Innovating to Transform Teaching for 21st-Century Learning

Convening 2: Modernizing Teaching Tools and Processes
By Katherine Prince, KnowledgeWorks Foundation

Teenagers are the producers. Children are the leaders for the world, not tomorrow but now and yesterday. Whether it’s a gaming or mentoring project, audio, video, they’re the ones who get a say in what comes out and they’re the ones who have a say in what happens to the world with these projects. – Tabitha Tsai, Global Kids, Inc.

Introduction

This paper explores participants’ perspectives from a convening hosted by KnowledgeWorks Foundation, a Cincinnati, Ohio, based operating foundation whose mission is to solve national education problems innovatively and with others, on the topic of “Modernizing Teaching Tools and Processes.” In hosting this convening, KnowledgeWorks Foundation hoped to:

- Examine how a variety of technologies are being used to meet the needs of today’s learners
- Examine how technology can transform teaching and learning
- Identify the types of learning experiences our students need today and into the future
- Identify programs, projects, and policies that can support learning experiences of the future.

Fifteen education professionals came together at WestEd in San Francisco, California, to explore how teaching is incorporating emergent instructional technologies to meet the needs of all learners. The people around the table were:

- Richard Beach, Classroom of the Future: TIME Initiative
- Rosalind Chivis, School of the Future, Philadelphia
- Kevin Clark, George Mason University
- Robert Clegg, Tabula Digita
- Karl Fisch, Arapahoe High School
- Lucy Gray, University of Chicago Center for Urban School Improvement
- Cammy Huang, Stanford University
- Coy Ison, Workedge
- Gerri Maglia, Texas Education Service Center Region XI
Facilitated by Jim Kohlmoos of Knowledge Alliance, this exploratory conversation was the second in a series of four addressing innovations in teaching. A paper from the first convening on the topic of creating transformative professional learning communities is available at [http://www.kwfdn.org/map](http://www.kwfdn.org/map). Future conversations will cover re-imagining teaching careers and preparing highly effective teachers.

The conversation made use of the *Map of Future Forces Affecting Education* to prompt participants’ thinking about how education might change over the next ten years. (For more information on this map, which KnowledgeWorks Foundation commissioned from the Institute for the Future, see [http://www.kwfdn.org/map](http://www.kwfdn.org/map).) Introduced by Monica Martinez of KnowledgeWorks Foundation, the *Map of Future Forces* describes several key drivers that can be expected to change the landscape in which teaching occurs:

- The emergence of **grassroots economics**, leading to a more participatory culture
- The enabling of multiple spheres of connection through **smart networking**
- Individuals’ increasing affiliation with subcultures that support their **strong opinions, strongly held**
- An increasingly **sick herd**, with students needing support to manage chronic illness
- Communities marked by **urban wilderness**, wherein some infrastructures increasingly break down while others thrive
- The **end of cyberspace** in favor of more pervasive technologies.

Participants explored how technology can improve teaching and learning, examined barriers to effective implementation, imagined what teaching and learning might look like in 2020, and discussed what it would take not only to manage change toward a new vision for education, but to move beyond the tendency to focus on individual efforts and instead to effect systemic change.
Improving Teaching and Learning through Technology

*We have to delve into what is it for the teacher that’s going to make this meaningful, and what is it for the student that is going to make this useful? – Bernice Stafford, Lightspan*

*The whole notion of teaching and learning becomes confused when you introduce this change agent called technology. It’s certainly going to change teaching and learning. But how do we know whether we’re making something better or worse, and if it’s worse, what are the consequences and how do you avoid those? – Rick Beach, Classroom of the Future*

Participants’ work incorporated social networking, games, mobile devices, immersive environments, and research. While some participants focused on students’ creating content themselves and others focused on creating content for delivery to students, most were aiming for “high touch and student motivation” (Bernice Stafford), with an emphasis on “kids constructing their knowledge” (Karl Fisch). They also emphasized collaboration.

Participants saw their technologies, and technology in general, as supporting teaching and learning by:

- Engaging students and helping them explore their interests
- Shifting to a student-centric form of learning that includes experiential learning and any time and anywhere access
- Allowing for individual pacing through activities such as basic drills while supporting new habits of mind and making space for students to learn through failure
- Providing students and teachers access to experts and resources
- Encouraging the creation and exchange of content
- Broadening the audience for student work
- Encouraging collaboration among teachers and students
- De-personalizing the situation away from the student’s relationship with the teacher
- Supporting teacher professional development
- Helping teachers serve as facilitators while helping students take ownership of their learning
- Encouraging feedback-based reflection among students, teachers, departments, and schools.

Although there was some feeling that technology must be part of education because it is part of kids’ lives, participants saw it as being secondary to learning. “Technology amplifies the good and bad. In and of itself, it never does anything” (Chris Shearer). Instead, good teaching and learning should be the starting point. “We need to start with how is [any given technology] relevant and how is it taking really good teaching to the next level” (Kevin Clark).
By involving students, technology can provide the kind of experiential learning that leads to lifetime understanding (Ros Chivis). Because some students “are really expert at manipulating it, but not so good at guiding their own learning” (Rick Beach), teachers can help focus their efforts. They can also use technology to help make space for risk-taking, as “students nowadays are so afraid to step out of the box” (Kit Rich).

Whatever the goal, technology has to take second place. It “has to work for us and not the other way around. Technology is only useful when it’s paired up with a purpose like learning about science, social issues, geology, or math” (Tabitha Tsai). That purpose must be authentic, as “the kids know if it’s helping or not” (Kit Rich).

In the end, students might not “necessarily learn better with technology, but we might be able to learn faster or in a different way that we didn’t have before” (Chris Shearer). Indeed, proving that technology improves teaching and learning can be frustrating. “Can you show that it improves test scores from Texas? But we have kids who are now turned on to astronomy” (Gerri Maglia). That enthusiasm can be hard to quantify. “We get positive evaluations, but how do you then transform that into an assessment piece?” (Lucy Gray).

We may not yet know how to measure the full benefits of supporting teaching and learning with technology:

If you try to assess this stuff using 20th-century metrics, then it’s not going to show much improvement. How do you measure creativity? How do you measure being able to take in this vast amount? Folks learn when they have to construct their own understanding. Technology facilitates and supports and changes the role of the teacher and learner in the classroom. They are learning and they are teaching each other. They’re teaching the world (Karl Fisch).

For Tabitha Tsai, success lies in shifting students’ sense of possibility about their futures. “I work with urban youth all the time. I have kids from rich families who don’t really care about anything. No matter the upbringing, it’s his or her desire to learn to do better.” Learning must remain central, as research into technology’s efficacy is at best split and could be said to show that “there is no sustained benefit when you divorce it from teaching or from an individual’s own processes of learning” (Chris Shearer).

**Negotiating Implementation Barriers**

*When we look back on history, people will talk about the angst that the technology caused and the angst over changing the world because we wanted to move so quickly.* – Chris Walsh, WestEd
Participants saw major constraints to technology implementations in education as being time, culture, funding, training, and the state of the technology itself. Despite all the innovations in the room, “there is a whole sea of students who are not benefiting” (Ros Chivis). In many cases, if the proponent of the innovation left tomorrow, “it wouldn’t be self-sustainable” (Cammy Huang). The challenge, then, is “to figure out from a systemic point of view how we can make change. The map may be a way of creating some systemic ground to guide the work that needs to be done” (Kevin Clark).

Overarching these barriers are the ways in which social class and geography limit access to social capital. As Chris Walsh noted, “The real creative class is being built today in wealthy communities where parents can provide all the real education that happens after school and on weekends and in the summer.”

At the same time that the learning economy is expanding, many schools are still “living in an age of censorship” (Lucy Gray), blocking blogs and other technologies that could support teachers and students in collaborating. It will take conversations to get past a tendency to ban such technologies and instead educate students in digital citizenship. Work is also needed to change “the mindset of parents so that they feel safe sending their students to this new school” (Kit Rich).

More basic than debating how best to use technology is the question of getting equipment into schools. Some participants advocated for providing laptops for every student, while others thought that laptops will soon be outdated. Whatever the device, “nuts and bolts deployments are not the hard part. The hard part is the pedagogy” (Lucy Gray).

Although starting with the learning need can help guide appropriate implementation of technology and subsequently ensure its use, the level of decision making varies. Participants identified a tension between having a common, shared vision and giving teachers the freedom to explore. While any shared vision needs teacher buy-in, it can be difficult for individual teachers to sift through the many options proffered by our increasingly grassroots economics. “There is a disconnect between what’s out there and what teachers know and have the time to find out” (Tabitha Tsai).

Fear of failure can play a part in making it difficult to experiment. “It doesn’t work and then what? That’s a big risk for a lot of teachers, who feel it’s somebody else’s job to lead that” (Tabitha Tsai).

Consequently, leaving technology choices entirely up to teachers can restrict the learning experiences available to students. “You have influenced 120 kids that the teacher is responsible for with his or her preference. How do you go directly to the student?” (Rob Clegg). While new technologies and new market opportunities may make such direct delivery increasingly
possible, students can also advocate for their own learning. At Arapahoe High School, “The kids who are in with those teachers who are going for it are now demanding it from the other teachers” (Karl Fisch).

Working with mentors and observing colleagues can help smooth the road, as can asking students to serve as technology guides. Individuals advocating for technology adoption would be well placed to work with early adopters, to help teachers solve real problems, and to provide them ongoing support. Stepping slowly can also help: “Maybe just try one small thing and then get them comfortable before you do a little bit more” (Cammy Huang).

That process can take patience. For example, “I had to work really hard at convincing museums that they can have a positive effect on education without the kids being physically present in the museum. I met with one museum eight times in four or five years before they finally took that step, and then I made it small, try this, do a pilot program” (Gerri Maglia).

Despite such tactics, people with strong opinions, strongly held can squash projects and people within the system tend to focus on why things cannot work differently. But even such nay saying has potential: “When someone says ‘no,’ that gives me a clue as to what they would say ‘yes’ to. If I can turn that around and deliver something that they want, all of a sudden new possibilities happen” (Rick Beach).

**Imagining Teaching and Learning for 2020**

*The imagination economy has to happen in the United States, because we are no longer the knowledge economy. We are no longer able to compete against China, India, and other countries that are learning the dates and formulas. The imagination economy needs to create learners who are imaginative and creative and thinking.* – Robert Clegg, Tabula Digita

*We need to move beyond the world-is-flat mindset. It’s not about being globally competitive. It’s about making students intellectual, thoughtful learners. This world is not about us any more; it’s about us all acting together collectively. I’d like to see technology serve as a mechanism for bringing people together across nations and cultures.* – Lucy Gray, University of Chicago Center for Urban School Improvement

If we need to reroute the delivery of teaching and learning to support students in being ready for the future, what should the new direction be? In imagining what learning experiences students who are starting school today will need by the time they graduate in 2020, participants saw technology not as a driver of change but as a tool supporting greater flexibility and a more humanistic approach.
They assumed that, in 2020, technology will “be even more ubiquitous and prevalent” (Karl Fisch) than it is today. Although we cannot know its particulars, we can hope that “learning will be connected, continuous, relevant, and adaptive. Programs, pedagogy, technology, and infrastructure will speak to individual achievement for the betterment of the global community” (Chris Walsh).

