25 IMPACT OPPORTUNITIES IN U.S. K-12 EDUCATION

By Getting Smart | In Partnership with Vulcan Inc. | June 2015

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INTRODUCTION

The two-decades-old learning revolution has been fully incorporated into the business sector, partially integrated into consumer offerings and has begun to transform the elementary, secondary and postsecondary education landscape. Broadband, ubiquitous mobile computing and powerful applications have created new opportunities in the education sector. Educators are beginning to reimagine learning experiences and environments. These developments appear to have the potential to dramatically boost student achievement and completion rates in this country and worldwide.

Philanthropic investment over the last 15 years has highlighted the potential of new school development. Private investment over the last five years has powered the education technology revolution. The combination of new schools and new tools has created a platform for innovation—an opportunity to create more engaging, supportive, student-driven learning.

With support from Vulcan Inc., Getting Smart conducted a series of expert interviews and a design workshop to identify and vet impact investment strategies. The work was commissioned to inform the Vulcan team as well as the sector on investment strategies, with the potential for large-scale impact. The primary focus assessed was U.S. K-12 education.

Vulcan believes in the power of each person to become more knowledgeable, more aware, more responsible and more interested in the world around them. That explains why many of our projects have been designed to educate, inform and inspire. We commit to learning as much as we can, sharing as much as we can and feeling out the edges – so we can sail right past them.

The investment options summarize a series of expert interviews and meetings. Options presented in this report are primarily but not exclusively philanthropic; some are or could be approached as venture or return-seeking investments. They all see large-scale sustainable impact. This report does not entail an exhaustive list of opportunities available, but it intends to highlight a few promising activities that advisors have considered.

We hope this report will start conversations and further research on the impact opportunities that different organizations could participate in in order to advance high-quality K-12 education.

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PROJECT OVERVIEW

Impact Opportunities Videos (YouTube playlist)

Change forces that create impact opportunities include technology advancements, demographic shifts and political factors. To identify trends and associated impact opportunities, the Getting Smart team interviewed more than 30 thought leaders in education and philanthropy. The interviews focused on large-scale and unique impact opportunities. Advisors were also asked about STEM, computer science and entrepreneurship opportunities that warrant investigation. The team specifically looked for ideas that were catalytic, scalable and sustainable.

Thirty identified trends have been summarized in Appendix 1. Trends in global learning, as identified by a Russian think tank, appear summarized in Appendix 2.

PROCESS

Investment concepts, identified through expert interviews, were organized into categories that helped inspire a two-day convening at Vulcan Inc. in Seattle. Twenty regional and national education and investment thought leaders reviewed trends, contributed ideas and pitched one idea through a video presentation and in person. For more on the pitches, click the videos on the left and see the full YouTube playlist.

OPPORTUNITIES

Many of the investment opportunities expressed a shared interest in student-centered learning as an opportunity to boost engagement, achievement and completion. In many cases, the investment opportunities incorporate new education technology (EdTech) and associated strategies. While some selection bias influenced advisor identification, the central theme of technology-enabled, student-driven and interest-based learning proves important.

Advisors suggested that student-centered learning could be supported through better assessment, teacher preparation, school development, learning resources and parent engagement. Advisors also discussed opportunities in entrepreneurship, coding and computer science as well as STEM.

IMPACT INVESTING OPPORTUNITIES

Through interviews and the workshop, advisors identified about four dozen impact opportunities in the following 10 categories:

- STUDENT-CENTERED LEARNING
- NEW SCHOOL DEVELOPMENT
- PROFESSIONAL LEARNING & DEVELOPMENT
- NEXT-GEN ASSESSMENT
- ENTREPRENEURSHIP EDUCATION
- PORTABLE DATA & PARENT ENGAGEMENT
- LEARNING RESOURCES
- SOCIAL-EMOTIONAL LEARNING
- EARLY LEARNING
- STEM, CODING & COMPUTER SCIENCE

Several specific investment opportunities were developed in each category and scored them for potential scale, risk and sustainability. (They appear indented in each section with arrows and have also been summarized in a graphic in the 25 Impact Opportunities section.)

Organizers identified a “big idea” in each of the 10 categories. Each of the top scoring investment opportunities exhibit unique and strong impact opportunity with lower levels of risk and the likelihood of sustainability.

Some of the more promising opportunities include competency-based teacher preparation, micro-schools, maker spaces, an achievement recognition or badge system and portable learner profiles.

10 IMPACT INVESTMENT CATEGORIES AND 10 “BIG IDEAS”

STUDENT-CENTERED LEARNING

The Nellie Mae Education Foundation describes student-centered learning as personalized, competency-based, anytime-anywhere learning, where students take ownership of their learning. With students' access to technology rapidly expanding, more opportunities now exist for multi-modal, student-driven learning—in and out of school.

Problem: There are more than 100,000 learning apps, with no clear, consistent way to indicate what works. EdTech companies have difficulty finding schools willing to host trials to measure efficacy and drive-iterative development.

Solution: Sponsor short cycle EdTech trials in a district or network willing to serve as a test bed. Develop a sustainable business model. Publish protocols and results to encourage other cities to do the same.

BIG IDEA: SHORT CYCLE TRIALS

Margot Rogers, Parthenon, thinks it will be difficult to get to true personalization without supporting competency-based education, which would benefit from advocacy and communications support. Susan Patrick, iNACOL, urges support for knowledge hub CompetencyWorks, "We could give examples of where implementation is happening, update the literature and hold convenings for people to come together."

» $300,000 grant for advocacy support of competency-based learning (1)

Phyllis Lockett, LEAP Innovations, said personalized learning can make a big difference, and fused with technology, it gives educators the opportunity to better tailor the learning experience of students based on their needs and at their pace, which will transform the learning experience. A Gates Foundation RFP describes the opportunity for "new approaches to facilitating short-cycle feedback on product efficacy so that teachers, school decision-makers and parents have better information about the effectiveness of digital courseware, and developers of such products receive more rapid input to improve their offerings."

» $1 million grant for short cycle EdTech trials (2)

Patrick suggested we need to look more closely at the research on how students learn, youth development, engagement and motivation theory and design learning environments to empower student agency, voice and choice. Using technology to expand resources and to access formative assessment data is key for scaling the designs of personalized learning. Expanding educational opportunity using multiple pathways, technology can help educators manage personalized learning experiences, with broader content choices, resources and also the creation of ePortolios to house evidence of student work.

Karen Cator, Digital Promise, wants to see students interact more and to facilitate ways to solve big problems from an early age, with occasional virtual exchange opportunities. The framework should promote creativity, design and entrepreneurship. (See Next-Generation Assessment.)

Alan Gershenfeld, E-Line Media, suggests support for a game-infused platform and tools easy enough to use that it becomes widely adopted to promote inquiry-based, blended learning trajectories. Associated learning services would speed adoption, promote creative use and ensure quality of service. He also suggests sponsored, inclusive game development, like the recently released Never Alone, has the chance to introduce new perspectives and promote cultural literacy.

