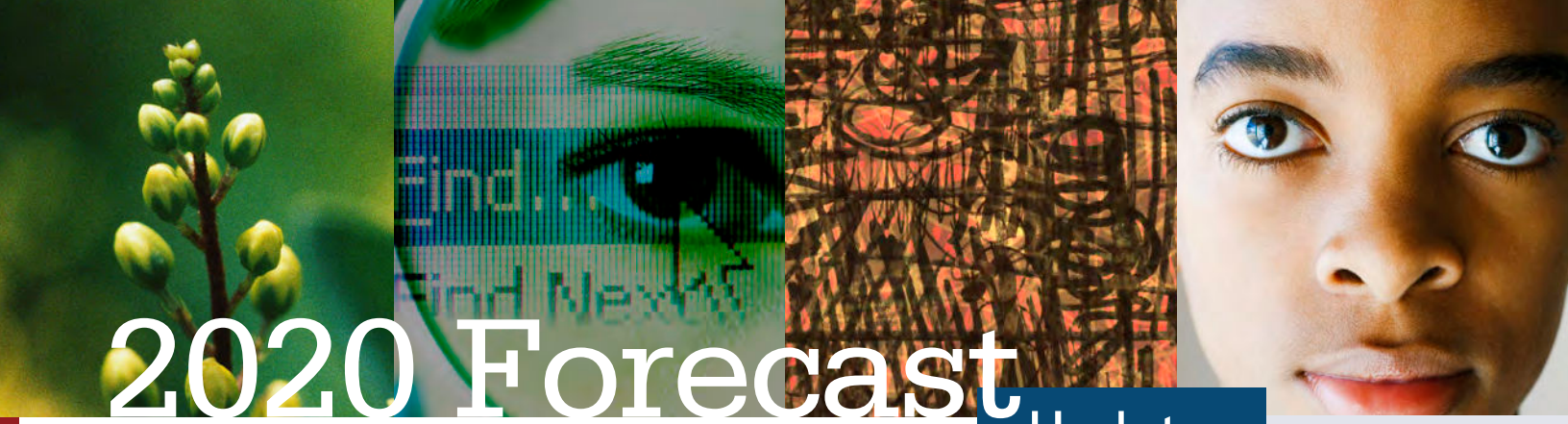

2020 Forecast Update

Creating a World of Learning

Major forces of change are challenging us to realize a world of learning that puts learners at the center, leverages technologies and human capital in new ways, and incorporates new structures. This world of learning will make it possible for all learners to develop deep knowledge and abilities in order to thrive throughout their lifetimes. To make this vision a reality, new ways of thinking and acting will be required. Some are detailed below.

Learners will:

- Collaborate with educators and with experts in their communities and around the world to customize rigorous learning experiences based on competency and interest instead of time and age
- Make an impact on their immediate and broader communities as they engage in service-based, project-based, and other types of immersive and authentic learning experiences
- Contribute, co-create, take risks, feel ownership, and even make use of failure as they engage in a continuous learning process
- Use data to track their progress and to understand their cognitive, social, and emotional strengths and challenges.

Learning agents – the educators of tomorrow – will:

- Work together to facilitate the use of next generation digital media such as immersive games, simulations, and technologies of cooperation to create rich learning experiences that are tailored to the learning profiles and needs of each learner
- Amplify their ability to serve "the whole student" by creating connections with their immediate communities and with experts and resources around the world
- Integrate multiple types of data streams to make continuous authentic assessment processes transparent to learners, parents, and other key stakeholders.

The learning system will:

- Provide all students with high-quality learning experiences from a diverse range of institutions and organizations
- Make use of flexible and adaptive learning platforms that support the fluid distribution of such learning experiences across geographic boundaries
- Make nimble adjustments in response to frequent feedback coming from multiple data streams and enable learners to do the same
- Ensure the development and use of high-quality performance-based assessments for all students
- Create new partnerships and models for thinking innovatively about funding and about resources such as materials, physical space, and expertise.

This world of learning will be customized, connected, amplified, authentic, relevant, and resilient, and it is beginning to unfold now.