We can also expect that students will have personal networks across which they will make connections and engage actively as learners, with support and scaffolding from school. Network participants could be “a teacher in the classroom, their parent, someone in the community, a blogger in Colorado, or a farmer in Nigeria” (Karl Fisch).

Connections could extend to industry as educators partnered with business people to develop content and could also include global student and teacher exchange. Mentors, including older students, could help students navigate this web of connections and the constant availability of learning experiences, many of which would be project based to encourage experimentation.

In what could be termed “passion-based learning” (Karl Fisch), students would have the opportunity to focus their learning earlier by, for example, focusing in high school on math, science, engineering, or arts. They would also be able to choose how they wanted to approach any given area of study. In addition to being able to earn dual credit, students could participate in practicums and internships to explore their interests further.

School experiences would provide points of connection as students pursued electronic learning plans reflecting such preferences, with ephemeral learning groups forming to support projects and with students having the flexibility to step in and out for reflection or play as they learned side-by-side. Even as they became more flexible, schools would serve as transparent centers of community to help support both student learning and other kinds of learning and exchange.

Physical infrastructure would be well designed to support a variety of activities, including play and access to green space, and to acknowledge the increasing mobility of learners. As part of that, schools’ technical infrastructure would be agile and smart, enabling connections among all devices and having capacity to link to other schools globally.

However, schools would not provide technological devices for students. Tools such as laptops would go the way of notebooks and calculators, with parents providing them, as is already beginning to happen in some private schools. Each student would choose the best device to meet his or her needs and then simply plug into the network when needed to support learning.

The flexibility in focus and access would lead to students having greater flexibility about when and where they learned. For example, high school
students could start later if they wanted to, but learning would also be “a continuous project because you are always connected” (Chris Walsh). Schools would become learning spaces where “learning is going on for all of us all the time” (Karl Fish), including for the adults.

They would focus less on producing employees or achieving grades and more on supporting students in being “good people, productive citizens, and happy” (Karl Fish). Standardized tests could still serve a useful diagnostic role, but assessment would focus on learning as demonstrated by a body of evidence that reflected individualized learning plans as well as specific support for individual strengths and weaknesses.

In providing such deep personalization, teachers and administrators would be empowered to act as problem-solving entrepreneurs, but teachers might not be present locally. Accepting that “this generation changes jobs every four or five years” (Chris Walsh), teacher training would be improved to the point where “anybody could come in and teach for three years and leave” (Chris Walsh). One avenue of improvement would be for pre-service teachers to work with master teachers throughout their formal education so as to help reduce turnover and provide better support to students from the start.

Not every adult contributing to a student’s learning would be a certified teacher, though. The explosion of learning agents would be supported by a micro payment system that would allow someone to consult or teach for a day, leading to “a teacher network with an amalgamation of full-time people, community experts, and consultants” (Chris Walsh). Further support would be provided by teams of other professionals, including nutritionists, doctors, and social workers, who could help students with medical needs, learning plans, and even individualized commuting plans.

Because we cannot know what technologies we will have in 2020, we need to focus on what skills students will need in a world of easy access to factual information. Key skills include imagination, creativity, thoughtfulness, and collaboration. “It goes back to good teaching and learning, with technology being a facilitator” (Karl Fisch).

Indeed, we might usefully hold open the possibility that the above kinds of activities could happen outside what we currently think of as public education. One scenario is that, by 2020, there will be no K-12 public education institutions as we know them today because they, along with higher education institutions, will have gone “bankrupt financially and philosophically” or because some kind of “positive Sputnik event” (Coy Ison) will have shifted our perspective.

If that did happen, “we would start with the needs of the neighborhood” (Robert Clegg) in putting something new in place. As parents came together to “be the propellers of what grew out of nothing” (Robert Clegg), we would be “blurring the lines between schools, communities, and families” (Kevin
Clark) while adapting and incorporating the best of what exists today. We would aim to get past a system “that already chooses winners and losers every day” (Tabitha Tsai) so that we could begin having the conversations about everything else.

**Managing the Change Process**

*People want what’s best for kids. If you involve them in the conversation, I don’t think they’re going to turn a blind eye. It may be hard. It may take time. That’s what we’re here for. If we can’t do it, then who else is going to? – Karl Fisch, Arapahoe High School*

*In an earlier time, there were those who were intellectually gifted and financially rewarded who did believe that I am my brother’s keeper. We don’t believe that any more. – Bernice Stafford*

As participants considered what it would take to move toward their ideal visions for teaching and learning in 2020, they indicated that most stakeholders in education would need time and support in understanding and embracing something new. They saw the process in terms of managing change but struggled to get past the individual heroism exemplified by so many educational reform efforts.

For starters, stakeholders would need room to make the vision their own. “When that teacher walks back into the classroom and closes the door, if he or she has not bought into it, all bets are off” (Ros Chivis). Because having time to build “a great team that’s all marching to the same tune” (Ros Chivis) can be critical in establishing shared vision, leadership development could be useful in giving people tools for bringing others along.

For Rick Beach, taking an innovative blueprint as a starting point can give others the opportunity to shape and own it. “Your task is to enroll those people whom you feel need to be part of it. That process may cause the vision or blueprint to be different. Then you have created an opportunity for another group to contribute as a stakeholder to something that was created by others.”

Re-scripting how we view teaching may also make it easier to offer students a range of personalized learning experiences. Teachers’ efforts and expertise can be supplemented by relying on the knowledge and skills of the whole community and by deploying decentralized educational strategies, such as virtual schooling. “Virtual schooling is not the answer, but those are interesting, scalable models that are addressing some of the individualized needs of kids, and we are seeing them flow into traditional settings” (Chris Walsh).

Technical infrastructure and support also need to be improved, both at school and in students’ homes so that schools can “have physical presence
throughout the community” (Karl Fisch). As the boundary between school and the rest of life blurs with the end of cyberspace and learning happens at more times and through more experiences and places, adaptable learning spaces and mobility will be critical. But, whether fixed or mobile, technology comes at a cost.

Incorporating technology into teaching and learning effectively and at scale depends upon a web of collaboration among nonprofits, government, schools, and parents. “All these players are factors in what we are doing. I can’t do what I’m doing without the buy-in of the parents and somebody else can’t do what they’re doing without the funding of the school” (Tabitha Tsai).

Recognizing how much is at stake, participants worried about the time it can take to bring such players together to change the school system. “Sometimes I think by the time it gets there, it’s going to be outdated” (Kit Rich). Part of the turnaround could involve heart change. “The majority of teachers will tell you that they’re coming for the job. When we change that mindset, we can start moving education forward” (Ros Chivis).

We may, however, have lost the societal bedrock of communal values that makes it “scalable or sustainable to create that passion in leaders” (Robert Clegg). Even if we have not, the urgency of the situation means that we need to find a way to get past models of success that “require heroes” (Chris Walsh) and individual persuasion to try something more profoundly new. Supporting social entrepreneurship could help speed up change, “because the market is the thing that can shape us the quickest in this country” (Chris Walsh).

Moving from Heroes to Systemic Change

*We can see these trends coming, but we know that they are going to impact other arenas before they impact education.* – Alice Petty

*When you talk about adaptive systems on networks, you have to have something that knows what to adapt to. Sometimes that is the linchpin.* – Kevin Clark

What would it take to change teaching and learning on a larger scale? Participants saw a tension between needing to get past the limitations of the current system while continuing to support students and staying realistic about what type of learning experiences U.S. society needs and can support.

Simplifying policy would represent one area of improvement. “Learning is very natural and easy to do, but we put so many constraints around it. Sixty or seventy percent of the California Ed Code has nothing to do with kids. If you could throw that out completely, you would be somewhere better off than you are today” (Chris Walsh).
Changing the basis for funding would be another, as our current system may be too large to fund effectively. “At some point public money is aggregated for the greater good, and the second you do that, some institution somewhere wants to put parameters on what they feel is for the greater good. Would it be different if it were entirely locally funded?” (Chris Walsh). While we are used to thinking of systemic work as happening at the national and state levels, the neighborhood level might be more appropriate for system adaptability.

Looking at current alternatives to traditional public education, charter schools have somewhat more independence because of their different funding models, where “we don’t have to jump through those hoops” but where there can be less “working at something as a whole school” (Lucy Gray). In some other charter schools that have to compete for students instead of admitting them on a lottery basis, relative independence can encourage innovation. “I am always trying to go out and market my school. A lot of other educators don’t have to do that. They know they have kids, no matter what” (Kit Rich).

Even with more learning economy players emerging and even though throwing out the education code or starting from scratch has some appeal, “there are some people who need schooling. The system isn’t working, but if you decide to kill it, then a lot of people are going to suffer. So you have to create a net to sustain the people who depend on that system” (Kevin Clark).

What can we do to mobilize system change while holding that net? Participants compared the situation facing education today to the large-scale mobilization that it took to prepare for World War II. “How would that level of leadership mobilize to bring better education? I am not sure there’s anybody at that level who is willing to do that” (Lucy Gray).

Indeed, we may be so individually focused that we could not mobilize on such a large scale even with stellar leadership. “We are in the me generation. If you play that out, the answer is not to go back to the collective. The answer is to go to a market system that is focused on the me choice” (Robert Clegg). Such an approach might be not only more practical but also more affordable: “If a market solution arises, it would be a small amount of money relative to what’s propping up the education system” (Chris Walsh). It could also happen relatively quickly. We might find that some innovation driven by technology transforms the education market in the way that YouTube, Amazon, and eBay have transformed other sectors.

However we move forward and whatever leads the change, the solutions might be well within reach. “We already have all the curriculum that works. We have all the approaches. The problem is, there is not a brand” (Chris Walsh). If we could create one, it might be possible to effect significant improvement without abandoning much of what we have learned about learning or taking the system back to the neighborhood level.
To propel teaching and learning into the 21st century, we need to get past the concept of school toward a broader concept of learning experiences enabled by the permeability that media-rich pervasive learning can provide. “The word ‘school’ conjures up a building. We have to get rid of the idea of ‘school’ simply as a building. I don’t know that school is so much in the building any more” (Karl Fisch).

Along with structural and cultural adjustments, this shift in our mental models about what education can be in the future might represent the most profound adjustment, laying fertile ground for blue sky visions to take root and blossom, whether they originate from collective action, market forces, or a combination of future forces.
Innovating to Transform Teaching for 21st-Century Learning

Convening 1:
Developing Transformative Professional Learning Communities

By Katherine Prince, KnowledgeWorks Foundation

When we met for the first time face-to-face about six months into the nine-month process, I knew we had a professional learning community because when the eighteen teachers walked into this room, the energy level absolutely blew the roof off of this fifty-five-story building. There was so much hugging and connectivity among them. – Barnett Berry, Center for Teaching Quality

It’s the first time in the education world where I feel I’m both pushed intellectually and pushed as a practitioner at the same time. – Mike Johnston, Mapleton Expeditionary Learning Arts School

Introduction

This paper explores participants’ perspectives from a convening hosted by KnowledgeWorks Foundation, a Cincinnati, Ohio, based operating foundation whose mission is to solve national education problems innovatively and with others, on the topic of “Creating Transformative Professional Learning Communities.” In hosting this convening, KnowledgeWorks Foundation hoped to:

- Learn more about strategies for developing professional learning communities
- Begin developing a vision for professional learning communities of the future and how they can help expand current thinking around school reform
- Examine what stakeholders, including philanthropy, can do to move toward such a future.