» $2 million grant to sponsor a learning game (3)

Former venture investor Ted Dintersmith, Charles River Ventures, is enthusiastic about the potential of films—like his recently produced Most Likely to Succeed—to provoke constructive conversation about student-centered and interest-driven learning.

Andy Calkins, Next Generation Learning Challenges, suggests a prize for the best two- minute video of what the next-gen school looks like.

» $500,000 for video competition (4)

Dintersmith thinks Future Project demonstrates the power of interest-based learning. Grant-funded Dream Directors are embedded in schools to help students create projects that unleash passion and purpose. Dintersmith thinks Future Project also demonstrates the efficiency of a program that leverages one expert per 20 to 30 classrooms.

» $10 million grant to support interest-driven learning in 40 schools for three years (5)

Big Picture Learning is an international network of interest-driven schools. Jeff Petty, Puget Sound Consortium for School Innovation (a Big Picture Learning initiative), noted that Big Picture Learning data suggests learning through internships with a mentor increases college attendance and persistence.

Victoria Bergsagel, Architects of Achievement, comments on the importance of study tours for community groups to grasp the new/transformed opportunity.

» $1 million grant to local nonprofit (along with support for new schools and leadership development) for 500 people to make school visits (6)

Joshua Schwartz, East Wind Advisors, suggests supporting interest-based learning groups such as Globaloria and Maker-State, using a sponsorship model like Everfi. Because scale is the issue in this sector, Schwartz—a merger and acquisitions expert—points to the potential of a rollup (i.e., acquisitions of similar companies designed to improve scale economies).

Advisors recognize the inherent conflict of trying to promote student-centered learning and career-ready skills while using traditional assessments.

NEW SCHOOL DEVELOPMENT

New school development, including charter schools and like-minded school networks, has proven the best impact investment of the last twenty years in U.S. K-12 education. The incorporation of personalized learning technology and pedagogies presents a fresh impact opportunity to lead the sector transformation, while constructing valuable options for underserved families.

Amy Berk Anderson, Donnell-Kay Foundation, leads Re-School Colorado, an effort to create a new education system where the role of learner advocate remains central. A regional pilot could demonstrate the potential of next-gen learning and policies.

» $10 million matching grant to support an innovative regional approach to developing a new education system (7)

Alex Hernandez, Charter School Growth Fund, urges support for charter management organizations developing new school models, like Summit Public Schools in the Bay Area and Intrinsic Schools in Chicago, both which take advantage of real-time data.

» $10 million grant to a network developing a new student-centered learning platform and school model (8)

Calkins suggests investment in regional new and transformed school funds.

» $10 million grant to support regional new school fund yielding 10 innovative schools (9)

Given the mismatch between traditional policy levers and the core tenets of student-centered learning, Calkins says this suggests bottom-up efforts like private micro-schools could be productive. Beth Rabbitt, The Learning Accelerator, agrees that highly personalized micro-schools, like AltSchool, which puts students at the center and gives them more resources for learning provide great impact opportunities.

Daphne Koller, Coursera, urges support for learning hubs—small, facilitator-led study groups using open content. Add an advisor and certification system, and you have a micro-school with equal secondary and postsecondary opportunity.

Problem: New schools often provide effective and innovative learning options, but they can be expensive, slow to scale and often bound by tradition.

Solution: A modular approach to grades 6-12 could be adopted by two teachers with 40-50 students as a low-cost private school or academy within a larger public school. School developers may initially operate schools to demonstrate efficacy but scale as a platform and related services. (See The Micro-School Opportunity for more.)

BIG IDEA: MICRO-SCHOOLS

Michael Golden, Educurious, and Solomon Steplight, Girls Who Code, advocate for a micro-school model, with the building block of two teachers and 40 to 50. The core work of the model is centered around problem and interest-based projects. This could be deployed as a new school or academy within an existing school. Virtual mentoring and online learning would extend learning opportunities.

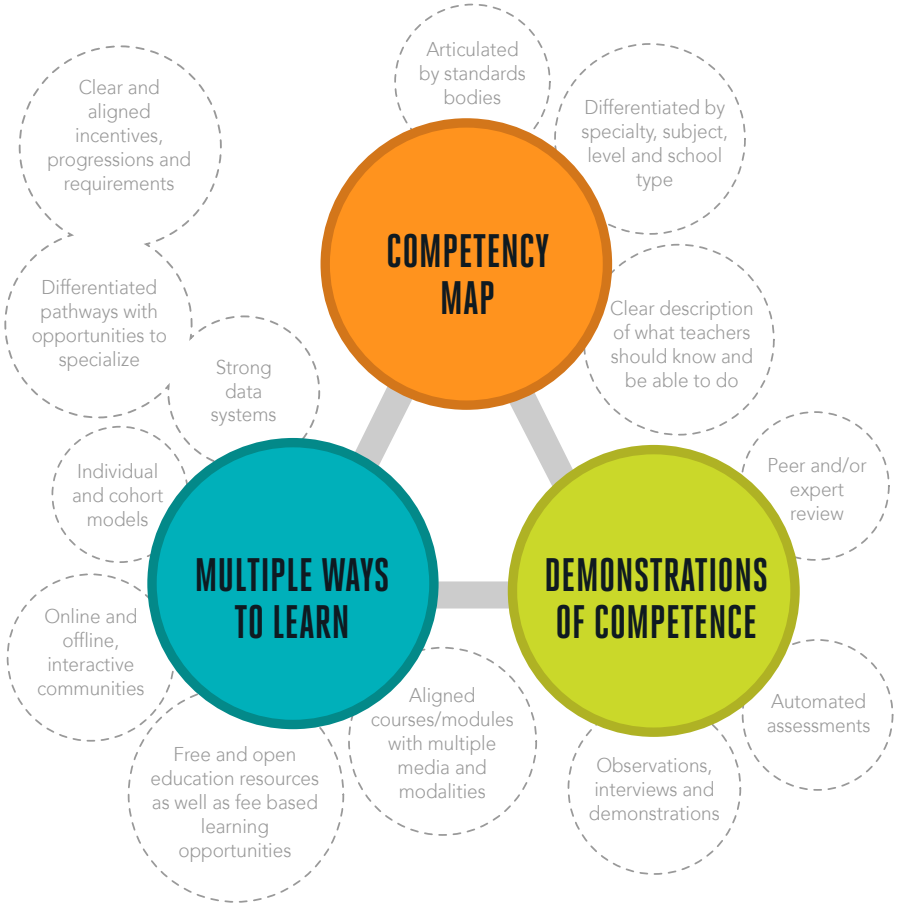
- $250,000 design prize could be used to identify the most promising model
- $10 million grant (in tranches) to a nonprofit micro-schools provider yielding 30 schools (or a $5 million co-investment in a for-profit provider yielding 50 schools) (10)

Matt Greenfield, Rethink Education, advocates for school-centric urban redevelopment. Because good schools improve residential and commercial property values, a developer has a financial incentive to support the development of good schools as an anchor asset to a redevelopment. Greenfield notes that the founder of Gestalt Community Schools, Derwin Sisnett, is interested in commercial real estate affiliates that would lead school-centric urban redevelopment.