2020 Forecast: Creating the Future of Learning

Released in 2009, *KnowledgeWorks' 2020 Forecast: Creating the Future of Learning* identifies six major drivers of change that are giving individuals and organizations more options for creating a world of learning that will look very different from today's system of schooling. Here is our latest understanding of how those drivers of change could affect education and how you can begin taking action now to create the future of learning.

Pattern Recognition
The Maker Economy
A New Civic Discourse
Platforms for Resilience
Amplified Organization
Altered Bodies

KnowledgeWorks

Altered Bodies

Experimenting at the intersection of environment and performance

Update

A proliferation of neuro-enhancement tools and networks will push the frontiers of cognitive rights, performance assessment, and ethical intervention. Brain-based interventions will move beyond neuro-enhancements for remediating and boosting performance to include analytical tools such as neuro-fingerprinting. Neuro-fingerprinting uses brainwave analysis to map brain patterns and profile individuals by cognitive task. Such tools will enable educators to discern distinct cognitive pathways for individual learners. However, it will remain unclear whether such learner profiling offers a real expansion of individualized learning or ultimately narrows curricula. In addition, individuals will create viral emotional networks that cluster learners online by emotional connections. Such social networks of super-enhanced learners will encourage positive social behavior while offering opportunities for emotional therapy. They will also create powerful collaboration spaces that link learners across learning experiences. Lastly, enhancement approaches that do not rely on technology will attract a new wave of support. For example, self-directed neuro-plasticity practices will teach learners how to quiet the mind, detect cognitive distractions, access insights, and regulate emotions that drain mental energy.

SIGNALS OF CHANGE

The Center for Cognitive Liberty and Ethics – Protects and advances freedom of thought. **cognitiveliberty.org**

The Greater Good Science Center – Studies well-being and fosters a resilient and compassionate society. **greatergood.berkeley.edu/about**

Your Brain at Work by David Rock – Explores strategies for personal cognitive management. **your-brain-at-work.com**

The Dynamic Spread of Happiness in a Large Social Network by James Fowler and Nicholas Christakis – Evaluates how happiness spreads and forms niches within social networks. **bmj.com/content/337/bmj.a2338.full**

Amplified Organization

Extended human capacity remakes the organization

Update

Amplified collaboration and augmented geographies will create new models for designing, organizing, and delivering learning experiences. Open, collaborative design platforms and social good challenges will attract broad participation in remaking learning and will draw inspiration from diverse industries, countries, and fields. Self-directed and peer-based learning will take off, fueling a distributed learning system characterized by anywhere, anytime learning that makes use of many resources and platforms. Among these, embedded media and mobile devices will augment physical geography with a rich "learning layer" that prompts healthy learning habits. Neighborhoods will become amplified and will support inclusive learning through cues, alerts, and prompts that engage people of all ages in activities such as reading, problem solving, pattern recognition, game play, and exercise.

SIGNALS OF CHANGE

OpenIDEO – Provides a collaborative platform for crowdsourcing inspiration ¬and design around social good challenges. **openideo.com**

Peer-to Peer University – Enables learners to self-organize into online study groups that support their use of open courseware. **p2pu.org**

Handheld Augmented Reality Project (HARP) – Uses mobile devices to transform ordinary places into game-like learning spaces. **isites.harvard.edu/icb/icb.do?keyword=harp&pageid=icb.page69587**

Layar – Provides a platform for developing and sharing augmented reality experiences. **layar.com**

Platforms for Resilience

Creating flexibility and innovation amid system failures

Update

Schools will become a part of an adaptive infrastructure that helps communities cultivate resilience through extensive service and social action platforms, modular learning systems, and new ways of funding teaching and learning. Service learning will evolve from disconnected volunteer work to high-impact, coordinated, and targeted community development work that includes energy audits, water monitoring, health advocacy, and urban farming. Location-based social media will transform such service learning experiences into game-like quests and collaborative missions. Those experiences will result in coordinated action networks that become vibrant sources of community transformation. At the same time, an expansion of mobile learning platforms will support diverse forms of provisional learning systems, pop-up schools, and ad hoc classrooms. Such approaches will especially benefit those communities that are learning deserts lacking even minimal education infrastructures. New business and funding models will also expand access to teaching and learning opportunities. Such models include crowd-sourced fundraising, micro payments for education, mini school franchises, and learning kits. Similarly, mobile payment mechanisms will allow individuals to gift "learning minutes" that are redeemable in online learning communities and game environments.