Fifteen education professionals came together at The Piton Foundation in Denver, Colorado, to imagine how professional learning communities can increase teachers’ capacity to create results for all students. The people around the table were:

- Barnett Berry, Center for Teaching Quality
- Barbara Bray, My eCoach
- Terry Chadsey, The Center for Courage and Renewal
Participants shared how the current context of teaching affects the possibilities for professional learning communities, how passion and purpose lay essential foundations for communities’ success, how organizers can cultivate successful professional learning communities, how the role of teaching might change in response to future forces, how professional learning communities could promote change, and what stakeholders can do now to take professional learning communities forward.

Facilitated by Jim Kohlmoos of Knowledge Alliance, this exploratory conversation was the first in a series of four addressing innovations in teaching. Future conversations will cover modernizing teaching tools, re-imagining teaching roles, and preparing highly effective teachers.

The conversation made use of the Map of Future Forces Affecting Education to prompt participants’ thinking about how education might change over the next ten years. (For more information on this map, which KnowledgeWorks Foundation commissioned from the Institute for the Future, see http://www.kwfdn.org/map.) Introduced by Monica Martinez of KnowledgeWorks Foundation, the Map of Future Forces describes several key drivers that can be expected to change the landscape in which teaching occurs:

- The emergence of **grassroots economics**, leading to a more participatory culture
- The enabling of multiple spheres of connection through **smart networking**
- Individuals’ increasing affiliation with subcultures that support their **strong opinions, strongly held**
- An increasingly **sick herd**, with students needing support to manage chronic illness
- Communities marked by **urban wilderness**, wherein some infrastructures increasingly break down while others thrive
- The **end of cyberspace** in favor of more pervasive technologies.
As participants broke the ice by describing their first experiences of professional learning communities, they mentioned getting constant feedback; engaging in rich, ongoing dialogue; learning with others in a similar situation; teaching and learning from their peers; solving problems collectively; getting support; and trading stories about what worked.

The Context of Teaching

*Teachers don’t feel like they’re being treated as professionals. For example, how many of you had to ask permission to come here today? And for those of you who had to ask permission, how many of you had to sign out and have it initialed before you could leave the building? There’s a big disconnect between the world we’re living in as teachers and the things that I firmly believe in about professional learning communities.* – Karl Fisch, Arapahoe High School

*When I came into the teaching profession as a science teacher [after working as a researcher], I didn’t even know I didn’t know what to do. There were a lot of us in this boat. We pulled in a number of high school and middle school teachers and began meeting together and working together. We put out our own newsletter. We began trying to bring other people into the community. The feeling of needing to communicate with my peers stuck with me throughout all of my sixteen years of teaching in middle schools.* – Anne Jolly, SERVE Center

Participants considered the context of teaching today as a way of beginning to imagine how professional learning communities can help teaching respond to the cultural and economic forces described in the *Map of Future Forces*.

Teacher isolation, lack of professionalism, and lack of time stood out as critical issues facing the profession. Participants also questioned the extent to which schools enable learning:

- “If the purpose is to sabotage collaboration, you can’t do it better than public schools” (Anne Jolly).
- “Schools have never been designed for teachers to learn from each other” (Barnett Berry).

Instead, the “sit and get” model of after-school professional development “has created a perception problem for the continued learning process of teachers” (Ross White), made worse by it’s often not being job embedded nor relevant.

In other professions, “Ninety-nine percent of learning happen[s] in small chunks in the context of the job managed by the person who need[s] to learn something new” (Mark Schlager), as compared to the big learning opportunities, such as professional development sessions and weekend
workshops, available to teachers. Not only are they run by somebody else, “in most cases, there is no way for the learner to know that they have actually learned something because the focus is not on practice” (Joann Ricci) and the profession does not tolerate the kinds of mistakes that help people test and refine new skills.

More fundamentally, schools may no longer be “appropriate for our changing society. The school is one of only a handful of institutions that survived the Industrial Revolution” (Wayne Mackintosh). The current model of schooling “breeds a competitive culture” related to this old paradigm, in which classical science “said we were isolated and fragmented” (Joann Ricci). Deriving from that mindset and from the pressures that educators face, “you get principals and district office saying, ‘Why do teachers need to be in reflective conversations? That’s not going to do anything’” (Joann Ricci).

In addition to the setting’s having been very top-down, with teachers saying, “‘We don’t create curriculum; we just teach it,’” there has been a disincentive to collaborate because “it takes more time” (Lisa Petrides). And sometimes “teachers and schools can’t share any more freely than they do because it’s not safe” (Anne Jolly).

In addition to competition’s being part of the status quo, this sense of self-protection has been bred by teachers having a narrow sphere of influence: “If you’re a science teacher, all you have real control of in the whole building is your $750 budget. You don’t control what you teach, how you teach, when you teach, who you collaborate with. So if that’s all I’m going to give you, I’m going to fight for those morsels” (Michael Johnston). Similar disincentives exist in higher education, where, “as a faculty member, your promotion and tenure are based on what you alone have created” and intellectual ownership remains contested (Lisa Petrides).

Despite these profound cultural and structural constraints, there is room for teachers’ internal landscapes to make a difference:

Any teaching and learning transaction is a deeply human connection. If we think about the teachers who have changed our lives, there’s an emotional, even spiritual thing going on between people. Human history is a movement of the human spirit influencing external conditions. We will change the world if we unleash the capacity of the human heart (Terry Chadsey).

In presenting a complex and changing landscape, the Map of Future Forces highlights that “it has never been more imperative to know exactly who you are in the world and where you stand” (Jillian Darwish).

At the same time, strongly held opinions can sometimes cause tensions in the profession. For example, “Both sides in the reading and math wars sincerely believe that they have the best offer to students” (Ronald
Similarly, how a teacher engages with the children in his or her classroom “may look different from the way [someone else] approaches the classroom, and different becomes good or bad. It’s not a continuum any more” (Joann Ricci).

What could shift the internal and external dimensions of teaching beyond such focus on risk and scarcity? Terry Chadsey suggested that, “until we perceive we are in a trustworthy community where we can take risks without it’s being too much, it’s not going to happen.”

Setting the Foundation

*We have a tendency to talk about community as inherently good, but there is nothing in the literature or in practice that says that community is necessarily a force for good or a force for change. You can be a force – a great community – on both sides of a particular war. You can be a great community that is totally status quo and never change.* – Mark Schlager, SRI International

*What’s the bigger question of professional learning communities? It’s the intersection between a deeply human need to connect with others around things that are meaningful and important and a systems need to create pathways of continuous improvement.* – Terry Chadsey, The Center for Courage and Renewal

In thinking about what makes a professional learning community compelling, participants highlighted passion and purpose. There has to be a reason for coming together, or otherwise there might be community without professional learning. And members need to care about that purpose so that they feel motivated to accomplish something together.

That passion and purpose need to be situated solidly within a professional context. For example, outputs of teacher professional learning communities can include increased student learning, sharing, mutual inquiry through activities such as action research, reflection, demonstration, capacity building, influence on policy, and problem solving. Mark Schlager cited Margaret Riel and Linda Polin’s (2004) distinction among three types of professional learning communities that together comprise a learning organization through intersecting networks of people: “task-based learning communities, which are focused on a product or outcome; practice-based learning communities that are what we generally call communities of practice; and knowledge-based learning communities, where it’s all about developing and shaping knowledge.”

A professional learning community’s purpose can also be driven by a shared, measurable outcome. However, attempting to identify one can highlight a tension between the art and science of teaching, whereby “you can both enjoy the intellectual talent of your work, but also know you’re really tracking
results” (Michael Johnston). In addition to questioning whether the profession is attracting people who have a deep desire for results, Michael Johnston advocated for using data to identify areas for improvement rather than letting individuals choose just anything that interests them.

But can a professional learning community cultivate passion among members if participation is at least partially mandated? Participants explored various nuances of balancing top-down and bottom-up approaches to community development:

- “A lot of the literature on communities of practice [suggests] that the outcomes should be derived or generated by the members of the community” (Judith Zorfass).
- “Teachers are so isolated that they have no idea that something over there is happening that could really happen to them. So you have to do something to help people lead differently” (Barnett Berry).
- “For there to be any goals set and met in a professional learning community, the people who are pushing some sort of agenda have to be the best participants, the most open participants. And that is often at odds with this idea that the community negotiates its goals and norms. I think that those are two different processes that can be met, that those people who put the professional learning community together continue to work toward goals, but the community has to be allowed to set and reflect on the normative process to consistently negotiate behaviors and standards of practice. Communities have to have a number of people at different levels of experience” (Ross White).

The group seemed to conclude that professional learning communities, being complex systems, need a mix of direction and self-organization, and that “you have to start where the energy is to make it work” (Jillian Darwish).

**Cultivating a Successful Professional Learning Community**

_A lot of what we do in education is simulate professional learning activity structures that evolved organically in other value systems and cultures — for example, the lesson study teams and communities of practice. The activity structures alone will be ineffective and unsustainable unless we also change the local culture’s value system._

– Mark Schlager, SRI International

_[My online saltwater flyfishing community] is intensely, intensely loyal and productive, with people who show up at funerals of relatives having never met face-to-face. I think there are things that happen when people are brought together in a very particular way on things they are passionate about that we haven’t figured out how to make work in a professional context._

– Josh Reibel, Wireless Generation
Once the foundation of a professional learning community has been set through the articulation of purpose, the hard work of cultivating success begins. Organizers need to consider both relational and structural components, with the best mix dependent upon the intended purpose.

**Relational Considerations**

Building trust seems critical to encouraging the engagement that leads to a sense of community. In one teacher community, “once the sense of trust was developed, they opened up and really started to share what they were doing” (Anne Jolly). In another, the organizer had had “to make private spaces for [teachers] so that they felt comfortable” and had tried to “get them out of the school and make it so they [were] treated like a professional” (Barbara Bray).

In yet another setting, such sensitivities around risk-taking had led to difficulties using standard approaches to online social networking: “We were trying to help the best user-generated content surface and map it to people that could benefit from it. A lot of the tools of the trade do not apply because nobody wants to be publicly evaluating each other’s work” (Josh Reibel). When teachers have online access, it may be easier for some to contribute to online communities, where they can take greater risks and construct identities beyond those they assume at school. “I can be more open if it’s anonymous or people are not going to recognize me. I may be much more willing to share resources with people across the country than the person in the room next door” (Judith Zorfass).

But we also need to cultivate educational cultures that accept risk-taking and failure instead of relying on anonymity to give teachers a sense of safety. And organizers need to take into account other aspects of culture that can affect participants’ willingness to share. For example, “Some of my Latina colleagues say it makes a lot of difference who’s in the room” (Terry Chadsey).

Beyond these issues relating to teaching cultures in general, the functional capacity of a particular professional learning community is crucial, whether it be a school, a district, or an online community. For example, “We’re working in inner-city schools where some teachers don’t really use computers” (Ross White). In other situations, members may need to build skills in having meaningful conversations.