Other advisors agree on the gentrification benefits but ask about maintaining diversity in revitalized areas. The Promise Neighborhoods initiative presents a valuable opportunity from which to learn.

PROFESSIONAL LEARNING & DEVELOPMENT

Preparing teachers and leaders for next-gen school environments means ensuring that talent development models the ways we also want to learn. In Preparing Teachers for Deeper Learning, the authors write that talent development should mirror the competency-based environments best for students. The design principles for the next generation of educator preparation and development include some element of teacher control over time, place, path and/or pace; balance between teacher-defined goals, goals as defined by administration through teacher evaluation efforts plus school and district educational goals; job-embedded and meaningful integration into classroom practice; and competency-based progression.



Cator outlines a powerful triangle for talent development and competency-based teacher prep—a map of what educators need to know and be able to do, different ways to learn the formula and ways to demonstrate competence.

Cator suggests this formula should be used for teacher and leader preparation and development. Sufficient existing frustration, due to the low quality of teacher preparation, could change dramatically to improve the sector with a well-structured investment.

Tony Lewis, Donnell-Kay Foundation, expresses excitement about the potential of competency-based teacher preparation. He acknowledges that students can and do learn anywhere. If we have students able to demonstrate competency in those ways, he argues that the same rings true for teacher prep.

With a clear path forward and a capable actor, a director investment is warranted For example:

» Grant of $2 million to a nonprofit to develop, $2 million to pilot, $6 million matching grant to scale the competency-based teacher development system (11)

When the market proves inefficient and solutions diverse, a prize or demand aggregation strategy may be warranted. (See Using Prizes and Pull Mechanisms to Boost Learning.) Several advisors suggest a sequence of prizes to advance the concept of competency-based preparation. Well-designed prizes surface ideas and talent and can provide cost effective advocacy for a cause.

- Phase 1: Ideation challenge to design a new competency-based credentialing system ($150,000)
- Phase 2: Fund further development of best ideas from phase 1 ($750,000)
- Phase 3: Deeper ideation challenge based on responses in phase 1 ($100,000) (12)
- Phase 4: Prize for state or consortium of states with best implementation plan (co-invest $10 million) (13)

A prize sequence would likely surface ideas other advisors mentioned, including linking schools of education to K-12 schools (e.g. High Tech High Graduate School) and tying payment toward preparation programs to teacher and student outcomes.

Schwartz envisions more efficient and effective professional learning—perhaps a General Assembly (i.e., a premium provider of technology, design, and management training) for K-12 schools or a joint venture where they contribute assets. He suggests engaging TES Global, a comprehensive Yellow Pages of sorts for teacher placement and a viable channel to introduce new products to the ecosystem.

Petty is excited about integrating the incubation of new schools, the redesign of existing ones, and new approaches to principal leadership development into a cohesive regional learning lab to ultimately shift the design priorities of schools to be more responsive to student interests and real world learning contexts.

Problem: States accredit universities that provide teacher preparation, resulting in certification. The monopoly of ineffective degree programs provides expensive, weak and generic teacher preparation. Once degreed, teachers continue to learn throughout their career, but they only receive credit or recognition for formal workshops and classes, while important learning opportunities also exist online and informally.

Solution: Dramatically improve teacher preparation by creating a multiple-pathway and provider competency-based teacher system. Sponsor the design and demonstration of a teacher preparation system based on a common map of job requirements, multiple ways to learn and varied ways to demonstrate competence (micro-credentialing).

BIG IDEA: COMPETENCY-BASED TEACHER PREPARATION

A number of advisors agree that a regional link between new school development and leadership development would be productive (CityBridge Fellows and Next Generation Learning Challenges, for example).

- $10 million grant to support regional new school fund and yielding seven innovative schools and cohort of 20 trained leaders (14)

NEXT-GENERATION ASSESSMENT

Next-gen assessments include opportunities to expand the metrics beyond state testing to include social and emotional skills as well as personalized, competency-based progressions (including those that allow for student-centered learning such as performance-based assessments). As assessments become more personalized, badges become a common currency.[1]

Acknowledging that many view state testing as a big problem, Cator sees an opportunity to expand the frame and to work with a state on forming new metrics of success—a broader dashboard focused on engagement and habits of success.

Similarly, Calkins notices a big opening for a new generation of assessments to replace weeklong end-of-year tests. By solving a couple technical issues (like combining formative data from multiple sources) and helping a state develop a new lightweight approach, the country could be saved from the quagmire of standardized testing.

Scott Benson, New Schools Venture Fund, says that rather than relying solely on end-of-year tests, states and districts should offer on-demand (or frequently scheduled) mastery assessments to manage student progress. In a competency-based system, students frequently show what they know and progress based on demonstrated mastery. Ideally, students would attain course credit as soon as they have demonstrated an adequate level of mastery. These assessments can be decoupled from a formal instructional program. A student who learns content on his/her own could opt to take an assessment and receive credit for a course without having to enroll in school.

» $5 million grant to technical assistance group to help one state develop and implement a new assessment system (15)

Michael Horn, Clayton Christensen Institute, suggests creating a next-gen "Committee of 10," comprised of leaders who can raise real questions and develop solutions to make Next-gen assessments a reality. A parallel idea involves also having the group make investments in potential solutions. Thomas Arnett, Clayton Christensen Institute, is also excited about the potential to create next-gen assessments, and he hopes these evaluations will make the system work better for all students.

» $1 million grant to organization to develop a report on Next-gen state assessment (16)

Rogers and Cator make the case for funding the development of a new framework to evaluate student progression.

» $4 million grant to a nonprofit to develop a K-12 badging system, including assessments sufficient to manage competency-based progress (or $2 million co-investment in EdTech startup) (17)

1. IMS Global Learning Consortium has announced they have developed an initiative to establish digital badges as common evidence of mastery for K-20 education. IMS Global Learning Consortium, accessed May 13, 2015, http://www.imsglobal.org.

Problem: Expanding opportunities exist to learn inside and outside of school, but students still matriculate in age cohorts. There is no widely recognized way for students to show what they know and progress based on mastery.

Solution: An open badge framework that incorporates multiple assessments (including performance tasks) would recognize anywhere-anytime learning and could be used in innovative and traditional settings.

BIG IDEA: K-12 BADGE SYSTEM

Advisors recommend developing an open library of performance tasks, project-based learning modules, collaborative authoring environment and automated scoring engine.

