability to determine how my data is used, by whom and under what circumstances?

▶ Security: Am I confident that my data is secure? Are there adequate protections against unauthorized access?

Promising approaches such as "privacy by design," "kid-readable disclosures," "identity management tools," and "trust framework architectures" need to be developed and tested. In addition to pursuing technology-based approaches, it is also important to give learners and parents the skills to navigate through the online world safely and successfully.

# THE TASK FORCE RECOMMENDS:

## 6 Create Trusted Environments for Learning.

### *Action U: Foster collaborative efforts at all levels to establish principles of a Trusted Environment for Learning.*

The goal of such a trust framework is to protect young people while empowering them to explore, express themselves, pursue their interests and succeed in their education. The Task Force recognizes a trusted environment is not easy to define precisely and will not be simple to construct. It will require innovative approaches to policy and regulation, new technological solutions and the development of programs that educate teachers, parents and students about the risks and rewards of being online. It will constantly evolve as new technologies introduce new tensions and offer new solutions.

The best approach to establishing trusted environments is to have all stakeholders— including learning professionals, civic officials, local associations, parents, teachers, students and businesses—collaborate in setting local standards. This could also be done at state and national levels.

To help this process along, the Task Force has identified an initial set of high-level principles intended to guide the process for developing a trusted environment. Key characteristics of such an environment might include:

▶ **Transparency and Openness.** Require easy-to-read disclosures to enable learners and other stakeholders to clearly understand who is participating, what the norms and protections are, what data is collected and how it is used.

▶ **Participation.** Provide opportunities for individual and interest group participation in decision making and policy making related to the development and deployment of connected learning solutions.

▶ **Data Stewardship.** Find ways to protect data that may include mechanisms to reduce the risk of harm, such as clearly delimiting the permissible uses of data, de-identifying sensitive data and/or deleting data once it no longer has value for learning. Data can also be used to provide feedback about what works, thereby shortening the cycle to improve the ecosystem of learning networks.

▶ **Technology Innovation.** Create and deploy technologies that support a trusted environment, such as the use of metadata to convey and enforce data policy or privacy dashboards that indicate what information is shared with whom.

▶ **Accountability.** Adopt policies and procedures or a code of conduct that support responsible learning environments.

▶ **Oversight and Enforcement.** Establish regulatory arrangements to protect the integrity of learning networks with competent and appropriately-resourced bodies in place to enforce these principles.

These principles can guide governmental, nonprofit and corporate institutions as they create their plans for digitizing learning. The Task Force recommends that these principles focus on capabilities needed to be successful in college and careers, such as collaboration, communications, assessment and creation of content, rather than on the device or the tool, since those are constantly changing

*Action V: Invest in deeper research and studies on the efficacy of existing federal privacy laws, such as COPPA, CIPA and FERPA, as well as various state laws, and seek recommendations on how to improve and modernize them or develop more effective alternatives to support learning networks.*

Policy makers have responded to the concerns of parents and child safety advocates by creating a patchwork of legal and regulatory mechanisms intended to protect young people online (see Sidebar).[54] Typically, these initiatives place restrictions on operators of websites or applications that are used by children. The most prominent federal law, the Children's Online Privacy Protection Act (COPPA), requires websites used by young people to obtain explicit parental permission before they can collect any "personal information" from children under age 13, along with other provisions governing marketing aimed at children.

Critics of COPPA point out that it was developed before the emergence of many cloud-based services, online resources and social media and fails to address the new media environment.[55] For example, while children under age 13 can legally provide personal information with their parents' permission, many websites simply bar underage children from using their services due to the additional work involved in complying with the provisions of COPPA. This has had the unintended consequence of encouraging children to make use of sites that do not attempt to enforce COPPA's restrictions and that may be less conscientious about protecting young users. And by identifying a specific age to trigger its provisions, the law gives no protection to children over that age. In short, critics suggest, the law is overly restrictive and, arguably, relatively ineffective.

The Task Force sees a mismatch between current legal and regulatory approaches and the real needs of young people. It recognizes that Congress, the Federal Trade Commission, Federal Communications Commission, the U.S. Department of Education, other agencies, and individual states are all actively working on these important but sometimes emotional issues. The Task Force urges these policy makers to base their deliberations on evidence-based research. Accordingly, it calls on philanthropy and policymakers to support rigorous studies by skilled researchers of the strengths and limitations of these approaches, as we do not want to so overprotect our young learners that they do not have access to high-quality content. The Task Force also calls on funders to support researchers, legal scholars, or panels of experts to develop new approaches, tools and practices that could overcome these limitations.

# Federal Children's Protection Laws

### COPPA

The Children's Online Privacy and Protection Act (COPPA) is a federal law that went into effect in 2000 that governs the participation of young children in online activities. It requires a website operator to obtain "verifiable consent" from a parent or guardian for the participation of any child under age 13, mandates what must be included in a website's privacy policy for young people and describes the responsibilities an operator has to protect children's privacy and safety online, including restrictions on the marketing to those under 13.
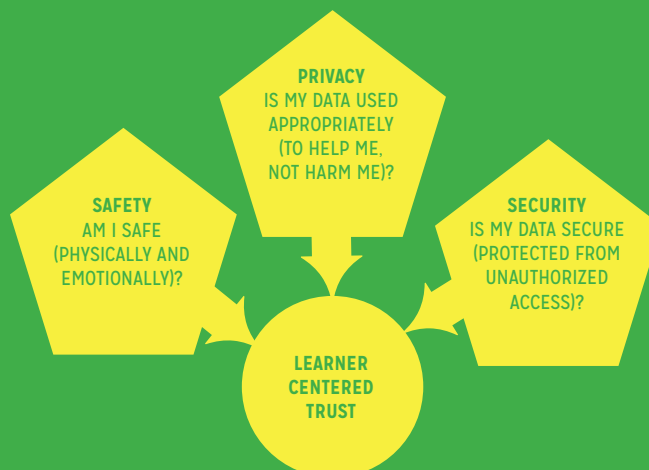
➡ **coppa.org/coppa.htm**

### CIPA

The Children's Internet Protection Act (CIPA) was enacted by Congress in 2000 to address concerns about children's access to obscene or harmful content over the Internet. CIPA applies to schools or libraries that receive discounts for Internet access through the Federal Communications Commission's E-Rate program. To receive the E-Rate discounts, schools and libraries must have an Internet safety policy that includes technology protection measures that block or filter Internet access to content that could be harmful to minors. Before adopting an Internet safety policy, schools and libraries must provide reasonable notice and hold at least one public hearing or meeting to address the proposal. Schools are also required to monitor the online activities of minors and provide for educating minors about appropriate online behavior.