**Structural Considerations**

To help negotiate such relational and cultural factors, a key decision for community organizers is whether to leave it open or to introduce facilitation and, if they do so, whether to rotate facilitation among members. Some participants believed that communities must be facilitated so that there is someone working “with the teachers so they can become the leaders who
can then share the vision and share the direction” (Barbara Bray). Others placed more emphasis on accountability to make sure community objectives were being met. In one face-to-face community, “there’s an expectation that you will try out something in your classroom based on what you heard, and the next meeting starts with reflecting on what you did” (Judith Zorfass). And an online community has needed less facilitation as it has matured “because more and more teachers are highly skilled at this virtual communication” (Barnett Berry).

In that same online community, developing over time has led to “the social interdependence that makes us the community” (Barnett Berry). In another school-based professional learning community that had been imposed top-down as a first opportunity to collaborate, just getting started enabled the school to “evolve something that would work” (Judith Zorfass). Taking a reminder from Amy Jo Kim’s Community Building on the Web (2000), organizers need to design for growth and change, create and maintain feedback loops, and empower their members over time. As Mark Schlager commented in citing this book, that “doesn’t mean that you can’t start off highly structured, but ultimately, you’ve got to turn over ownership to the users.”

Ongoing leadership can have a place in striking this balance between structure and community ownership. “The role of a leader is to keep breathing new life into the network, to keep living these objectives and allowing them to be malleable. We are going to get to some distant objective, but within that, we all are involved in the visioning process day in and day out by the way we interact together” (Jillian Darwish). At the same time, communities need to develop enough to become self-sustaining. When that happens, “it is exciting to see [members] connecting and sustaining the community” (Barbara Bray).

A community’s potential momentum relates not just to the quality of connection but also to its size. Any given district necessarily has a constrained member pool when compared to the potential for mass collaboration of a community with worldwide reach. Expectations for community activity need to be tempered by the reminder that, even with large-scale projects such as Wikipedia, the percentage of active editors is “relatively small, but through mass collaboration, it’s phenomenal” (Wayne Mackintosh).

**Organic Development**

Despite participants’ expertise in cultivating professional learning communities, they observed that such communities also develop organically. There was some sense that “we don’t know how [such] communities function” but that “the technologies we have today can facilitate self-organization [with] no center or hierarchy” (Wayne Mackintosh). One example is the global K-12 Online Conference, which is “awe-inspiring
because there is nobody paying for it yet it’s amazing what these folks are able to do” (Mark Schlager).

In the future, there may be less need for formal organization of professional learning communities. With the success of organic social networking sites such as Facebook, “we’re seeing how our work might no longer be about intentional community in the way we thought about it” (Lisa Petrides). That raises some critical questions for those who might hope to cultivate professional learning communities:

- “How do we begin to translate what the younger generation of people know that we don’t know about building communities?” (Anne Jolly).
- “Are these communities that we’re creating now even going to be relevant five or ten years from now when people are truly self-organizing and they have the tools to do it as they have a problem, as they have a need, and then they’re disposing of them and moving on? Maybe what we should be doing is helping people understand how to do that gracefully as opposed to saying here’s a learning community and somehow it should be used” (Lisa Petrides).
- “If there isn’t a way that leadership of various kinds can provide much more intentional organization, why are we here? If we don’t spend some time talking about what kinds of structures occur, what kinds of behavior and organizations of information and knowledge, then I think we’re just saying let people have at it and hope good things happen” (Josh Reibel).

Whether intentionally cultivated or not, how do you know when you have a community? Participants identified shared language, beliefs, and values; a common practice; a shared history; group rituals; and collective stories as key characteristics. However they originate and support each other, groups of people need time to develop into communities.

**Changing Our Ideas of Teaching**

_The modern American school emerged from a world of print. Now there are a lot of forces starting to push up against its fundamental structures. It’s anybody’s guess [when] the whole starts to unravel because all the things people want to do don’t fit into the building anymore._ – Josh Reibel, Wireless Generation

_For senior secondary education, the last three years of the K-12 system, in five of the seven regions of the world, almost half the children will not have the privilege of seeing a classroom or a teacher._ – Wayne Mackintosh, Wikieducator

Not only might the need for intentional community creation disappear or manifest differently in the future; the role of the teacher could change significantly as a new wave of individuals from the millennial generation joins the profession and as schools reach a tipping point beyond print.
There could be a need for district-based knowledge brokers who could “manage the polarities of the free flow of ideas” (Josh Reibel) and bring them to school-based colleagues as well as making infrastructure available to support professional learning communities. Indeed, teachers may already be playing similar roles in “helping students manage their own personal learning networks” (Karl Fisch). In addition, we already have “some great examples of teachers as neural networks, the thread around how knowledge gets passed through... and of school districts sharing information across functions” (Lisa Petrides).

In one situation involving three school districts, community coordinators “manage the development of communities of practice” among teachers, “showing what’s possible” by helping teachers make initial connections that later form the basis of self-organization (Joann Ricci). However, having “folks who make sure that knowledge gets cross-fertilized in an organization is the exception rather than the rule” (Jillian Darwish). And it is not as much about “how they gather the information as about how they synthesize it and make it relevant” (Ross White).

Going further, if “a school is not going to be in the future” because “there’s not enough money to train enough teachers on this planet,” “how can we design an education system for the challenges that we are facing?” (Wayne Mackintosh). One possibility is to challenge our idea of the teacher by considering “multiple adults involved rather than the single teacher in the classroom” along with options for peer support, such as new teacher mentoring networks (Mark Schlager). As options for smart networking increase, virtual communities will have increasing potential to support sharing. And as more people become involved in providing educational experiences by serving as learning agents, it may become less necessary for a single community to create everything. We might be able to “play to our strengths in a more malleable education experience” (Jillian Darwish) where jobs can be designed in more realistic ways than the current teaching role.

As Josh Reibel asked, “Isn’t there something ludicrous about the idea that there’s one person who is supposed to know and be good at so many things?” Although differentiated by content, teachers tend not to specialize by function, such as assessment, technology, or community liaison. More differentiation could not only improve job definition but could also make professional learning communities more compelling. Members of successful school-based learning communities tend to complement each other, with enough distribution of expertise or division of labor that participants know they will benefit from what others share around the table.

In thinking about the “the debate of the dichotomy,” such as that between Teach for America or traditional teacher education, that characterizes many conversations about transforming teaching in this country, Barnett Berry
suggested that the *Map of Future Forces* could serve as a starting point that could help people “get well beyond what we would have otherwise.”

**Professional Learning Communities as Vehicles for Change**

*We have an inherent capacity to connect with others in meaningful ways that is fostered by professional learning communities. It’s an opportunity that nobody thinks the status quo where we are right now in schools is good.* – Karl Fisch, Arapahoe High School

In this changing educational landscape, professional learning communities have potential to help educators support each other in managing increasing complexity and in negotiating the myriad of stresses that they experience. At the same time, educators also need space for individual learning. “Maybe it’s just always going to be amorphously-organized episodes in life that are about learning in which we set up our own context” (Mark Schlager).

Professional learning communities have potential to model self-organization and self-determination for teachers so that they can encourage students to be more independent lifelong learners. While already many professional learning communities compete for individuals’ time and attention, ongoing affiliation with one or more communities could help individuals maintain continuity as they move within the profession and could help address variation in teaching quality by building bridges among individuals across school walls. Participation could also help teachers develop a greater sense of professionalism through the pursuit of continuous learning and improvement characterized by risk-taking and by open and honest feedback.

In working together on instructional practice, it may be possible for teachers to be “creating change by the nature of the way people are showing up and relating to each other” (Jillian Darwish). Change could also be encouraged by involving students in professional learning communities. “The one place that you do see students becoming active leaders is around implementation of technology. It reflects how deeply we feel in schools that if you are not the content expert, you don’t have a leadership role to play” (Josh Reibel).

While these options have potential to help teachers and learners, and indeed to reinforce the idea that everyone at school is both a teacher and a learner, participants saw the need for professional learning communities to do more. “It has to go further. It’s not just about making the teacher more effective, it’s about changing the system” (Lisa Petrides). Professional learning communities could be “a forum for social organization and social change for teachers to exert more control over the profession as a whole” (Ross White). Participants discussed how, when we try to move beyond current realities to imagine the future of education, “we tend to come back to pretty familiar things” (Josh Reibel). Professional learning communities may be able “to create more self-awareness about that” among educators and to help
members sift through the many goals of school to “focus on what the real, salient roles of the institution are” (Josh Reibel). We need to consider “what learning should be in the future, and then how best we can facilitate that” (Ross White).

If professional learning communities have the potential to help teachers – or whomever learning agents turn out to be – not only support each other and improve practice but also embark upon more fundamental system change, what should they look like? Key components include:

- Relating directly to student needs
- Utilizing classroom time for teacher learning
- Incorporating formative assessment
- Involving everybody – students, teachers, and administrators – and providing parallel, intersecting tracks for administrators and support staff as well as professional learning communities for teachers
- Combining face-to-face and virtual experiences
- Allowing failure
- Having a clear outcome while understanding that “individual professional learning communities might form to meet a more specific, focused goal and go away” (Karl Fisch)
- Making space for individual, group, and system voice
- Focusing on “the ethics of care for the entire student body” (Karl Fisch).

Having a network of professional learning communities could “give hope and inspiration” to people in schools where it is hard to imagine the power of collaborating together and where leadership may be less than supportive. “They’ll have a chance to get their heart more into it because they’ll believe there’s something they can accomplish” (Barnett Berry).

**Taking Professional Learning Communities Forward**

*I need help from the experts, because what’s happening now is I have people thinking that they can make this happen on their own, and they really need guidance. And I’m not the expert. I can provide tools and some resources and point them to people, but I need to be part of a bigger entity.* – Barbara Bray, My eCoach

Participants had some sense that the value of professional learning communities is not always apparent and that many districts have given up on them because it has been hard to justify the financial and time costs without getting more concrete results. For example, “Most K-12 systems have an idea of what they’re willing to pay to get something. And in the professional learning communities area, many of them think of it as a few days of professional development for a few people in the district and then we’ll diffuse it” (Ronald Gallimore).
Therefore, it may be useful to build a network of robust communities that could establish an evidence base for their efficacy. It would be important to capture not just the outcomes but also “the pathway when they were just like my school to where they are now” (Terry Chadsey). But it would also be important to remember that “measuring the direct relationship between professional learning communities and scores ignores an ecology of factors” (unattributed note from small group discussion).

There may also be opportunities for philanthropy to bridge practitioners’ diverse experiences by developing a vision for professional learning communities and then helping to “connect and empower people to go and try to do it, but not necessarily using the same model. You identify the things that need to happen and then identify the tools and processes that can help to make it happen in certain situations” (Anne Jolly). A toolkit could be useful in helping people understand their options and know that they are doing it right when they are not sure whom to ask. While schools and districts could use help choosing among their technical options, the greatest need seems to be around understanding the subtle aspects of cultivating community, as “there’s a lot of information about what to do to create a professional learning community, but how do you make it work?” (Anne Jolly).

While individuals need such support, the bridging role of philanthropy seems unclear, as “there are lots of philanthropic organizations cultivating their own communities, doing tons of research on the efficacy and success or failure of these endeavors” (Joann Ricci). In the meantime, it is hard for educational technology businesses to do more than dabble in building infrastructure to support communities because of ill-defined markets. “We’re at the earliest stages of figuring out what kinds of activities people should be engaged in that will turn out to be productive and so what kind of tools they need to have. There’s so much homegrown stuff that doesn’t quite work that is contributing to the time problem. There’s a professionalization needed about the tools that are provided in K-12 that’s not going to happen until philanthropic dollars go to collaboration of commercial industry and school systems” (Josh Reibel). As has been explored elsewhere, “the value proposition for neither the philanthropists nor the commercial folks is clear enough” (Mark Schlager), with collaborative efforts being much more difficult in K-12 than at university level and with money going to proprietary developments for large school systems.