» $4 million grant to a nonprofit for task/module design and automated feedback partnership (18)

Sir Michael Barber, Pearson, notes the benefits of the quantified-self movement, citing a cycling analogy "I can benchmark my progress against thousands of riders." By using and presenting data well, Barber thinks this has similar potential to inform teachers and motivate students. Advisors recommend development of a tagging system that would enable grade books to combine multiple sources of formative assessment

» $2 million grant for technical working group on tracking sub-skills (19)

Noting that the college admission process is broken, other advisors suggest investing in student portfolios for capturing artifacts linked to college and work-ready competencies.

ENTREPRENEURSHIP EDUCATION

Cultivating entrepreneurial mindsets represents an opportunity for the U.S. education sector. Teaching entrepreneurial skills in authentic ways and creating ways for students to demonstrate real-world application leads to innovative, project-based approaches to education.

Michael Trucano, World Bank, thinks that teaching entrepreneurship presents a lot of opportunity. Barber believes it would be beneficial to have a shared understanding of what it means to be an entrepreneur. It would yield more support—more for-profit and social sector support.

Steve Arnold, vice-chair of the George Lucas Foundation, strongly advocates combining entrepreneurship with cooperative and project-based learning. He cites Educurious as a great example of an excellent project-based learning tool. Rabbitt agrees that project-based approaches central to a school's mission prove more effective than drop-in programs.

Hernandez says that 4.0 Schools has been an effective contributor to entrepreneurship education by training educators to think entrepreneurially, incubating new tools and supporting teams' development of new school models.

» $10 million grant to support a national network of EdTech incubators and design studios (20)

Entrepreneurship could be taught in a 9th grade curriculum that includes design thinking (see example of an Entrepreneurial Studies course). It could also be incorporated into a triple block capstone that includes writing a business plan and building a financial model.

Hernandez says, "Ideas scale. Investing in relatively small philanthropic opportunities could result in much larger scale if the ideas are replicated in other geographies and by other organizations." A fund could support and encourage matching investment in micro-innovations in schools and classrooms.

Advisors suggest sponsoring a competency map of what it takes to launch a business. Other advisors note that, while business concepts are important, supporting entrepreneurial opportunities with a focus on student ownership remains key; mindset is at least as important as content knowledge.

Problem: The entire education sector needs to shift from print to digital, from time to learning and from compliance to performance; however, there is little capacity to incubate talent, tools or new schools.

Solution: Opening two to three more nonprofit incubators and creating a national network of incubators, accelerators and design studios could extend learning and support opportunities to a million educators.

BIG IDEA: NETWORK OF INCUBATORS

PORTABLE DATA & PARENT ENGAGEMENT

By creating a portable student and parent-centered data tool, parents, educators, tutors, mentors and others involved in students' education could all work together and share information about student goals, progress and needs. This leads to a highly personalized experience for students and a higher degree of parent engagement across multiple channels, mimicking the direction in which we are headed—meaning all stakeholders can contribute to a student's learn plan anytime and anywhere.

Jessie Woolley-Wilson, DreamBox Learning, and Hernandez advocate for a parent-managed learner profile and portfolio—key to personalization, dealing with privacy concerns and making successful postsecondary transitions.

» Make $200,000 grants to five national organizations to support development of and advocacy for a technical solution. Issue an RFP to app developers, and make a $1 million grans (or contract) to develop apps. (21)

Woolley-Wilson notes that few cities teach parents how to engage in their children's learning. When Rudy Crew served as superintendent in Miami-Dade, he created a parents academy in an attempt to help guardians make good decisions. Steplight agrees on the potential for parents to personalize the education experience. Advisors speak to the need to provide parents with more information to help navigate educational choices. (See Getting Smart's Smart Parents series about how parents play a pivotal role in student-centered, powerful learning.)

Problem: What little information schools capture about students typically appears in a formal transcript and paper-based files. Little if any of the data gets transferred when a student enrolls in a new school. Parents have limited access to information and no standardized way to receive, use and port this data. A privacy frenzy has stalled progress.

Solution: Personalized learning will be powered by portable records and parent-managed learner profiles. (See Department of Education My Data Initiative and Digital Learning Now paper Data Backpack.) Build support for a technical solution with national organizations, and sponsor a free learner profile app for leading online stores.

BIG IDEA: LEARNER PROFILE

LEARNING RESOURCES

The Internet is full of content and represents an abundant opportunity for learning. However, educational providers need a trusted list of open education resources to curate and direct the abundant and always-changing online content.

Building on Marc Zuckerberg's Internet.org, Cator suggests a "411" for learning which could include free access to data and resources—a possible FCC initiative. A nonprofit with an advisory panel would need to maintain the list of resources. Beth Rabbitt says that, in addition to a library of open education resources (OER), a next-gen open source learning management system could make a big contribution.

Michael Staton of Learn Capital acknowledges that the entire Internet consists of content, much of which can be used as a learning resource, but it needs to be indexed and trusted. "The trust that users have for content is not just about the quality of content; it is also in the manner and sequence it is served to the user. This is an act of curation, which includes a contextual layer of personalization and sequencing."

Calkins recommends developing a library of rich tasks (e.g., see Literacy Design Collaborative) and inquiry-based project tasks. He suggests creating, "The world's best free and open somewhat curated bank of tasks."

Golden recommends a virtual mentoring program in which working professionals connect with students on real and compelling work. This provides a simple way for companies to give back and demonstrate their connection to communities while benefiting students. It could be supplemental to school, tied into the curriculum or completed after school.

Trucano affirms the importance of mentors, and he sees potential in connecting them through mobile technology. He says that learners need mentors, and he views helping learners and mentors connect as an opportunity for funding, either regularly or on an "as needed" basis. (He also emailed a short note to new philanthropists looking to support education and technology initiatives in the developing world.)

Michael Carter, Strive for College, advocates for connecting college students and other mentors to high school students making postsecondary plans.

Advisors note the potential of virtual specialists (e.g., counselors, speech therapists) and the future potential of artificial intelligence expertise. Others stress the importance of learning through internships.

Cator suggests a tech-enabled summer learning program where students keep devices over the summer.

Greenfield advocates for investment in education technology venture funds with a focus on impact. (See Boosting Impact.)

Problem: Mentoring is a proven strategy for boosting motivation, persistence and achievement. However, it can be challenging to sign up, activate and schedule mentors.

Solution: Virtual mentoring reduces barriers to signing up and activating mentors.

BIG IDEA: VIRTUAL MENTORING

SOCIAL-EMOTIONAL LEARNING

It is clear that non-cognitive traits such as persistence and self-control are critical to life success, but they are not typically taught or assessed. Educators seek ways to define success beyond traditional measures of testing. Social-emotional learning mindsets, habits and skills prove important predictors of college and career readiness.