➡ **fcc.gov/guides/childrens-internet-protection-act**

### FERPA

The Family Educational Rights and Privacy Act (FERPA) is a federal law intended to protect the privacy of student educational records. The law applies to all schools that receive funds from the U.S. Department of Education. FERPA gives parents or students over age 18 certain rights with respect to educational records. Parents or eligible students have the right to inspect and review records maintained by the school and to request that a school correct records that they believe to be inaccurate or misleading. Generally, schools must have written permission from the parent or eligible student in order to release any information from a student's educational record.

➡ **ed.gov/policy/gen/guid/fpco/ferpa/index.html**

**PRIVACY**
IS MY DATA USED APPROPRIATELY (TO HELP ME, NOT HARM ME)?

**SAFETY**
AM I SAFE (PHYSICALLY AND EMOTIONALLY)?

**SECURITY**
IS MY DATA SECURE (PROTECTED FROM UNAUTHORIZED ACCESS)?

**LEARNER CENTERED TRUST**

***Action W: Re-examine federal and state regulations governing collection and access to student educational data to provide appropriate safeguards that protect against specific harms relating to learners' privacy and security and, at the same time, accommodate the future of learning tools and services.***

Data on student learning, when collected properly and used appropriately, can be a vital tool for personalizing instruction and providing feedback on their progress. For example, with the Teach to One model, each student receives a unique daily schedule (called a "playlist") based on his or her unique strengths and needs. The underlying data also allows for adjustments to the student's schedule in order to better accommodate their ability and preferred learning method (e.g., within small groups or one on one with a teacher). Teachers can view real-time data on each student's achievement and adjust their instruction accordingly. Data empowers not just personalized learning using online resources from a variety of providers, but also more informed teaching to ensure students are receiving the right resources, at the right time, in the right method.

Parents and others continue to be concerned about adequate protection of data in the learning process. Responses to this concern that completely close learning networks may offer some protections but also will hamper rich personalized learning and limit exposure to educational opportunities, resources and courses offered online. Important lessons can be drawn from the privacy work done in other sectors, such as health care, where regulations have struck a balance between protecting personal information in electronic medical records and enabling the sharing of data among doctors, nurses and other providers.

The Task Force recognizes the importance of protecting personal data and privacy. Indeed it becomes even more important in a networked learning environment, and systems will likely fail where such protections are not sufficiently taken into account. But given the enormous potential for supporting individualized learning through the collection and interpretation of student performance data, it is critical that rules and regulations be balanced between protecting sensitive data and ensuring students have access to a high quality education. The White House Big Data and Privacy Working Group Review, issued May 1, 2014, takes a similar twin goal approach: protect privacy and encourage innovation in education.[56]

***Action X: Design, implement and evaluate technology-based approaches to providing a trust framework that addresses privacy and safety issues while permitting learners to pursue online learning.***

The Task Force recognizes that not every concern about privacy or safety online is amenable to a technological solution. But there are some areas where the sophisticated use of privacy-enhancing technology can help create a more trusted environment for young people. Rather than relying entirely on young people to take all of the steps

necessary to protect their own privacy, website operators and app developers could build in safeguards through a process of "privacy by design."

For example, credit card companies have established a Trust Framework architecture, in which each individual is given a unique digital identifier to protect against fraud. Developers of educational devices and platforms should explore Trust Framework architecture to provide a technical solution to the privacy and safety issues and more effectively enable children to explore their interests online for learning purposes. They should utilize data to focus on learner needs and capacity, creating safe tools and environments for learning. One example might be a tool that allows students access to their own data to encourage agency and allow the students to help define their learning pathway. This tool could be similar to the electronic medical records used in the health care arena where records are portable and transferable. Data from schools and from other avenues of a child's life can create a fuller picture of his or her progress, goals and interests.

One approach provides tools that enable users to keep tabs on their own data collection and control their sharing with their peers in an open and safe space. The system, known as Open Mustard Seed, employs "trusted computer cells" (the basic units of individual control over data) that enable users to manage privacy settings and data collection and manage their digital personas (who has access to what information about me).[57] Service providers and app developers should also provide in-service user education on how to manage one's privacy and safety.

## Action Y: Fund public awareness campaigns about the importance of and methods for acting safely and responsibly on and off-line.

These campaigns could include public service announcements that empower individuals (young and old) to "manage their digital reputations," watch out for one another and otherwise act responsibly online as well as understand that risks exist both on and off-line and there are ways to keep risk from turning into harm.[58] Ideally, such campaigns would highlight the benefits of being online as well as the potential dangers that can be mitigated through digital literacy and other user education. Businesses could devote corporate resources to this effort just as they have done effectively with "Don't TXT and drive"[59] or "Stop. Think.Connect."[60]

## Action Z: Arm learners with the capability to protect themselves online through appropriate risk prevention education and teaching digital, media and social-emotional literacies.

Media, digital and social-emotional literacies are "internal" tools to help keep one safe—the "filtering software" in their heads that's with them wherever they go throughout their lives, typically improving with use. The Internet is a global medium beyond the control of authorities in the United States or any one country. A single country cannot legislate to keep all dangerous content off the web, and even if it did, bad actors will be out there. The best, first defense for protecting young people, online or off-line, is to arm them, starting at an early age, with the capabilities

to understand their environment and how to optimize their safety and privacy within it (see Action T).

For instance, the International Telecommunications Union has launched a global partnership for online protection which includes entities as varied as UNICEF, Disney, First Ladies and a small nonprofit in Nigeria. They have proposed Guidelines for Child Online Protection (COP) for ministers, parents, educators and the industry worldwide that include digital age literacies.[61]

## A NOTE ON IMPLEMENTATION

There are a number of ways these action steps can be implemented. Many start with funding, of course, and we recommend that federal, state and local governments all take steps to fund pilots, experimentation and eventually full implementation of the steps called for in this report. Many of these recommendations can be embedded in existing funding streams that already support schools, libraries and nonprofits.  We also call on philanthropies and businesses to mobilize support, funding and action around these action steps. With regard to the latter, businesses can not only fund through their corporate giving and employee assistance but also engage innovatively, such as by making their Wi-Fi hotspots available to students in their communities, building new privacy tools into their services and making their products interoperable with others. School districts can also collaborate in new partnerships that will take advantage of the

experience and knowledge of other school districts, public agencies or private businesses.

The Task Force has also called for innovative ways of bringing its recommendations to fruition. One approach it finds particularly useful is the prize competition that is spelled out in Action L. We urge funders to sponsor such prizes in response to other Action recommendations as well.

Policy makers will need to take bold steps to bring to fruition the vision of the United States as a country of learners. It is our tradition, as is innovation in new technologies. Now the confluence of the two is posing a challenge to America's education system. There may be risks involved in moving forward in a bold way, and there will no doubt be strong differences of opinion. But the opportunity is too significant for our country's legislators, regulators or officials not to move with a sense of urgency in this area for the benefit of all learners, now and for future generations.