However, it might be possible “to build into something that’s already existing” (Lisa Petrides) rather than jumping to new technical solutions. A starting point might be to “create a knowledge-sharing mechanism around professional learning communities” (Lisa Petrides). There are also opportunities to learn from the free software community, where “every good piece of free software scratches a developer’s itch. What makes this work is solving real problems. The second, very valuable component of the free software community is the ability to take bits and pieces of puzzles that were
developed elsewhere, for different purposes, and be able to very effectively put them together very, very quickly” (Wayne Mackintosh).

Reflecting on how to move forward with the potential for professional learning communities to have great positive impact on learning and teaching, Mark Schlager described how “I had my researcher hat on and I heard that we need to study this, we need to develop a model before we can jump in blindly. And then I put my developer/designer hat on, and I said, ‘Things are happening so quickly around us, that model of development doesn’t exist any more.’ We’ve got to bootstrap ourselves. There’s a whole lot of energy with this. And those who can figure out how to really funnel that energy are going to have something.”

References


Innovating to Transform Teaching for 21st-Century Learning

Convening 4:
Preparing Highly Effective Teachers
By Katherine Prince, KnowledgeWorks Foundation

We do not begin training teachers when they graduate from high school or when they enter college. We begin preparing future teachers when our students first encounter a teacher and a curriculum that spark curiosity and a joy for learning. If we continue to view standardized tests as the sole measure of a child’s achievement and worth, if we fail to teach the whole child, and if we are not in tune with the child’s interests, then why would such a child be inspired to teach future generations? – Desirée Ivey, Shady Hill School’s Teacher Training Course

The current model does not actually work. You have this ever-growing bureaucracy that says it is addressing the challenge, but some kids fall way behind before they get tested, and then they get tested, and then kids actually become an economic incentive to stay behind. – Furman Brown, Generation Schools

Introduction

This paper explores participants’ perspectives from a convening hosted by KnowledgeWorks Foundation, a Cincinnati, Ohio, based operating foundation whose mission is to solve national education problems innovatively and with others, on the topic of “Preparing Highly Effective Teachers.” In hosting this convening, KnowledgeWorks Foundation hoped to develop a knowledge-era vision for preparing quality teachers. The foundation also hoped to identify the most essential elements of, and the barriers and steps in reaching, that vision.

Twelve education professionals came together at KnowledgeWorks Foundation to explore how today’s teacher preparation might need to change to meet the needs of all learners as the emergence of a learning economy and the trend toward deep personalization continue to create a proliferation of learning experiences. The people around the table were:

- Lawrence Abraham, University of Texas, UTeach
- Dara Barlin, University of California, Santa Cruz, New Teacher Center
- Cathy Brown, Indiana University
- Furman Brown, Generation Schools
Facilitated by Laura Lefkowits of McREL, this exploratory conversation was the last in a series of four addressing innovations in teaching. Papers from the other convenings on creating transformative professional learning communities, modernizing teaching tools, and re-imagining teaching roles are available at http://www.kwfdn.org/map/innovations_research/.

The conversation made use of the Map of Future Forces Affecting Education to prompt participants’ thinking about how education might change between now and 2020, when students who just entered kindergarten are expected to graduate from high school. (For more information on this map, which KnowledgeWorks Foundation commissioned from the Institute for the Future, see http://www.kwfdn.org/map.) Introduced by Monica Martinez of KnowledgeWorks Foundation, the Map of Future Forces describes several key drivers that can be expected to change the landscapes in which teaching and learning occur:

- The emergence of **grassroots economics**, leading to a more participatory culture
- The enabling of multiple spheres of connection through **smart networking**
- Individuals’ increasing affiliation with subcultures that support their **strong opinions, strongly held**
- An increasingly **sick herd**, with students needing support to manage chronic illness
- Communities marked by **urban wilderness**, wherein some infrastructures increasingly break down while others thrive
- The **end of cyberspace** in favor of more pervasive technologies.

Consistent with the Map of Future Forces, this paper uses the term **learning agent** rather than **teacher** to reflect the expectation that, by 2020, new roles, processes, and relationships in the learning economy will have led to new career paths in education. It is likely that more kinds of people will be engaging in more kinds of roles to provide more customized support for students in more flexible learning environments than exist today. Those individuals are likely to be collaborating across complementary specializations, which could include content experts, learning coaches, network navigators, classroom managers, and cognitive specialists, among other roles.
To help participants imagine how to prepare learning agents for such a future, the conversation made use of scenario planning as a technique for identifying specific challenges that might need to be addressed. Participants worked within a given scenario framework as a way of exploring how learning agents might prepare to meet the needs of learners in the year 2020 and beyond. Note that some scenarios within that framework lent themselves more readily to participants’ imagining a proliferation of learning agents, while others seemed more similar to today’s environment, leading participants to imagine learning agents who seemed more similar to today’s teachers.

The Scenario Framework
“Purpose of Education versus Delivery of Curriculum”

To help imagine the future of teaching and learning, participants worked with the scenario framework below, whose critical uncertainties were the purpose of education (private benefit versus public good) and the delivery of curriculum (standardized versus individualized).
Appendix 1 contains the summaries of the scenario descriptions from which participants worked in imagining what each scenario would mean for the preparation of highly effective learning agents. In so doing, they explored questions about the future; examined what education would look like in each of the scenarios; and explored what implications that approach to education would have on learning agent preparation.

Questions about the Future

In beginning to consider how learning agents might prepare to meet the needs of learners in the year 2020 and beyond, participants identified a range of questions about the future. These included:

- Will we be meeting the needs of our kids?
- What kind of standards for learning will we have?
- At what age will it be seen that schooling starts?
- How will the general population feel about the importance of educating their children?
- What skills will be perceived as necessary for citizens?
- What types of jobs will we be preparing for?
- What will the purpose of education be?
- Will we still be thinking about a one-size-fits-all approach, or will we really be in a more individualized learner-centered mode?
- What will be the quality assurances for a learning agent?
- If we are calling teachers “learning agents,” what will we be calling schools?
- What will testing look like?
- Will licensure really matter?
- Will content subject specialty be important?
- What language other than English will we all be required to be able to speak?
- Is funding for schools going to change?
- What will the general political climate be?
- Will we still be in Iraq?
- What community health and wellness issues will impact learning agents?
- Will parents truly have the freedom to choose, and what will those choices look like?
- As we talk about education being available in many forms and formats, will we even have schools?
- To what extent will we have a state system, a national system, or a global system? Will someone be able to get an education partly in the US and partly in another country?
- Will we close the student achievement gap?

Such questions set the context for considering what education and learning agent preparation would look like in each of the scenarios. The next four sections of this paper describe how participants elaborated upon each of the
scenarios. (Note that each description is written in the present tense as if it were the year 2020 and that possible future world had indeed emerged.)

“All Work and No Play”
Private Benefit/Standardized Delivery of Curriculum

What Education Looks Like

In a world of All Work and No Play, where education is for private benefit and curriculum is delivered in a standardized way, corporations determine the focus of education. The education system has two tiers, one focusing on vocational and technical skills and the other focusing on the classics, along with skills such as problem solving and critical thinking. People who were teaching back in 2008 went into one of these tiers, based partly on their interests and content areas and partly on their perceived quality.

Schools are now sponsored by corporations. Students attend places like General Motors Academy, Starbucks Academy, Microsoft Academy, or the Merck School to learn the specific skills that they need to work for those employers. In some industries, such as healthcare, professional organizations such as the American Medical Association coordinate education so that each employer does not have to take responsibility for providing it.

In this system, inequalities exist for both students and learning agents, as each corporation determines how much funding goes to facilities, curriculum development, learning agent salaries, and so forth.

While standards also vary according to the bottom line of the business controlling each school, there are some commonalities focused on reading, writing, and arithmetic for grades K-8 so as to ensure the development of basic skills. There is no art nor music education, and physical education takes place only because businesses have an interest in kids being healthy, so that they have a good chance of becoming healthy employees.

In the eighth grade, each student takes a test for placement into one of the tiers. The results determine whether he or she goes to McDonald’s Academy or the Merck School -- in other words, whether future employment will consist of flipping burgers or performing surgery.

From the nine through twelfth grades, students spend quite a bit of time in the work setting being taught by company employees as a cost-efficient way of delivering instruction. The corporations also offer apprenticeships as a way of providing students with practical experience and securing free labor.

For many students, especially those entering the trades or service professions, education ends in the twelfth grade. For those continuing in preparation for more professional jobs, the lines between earning the old
bachelor’s, master’s, and doctoral degrees have blurred, so that students can conclude their formal education when they attain the requisite benchmark for their intended employment.

**Implications for Learning Agent Preparation**

With education so driven by industry, credentialing also aligns with corporate needs. Learning agent preparation is specific to each industry sector, and success for both students and learning agents is determined by test scores. A massive data management system tracks the impact of someone in a college of education on a third grader via the efforts of the learning agent who studied with that college instructor.

In keeping with the specialization that takes place for students in the ninth grade, K-8 learning agents are generalists, all of whom teach the same material. Some learning agents in the higher grades specialize in content, such as science or math, based on their competencies as demonstrated by test scores. But some core academic subject matter is taught by employees of the corporation, leaving some learning agents in a lower-paid guidance role, providing counseling and mentoring across a student’s education.

In any case, learning agent preparation begins in the ninth grade, with national teaching academies providing the foundation and then supporting students in specializing for the job they expect to seek. As learning agent candidates progress, their preparation becomes increasingly stratified, with some institutions cranking out 2000 or more learning agents a year in a diploma-mill environment and with others providing a boutique experience for very talented candidates.

Learning agents receive induction and mentoring if the corporation for whom they work sees the cost benefit of providing it. Professional development varies according to educational tier, with less taking place for those teaching in the trade and service academies. In those, professional development is driven by changes in industry, such as the introduction of a new cash register, rather than by an interest in helping learning agents become better teachers.

In both tiers, learning agent success is measured by whether students’ test scores are improving. They receive raises if their students’ test scores increase and get fired or receive stagnant salaries if test scores decrease. While there are opportunities for learning agents to move among industries within a given tier, it is difficult for a learning agent to cross tiers by moving from McDonald’s Academy to the Merck University.

Colleges of education stay in business only if their graduates perform well. The federal government provides funding and enforces rules of operation determined by the corporations controlling the schools. State governments contribute in a minor way to the elementary curriculum in relation to the
dominant industries in their areas. The old teachers’ unions have become professional associations that help enforce quality by managing contracts with individuals but which otherwise have very little power.

**Overview**

In the system of 2008, the top and bottom ten percent of students got a lot of attention, with the great middle falling through the cracks and getting overlooked. Now, in 2020, the presence of many types of learning agents, and especially of the guide who works with a student for years, means that more students are getting the attention they deserve to help ensure success in their careers. Furthermore, the availability of considerable data has clarified what impact each learning agent and teacher preparation institution has, making it easier to know which activities are truly supporting learning.