Stacey Childress, New Schools Venture Fund, says we need an expanded definition of student success. “High performing CMOs have shown that it’s possible for every kid to be successful. They can do well on state tests and college entrance tests. High scores are not enough; students need more than that. We need an expanded definition of student success and what it takes to create schools that help with this expanded definition. There’s an opportunity to partner with researchers and thought leaders to address those needs in kids—but how do we measure them?”

Arnold concurs, “We need broad adoption of social-emotional learning skills and capacities in the K-12 sector, which makes a huge impact on student identity and engagement. We should have a modification of curriculum to do much more project-based learning with an increased focus on and explicit cultivation of grit and growth mindsets that are functionally relevant to students and can have a real impact on student engagement.” Other advisors agree on the need for initiatives that signal the importance of creativity, resourcefulness and resilience, in addition to basic skills.

» $10 million grant to a network of districts and a technical assistance provider to develop a common approach to promoting and monitoring social emotional growth (22)

CASEL is the leading advocate of social emotional learning (SEL) and could support a group of districts seeking better ways to develop and monitor growth across difficult-to-measure dispositions. Rather than formal assessment and grading, a badging, feedback and portfolio system would be better suited to SEL.

Advisors mention the link between SEL and character development, noting DSST Public Schools in Denver as not only a great STEM network, but also one of the best examples of a network focused on character development.

Problem: It is clear that self-management and social awareness remain key to success in life, but these skills typically are not taught in school and prove difficult to measure.

Solution: Support a network of districts in its effort to incorporate social emotional learning into coursework and advisory periods.

BIG IDEA: SOCIAL EMOTIONAL LEARNING

EARLY LEARNING

Investments in early childhood education yield results. Early cognitive and social skills set a foundation for later success in K-12 education.

Ed Lazowska, University of Washington, thinks early learning is the best investment. Washington state ranks in the lower half of states; 37 percent of Head Start-eligible students go remain unserved. Trucano and Childress agree that this is a high-impact category, as the sector continues to learn about quality preschool learning. Investment will be needed in order to build demand and provide quality supply.

Hernandez thinks U.S. schools teach reading poorly and that breakthrough opportunities exist. He believes the transition from pre-K to grade 2 is very important. Hernandez says, "Building content knowledge and vocabulary will accelerate reading gains beyond what we've seen historically." He's confident that quality online learning tools can help build content knowledge, "My eight-year-olds got really inspired by the Elements In Action iPad app to learn about the periodic table."

Hernandez notes, "breakout ideas could scale here."

Recognizing the importance of early learning opportunities, the George Kaiser Family Foundation has invested heavily in expanding the availability of high-quality, very early childhood education for low-income children in its hometown of Tulsa, Oklahoma. The combination of advocacy, government partnerships and support for quality supply make the foundation's work an example of best practices.

» Make a $5 million matching grant to expand state support for early learning access, $2 million advocacy grant to build smart supply and $3 million in grants to quality providers to build supply (23)

Problem: Many low-income families lack access to affordable early learning and care.

Solution: A regional partnership that builds smart demand and quality supply can, over a decade, change the opportunity set in a region.

BIG IDEA: EARLY LEARNING

STEM, CODING & COMPUTER SCIENCE

STEM fields, including teaching students coding and computer science, prove important for quantitative reasoning skills as well as postsecondary and career success.

Lazowska advocates for coding programs in K-12 because they teach computational thinking. “Programming is hands-on, inquiry-based and involves modeling, abstraction, algorithmic thinking. These are fundamental skills for everyone.” He thinks Washington state could be a model for learning to code.

Steplight says we need to fund professional development so teachers can be well-equipped to teach computer science. Vince Bertram at Project Lead The Way (PLTW) agrees. They provide professional development as a foundational element of their K-12 STEM curricular programs. Each teacher who instructs a PLTW course must complete PLTW’s professional development program.

Hernandez comments, “Right now coding is easier to learn outside of school.” And it’s becoming a crowded space, according to Horn. Rather than expanding the core curriculum, other advisors suggest looking for ways to incorporate coding into many high school courses, creating badge sequences and just-in-time (mini-MOOC) resources.

Schwartz thinks we have a marketing problem; girls are still not signing up for STEM. He thinks we need a marketing plan—a national conversation—around girls in STEM and computer science.

Steplight wants gender parity in the technology space, aiming to increase the number of girls who code by 1,000,000 through 2020. He wants to move the needle and increase the number of girls who major or minor in computer science in college.

» $1 million grant to expand regional computer science learning opportunities (24)

Barber and Dintersmith note the work of Eric Mazur, who teaches physics at Harvard. Mazur has concluded that even students at top schools are not learning science. He promotes peer-driven, thought-provoking questions. Other advisors reinforce the importance of problem- and project-based learning and interdisciplinary approach.

Andrew Coy launched Digital Harbor Foundation and converted a closed rec center into a tech center. They run maker space and 3D printing training programs and recently launched a Perpetual Innovation Fund to help schools purchase a 3D printer.

» Create a $10 million maker fund to make matching grants to support maker spaces in 10 cities (25)