Most importantly, it will be on the shoulders of each parent, each teacher and each student to undertake the hard work of moving forward with a leap into the future.

# CONCLUSION

Digital disruption has brought radical changes to many businesses and institutions. The networked society offers many opportunities for individuals to realize their potential, embark on a path of lifelong learning and become more-qualified workers and citizens. The United States must find ways to take advantage of these opportunities for the good of the country and its citizens.

The vision outlined in this report and the action steps included in it represent the Aspen Institute Task Force on Learning and the Internet's ideas about how the United States can move forward. With the touchstone of putting the learner/student at the center of learning networks, it provides four additional pillars for action: access, interoperability, literacy and trust. The action steps throughout the document complement one another. While individual steps are important to achieving the vision, their efficacy increases if adopted as a unified whole. Businesses, as well as governments, educators, parents and other stakeholders, need to step forward and answer this call for action.

As we see it, all citizens and stakeholders have a role to play in carrying out these recommendations. The Task Force urges all affected parties—parents, educators, policy makers, businesspeople, academics, concerned citizens, students—to determine what part they can play to make the potential of learning networks a reality. What action steps can they take, devise resolutions for, join, fund or encourage? For the sake of all young people, and for the future of the United States, these steps are urgent. Please join us at aspentaskforce.org.

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**52** Anne Collier, "Challenging 'Internet Safety' as a Subject to Be Taught," September 4, 2013, http://www.connectsafely.org/challenging-internet-safety-as-a-subject-to-be-taught/.

**53** National Council is a group that works on behavioral health and believes in "healthy minds, strong communities"—their statement of purpose. "Coaching for Teens" at www.coaching4teens.org, as well as www.centerstone.org, provide counselors with skills necessary for digital age.

**54** For a summary of state laws related to online privacy, see www.ncsl.org/research/telecommunications-and-information-technology/state-laws-related-to-internet-privacy.aspx. One example is California's new legislation, the Privacy Rights for California Minors in the Digital World Act, which permits minors to request removal of information of content they placed online.

**55** See, for example, Andrea M. Matwyshyn, "Of Teenagers and 'Tweenagers': Professor Allen's Critique of the Children's Online Privacy Protection Act in Historical Perspective," *APA Newsletters*, 13 no. 1 (2013), 7.

**56** http://www.whitehouse.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf at p.64.

**57** http://idhypercubed.org/wiki/ProjectMustardSeed.

**58** http://www.netfamilynews.org/timely-for-safer-internet-day-game-changing-insight-into-internet-risk.

**59** http:www.att.com/gen/press-room?pid=2964.

**60** www.stopthinkconnect.org/.

**61** www.itu.int/copf.

# GLOSSARY

This glossary is intended to provide readers with an understanding of the way the Task Force defines specific terminology used in the report. The terms are used among the numerous professions in this effort, and the glossary is an attempt to demonstrate exactly how the Task Force uses each term. It is by no means an exhaustive list or the only way to define the below terms.

*Access:* the basic requirement for participation in digital learning, consisting of having access to a broadband network, a capable hardware device, and the appropriate software along with the ability to use them properly. In addition to having access in school, students need access at home and in public places to support anytime, anyplace learning.

*Agency:* the ability to learn through a process of exploration and discovery, and the capacity to express oneself effectively.

*Competency based education:* this education approach allows students to move at their own pace upon mastering concepts. Learning is fixed and time is variable. Models often include five principles: Students advance upon mastery; competencies include explicit, measurable, transferable learning objectives that empower students; assessment is meaningful and a positive learning experience for students; students receive timely, differentiated support based on their individual learning needs; learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.

*Connected learning:* an approach to learning that strives to connect and leverage all the various experiences, interests, communities and contexts in which learners participate in and out of school as potential learning opportunities.

**Digital badges:** an online representation of a skill that has been mastered or knowledge acquired. Badges can be created, defined by, and issued by a broad range of sources.

**Digital disruption:** the change that occurs when new digital technologies and business models affect the value proposition of existing goods and services.

**Digital literacies:** the combination of media literacy, digital literacy and social-emotional literacies; the ability to effectively use a range of digital technologies.

**Interoperability:** the ability of systems and organizations to work together; in education, the ability for students to move freely across networks to pursue their learning objectives or for educational data to move across different networks.

**Learning network:** the combination of online and off-line infrastructure that can be mobilized by students to pursue their learning or organized by educators to support student education.

**Massive Open Online Course (MOOC):** an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as videos, readings and problem sets, MOOCs provide interactive user forums that help build a community for students, professors and teaching assistants.

**Open Educational Resource (OER):** a teaching, learning and research resources that resides in the public domain or has been released under an intellectual property license that permits free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge.

**Seat time:** the practice of promoting a student to the next grade only at the end of the current school year, regardless of when or whether they learned the necessary material,

**Trusted environment:** a technical and social framework that protects young people from harm while empowering them to explore, express themselves, pursue their interests and succeed in their education.

**Whitewater learning:** ability to acquire useful knowledge and skills while at the same time practicing them in an environment that is constantly evolving and presenting new challenges.

# ENGAGEMENT PROCESS

One of the core charges of the Aspen Task Force was to engage the broader public in the issues of the Internet and Learning. The Task Force wanted to hear not just from experts and practitioners, but also parents, students and teachers. To that end, the Task Force engaged in public conversations through social media by conducting several rounds of digital public outreach and asking targeted questions around the issues. It also hosted a focus group with youths, aged 11-15, from Cleveland public and private schools to hear their perspectives on safety, privacy and the uses of the Internet for learning.

As the Aspen Task Force developed its findings and recommendations, it gathered perspective and insight from education, educational technology, policy, industry and related communities. As part of its larger outreach process, the Task Force members heard from 60 leaders across education and youth groups, civil rights groups, businesses, think tanks, foundations, technology-related groups, digital media & learning (DML) groups, congressional committee offices and government administration offices. Students, parents, educators and administrators contributed ideas by participating in informal discussions providing feedback on the Task Force's developing report. The Task Force members also reached out to their own networks and used their online library of approximately 90 resources to deepen their understanding of issues.