“**All for One, and One for All**”

**Public Good/Standardized Delivery of Curriculum**

*What Education Looks Like*

In the world of All for One, and One for All, where education is for the public good and curriculum is delivered in a standardized way, a more holistic approach to education has emerged than was present in 2008. With involvement from all levels of the old system, the federal government played a significant role in setting national standards that are now determining the direction of education in the US.

Teachers who can help students meet those standards are now highly valued, and recruitment is aligned with need to ensure that the education system as a whole can deliver. As another way of helping to ensure standardized delivery, funding is nationally driven. But there is still room for some local engagement around what is best for students in the context of the standardized curriculum, and local communities have a say over which teachers they recruit.

*Implications for Learning Agent Preparation*

With significant training resources allocated by the federal government, all learning agents are nationally certified based on agreed standards. People interested in working as a learning agent need to be steeped in the relevant content but also need to demonstrate competency in pedagogy, cross-cultural communication, interpersonal skills, collaboration, team building, and instructional technology.

The learning agent preparation institutions of 2020 are similar to the old schools of education but have become highly selective. A national academy provides significant guidance, and all candidates take the same test to prove
subject-area competency. Mentors and coaches help new learning agents apply the national standards in the contexts of their particular communities and help decide whether a new learning agent is supporting students. Quality controls help ensure inter-rater reliability among the mentors.

Throughout their careers, learning agents participate in communities of practice that include both learning agent preparers and consumers, thus receiving considerable feedback about their performance. Improved data systems also provide insight into their effectiveness. The national academy plays a significant role in setting the direction of professional development, while learning agents collaborate within their particular schools to ensure consistency and to support one another in delivering and assessing content.

Learning agent incentives remain fairly similar to the way they were in 2008, although learning agents do receive raises for improved performance and can elect to work eleven or twelve months in order to undertake professional development or mentor others. Although most are specialists in their content area and generalists in learning styles, some have pursued specializations in delivering the curriculum to special-education populations or in other circumstances. Indeed, learning agents can receive financial support to change roles within the system, perhaps spending less time with students and more time helping other learning agents in a coaching capacity.

Overview

The national standards of 2020 represent both a strength and a weakness. The national academy has helped strengthen the learning agent profession by improving preparation, and there is now more accountability and cohesion, along with an improved career ladder. On the flip side, the loss of local control makes some learning agents feel as if there is less room for creativity, and it can be difficult to adjust the curriculum when the federal government moves slowly. On the whole, however, having a set curriculum enables learning agents to focus more on pedagogy in relation to each student’s needs and allows more scope for collaboration and transparency.

“Think Nationally, Learn Locally”
Public Good/Individualized Delivery of Curriculum

What Education Looks Like

Now that we Think Nationally, Learn Locally, with education being for the public good and curriculum being delivered in an individualized way, the education system uses problem-based learning to help each student proceed through flexibly paced stages within the context of nationally agreed standards. Students focus not on passing grades in school but on achieving certain competencies, which they can pursue through multiple pathways depending on their preferences.
As students learn at their own pace, they are supported by technology as a tool for spanning time, distance, and culture. But because placed-based schools provide opportunities for students to learn face-to-face collaborative and community building skills, they are now strong centers of the community that form one component of the learning environment.

School boundaries have been dismantled, with members of the local community taking part in learning projects and with other community service providers contributing to holistic support for students. A civic coordinator helps bring the community into schools and the schools into the community.

This flexibility of learning experiences is mirrored by the flexibility of employment arrangements. Learning agents have many options, including working part-time or full-time or continuing to contribute after retirement. Indeed, any given learning agent might be working in multiple learning environments at any time.

Learning agents work in teams so that individuals, including those working with young students, can specialize in content while also building common skills such as collaboration, teamwork, and problem-solving. Some, such as instructional designers and facilitators, help content specialists understand options for delivering instruction rather than working directly with students themselves.

A robust data system helps all of the learning agents access information about the students with whom they interact. At the same time, a case manager helps each student meet his or her needs from among the array of possible learning experiences.

**Implications for Learning Agent Preparation**

Mirroring the individualization for younger students, learning agent candidates choose learning experiences from among multiple providers, with a case manager helping them manage their learning. Each learning agent role has clear standards, against which each individual is rigorously evaluated, and the providers contributing to his or her preparation share accountability for that person’s success.

Once someone is working as a learning agent, the flexibility of the system makes it easy to move among roles. For example, someone can begin as a content specialist in math and later specialize more by supporting other learning agents or by working with students with special needs, thereby gaining more status and earning a higher salary.

A data management system helps people look across the decoupled system and identify needs. Groups that prepare learning agents receive incentives if
they can meet those needs in a timely fashion, and they stay in business only if they prepare candidates to the expected standards.

Overview

Having a team of education professionals working with any given student has helped bring about greater equity and rigor than was present in 2008 while also creating better working conditions for learning agents through shared accountability and differentiated opportunities. These changes have brought considerable reduction in learning agent turnover, with corresponding reduction in the need to prepare new learning agents. While it can be difficult to assess the quality of provision and to administer this multi-faceted system, it has elevated the learning agent profession while giving students much more tailored learning experiences.

“To Each His Own”
Private Benefit/Individualized Delivery of Curriculum

What Education Looks Like

With education being for private benefit and the delivery of curriculum being individualized, To Each His Own represents a nimble market-driven approach, in which people of any age select learning experiences to meet their needs. It is no longer necessary to learn prescribed topics, such as world history, by age eighteen.

Technology helps make possible this highly individualized instruction. Customers sometimes cluster into niches to pursue shared learning experiences reflecting their shared strong opinions, strongly held. But accountability always follows the learner, with each individual demonstrating capacity and skills and with children making increasingly independent choices from at least middle or high school.

In this completely deinstitutionalized approach to education, many different kinds of people work as learning agents. Indeed, anybody with a passion for or skill in some aspect of the learning enterprise can participate in the learning economy, regardless of his or her stage of life. This participation does not have to be full-time: it is very possible for someone to be an accountant by day and a learning agent by night.

New learning agents need simply decide whether they have the knowledge needed for the contribution that they want to make and then identify how to market their services and how to manage their learning enterprise. Some more experienced learning agents start franchises, moving away from direct service provision while helping to ensure that their legacies persist through the efforts of others.
Implications for Learning Agent Preparation

In this entrepreneurial and multifaceted educational environment, in which many different organizations and individuals compete for the opportunity to provide learning experiences and individual consumers choose what to learn and how to learn it, learning agents have many options for preparation and development.

Options include multiple kinds of certifications, some from government organizations and some from professional organizations or private corporations. Any given individual can piece together relevant aspects of preparation from different providers; for example, she or he can learn about addressing cultural issues from one provider and about teaching math from another.

Competency matters as much as credentialing, as any credential is only as strong as its holder’s ability to meet market need. People purchase learning agents’ services because they value a particular credential or because the individual learning agent has a strong reputation. Available online, evidence of students’ learning over time is key in helping consumers assess a learning agent’s competency.

Just as this blending of credentialing and competency has emerged, so too has specialization around both content and learning process management. Some physical school buildings still exist as a way of providing a safe place where children can learn from multiple specialist providers, but they operate at the mercy of the market, with consumers deciding what arrangements best serve their needs and interests.

To help weather the market, some learning agents form communities or guilds to support ongoing learning and professional development, cultivate specialties, and educate less experienced learning agents. By banding together like this, experienced learning agents can secure a stronger presence in the market, and less experienced learning agents can gain credibility through apprenticeships.

Overview

While it is hard to say that this approach to education provides an equitable distribution of resources, it has been exciting to see how learners thrive when controlling their learning and how well strong learning agents can support them when freed of institutional constraints. By giving control to all learners, we have seen some interesting opportunities emerge, although there are still issues for children who are too young to make their own decisions and whose caretakers do not make good decisions for them. Nonetheless, some guilds and philanthropies have emerged to help support those children in order to keep their communities functioning as they prefer.
Common Visions for Learning Agent Preparation in 2020

Regardless of the scenario with which they were working, participants needed to imagine what learning agent roles would look like in order to imagine relevant preparation. In so doing, they consistently identified the need for differentiation, with some people taking responsibility primarily for content, perhaps at finer levels of delineation than exist today, and with others specializing in areas such as pedagogy, student guidance, or learning agent coaching.

In all scenarios except All Work and No Play, participants saw learning agents needing or electing to work in teams so as to have the satisfaction of specializing (to the extent desired) while ensuring effective learner support. While the availability of multiple roles promised to enable more people to participate as learning agents, often through more flexible working arrangements, in no scenario did participants suggest that aspiring learning agents would not have to undergo some form of preparation. That preparation would simply mirror the structure of the prevailing approach to education and be appropriate to the particular role that person wanted to assume.

With the individualized delivery of curriculum in Think Nationally, Learn Locally and To Each His Own, participants assumed technology to be one vehicle for enabling learners to access their desired experiences. However, they never completely abandoned place-based learning experiences, as they perceived schools as having benefits – ranging from safety to socialization – for at least some consumers in each scenario.

Regardless of where learning experiences were taking place, data-driven decision-making emerged as being key to assessing both student learning and the effectiveness of learning agents in supporting them. The mechanism for accessing and working with that data simply varied with the relative centralization of the scenario, ranging from a centralized database in Think Nationally, Learn Locally to online performance logs in To Each His Own.

Looking across the four scenarios, while the particulars of teaching and learning and the ways of preparing learning agents to be effective in the education system or marketplace varied, it does seem that in 2020 we can expect to be preparing learning agents for a wider variety of roles, to be incorporating performance data more effectively, and to have a model or models of learning agent preparation that correspond with the salient approach to K-12 education. We are also likely to be preparing learning agents to be working in greater collaboration than many do today, even if doing so reflects their own preference rather than an externally imposed requirement.
Beginning to Move Toward the Future

In considering how best to move toward new models for learning agent preparation, participants found it useful to incentivize existing teacher preparation institutions to think about how to support the multiple learning agent roles that can be expected to emerge. In particular, they thought that stakeholders might need help thinking beyond the model proffered by the Teacher Advancement Program, to which many people refer when considering differentiated roles for today’s teachers.

Looking across the range of collaborative teaching models that are becoming increasingly common, participants also thought it useful to have more information about student learning outcomes in order to help assess what experimental efforts are making a difference. It also seemed important to acknowledge the energy that it can take for existing teachers to transition into a more collaborative teaching model, even with appropriate structures and support.

Participants argued that, if teacher preparation institutions required teacher candidates to be members of collaborative learning teams, those entering the profession would be better placed to pursue their own continuous learning and to support other adults in theirs. Moving away from courses as the necessary frame for educational experiences and toward issue- or project-based learning experiences could also help candidates prepare for future learning environments.

Developing opportunities for younger students to have exposure to possible learning agent careers before graduating from high school could help attract them to the profession. At the same time, aligning learning agent preparation with schools’ actual needs could lead to more efficient use of existing resources, even though it could present the challenge of reducing the financial benefits that universities sometimes reap from preparing teachers to replace those who leave schools after only a few years as part of the current teacher turnover situation.