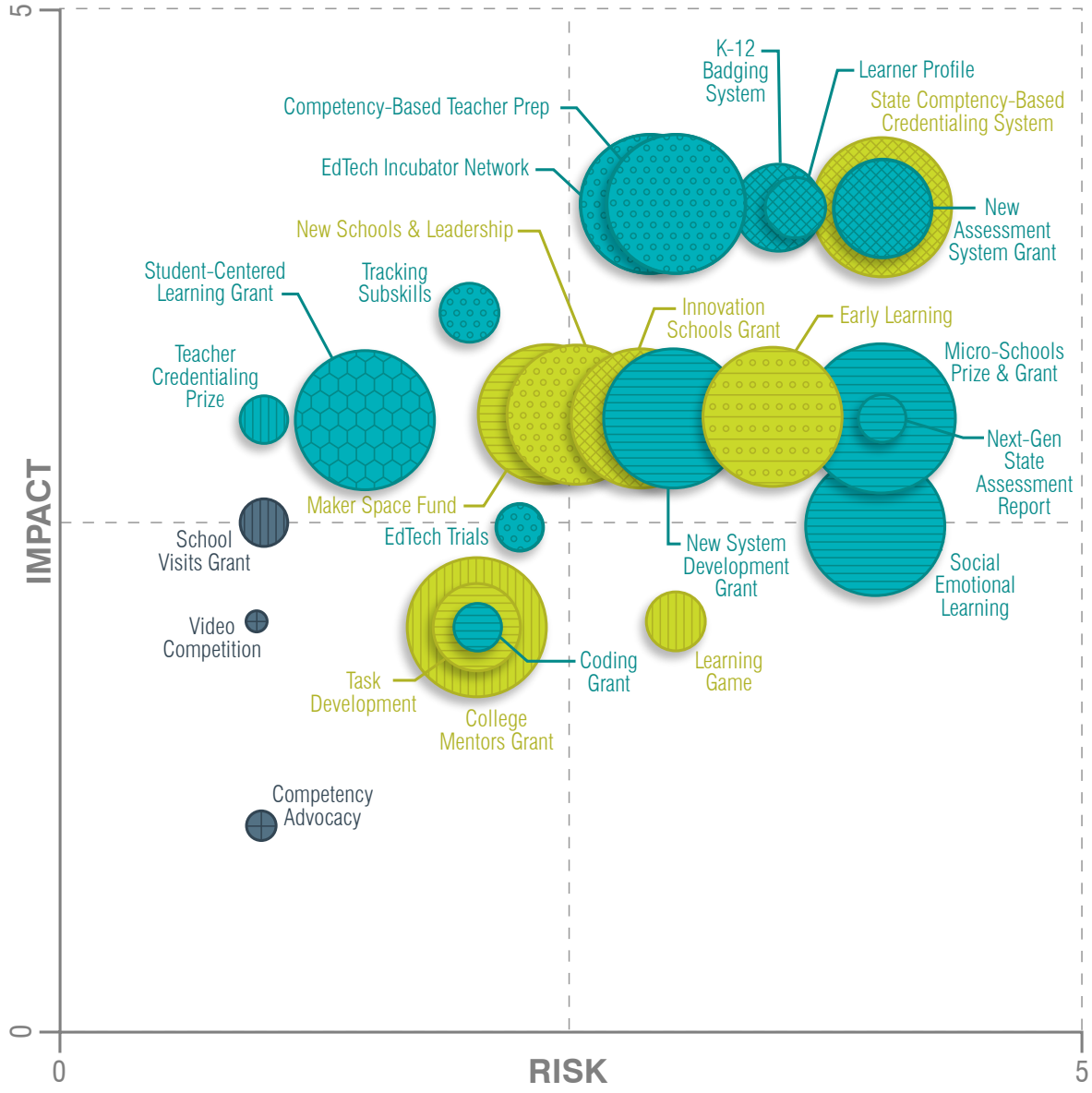
Problem: Many high schools lack coding courses, 3D printers, design thinking opportunities and other maker capacity.

Solution: Community spaces and informal learning (after and summer school) offer a quick and often effective entry point for active learning. Maker opportunities may promote active engagement, design thinking and STEM studies. Periodic demonstrations of learning would promote school adoption.

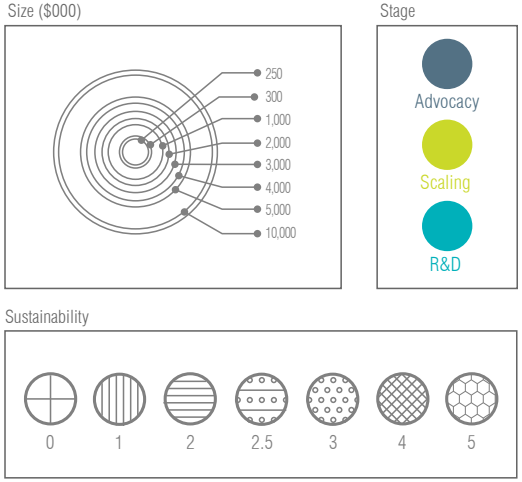
BIG IDEA: MAKER SPACES

25 IMPACT OPPORTUNITIES

IMPACT INVESTMENT OPPORTUNITIES



In the 10 categories discussed within this report, several opportunities to make a unique contribution in order to shape the future of American education are highlighted. In the following summary table and chart, we recap the 25 illustrative opportunities and scored them for risk, potential impact and sustainability.



#	Title	Description	$000	Risk	Impact	Sustain	Stage
1	Competency Advocacy	3 years of advocacy support	300	1	1	0	Advocacy
2	EdTech Trials	Grant for 2 years of short-cycle EdTech trials	1,000	2.3	2.5	3	R&D
3	Learning Game	Grant to sponsor a learning game	2,000	3	2	1	Scaling
4	Video Competition	Video competition on Next-gen learning	250	1	2	0	Advocacy
5	College Mentors Grant	Grant to college mentoring program for high schools in 40 schools for 3 years	10,000	2	2	1	Scaling
6	School Visits Grant	Grant to local nonprofit for 500 people to make school visits	1,000	1	2.5	1	Advocacy
7	New System Development Grant	Matching grant to support an innovative regional approach to developing a new system	10,000	3	3	2	R&D
8	Student-centered Learning Grant	Grant to a network developing a new approach to student-centered learning	10,000	1.5	3	5	R&D
9	Innovation Schools Grant	Grant to support new fund and yielding 10 innovative schools	10,000	3	3	4	Scaling
10	Micro-Schools Prize and Grant	Micro-school design prize; grant to nonprofit micro-schools provider	10,250	4	3	2	R&D
11	Competency-based Teacher Prep	Develop and scale a competency-based teacher development system	10,000	3	4	3	R&D
12	Teacher Credentialing Prize	Prize for competency-based teacher credentialing system	1,000	1	3	2	R&D
13	State Competency-based Credentialing	Matching state award for competency-based credentialing system	10,000	4	4	4	Scaling
14	New Schools & Leadership	Grant to nonprofit for regional new school fund and leadership development	10,000	2.5	3	3	Scaling
15	New Assessment System Grant	Grant to technical assistance group to help state development new assessment system	5,000	4	4	4	R&D
16	Next-Gen State Assessment Report	Grant to convener to develop report on Next-gen state assessment	1,000	4	3	2	R&D
17	K-12 Badging System	Grant to nonprofit to develop badging system	4,000	3.5	4	4	R&D
18	Task Development	Grant to nonprofit for task/module design	4,000	2	2	2	Scaling
19	Tracking Sub-skills	Grant to for tech working group on tracking sub-skills	2,000	2	3.5	3	R&D
20	EdTech Incubator Network	Grant to national incubator network	10,000	3	4	3	R&D
21	Learner Profile	Grant to support development	2,000	3.5	4	4	R&D
22	Social-Emotional Learning	Support implementation of SEL in network of urban districts supported by an assistance provider	10,000	4	2.5	2	R&D
23	Early Learning	Grants to build smart demand, expand access and extend supply of quality providers	10,000	3.5	3	2.5	Scaling
24	Coding Grant	Grant to support regional coding initiative	1,000	2	2	2	R&D
25	Maker Space Fund	Create a maker fund to make matching grants to support maker spaces in 10 cities	10,000	2.5	3	2	Scaling

FUNDING MECHANISMS

As Boosting Impact notes, each form of capital has an important role to play in improving education. The shift to digital, mobile, personalized learning is creating a worldwide market, but learning remains a function of experiences and relationships. Local context influences expectations, safety and supports, as well as employment and higher-ed opportunities. As a result, government, philanthropy and private enterprise all have important roles to play in creating quality learning opportunities for all. Governments can signal social goals, extend access to services and frame market opportunities. Foundations can promote equity and a long-term perspective. Private capital best excels at producing and scaling innovation. Public-private partnerships, where each form of capital is used appropriately, can support step-function improvement in social benefit.