## Organizations that Contributed Ideas

The Task Force invited leading organizations to participate in interviews for the purpose of gathering a variety of perspectives on issues discussed in the Task Force. Insight from the discussions informed members of the Task Force as they developed the report. None of the participating organizations officially endorsed or helped to craft any part of the report. Individuals from the following organizations participated in the interviews:

Achieve
Afterschool Alliance
American Association of Community Colleges
American Association of School Administrators
American Federation of Teachers
American Library Association
Amplify
Berkman Center for Internet &
      Society at Harvard University
Bill & Melinda Gates Foundation
Boys & Girls Club of America
Business Roundtable
Calvert County Public Schools of Maryland
Center for American Progress
Chicago Public Library
Chicago Public Schools
Common Sense Media
Consortium for School Networking
Corporation for Public Broadcasting
Council of Chief State School Officers
Council of Chief State School Officers Innovation
      Lab Network

Creative Commons
Data Quality Campaign
Digital Public Library of America
District of Columbia Public Schools
Educational Testing Service
Family Online Safety Institute
Girl Scouts of America
House Education & the Workforce, Majority
House Education & the Workforce, Minority
House Science, Space & Technology
     Committee, Majority
International Association for K-12 Learning Online
Knowledge Alliance
Leading Education by Advancing Digital Commission
Metropolitan High School of New York City
National Alliance for Public Charter Schools
National Center for Learning Disabilities
National Education Association
National Parent Teacher Organization
National Summer Learning Association
National Writing Project
NewSchools
Para Los Niños of Los Angeles
Parents, District of Columbia Public Schools
Parents, Arlington Public Schools of Virginia
Partnership for Children & Youth
Pearson
Senate Health, Education, Labor & Pension
     Committee, Majority
Senate Health, Education, Labor & Pension
     Committee, Minority
Smithsonian EdLab
Software & Information Industry Association

State Education Technology Directors Association
United States Department of Education
United States Federal Communications Commission
Torrington Public Schools of Connecticut
West Virginia Department of Education
Young Adult Library Services Association

# ASPEN INSTITUTE TASK FORCE ON LEARNING AND THE INTERNET MEMBER BIOGRAPHIES

# Jeb Bush

Jeb Bush was the 43rd governor of the state of Florida, serving from 1999 through 2006. He was the third Republican elected to the state's highest office and the only Republican in the state's history to be reelected.

During his two terms, Bush championed major reform of government programs in education and Medicaid. The state also launched and accelerated restoration of America's Everglades, the largest project of its kind in the world, to save the habitat of 60 threatened and endangered species and provide a long-term supply of drinking water for 8 million people in south Florida.

Bush served as Florida's secretary of commerce under Bob Martinez, Florida's 40th governor. He also co-authored "Profiles in Character," a book profiling 14 of Florida's civic heroes — people making a difference without claiming a single news headline.

Bush earned a bachelor's degree in Latin American studies from the University of Texas at Austin. He moved to Florida in 1981, where he started a real estate development company with partner Armando Codina.

Currently, Bush is the president of the consulting firm Jeb Bush and Associates and is on the boards of CNL Bancshares and Tenet Healthcare Corporation. In civic and charitable affairs, Bush serves on the boards of the Foundation for Excellence in Education, the Foundation of Florida's Future, CASEnergy, Volunteer USA and Our Pledge. He and his wife, Columba, live in Miami and have three grown children. Bush is the son of President George H.W. Bush and Barbara Bush.

# Rosario Dawson

Rosario Dawson has garnered praise not only for her numerous leading roles, but for her work with a range of influential organizations. In 2004, Dawson co-founded Voto Latino, a non-partisan organization that empowers Latino Millennials to claim a better future for themselves and their community. Voto Latino, which is celebrating its ten year anniversary this year, is dedicated to bringing new and diverse voices to develop leaders by engaging youth, media, technology and celebrities to promote positive change and has registered over 250,000 voters. Dawson was recently the recipient of a Latino Spirit Award, given to her by Governor Jerry Brown for her contributions to the Latino community and her leadership with Voto Latino.

Dawson is an active board member of V-Day, an organization founded by Eve Ensler, where she travels worldwide to stop violence against women. Dawson also lends her time and efforts by serving on the board of the Lower Eastside Girls Club in Manhattan and is an ardent environmentalist doing work with a variety of organizations including the Environmental Media Association and Global Green. Most

notably, Dawson was awarded the President's Volunteer Service Award for her valuable contributions to the community and encouragement in getting others involved.

Dawson made her film debut in KIDS and has since been seen in MEN IN BLACK II, THE 25th HOUR, SIN CITY, RENT, SEVEN POUNDS, and UNSTOPPABLE. She was last seen in the Danny Boyle thriller TRANCE and will be seen next starring in GIMME SHELTER. In 2014, Dawson will reprise her role as 'Gale' in SIN CITY: A DAME TO KILL FOR and will also be seen in the Atom Egoyan thriller THE CAPTIVE as well as Diego Luna's CHAVEZ.

## TASK FORCE CO-CHAIR:

## John Bailey
Digital Learning Now

John Bailey is the Sr. Vice President of Policy for the Foundation for Excellence in Education and Executive Director of Digital Learning Now. In this role, he manages the organization's policy strategy, working with public policymakers and advocacy organizations to advance education reform and next generation models of learning.

He previously co-founded Whiteboard Advisors, a strategic consulting practice that provides policy counsel and research for philanthropists, entrepreneurs, and investors. He also co-published *Education Insider*, a series of reports based on a unique survey of the top political and policy "insiders" to forecast education reform trends.

Bailey served at the White House as Special Assistant to the President for Domestic Policy during the Bush administration. He coordinated the Administration's effort to stabilize student loans during the credit crisis which led to the creation of three temporary programs addressing nearly $200 billion of loans which saved taxpayers over $10 billion. He also served as one of the lead negotiators with Congress during the reauthorization of the Trade Adjustment Assistance program.

Bailey served as a top technology and innovation advisor to the Secretary of Commerce where he also focused on immigration and healthcare reform. As the nation's second Director of Educational Technology and Pennsylvania's first Director of Educational Technology he launched several initiatives to expand online learning and improve the use of technology and data in education.

John has also worked at the Bill and Melinda Gates Foundation, where he managed a portfolio of national advocacy grants.

John has served as a formal or informal advisor to three Presidential campaigns. He is a Pahara-Aspen Education Fellow. He serves on the board of the Data Quality Campaign, the Education Reform Advisory Council for the Bush Center and the regional board for the social venture philanthropy Indego Africa.

# Maria Teresa Kumar
Voto Latino

Maria Teresa Kumar is the founding President and CEO of Voto Latino and an *Emmy*-nominated contributor with MSNBC.  In 2013, *Elle* named her one of the 10 most powerful women in Washington, DC.  A dynamic community leader, Maria Teresa was named by *Hispanic Business* among the 100 most influential Latinos in America and by *PODER Magazine* as one of the 20 most influential Latinos under 40.  *Fast Company* called Maria Teresa one of the top 100 Creative Minds for her work at Voto Latino, using technology, celebrity voices, media and youth themselves to empower a generation of young voters.  Under her leadership, Voto Latino has become a key factor in national elections by directly registering over 225,000 new voters and influencing millions more through viral, celebrity-driven campaigns.