Regardless of the many particular arrangements that those currently working with teacher preparation could pursue to begin to move toward a future-oriented learning agent approach, participants saw the need for more dialogue – among existing teacher preparation programs, among teacher preparation programs and K-12 schools, and among unions and K-12 schools. Such dialogue would help ensure that they and future learning agents learned and worked together to prepare for what is likely to be a much more differentiated education landscape in 2020, building a climate of collaboration that could preserve some safeguards for existing teachers while letting go of entrenched role definitions enough to imagine what would serve students better in the future.
Appendix 1
Scenario Descriptions

The descriptions below provide more details about each of the scenarios as envisioned by McREL. Convening participants worked from these descriptions, along with further detail, in imagining what education and learning agent preparation would look like in each of these possible future worlds.

“All Work and No Play”
Private Benefit/Standardized Delivery of Curriculum

An economic downturn and the need to compete in an economy without borders has led to an extremely competitive, big-industry workplace environment. The motivation for everything we do is economic, and it shows: employees are overworked, have little free time, and are easily exploited. Efficiency and standardization are the mantras of the day, and this extends to education: in conjunction with big business, the U.S. Department of Education develops and mandates national standards for all public school students. These standards focus heavily on preparing students for the axis around which society now revolves: the workforce.

As corporations wield more power, government itself begins to move toward a business model, outsourcing government functions and seeking corporate sponsorship to defray government costs. Corruption increases exponentially, and the rise in outsourcing and corporate influence creates additional distance between the government and its constituents. There is a widespread sense that when the game is rigged, there’s no reason to play, and this leads to less civic engagement and lower voter turnout.

In this scenario, many children have been left behind: there is little interest in bringing all students to high standards; instead, the curriculum narrows and students are tested and sorted according to ability. Group-think is pervasive, and students who demonstrate facility in the skills and knowledge employers value receive the bulk of their teachers’ attention. There will, after all, always be low-skills jobs available for students who don’t make the cut.

“All for One, and One for All”
Public Good/Standardized Delivery of Curriculum

There is a Sputnik-like effort to improve education, nationally and on a grand scale. There is a national mission, spearheaded by the federal government, to improve the quality of education, and wide-scale agreement about the civic mission of schooling. Parent and community involvement in the schools is at an all-time high.

In this world, national standards are adopted and implemented. The curriculum narrows, but narrows in a thoughtful way. Parents, teachers, community leaders and students are engaged in a deep dialogue over what students really need to know and be able to do in order to function in, and improve upon, society. And although the content is standardized, the delivery of the content is not. Students can learn anytime, anywhere—as long as those who deliver the curriculum are accredited to
teach the national standards. As a result of the national curriculum, teacher training is transformed. Teachers need to be versed not only in the content or grade level that they teach, but, to ensure alignment and adherence to the standards and curriculum, in the content and grade levels taught by their colleagues. Larger-scale, specialized teacher training will also be pursued; for example, through a national academy of teaching science or math.

Societally, citizens will rely on systems to support them; government may move more towards a European model, in which taxes are higher and medicine is socialized.

**“Think Nationally, Learn Locally”**
*Public Good/Individualized Delivery of Curriculum*

There is a concerted effort from a number of fronts—community, school, and government—to ensure that all children have a high quality educational opportunity and become involved, contributing citizens. Beyond civic learning, however, what students learn in school differs according to their interests and abilities. Learning and learners are highly mobile. Students can move at their own pace, demonstrating skills and content learned through portfolios and other comprehensive assessments. Diversity is welcomed, and there are still efforts to mix and integrate students—but based on their interests and learning styles, rather than race and ethnicity.

Local communities trump national interests in this scenario. The government remains committed to ensuring opportunity in education, but there is no one “right” approach to schooling: competing philosophies are everywhere. Consequently, there is a lack of agreement on what’s important in teaching. Education policy fragments, and students begin to take on more ownership and leadership of their own learning; for example, by designing their own school plans. Teacher unions of old are replaced by niche-oriented teacher associations, according to teaching approach, grade level, or content area taught. The gap between the haves and have-nots remains, but neighborliness and a sense of working toward the common good is pervasive.

**“To Each His Own”**
*Private Benefit/Individualized Delivery of Curriculum*

We’re all on our own, figuring out how to learn what we need to learn, how to get hired, and how to get ahead. This framework is entrepreneurial, relying heavily on creativity, innovation, and personal risk. People move around a lot, working from home or in “stints,” and changing careers at will.

In this world, the government is a multi-party system with a very limited role in education; rather, different communities determine, on their own, what’s important in education. Alternative school options abound; home schooling, charter schools, online learning, and learning centers all increase in popularity. All students have individual learning plans, and can pursue their own interests within the constructs of their community-developed and led schools. This self-directed learning comes at a cost, however: opportunity to learn is uneven, niche-learning becomes more prevalent, and there is very little common ground from school to school, city to city, and state to
state. Coordination and alignment—between pre-K, K-12, and post-secondary—is nonexistent.

Further, this scenario’s focus on individualization and self-interest could lead to a fragmented, or almost mercenary, society, in which the weak, elderly, and disabled become more and more marginalized. Too, some students in this world will not learn what they need to know in order to land a high-paying job.
Innovating to Transform Teaching for 21st-Century Learning

Convening 3:
Re-Imagining Teaching Careers
By Katherine Prince, KnowledgeWorks Foundation

Who is the knowledge resource? Is it the learners, or is it the teacher? You cannot talk about the role of the teacher without talking about the role of the learner, because they are interconnected roles. – Margaret Riel, SRI and Pepperdine University

In the future, are students going to have some say in what they learn and who teaches them and when they learn, or is it going to be predetermined by someone else? That’s going to make a big difference on what the learning agents will do. – Dennis Harper, Generation Yes

Introduction

This paper explores participants’ perspectives from a convening hosted by KnowledgeWorks Foundation, a Cincinnati, Ohio, based operating foundation whose mission is to solve national education problems innovatively and with others, on the topic of “Re-Imagining Teaching Careers.” In hosting this convening, KnowledgeWorks Foundation hoped to:

• Probe critical issues of the future in order to consider what learning experiences might be relevant for students
• Explore how learning might be delivered in the future
• Begin imagining what types of roles might be constructed to deliver such learning
• Examine how these roles might be supported within a larger system or profession.

Seventeen education professionals came together at McREL in Denver, Colorado, to explore we might re-imagine teaching careers to meet the needs of all learners as the emergence of a learning economy and the trend toward deep personalization continue to create a proliferation of learning experiences. The people around the table were:

• Linda Barker, Colorado Education Association
• Jim Carlson, Educator Compensation Institute
• Jim Creighton, The New Ways of Working Network
• Karl Fisch, Arapahoe High School
Facilitated by Laura Lefkowits of McREL, this exploratory conversation was the third in a series of four addressing innovations in teaching. Papers from the other convenings on creating transformative professional learning communities, modernizing teaching tools, and preparing highly effective teachers are available at [http://www.kwfdn.org/map/innovations_research/](http://www.kwfdn.org/map/innovations_research/).

The conversation made use of the Map of Future Forces Affecting Education to prompt participants’ thinking about how education might change between now and 2020, when students who just entered kindergarten are expected to graduate from high school. (For more information on this map, which KnowledgeWorks Foundation commissioned from the Institute for the Future, see [http://www.kwfdn.org/map](http://www.kwfdn.org/map).) Introduced by Monica Martinez of KnowledgeWorks Foundation, the Map of Future Forces describes several key drivers that can be expected to change the landscape in which teaching and learning occur:

- The emergence of **grassroots economics**, leading to a more participatory culture
- The enabling of multiple spheres of connection through **smart networking**
- Individuals’ increasing affiliation with subcultures that support their **strong opinions, strongly held**
- An increasingly **sick herd**, with students needing support to manage chronic illness
- Communities marked by **urban wilderness**, wherein some infrastructures increasingly break down while others thrive
- The **end of cyberspace** in favor of more pervasive technologies.

The conversation also made use of scenario planning as a technique for helping participants anticipate what specific challenges we might need to address in preparing for the education in the future. Participants explored critical uncertainties and developed and then explored a scenario framework as a way of exploring the focal question, “What will learning agents need to
know and be able to do in order to be effective in the year 2020 and beyond?“

**Critical Uncertainties**

In beginning to develop a scenario framework within which to imagine the possible roles of learning agents in 2020 and beyond, participants identified a range of critical uncertainties relevant to the focal question. These included:

- “Will we still group kids in school and by age?” (Margaret Riel)
- “Will schools look like they do today? Not just brick and mortar, but the whole concept, class, course, getting people together.” (Ray Rose)
- “Will schools be based around the needs of adults or the needs of kids?” (Karl Fisch)
- “What defines that need?” (Matt Flores)
- “Will we design the learning system around what is known about learning?” (Ray Rose)
- “What will kids need to know and be able to do?” (Jim Carlson)
- “To what extent is the knowledge base going to grow?” (Will Fowler)
- “What will we see as knowledge?” (Margaret Riel)
- “Will there be national standards?” (Dawn Krusemark)
- “What will assessment look like?” (John Forbes)
- “How will the world outside of the school decide if we’re being effective learning agents?” (Dawn Krusemark)
- “What will society value?” (Anne Smith)
- “Which social needs can be met with technology and which can’t?” (Jim Creighton)
- “What does the economy look like, and how is work organized?” (Bill Tucker)
- “Will we still be spending $500,000 a minute in Iraq?” (Dennis Harper)
- “Will we have had a world war between now and then?” (Ray Rose)
- “Are we going to be able to fund our schools?” (Jim Carlson)
- “Where are trends in youth culture headed?” (Jeff Liddle)
- “How does the definition of family change?” (Steve Hargadon)
- “The map shows that I am going to be teaching in a feral society or in the green zone. If I’m going to be a teacher, what zone am I in?” (David Rice)
- “Are those with wealth going to be sending their kids to private schools and everybody else to public schools?” (Jim Carlson)
- “How wide will the gap be?” (John Forbes)
- “What new technologies will have an impact on the general population?” (Ray Rose)
- “Will education become more international?” (Jim Creighton)
- “Will there be a cultural and scientific renaissance because of cultural technologies?” (Steve Hargadon)
- “What will attract the right type of person to be a teacher of the future?” (John Forbes)
“Why do you need a learning agent?” (Jim Kohlmoos)

The Scenario Framework
“Purpose of Education versus Control of Learning”

Having identified the critical uncertainties above, participants collaborated to identify two that would most usefully serve as axes in a scenario framework. While they also considered schools’ responses to technology, the nature of youth culture, the approach to assessment and measurement, the relative formality or informality of learning agent roles, and how learning agents might interact with students, two fundamental questions kept emerging:

- What is the purpose of education?
- Who is in control of learning?

Further exploration of these questions led participants to develop the scenario framework below as a foundation for exploring the roles of learning agents in 2020.

Having identified this scenario framework, participants worked in groups to imagine how each scenario would play out and to design a learning platform.
for success in that world. In so doing, they attempted to stretch themselves
to the most extreme points of the scenario and also to find the most hopeful
interpretation of these extremes. A description of what they imagined for
each of the scenarios appears below. (Note that each scenario is written in
the present tense as if that possible future world has indeed emerged.)

“Society Has a Stake”
Consumer Control/Community Development

Mission: Every adolescent will learn how to learn, how to teach, and
how to work productively within a range of different social and cultural
groups to accomplish goals, create systems, and develop a sense of
identity and belonging.