SIGNALS OF CHANGE

GradeFund – Connects students with sponsors to raise money for school. **gradefund.com**

The Pocket School – Experiments with mobile applications for learning. **pocketschool.stanford.edu**

Pop Up Schools – Schools and classrooms pop up and disappear but leave digital trails. **creativepioneers.weebly.com**

Enzi – Invites people to invest in the education of bright students in exchange for a share in their future income for a fixed period of time. **enzi.org**

A New Civic Discourse

Rearticulating identity and community in a global society

Update

As the needs of constituents outstrip the capacities of civic leadership, experiments in bottom-up, collaborative governance will help close the gap. Educitizens – who affiliate around educational needs and claim their rights as learners – will take the lead in filling gaps that cannot be met by school boards and other elected leaders. Using next generation social web applications, they will coordinate action to improve education in their communities and beyond. Civic debate and problem solving will take place in new forums, such as open multiplayer game sessions; public service software coding, or hackathons; and interactive town halls. Educitizens will take the lead in expanding the scope of education issues to include equitable access to energy, healthy food, clean water, sustainable communities, and cognitive enhancements. Ultimately, they will shift the public discussion away from narrow achievement metrics and toward learner wellbeing and happiness.

SIGNALS OF CHANGE

StreetsEducation – Inspires students to make the changes they want to see on their streets and in their neighborhoods. **streetseducation.org**

Evoke – This World Bank-sponsored massively multiplayer game empowers social action and collaborative problem solving around global challenges. **urgentevoke.com**

Code for America – Recruits the brightest minds of the web to take on core problems facing communities. **codeforamerica.org/issues/education**

Groundcrew – Turns social networks into community action networks, assembling teams based on skills, location, and interest. **groundcrew.us**

The Maker Economy

Personal fabrication technologies and open-source principles democratize production and design

Update

A "make to learn" philosophy focused on real-world solutions will transform curriculum and assessment and will elevate the role of informal learning. As creative design studios, fabrication centers, and community-based manufacturing hubs become centers of learning, education will become more oriented around passion-based problem-solving with real world applications. Schools will act as test sites and co-developers of new environmental and conservation technologies, gaining access to labs, technical resources, and mentorships from entrepreneurial firms. At the same time, open neighborhood tinkering centers will provide intergenerational learning opportunities with broad social benefits. Along with such place-based experiences, learners and educators will participate in global know-how networks in which they earn reputations based on their work and ideas. Growth in youth-led innovation and informal learning will be accompanied by new ways of assessing learning. As part of that, creative partnerships between learning providers and third parties will document and communicate valuable skills learned in non-traditional settings. New kinds of learning providers will focus on helping learners acquire resources, develop personalized learning paths, and gain credentials rather than on delivering instruction.

SIGNALS OF CHANGE

Open Accreditation – Peer-to-Peer University and the Mozilla Foundation credential informal learning. **sharing-nicely.net/2010/03/open-accreditation-next-steps**

Prototype – 11th and 12th graders gathered to redesign the future of learning. **prototypedesigncamp.com**

Cleveland's MC² STEM High School – Opens a mobile fab lab. **sites.google.com/site/mcstemhs/fablab**

FabLab Network – Congressional Bill HR 6003 links fab labs across the U.S. into a collaborative network. **thomas.loc.gov/cgi-bin/bdquery/z?d111:h6003**

Pattern Recognition

An extremely visible world demands new sensemaking

Update

Advances in the integration and visualization of data streams will enable new ways of measuring the value of learning experiences and keeping track of local resources. Lifestream technologies, which aggregate and display an individual's social media streams, will enable learners to create personal multi-media learning logs. By combining these learning logs with game-based interfaces and visualization tools, learners will be able to create "learning footprints" that show how they learn in different geographic locations and blended settings. Learners will be able to forecast their learning footprints to imagine possible future paths and to test out educational decisions, career choices, and personal health strategies. In addition, urban dashboards will track and manage diverse data streams from multiple city agencies and institutions, offering visualizations of a region's "educational ecosystem." Such visual dashboard data will help school districts, charter school networks, and multi-agency alliances collabortively model strategies for addressing challenges such as dropout rates, community engagement, and resource allocation.