Maria Teresa serves on the national boards of Planned Parenthood and the Latino Leaders Network, and is a Hunt Alternative Fund Prime Mover and a Council on Foreign Relations Term Member.  She is a frequent guest analyst on NPR and PBS, a recent panelist on Bill Maher's HBO show, an opinion writer for national publications, and a sought after speaker at major conferences including SXSW, NetRoots Nation, Personal Democracy Forum and TEDx.  She started her career as a legislative aide for then Democratic Caucus Chair Vic Fazio and graduated from Harvard's Kennedy School and the University of California at Davis.

# Meredith Baker
CTIA Wireless Association

Meredith A. Baker is President and CEO of the CTIA Wireless Association, effective June 2, 2014.  From September 2011 through May 2014 (during which Task Force deliberations were ongoing), Ms. Baker was Senior Vice President of the Government Relations Office of NBCUniversal.

Her responsibilities included coordinating the development of NBCUniversal's policy positions on legislative and regulatory issues and representing those positions before the Congress, the Administration and Government agencies.

Ms. Baker served as a Federal Communications Commissioner from July 2009 until June 2011.  Prior to her service at the FCC, she was Acting Assistant Secretary of Commerce for the National Telecommunications and Information Administration (NTIA).  While at NTIA, she administered the coupon program to help facilitate the nation's historic transition to digital television, promoted market-based policies that encouraged innovation, served on delegations representing the United States at major international telecommunications conferences and engaged in bilateral discussions with senior level officials from countries around the world.

Before joining NTIA, Ms. Baker was Vice President at the firm of Williams Mullen Strategies.  She worked at Covad Communications as Senior Counsel and from 1998 to 2000 as Director of Congressional Affairs at the Cellular Telecommunications Industry Association (CTIA).

Ms. Baker earned her Bachelor of Arts degree from Washington & Lee University and a law degree from the University of Houston.  Ms. Baker and her husband reside in McLean, Virginia.  She has four stepdaughters.

## John Seely Brown
Deloitte Center for the Edge

John Seely Brown is the Independent Co-Chairman of the Deloitte's Center for the Edge and a visiting scholar and advisor to the Provost at University of Southern California (USC). Prior to that he was the Chief Scientist of Xerox Corporation and the director of its Palo Alto Research Center (PARC)—a position he held for nearly two decades.  While head of PARC, Brown expanded the role of corporate research to include such topics as the management of radical innovation, organizational learning, complex adaptive systems, and nano technologies.  He was a cofounder of the Institute for Research on Learning (IRL).  His personal research interests include digital youth culture, digital media and institutional innovation.

John—or JSB, as he is often called—is a member of the American Academy of Arts and Sciences, the National Academy of Education, a Fellow of the American Association for Artificial Intelligence and of AAAS and a Trustee of the MacArthur Foundation. He serves on numerous public boards (Amazon, Corning, and Varian Medical Systems) and private boards of directors. He has published over 100 papers in scientific journals. With Paul Duguid he co-authored the acclaimed book *The Social Life of Information* (HBS Press, 2000) that has been translated into 9 languages with a second addition in April 2002. With John Hagel he co-authored the book *The Only Sustainable Edge* which is about new forms of collaborative innovation and *The Power of Pull: how small moves, smartly made can set big things in motion*, published April 2010. His current book, *The New Culture of Learning* co-authored with Professor Doug Thomas at USC, was released January 2011.

JSB received a BA from Brown University in 1962 in mathematics and physics and a PhD from University of Michigan in 1970 in computer and communication sciences.  He has received six honorary degrees including:  May 2000, Brown University, Doctor of Science Degree; July 2001, the London Business School, Honorary Doctor of Science in Economics; May 2004, Claremont Graduate University, Honorary Doctor of Humane Letters; May 2005, University of Michigan, Honorary Doctor of Science Degree; May 2009, North Carolina State University, Honorary Doctor of Science Degree; May 2011, Illinois Institute of Technology, Honorary Doctor of Design.  He is an avid reader, traveler and motorcyclist. Part scientist, part artist and part strategist, JSB's views are unique and distinguished by a broad view of the human contexts in which technologies operate and a healthy skepticism about whether or not change always represents genuine progress.

## Catherine Casserly

Creative Commons (Through February 2014)
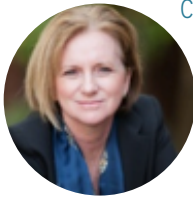
Catherine M. Casserly, Ph.D. is dedicated to supporting learning opportunities for all through openness and knowledge sharing. Cathy works as an independent strategist with foundations and organizations to leverage the emerging opportunities afforded by the Internet to develop new pathways for lifelong learning.

Through February 2014 Cathy was CEO of Creative Commons, a global non-profit that empowers people and institutions to share their creative, scholarly and other knowledge assets. Previously, Cathy directed the Open Educational Resources Initiative at The William and Flora Hewlett Foundation, and spearheading work in transparency and technology as Vice-President at the Carnegie Foundation for the Advancement of Teaching.

Early in her career Cathy was a teacher of mathematics in Kingston, Jamaica. She earned her Ph.D. in the Economics of Education from Stanford University and holds a B.A. in Mathematics from Boston College. Cathy is a founding board member of the Digital Public Library of America and Peer-2-Peer University.

## Anne Collier

Net Family News, Inc.

Editor of NetFamilyNews.org and founder and executive director of its parent organization, Net Family News, Inc., Anne is a writer and journalist who has worked in the news media since 1980. With SafeKids.com's Larry Magid, she co-directs ConnectSafely.org, a Web-based interactive forum and information site for teens, parents, educators and everybody interested in the impact of the social Web on youth and vice versa. ConnectSafely is a project of Net Family News, Inc.

In 2011 and '12, Anne was a member of the curriculum working group supporting the launch of the Born This Way Foundation, at Harvard University's Berkman Center and the grassroots youth movement toward "a kinder, braver world" the Foundation aims to support. In 2011, Anne contributed a chapter to *Cyberbullying Prevention and Response: Expert Perspectives* (Routledge, June 2011), edited by Profs. Justin Patchin and Sameer Hinduja of the Cyberbullying Research Center. With Larry Magid, she co-authored *A Parents' Guide to Facebook* (FBparents.org, 2012) and *MySpace Unraveled: A Parent's Guide to Teen Social Networking* (Peachpit Press, 2006).