Most ideas in this report were presented as grants to nonprofit organizations for a specific purpose. An alternative involves making a grant to or investment in a for-profit enterprise that may have improved sustainability. As Steve Gross of Calvert Education also points out, "Pilot projects are becoming an increasingly important vehicle to test concepts and business models on a small scale—something that educators are increasingly insisting upon." Answering four questions will help an investor select a category and investment vehicle.

Nonprofits have the advantage of targeting and meeting specific needs, often for vulnerable or underserved populations. Return-seeking ventures may serve the same populations, though perhaps not initially. They may also benefit from co-investors and a sustainable business model, potentially yielding more leverage (e.g., some of the grant examples note a private enterprise alternative with co-investors reducing invested capital but increasing risk).

? Desired outcome

Impact investors should pick a category of important outcomes that interest them, where opportunity for improvement and innovation exists and/or an underinvested area.

? Push or pull

In underdeveloped or inefficient markets (like education), customers have few choices, often controlled by bureaucratic mechanisms rather than market mechanisms, and there is little investment in research and development. Underdeveloped markets suffering from a lack of investment and innovation can be addressed through direct investment (return-seeking or philanthropic) by advocating for better policies, or through pull mechanisms including demand aggregation and inducement prizes. If impact investors feel certain about the solution, they should make a direct investment in an organization most likely to deliver that outcome.

? Risk profile

Investors seeking big impact and willing to risk loss of capital can invest in early-stage research and development. Advocating for public investment may also be highly speculative but yield tremendous leverage. Investors with less risk tolerance that want more assurance of impact should focus on scaling proven models.

? Grant or return-seeking

Grants come with an expectation that the grantee will deliver proposed impact. However, grantees seldom shift directions, even if it is apparent that the project won't deliver the intended impact. Because return-seeking investments in private enterprises (e.g., venture capital) are driven by the goal of maximizing return, the company may evolve away from the intended impact. For example, Acceptly, a Facebook application focused on college acceptance, failed to gain traction and pivoted to Instacanvas, a mobile photography marketplace.

CONCLUSION

There are many opportunities to make a large impact in American education. This report has outlined opportunities in which organizations could make significant shifts in the educational landscape to improve student outcomes. Two decades of education reform and the dramatic technological developments of the early part of the 21st century have spurred the redesign and transformation of schools. Student-centered learning in particular represents a huge opportunity to personalize the way each and every student in America learns. Fueled by technology, funding opportunities exist to significantly improve student outcomes. Change is not only possible, but it's already happening in classrooms and schools across the country.

As this report identifies, there are further opportunities to make a larger contribution to the country's schools. We hope this report spurs further conversation, discussion, and discourse around what is possible for education. We also hope that more funders will feel motivated to support additional research to determine best ways to invest dollars in the education system. Through this report, we hope to have shed light on available options to interested funders and organizations looking to make a deep impact that will improve student outcomes.

The interviews and workshop surfaced student-centered learning as a meta-trend brought about by improving student's access to technology and two decades of new school development. In each of 10 investment categories, "Big Ideas" were identified. Of particular note: five investment opportunities able to make a large and unique impact.

- **Competency-based teacher prep:** After a decade of advocacy highlighting the need for better preparation, a sound alternative seems to have emerged. It combines a map of competencies, a variety of blended learning opportunities and a requirement of demonstrating mastery.
- **Micro-schools:** This lightweight platform-based approach could be rapidly and inexpensively deployed as new schools or school-within-a-school models.
- **Learner profiles:** Comprehensive, portable, parent-managed profiles will solve the privacy problem and will power student-centered, extended and mobile learning.
- **K-12 badge system:** A framework is required to organize units of study with multiple assessments that certify learning. A well-designed system could become widely adopted, breaking the barrier of seat time and unlocking the potential of competency-based learning.
- **Maker spaces:** Initially developed outside of school, maker spaces would showcase active and student-directed learning. Maker spaces would complement all of the above impact strategies.

We hope the report conclusions represent a call to action for your organization. The ideas expressed and the accompanying actionable illustrative grants represent dozens of interviews and hours of conversation around funding opportunities in the education sector.

These suggestions represent a timely opportunity; the groundwork has been laid for relatively rapid large-scale change. The opportunities all represent student-centered approaches where learning involves at least partial decoupling from the school building in a way that creates interesting opportunities for philanthropists and funders. The time to take action is now.

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APPENDIX 1: 30 TRENDS IN U.S. EDUCATION

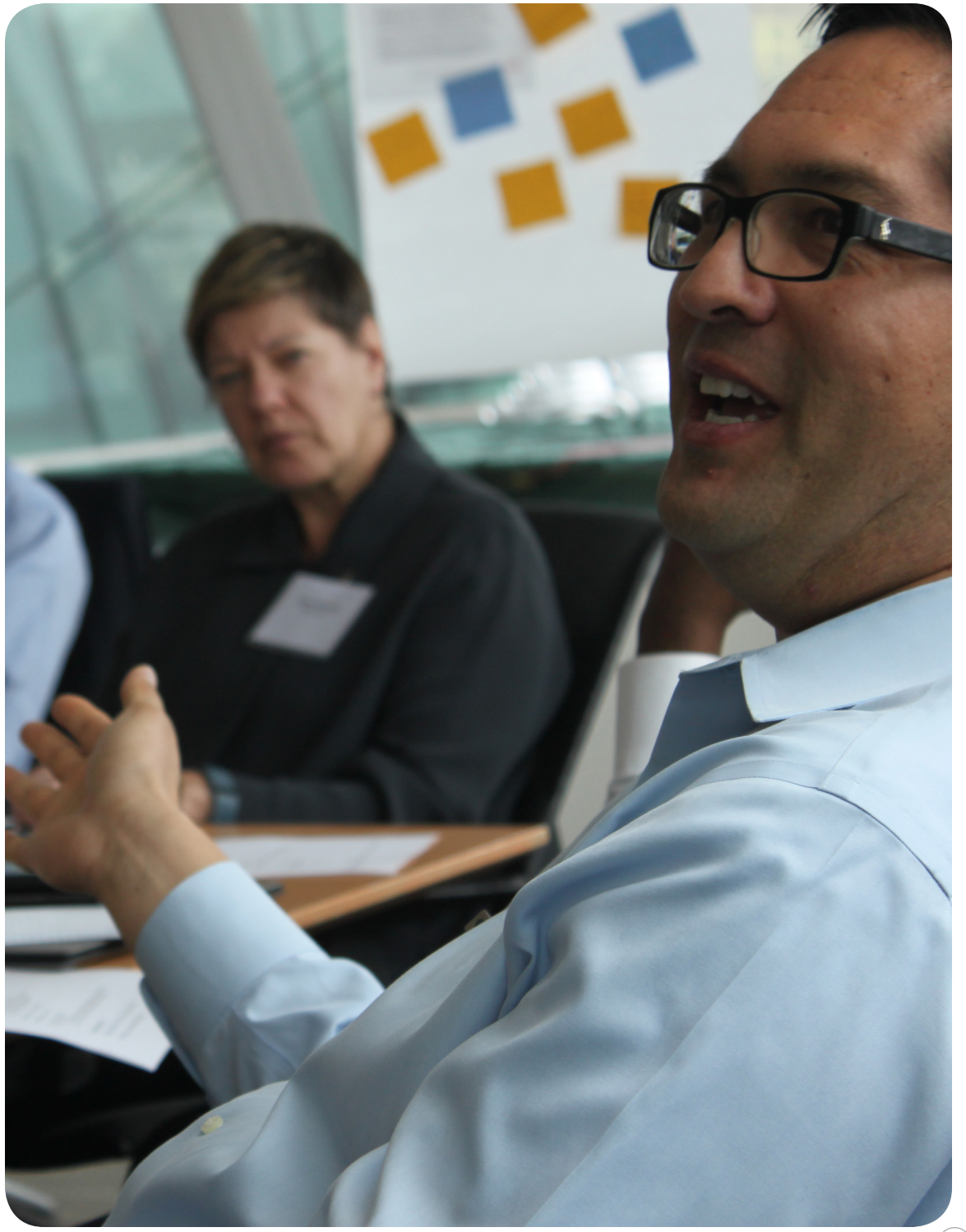
Changes in technology, demographics and politics create momentum that can be leveraged during windows of opportunity. Below are 30 trends impacting U.S. education that were highlighted during research for this report. (Thirty associated impact opportunities were also identified.)