In this scenario representing consumer control of learning for the purpose of
community development, education reflects the needs of a distributed world
where people are working in project teams that come and go over time.
Mediated by technology, the increasingly international dimension of these
teams has expanded people’s sense of who is in their communities. Teaching
has similarly extended beyond formal education, as everybody needs the
skills to be teaching and learning in their workplaces.

Because education providers have responsibility for preparing students to
work in such flexible group environments, learning experiences are heavily
project based, with occupational links for students to gain experience
working in the community. They also involve service learning to help
educate students about being responsible members of a flexible society, in
which each individual decides what their taxes fund. Such learning
experiences are organized not by content areas but by socially relevant
topics, such as the greening of society, which serve as lenses for learning
about a range of subjects.

With the orientation toward community development, all stakeholders,
including students, parents, and the community as a whole, are involved in
defining the context for education. At the same time, each student has a
wide choice of learning experiences that adhere to overall standards designed
to indicate whether he or she has learned what society requires.

In keeping with the choice of learning experiences and the community focus,
the boundary between school and community has become permeable for
older students. (It is less permeable for younger students, for whom issues
of security and safety remain more prominent.) This move beyond school
means that museums, libraries, and hospitals also serve as learning places
and that many workplaces have designed some portion of their facilities to be
used for education outside working hours.
Indeed, in a content-rich environment enabled by technology, the physical
place serves as a portal, within which learning units are open to anyone who
wants to learn a particular topic, regardless of their age. However, the learning units tend to be approved by the community rather than being completely open to individual discretion.

While the content is open to anyone who wants to learn it, a variety of learning agents support learners. An advisor helps each student navigate his or her choices and structure the content by identifying a program of study in relation to assessments.

Project facilitators assemble the units of learning from which learners choose. These project facilitators are not content specialists but instead hold responsibility for organizing the logistics and partnerships required to provide students with learning experiences around topics such as ecology or health.

Those who are content specialists serve as learning guides to help learners conceptualize these experiences and the associated material. External assessors evaluate learning against agreed standards, while an internal assessor monitors each student’s personal learning portfolio. This portfolio reflects all of the student’s learning experiences, not just those offered by a particular provider.

The credentialing of learning agents now proceeds down two tracks. Many learning agents gain credentials from a unit resembling the old universities, but others are credentialed by their places of work as being appropriate to work with children. The latter group works in the learning environment for fewer hours, but both groups collaborate to support individuals’ progress.

Indeed, when you are outside looking in, you cannot distinguish who is who, because there is a constant flow back and forth, both of the people imparting the learning and the people receiving it.

“Do It Your Way”
Consumer Control/Individual Development

Mission: To meet each individual’s learning needs from birth to death.

In this scenario, where the purpose of education is individual development, the consumer, in this case the learner, controls learning. Education is characterized by an open network of learning experiences designed to develop healthy and productive individuals who contribute to the community through a commitment to problem-solving and lifelong learning.

No longer prescribed nor measured by seat time, learning is available 24/7 and year-round across many learning platforms and beyond geographical limits. Consumers decide when learning experiences offer enough value to be worth purchasing.
This scenario emerged partly because the teachers of yesterday revolted and demanded it, having become tired of being ignored and seeing kids left behind. Led by early adopter opinion leaders, they moved to put kids at the center of learning, with the goals of encouraging them to respect learning and to develop the capacity for higher-order thinking.

The learning agents of today serve as facilitators who help students manage their learning networks. They themselves are continual learners who organize around consumers and who take an adaptable and flexible approach to their entrepreneurial roles.

Specific learning agent roles include a personal learning coach paid by the learner, who helps learners keep track of their accomplishments, assembles the resources needed to fulfill their individual plans, facilitates their use of the resources, and assesses and analyzes their progress. There are also learning facilitators, who coordinate among personal learning coaches as they participate in fluid teams based around individual learners’ needs.

More likely than the teachers of yesterday to work part-time, these and other learning agents are no longer prepared in schools of education, although they are still licensed by the state. Instead, they gain their skills in other ways more consistent with this flexible and continually changing learning economy.

People become learning agents because it is fun and they can see every child succeed. Those who are good facilitators also receive lucrative financial rewards. But all learning agents have a sense of being part of a worldwide community, feel valued because of their greater professionalism and autonomy, and have the pleasure of helping young people develop their abilities to solve world problems.

Operating in an environment of pure personal choice without an entity resembling what people used to call school, learners and their parents select learning experiences that meet their needs, taking charge of their own learning instead of waiting for providers to make an offering. This sense of personal responsibility is key.

It also extends to the community: while this concierge-type approach might seem to contribute to an increasing fragmentation of the commons, pursuing individual ways of learning and cultivating individual expertise actually enable learners to adapt more quickly and to bring more problem-solving skills to the community than a system of education focused on community development necessarily would.
“Menu of Opportunity”
Provider Control/Individual Development

*Mission: Education is critical to individual success. We help every student maximize his or her individual achievement.*

In this scenario, where learning is controlled by providers but serves the purpose of individual development, education is perceived as being critical to individuals’ success, and the United States uses its national resources to provide equitable learning opportunities for each individual.

Choice and options, often mediated through technology, are valued as a way of ensuring that individuals’ needs are met. The learning system is oriented toward testing and measurement in order to assess their progress, to provide formative assessment, and to evaluate the effectiveness of learning environments. Traditional structures of degrees, certification, and accreditation still exist as a way of distinguishing one provider from another.

The learning platform is data intensive, with a nationwide database helping students keep track of their progress across providers and compare their progress with that of other learners and also helping providers compare their performance with that of other providers, some of whom are operating for-profit. In keeping with the provider control, particular learning experiences have fixed steps reflecting national standards. But individuals can choose which learning experiences best suit them from a range of options and then vary the pacing to suit their needs.

This scenario evolved when yesterday’s teachers began advocating for a provider-based education system that helped individuals rather than leaving them behind. They collaborated to set the steps through which students now progress and to build the new curricula.

Learning agents in this system still have a range of common skills, including an orientation toward using current learning research, comfort with technology, organization, good resource management, and the ability to build strong relationships with students as well as with other learning agents. Many also have content area expertise and/or the ability to perform learning-style assessments, while others specialize more and are valued for their results now that people can see whether they are making a difference.

While compensation has not changed dramatically for the less specialized learning agents, the profession holds great intrinsic value because people drawn to it are motivated by maximizing individuals’ opportunities. Learning agents also have considerable autonomy to make decisions about how best to support students. In helping them navigate the menu of opportunity, they serve as guides or facilitators.
Learning agents also have career development opportunities that allow them to remain focused on instruction while growing as professionals. There are still teachers, who have the support and information needed to deliver truly differentiated instruction. Because they are supported by other instructionally oriented colleagues, they can focus on content while others consider individuals’ needs in relation to data and provide guidance on acquiring specific skills.

That network of instructional support roles includes learning specialists, who help students understand how they learn best and how to use their learning style preferences to best advantage. A network of learning coaches works more closely with students to help them maximize their future possibilities. And a smaller number of instructional coaches supports those learning coaches in continuing to develop as professionals.

All of this student support still takes place primarily in schools, which are managed by a chief operating officer and a director of learning and curriculum. A data and assessment specialist plays a critical role in interpreting the data that helps drive choice across the system.

These school-based learning experiences are sometimes augmented by technology-mediated ones, depending on what the learning coach advises for an individual student. But regardless of the learning medium, students proceed through their learning experiences at their own pace.

In this highly structured but also very collaborative and team-oriented environment, learning agents feel empowered to make decisions in support of learners and have access to the appropriate data and business management tools to support this autonomy while ensuring accountability.

“We’re in It Together”
Provider Control/Community Development

Mission: Collective mission derives from collective action.

In this scenario, providers control learning for the purpose of community development. Hence education focuses on the most salient communal needs.

This is an interdependent world in which increased globalization and planetary issues have created great need for collaboration. Conflict management is also necessary to help smooth the interactions of different groups of extremists, as the tendency toward strong opinions, strongly held has become exacerbated by increasingly VUCA communities and by the growing disparity between the haves and the have-nots.
While significant changes in technology could have enabled the emergence of multiple learning platforms, the communal emphasis led decision-makers to choose instead a single platform with many nodes across which distributed action takes place. People work as individuals and come together periodically to collaborate as they do in many workplaces. Schools serve as community hubs of the education system, but education also takes place in settings such as businesses, theaters, and hospitals.

Due to the focus on provider control, teachers play a significant role in this education system. In fact, they helped bring it about by acting as smart mobs that drove new education policy and then gradually evolved into new learning agent roles. Similarly, unions have evolved to retain an effective role in the process of setting educational direction.

Given such political processes and the recognition of interdependence, teachers are skilled at collaboration. They also have strong technology and leadership skills. A shared pedagogy has emerged so that all students will be prepared to help address communal needs.

As part of that shared vision, education has moved toward a free-market medical model, in which people with complementary specializations together design an effective product. These complementary specializations include technical experts, assessment experts, standards specialists, knowledge workers, and researchers collaborating in a fluid lattice with shared accountability for results. Collaboration even extends beyond providers to include students and other community stakeholders.

Yesterday’s traditional salary schedules have been replaced by practitioner-developed compensation systems that strive to attract high-quality people, to retain them, to improve pedagogy, and to add to the body of knowledge that drives it.

To support the operation of the single learning platform with many nodes, a web-based content management system distributes content organized by providers through a variety of nodes, including face-to-face delivery, print materials, blogs, video, and interactive activities enabled by social networking technologies.

Most importantly, given our environment of extreme circumstances, people now rally together to do what is necessary from the top instead of relying on less coordinated grassroots action.

**Common Visions for Learning Agents in 2020**

Looking across these four scenarios, several themes emerged. Regardless of their position within the scenario framework, participants expected to see more flexible learning environments that take advantage of emerging
technologies to deliver content in more ways, and often in ways more tailored to individual students’ needs. They also anticipated increased community and other stakeholder involvement in learning (in the most open scenario, Do It Your Way, this involvement manifested as taking personal responsibility for one’s learning).

In all but We’re in It Together, where provider control met the purpose of community development, participants predicted that the students of 2020 will have increased choice about their learning experiences, with an individual coach or advisor helping them navigate their learning options.

And in all but Do It Your Way, where consumer control intersected with the purpose of individual development, participants expected there to be some form of agreed standards, with content specialists helping students meet them and with assessment specialists and evaluating progress. They also thought that some kind of entity resembling today’s schools would still exist, perhaps with more permeable boundaries. Finally, they implied or directly stated that collaboration would be an important skill for learning agents.

While they focused on what was taking place in each of the imagined learning platforms, participants seemed to think that the credentialing of learning agents would generally follow the form of learning that they described for younger students. For example, in Society Has a Stake, where consumer control led to considerable choice in the context of community development, participants expected that some learning agents would still be credentialed at something resembling a university, while others would have the choice of being credentialed at their workplaces if that better met both their individual needs and the needs of the role that they would be playing in the learning environment.

Looking across the scenarios, while the specific names for expected learning agent roles varied and while some groups identified a relatively great number of them, it does seem that, whatever the purpose of education in 2020 and whatever the locus of control, we can expect to have more kinds of people engaging in more kinds of roles in more flexible learning environments, and for those individuals to be collaborating across their complementary specializations to meet the needs of more students in more customized ways.