In 2009-'10, Anne served as co-chair of the Obama administration's Online Safety & Technology Working Group, which in June 2010 delivered its report to Congress, "Youth Safety on a Living Internet," a subject on which Anne frequently speaks. In 2008, she served on the Internet Safety Technical Task Force, formed by 49 state attorneys general and Fox Interactive/MySpace and based at Harvard University's Berkman Center for

Internet & Society. She has appeared on PBS Frontline's "Growing Up Online" (2008), been heard on public radio and nationally syndicated commercial radio in many states, and been quoted in *The New York Times*, *Business Week*, the *Associated Press* and many other print outlets.

Anne currently serves on Facebook's Safety Advisory Board and the advisory boards of the London- and Washington-based Family Online Safety Institute and GetNetWise. org, a project of the Washington-based Internet Education Foundation. She founded the nonprofit Net Family News in 1999 on the premise that information empowers parents at a time when kids' tech interests have become a key part of parenting. NetFamilyNews. org ("kid-tech news for parents") is a blog, RSS feed, and email newsletter with subscribers in more than 50 countries. Anne worked on print, radio, TV and Web versions of the *Christian Science Monitor*, served as an editor in consumer magazines, and has written for Microsoft's Staysafe.org, GetNetWise.org, Children's Technology Review, and the National Center for Missing & Exploited Children's NetSmartz.org.

A Massachusetts native, Anne holds B.A. and M.A. degrees from Principia College and the University of Chicago, respectively, and lives with her family in San Jose, California.

## Dr. Wanda Cook-Robinson

Oakland Intermediate School District

Dr. Wanda Cook-Robinson was the Superintendent of Southfield Public Schools from July 2006 to March 2014. She is currently a member of the executive cabinet of the Superintendent of Oakland (MI) Intermediate School District. Using her years of educational experience and vast leadership skills, Dr. Cook-Robinson led Southfield Public Schools into a new era of increased student achievement, expanded opportunities for students and enhanced professional development.

Under her leadership, Southfield Public Schools became the sixth school district in the state of Michigan to be awarded District Accreditation by AdvancED/NCA. Dr. Cook-Robinson's most recent educational initiatives include: official International Baccalaureate (IB) World School designations at Southfield-Lathrup High School and Thompson K-8 International Academy, establishing the high school Dual Enrollment and Credit Recovery Program and creating Saturday School.

Dr. Cook-Robinson established a four-year partnership with the Association for Supervision and Curriculum Development to identify strategies that would help to operationalize SPS's goals for all students by closing the achievement gap in reading proficiency.

Dr. Cook-Robinson has received a number of accolades, both as a leader in education and as a dedicated community member, including being named 2013 "Michigan State Superintendent of the Year" by the Michigan Association of School Administrators, "National Finalist, Superintendent of the Year" by the American Association of School Administrators, Wayne State University College of Education Alumni Association's

"Distinguished Educator" award and the Delta Sigma Theta Sorority, Inc. Southfield Alumnae Chapter's "Educator of the Year" award. She has received recognition as an honoree by the Women's Action for New Directions and the International Institute of Metropolitan Detroit, Inc. Highly active in her community, Dr. Cook-Robinson serves on the boards of the Southfield Community Foundation, National Express Corporation, Wayne State University (Board of Visitors), Oakland University (Department of Educational Leadership), Zonta Club of Southfield, Southfield Area Chamber of Commerce and Detroit Area Pre-College Engineering Program (DAPCEP).

Prior to coming to Southfield Public Schools, Dr. Cook-Robinson was Assistant Superintendent for Student Performance & Human Resources at Oakland Intermediate School District. She has also taught graduate and undergraduate courses at Grand Valley State University, Marygrove College and Wayne State University. Dr. Cook-Robinson holds a Ph.D. in Instructional Technology and an Ed.S. in Educational Leadership from Wayne State University, a Master's Degree in Curriculum Development and Supervision from the University of Michigan, and a Bachelor of Arts in Special Education from Michigan State University.

## Anil Dash
Activate and ThinkUP

Anil Dash is an entrepreneur, technologist and writer acknowledged as a "blogging pioneer" by the New Yorker for having started his site Dashes.com in 1999 as one of the earliest and most influential blogs on the Internet. Today his work focuses on applying the techniques and technologies of the startup world to the transformation the major institutions of society and culture.

Dash is cofounder of Activate, the strategy consulting firm which helps the world's major media and technology companies reinvent their businesses, and cofounder and CEO of ThinkUp, a new app which helps people get more meaning out of the time they spend on social networking. In addition, Dash is an active advisor to several of the most prominent and innovative technology startups and non-profit organizations and has been a columnist for Wired magazine.

Dash is a member of the board of the popular question-and-answer site Stack Exchange and sits on the board of the New York Tech Meetup which serves as the political and social hub for the New York technology community. Dash also advises the reading network startup Readability, conversation platform Branch, respected new publisher Vox Media, the popular upstart hip hop label Greedhead Records and the noted education non-profit DonorsChoose.

Dash has been recognized for his role in popularizing web culture and advocating for social and civic responsibility within the technology industry, earning showcases in museums including the New Museum of Contemporary Art, and honors including a Webby citation for Dashes.com in 2010 in the Personal Blog category; *The New York Observer* named him one of its 2012 Tech Insurgents.

Dash's earlier career involved a seminal role as Chief Evangelist at pioneering blogging technology company Six Apart (now SAY Media), where he joined as the first employee and helped guide the company into being the world's leading blogging company. His earlier career featured roles in the newspaper and music industries.

Dash lives in New York City with his wife Alaina Browne, who is general manager of Serious Eats, a James Beard Award winner for Best Food Blog; They have a young son, Malcolm. Dash can be found online at dashes.com and on nearly every social network as "anildash".

## Julius Genachowski
The Carlyle Group

In both the private sector and in government, Julius Genachowski has been recognized as a bold and accomplished leader in technology, media and telecommunications.

During most of the Task Force deliberations, Genachowski was Senior Fellow at the Aspen Institute and taught a joint course at Harvard Law and Business Schools. He joined The Carlyle Group in January, 2014 as a Managing Director, where he will concentrate on global technology, media and telecommunications investments.

Genachowski served as Chairman of the U.S. Federal Communications Commission from June 2009 to May 2013, a period of unprecedented progress in the sector. He focused the FCC on broadband, and successfully pursued policies to promote investment and innovation, foster competition, and empower consumers, including pioneering initiatives to extend broadband access, free up spectrum, and preserve Internet freedom. His tenure saw a strengthening of America's global competitiveness and renewed U.S. leadership in key broadband metrics, with record-setting private investment, significant increases in broadband speeds and accessibility, and unparalleled innovation in networks, devices and applications. During his time as Chairman, the FCC was named the most improved agency in the federal government and one of *Wired* magazine's "top seven disrupters," and Genachowski was named one of *Forbes*' seven most powerful people in new media.