30 Trends Creating Opportunities & Challenges for U.S. Schools

Demands	More poverty, English learners and special needs; broader and more demanding expectations
Students	Diverse, distracted, undisciplined; tolerant, enterprising & hyphenated
Employment	Increasing ROI on competence and initiative; expanding certification and alternative signaling
Politics	Anti-federal; Common Core unraveling, back to unique state standards
Formative	Toward continuous feedback in most subjects, background data collection
Authentic	Focus on engagement, more performance assessment, Deeper Learning
Curriculum	More free/open content and tools; more smart/adaptive content
Data	More recommendation engines driving playlists; dynamic scheduling
Summative	Half of state tests will be unique, no comparability; end-of-week long tests in sight
Access	Toward high access; schools purchasing devices (particularly web appliances); students bringing mobile devices to school (BYOD)
Strategies	Schools adopting personalized and blended learning strategies
Gamification	More learning games and game-based strategies built into apps/systems
Competency	Slow trend toward show what you know, progress on mastery
Systems	Shift to ubiquitous cloud computing (basic SIS & HRIS systems are still inadequate)

Engagement	More project-based learning, focus on growth mindset
Investment	Growing VC and philanthropic spend on tools & Next-gen models
Tools	App explosion, many freemium, weak interoperability
Assistive	More assistive tech meeting special needs
Schools	Long trend toward platform-centric networks
Platforms	Slow shift from LMS to interoperable app ecosystems
Connections	More career and technical education and work-based options
Guidance	Personalized counseling and guidance, virtual mentoring, informed decision support
Budget	Tight in most states; squeezed by health and justice; toward weighted, flexible, portable funding
Options	More schools of choice, access to full- and part-time online learning
Conditions	More teams & better support for teachers; more model variety
Careers	More options for educators; growth in remote teaching/ services
Prep & PD	Toward blended, personalized, competency-based preparation and development
HigherEd	Declining ROI on 2nd tier degrees; more flexible, affordable competency-based options; more dual enrollment opportunities
Postsecondary	More job-linked, non-degree programs: code school, business skills
Productivity	Developed world needs to do more with less; low-cost models in developing world

APPENDIX 2: 16 GLOBAL LEARNING TRENDS



The hosts of the Global Education Futures Forum, Reengineering Futures is a Russian think tank that developed a 20-year roadmap of 16 trends shaping global learning.

- **Promotion of global values:** globalization and multicultural societies require possession of a set of competencies based on universal values
- **Asian leadership:** as a result of unprecedented urbanization and targeted investments into human capital, Asian countries become world's biggest education and science markets
- **Growth of business participation in education and science:** educational institutions respond to the demands of economy and society; programs take employer demands into account; development of applied research
- **Hypercompetition:** in a hypercompetitive world, companies try to attract and retain talented employees that become their most valuable assets.
- **Growth of labor and academic mobility:** growth of student and workforce mobility; campuses and workplaces become mobile.
- **Spread of DIY culture:** DIY culture spreads, driven by the development of 3D printing and smart technologies
- **Internetization:** Internet has deep influence on all aspects of human life; in their everyday life, people rely extensively on online solutions
- **Automation of intellectual routines:** complex intellectual processes are handed over to machines
- **Technological mobility growth:** miniaturization of gadgets becomes even more versatile, and energy efficiency allows owners to learn anywhere anytime
- **Aging population:** the most dynamic development in the sphere of education occurs in its post-university segment. Growth of the middle class and advances in healthcare lead to the formation of a class of physically- and mentally-active post-60-year-olds
- **Individualization of education:** automation and ICT change the model of education. Programs, courses and teaching tools are individually tailored
- **Number of online communities of practice grows:** online communities uniting practicing professionals flourish; educational function is embodied into the communities of practice
- **Wikinomy:** spread of mass collaboration practices
- **Economy of merits:** development of non-monetary exchange (including volunteerism)
- **Trans- and polydisciplinarity development:** interdisciplinarity and convergence become a norm
- **ICT prompts appearance of new cognition model:** complete review of knowledge management models, including science, education and archive management

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As a mission-driven organization Getting Smart® is passionate about accelerating and amplifying innovations in teaching and learning. Getting Smart, an education advocacy firm, provides strategy, marketing, communications, content creation and professional learning services that turn ideas into impact. GettingSmart.com is a community of learners and contributors that cover important events, trends, products and publications across K-12, early, post-secondary education and lifelong learning opportunities.

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Vulcan Inc. creates and advances a variety of world-class endeavors and high-impact initiatives that change and improve the way people live, learn, do business and experience the world. Founded in 1986 by investor and philanthropist Paul G. Allen, Vulcan oversees various business and charitable projects including real estate holdings, investments in dozens of companies, including the Seattle Seahawks NFL, Seattle Sounders FC Major League Soccer, and Portland Trail Blazers NBA franchises, First & Goal Inc., the Seattle Cinerama theatre, Experience Music Project, the Science Fiction Museum & Hall of Fame, the Allen Institute for Brain Science, the Allen Institute for Cell Science and The Paul G. Allen Family Foundation. For more information, visit www.vulcan.com.