SIGNALS OF CHANGE

School of One – Uses data to tailor unique daily schedules for students. **schoolofone.org**

Quest to Learn – A school that uses the underlying principles of games to create academically challenging, immersive learning experiences. **q2l.org**

Personal Metrics – Collects feedback about the effects of our actions and how we can change behavior. **personalmetrics.us**

Lifestream Tools – Provides an index of online lifestream tools and applications. **go2web20.net/#tag:lifestream**

Taking Action Now

How will you create the world of learning in your in your school, community, or state?

Here are some steps you can begin taking now.

1 ***Expand Leadership:*** **As learning becomes more embedded across communities and increasingly linked to real world challenges, an unexpected set of pioneers and leaders will emerge from outside education to help create the future of learning.**

- What are some external organizations and groups in your community with whom you might partner to explore new ways of approaching learning?
- How might you work across traditional geographic barriers to encourage flexible, engaging learning environments?
- Where could you adjust policies or build relationships with unexpected leaders to break down existing barriers to innovation and push learning to a new frontier?

2 ***Grow Deep Connections in Place.*** **Despite the growth of online learning and virtual academies, the sustainability of learning systems will be enhanced by deep place-based relationships.**

- How might your community deepen partnerships and align services to create a more efficient cradle-to-career education system?
- How could you and others re-think funding mechanisms and ways of measuring returns on investment to help achieve shared community outcomes and ensure excellence for all learners?
- What kinds of data streams and accountability measures will you need to help manage your contributions to your community's learning system – and where could you collaborate with other learning providers to align them?

3 ***Explore Diverse Learning Agent Roles.*** **An expanded set of learning agent roles and activities will support rich, relevant, and authentic learning in multiple settings, providing exciting career paths for existing educators and attracting new talent while also sparking creative thinking about learning.**

- What new learning agent roles can you imagine, and what distinct niches could they fill in your community's learning ecosystem?
- How might you begin to explore novel funding mechanisms or business models to help fund and support those new roles?
- How could you help today's teachers work more collaboratively and begin preparing for new roles while helping today's administrators embrace more distributive leadership practices?

4 ***Reposition Learning with Your Public.*** **As schools embrace project-based service learning, open challenges, and new community partnerships, teaching and learning will become more visible to the public. Learners and learning agents will come to be seen as valuable problem solvers, innovators, and catalysts of community change.**

- How might you contribute to making teaching and learning more transparent and public in your school, community, or state?
- How could you use technology to help students, teachers, and their larger communities connect with a broad ecosystem of learning resources so as to deepen knowledge and solve problems?
- How can you work with your organization's stakeholders to reevaluate governance structures and delivery systems, to eliminate duplication, and to identify potential cost savings while moving toward a shared vision?

5 ***Develop Skills in Education Transition.*** **The education system is in profound transition from a mass production, teacher-delivery model to one characterized by individualized learning. Cycles of prototyping and experimentation will be necessary for the system to evolve fully into its new form.**

- How could you invest in and encourage whole school reform that integrates technology to drive student-centered, deeper learning?
- How could you help your organization become more effective at managing change?
- In what ways could you involve today's students in redesigning learning for the future?

6 ***Support New Forms of Assessment and Alternative Credentialing.*** **As more third parties experiment with ways of assessing and credentialing multiple modes of learning, there will be a richer set of options for learning providers to use and it will become easier to communicate their value to the public.**

- How could you invest in and make use of performance-based assessments that measure the range of knowledge and skills necessary to succeed in college and in 21st-century careers?
- Where could you begin to experiment with assessments of informal learning?
- Where do you see potential for alternative forms of credentialing, and how might they impact the role of higher education in your region?

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