In over a decade in the private sector prior to his FCC appointment, Genachowski helped build a major Internet and media company, IAC/InterActiveCorp, which owned and operated dozens of businesses including Expedia, Ticketmaster, and USA Network. During this period, *Business Week* named Genachowski one of 25 "managers to watch" in the media sector and *Rolling Stone* listed him as one of "100 people changing America." Genachowski also served as a special advisor to the private equity firm General Atlantic, launched an early stage tech incubator and served on the boards of several public and private companies.

While always a technology enthusiast, Genachowski began his career in the law, serving as a law clerk to Justice David Souter on the U.S. Supreme Court, graduating with highest honors from Harvard Law School and serving on the Harvard Law Review

with President Barack Obama.  Genachowski has long advised President Obama on technology issues, and was instrumental in developing the 2008 Obama campaign's historic Internet strategy.  He is the son of immigrants, and at President Obama's request led the United States delegation to the 65th Anniversary of the liberation of Auschwitz.

## Marne Levine
Facebook

Marne Levine is Vice President, Global Public Policy at Facebook.  In this role, she manages the company's global public policy strategy, working with governments and non-governmental organizations to foster understanding and support for Facebook's innovative technology.

Marne joined Facebook from the Obama Administration, where she served as Chief of Staff of the National Economic Council (NEC) at the White House and Special Assistant to the President for Economic Policy. In that role, she helped coordinate the development of domestic and international economic policy and strategies for communicating these policies to stakeholders.  During the presidential transition, she served as a member of the Agency Review Team for the Department of Treasury and as an advisor to President-elect Obama's economic team.

Previously, Marne was Director of Product Management for Revolution Money, a new payment network, where she helped launch an online peer-to-peer payment platform and managed its privacy and compliance issues.  The company was successfully sold to American Express. Prior to Revolution Money, Marne was Director of Business Development and Strategy at Cibernet Corporation, where she completed a competitive assessment and feasibility study for a new mobile payments platform.

From 2001-2003, Marne served as Chief of Staff for Harvard University President Larry Summers.  In this role, she helped manage the operations of the University with over 14,000 employees and a $2.4 billion operating budget.

Marne began her career in 1993 at the United States Department of Treasury under President Bill Clinton where she held a number of leadership positions. As Deputy Assistant Secretary for Banking and Finance, she was the principal strategic and legislative advisor on domestic finance, consumer protection and community development policy. She also served as Director of the Office of Legislative Affairs and Public Liaison and as Deputy Director of Scheduling and Advance.

Marne holds a B.A. in political science and communications from Miami University and an M.B.A. from the Harvard Business School. She is active in civic and philanthropic organizations. From 2005-2008, she served on the board of LIFT, a non-profit that mobilizes college students to combat poverty and expand opportunities for all Americans, and was re-elected to the board in March 2013. She also serves on the Board of Directors of the Urban Institute, Women for Women International, and the American Council on Germany.  She resides in Washington, DC with her husband and two sons.

# Brendon Lynch
Microsoft
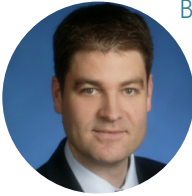
Brendon Lynch is the Chief Privacy Officer of Microsoft Corporation, where he is responsible for all aspects of Microsoft's privacy program, including creating and implementing privacy policy across the company, influencing the creation of privacy and data protection technologies for customers and overseeing communication and engagement with external stakeholders. As part of Trustworthy Computing at Microsoft, the company's privacy program has, for more than a decade, been building privacy protections into its technologies and prioritizing responsible data stewardship.

Brendon also serves as Chairman of the Board of Directors of the International Association of Privacy Professionals (IAPP) a not-for-profit association with more than 12,000 members in 78 countries. The IAPP helps define, support and improve the privacy profession through networking, education and certification.

Brendon is a recognized expert on the intersection of privacy and trust. His work focuses on how society can benefit from technology innovation while addressing societal and individual privacy needs. This balance is particularly pertinent today given the significant technological advances on the horizon and the enormous opportunities presented by advanced data analysis.

Before joining Microsoft in 2004, Brendon led the privacy and risk solutions business at software maker, Watchfire. Prior to entering the software industry, Brendon spent nine years in Europe and North America with PricewaterhouseCoopers where he provided privacy and risk management consulting services.

Brendon is a Certified Information Privacy Professional (CIPP) and holds a business degree from the University of Waikato, in his home country of New Zealand.

# Alice Marwick
Communications and Media Studies, Fordham University

Alice Marwick is the Co-Director of the McGannon Center for Communication Research at Fordham University, an Assistant Professor of Communication and Media Studies at Fordham University, and an academic affiliate at the Center for Law and Information Policy at Fordham Law School. Her work investigates online identity and consumer culture through lenses of privacy, surveillance, consumption, and celebrity. Her first book, "Status Update: Celebrity, Publicity and Branding in the Social Media Age" (Yale University Press 2013), is based on a multi-year ethnography of the San Francisco tech scene. Marwick's current projects include a study of sexism and misogynistic speech online conducted with the Center for Law and Information Policy at Fordham Law School; long-term ethnographic research on youth social media use in collaboration with Dr. danah boyd at Microsoft Research; and a tripartite project on conspicuous consumption and gender involving fashion blogging,

Pinterest and Tumblr. Marwick was previously a postdoctoral researcher in the Social Media Collective at Microsoft Research New England.  She is a frequent presenter at academic and industry conferences, regularly speaks to the press about various aspects of social media, and has written for *The New York Times, Wired* and *The Guardian* in addition to academic publications. Alice has a PhD from the Department of Media, Culture and Communication at New York University, a MA from the University of Washington and a BA from Wellesley College.

## Bruce Mehlman
Mehlman Vogel Castagnetti, Inc.

Bruce Mehlman helps industry leaders understand, anticipate and navigate the public policy environment and trends likely to impact the global marketplace through the bipartisan public affairs firm he founded, Mehlman Vogel Castagnetti. Bruce serves as Executive Director of the Technology CEO Council and founding co-chairman of the Internet Innovation Alliance.

Mehlman previously served as Assistant Secretary of Commerce for Technology Policy, having been nominated by President Bush and confirmed by the U.S. Senate in May 2001.  At Commerce Mehlman worked closely with leaders from industry, universities and government on issues impacting technology creators and users.  Mehlman has also worked as telecommunications policy counsel for Cisco Systems, policy director at the House Republican Conference, general counsel of the National Republican Congressional Committee and as a commercial litigation attorney in a major Washington law firm.

## Betsy Masiello
Google

Betsy Masiello is the Senior Manager for Global Public Policy at Google. Masiello heads up strategic planning and special projects for Google's public policy team. Prior to joining Google she was a consultant at McKinsey & Company, where she served global telecommunications companies on new business strategies around emerging technology. Masiello holds a BA in Computer Science from Wellesley College, a MSc in Economics from Oxford where she was a Rhodes Scholar, and an SM from MIT's Technology & Policy Program.

# Delia Pompa
National Council of La Raza



In her role as Senior Vice-President for Programs, Delia Pompa oversees the work of several divisions, Community Development, Education, the Institute for Hispanic Health and Workforce Development.  Throughout her career Ms. Pompa's work has focused on creating new responses to the needs of Hispanic families and children within leading local, state and federal agencies and national and international organizations. As an educator, Ms. Pompa has been especially instrumental in helping academic institutions understand and respond to the needs of underserved children and their teachers.

She is the former Director of the Office of Bilingual Education and Minority Languages Affairs in the U.S. Department of Education and the former Executive Director of the National Association for Bilingual Education. Ms. Pompa began her career as a kindergarten teacher in San Antonio. She went on to serve as a district administrator in Houston and as Assistant Commissioner of the Texas Education Agency.  Ms. Pompa is also the former Director of Education, Adolescent Pregnancy Prevention, and Youth Development for the Children's Defense Fund.

She serves on a number of national boards and committees for a wide range of institutions that address the needs of children. Ms. Pompa's expertise makes her a frequently requested guest speaker and commentator on current education reform issues.

# Mark Surman
Mozilla



A community activist and technology executive of 20+ years, Mark currently serves as the Executive Director at Mozilla, makers of Firefox and one of the largest social enterprises in the world. At Mozilla, he is focused on using the open technology and ethos of the web to transform fields such as education, journalism and filmmaking. Mark has overseen the development of Popcorn.js, which Wired has called the future of online video; the Open Badges initiative, launched by the US Secretary of Education; and the Knight Mozilla News Technology Partnership, which seeks to reinvent the future of digital journalism.

Prior to joining Mozilla, Mark was awarded one of the first Shuttleworth Foundation fellowships, where he explored the application of open principles to philanthropy. During his fellowship, he advised a Harvard Berkman study on open source licensing in foundations, was the lead author on the Cape Town Open Education Declaration, and organized the first open education track at the iCommons Summit, which led to him becoming a founding board member of Peer-to-Peer University (P2PU).

From 2005 to 2008, Mark served as the founding Managing Director of telecentre.org, a $26M initiative to connect 1000s of community technology centres around the world supported by Microsoft, Canada's International Development Research Centre, and the Swiss Development Corporation. While at telecentre.org, Mark spoke at the first World Summit on the Information Society, provided the keynote at the Global Knowledge Partnership Summit, and built a global network of community computing centres that spanned over 25 countries.

As a consultant and social entrepreneur, Mark has designed and implemented community-driven technology projects for dozens of organizations ranging from the Government of Canada to the Association for Progressive Communications to the Canadian Labour Congress. He has raised more than $30M, authored two books, presented at 100+ conferences, written dozens of papers, and traveled to more than 40 countries. Despite his travels, his favourite place remains the armchair next to the fireplace in his living room.

Mark holds a BA in the History of Community Media from the University of Toronto. He still lives in Toronto but travels widely.

## Deborah Taylor Tate
United Nations ITU Special Envoy for COP

Deborah Taylor Tate, Special Envoy to the ITU for Child Online Protection (COP) and former U.S. Federal Communications Commissioner where she was known as the "Children's Commissioner." Tate was Chairman of the $7B USF Fund overseeing E-rate connectivity to America's schools and libraries as well as other telecommunications funds. With Geena Davis, Tate was Co-chair of the National Healthy Media Commission regarding the impact of media on girls/women. She was a WTISD Laureate and has spoken to UN organizations such as the Economic and Social Council regarding Cybersecurity and Children as well as the International Parliamentarians Union, World Telecom, WSIS and served on President Bush's official Delegation to the 2007 WRC. She advises and serves on numerous nonprofit Boards such as Common Sense Media, United Way and the Community Foundation of Middle Tennessee, was a Co-founder of Renewal House, Chairman of Centerstone, the nation's largest community mental health provider and Centerstone Research Institute. She serves on the Board of Healthstream, Inc, a leading provider of online learning and research solutions for healthcare organizations. She regularly lectures and is published nationally and internationally and is affiliated with Vanderbilt University School of Nursing and serves as Executive in Residence at Lipscomb University where she teaches Communications Law. A Distinguished Senior Scholar at the Free State Foundation and Vice-Chair, Minority and Media Telecommunications Council in Washington, DC, Tate is a licensed Attorney, Rule 31 Mediator and Strategic Consultant on communications/media issues with a special emphasis on children, privacy and women's issues.

# Felton Thomas, Jr.
Cleveland Public Library

Felton Thomas, Jr. was appointed Director of the Cleveland Public Library (CPL) in January 2009.  Since then, he has positioned CPL as a community deficit fighter and launched initiatives aimed at addressing community needs in the areas of technology, education and economic development.

During Felton's tenure, CPL has maintained its "Five Star" status and been named a "Top Innovator" by the Urban Libraries Council for its use of technology and data to inform decision making.  Felton also has guided CPL through the worst recession in decades by actively seeking input from the community, and then reducing CPL's budget by millions while still providing superior service and keeping all neighborhood branches open.

Felton's vision for the Library is that of a strong leader in defining a more prosperous future for Cleveland by battling the digital divide, illiteracy, unemployment, and other community deficits with innovative programming and action at all branches. He has also launched a "Downtown Destination" campaign to reposition the Main Library for the 21st century and market its status as a major downtown attraction.

Prior to accepting the position of Director of CPL, Felton served as Director of Regional Branch Services for the Las Vegas-Clark County Library District in Las Vegas, Nevada and President of the Nevada Library Association.

In June of 2010, Felton was asked to serve on Mayor Frank G. Jackson's Group Plan Commission. The Commission was brought together to coordinate the planning of Malls A, B, C, and Public Square and their environs in the context of several significant downtown projects: The Medical Mart/Convention Center, a Casino, Flats East Bank, and the Port Authority's Waterfront Development Plan. Soon after, Felton was named the chair of the Community and Public Participation Subcommittee.

Felton is a native of Las Vegas, where, as a youth, he first developed his passion for libraries.  At age 13, he became the youngest employee in Las Vegas-Clark County Library District history when a librarian noticed his enthusiasm and encouraged him to become a page.  Thirty years later, the young page has move up the library ranks to become Director of one of the best libraries in the country.

Felton earned his undergraduate degree in psychology from The University of Nevada-Las Vegas and his Masters in Library Science from The University of Hawaii, and is currently pursuing his PhD in Managerial Leadership Management at Simmons College.

Felton lives in Shaker Heights with his wife and two daughters, is an accomplished musician, and has become a devoted Cleveland sports fan since his arrival on the shores of Lake Erie.

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