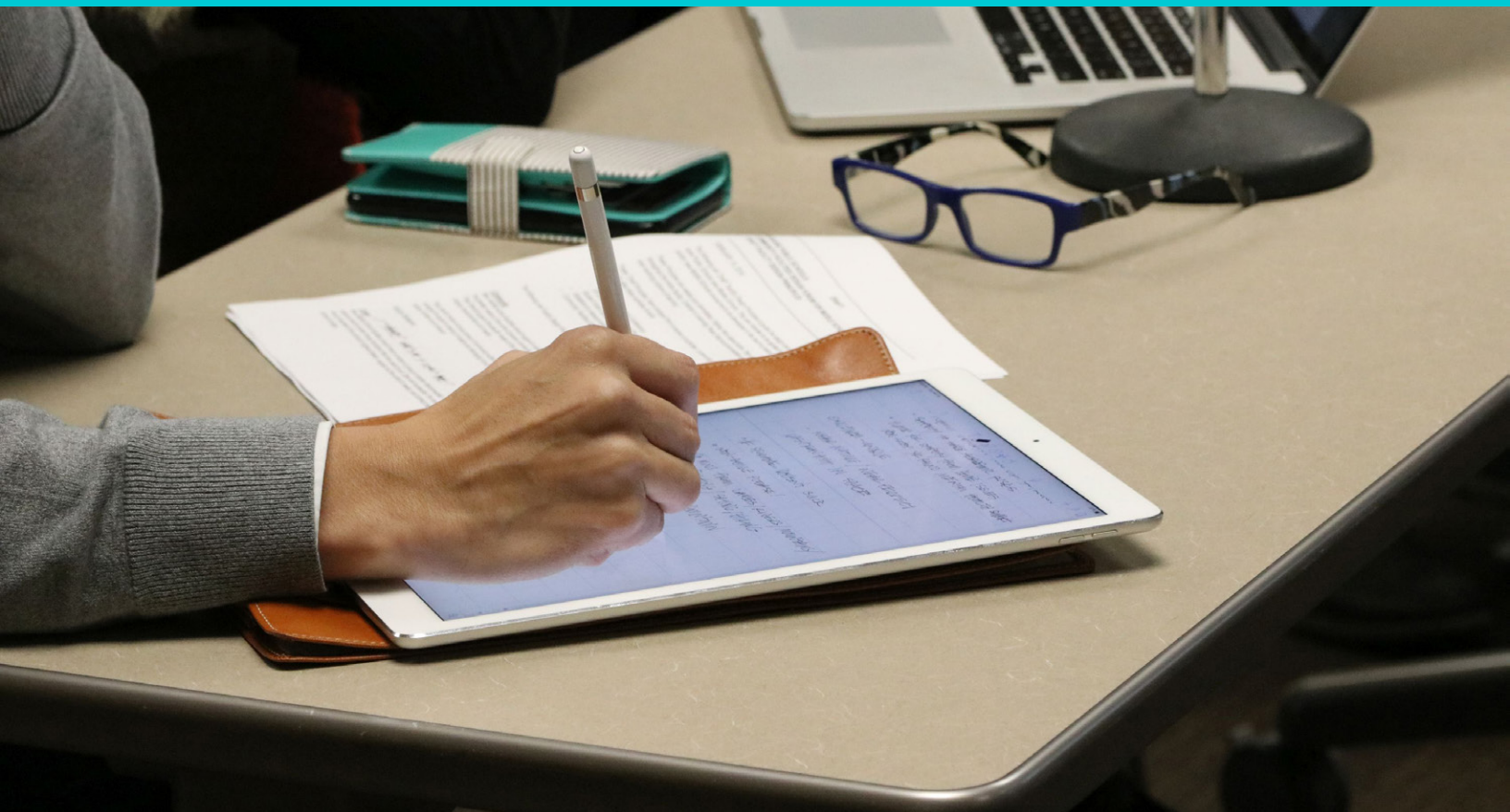


THE REIMAGINE AMERICA'S SCHOOLS FORUM

THE FUTURE OF LEARNING AT THE INTERSECTION OF TECHNOLOGY AND DESIGN

SEPTEMBER 2, 2020

National Design Alliance & Reimagine America's Schools in association with the International Society of Technology in Education, the Siegel Family Endowment and funded by Schmidt Futures



Background

During the pandemic, Reimagine America's Schools is studying issues that are accelerating change in public education. In addition to the influence of technology that we are addressing today, Reimagine America's Schools is also looking at how we can design for more equitable solutions in our schools, how to design learning spaces that support active learning and inquiry-based learning, such as STEM, STEAM, Maker centered, and project-based learning, and how do we design schools to more easily repurpose during periods of crisis and emergencies to better support communities and families. These issues and others are driving rapid change in schools, and also the way we design them.

Introduction

For decades, technology has been a dominant influence in reshaping the way we have approached teaching and learning. And while there are numerous examples of educators and architects that are creating new and exciting school designs which are integrated with technology, the vast majority of schools are designed on a model when the most advanced technology was electricity and blackboards. Those schools were designed on the model where a specific group of students had to be in a specific place at a specific time to hear the same specific message. We are no longer bound by those limitations. And even where the most current technology is used, the learning environment often undermines its impact. But the questions remain: what is the new vision for 21st century learning environments? How can technology and design work together more effectively to elevate student learning and help assure greater equity? How does the blending of virtual space and physical space influence the way we think about the design of schools?

This forum is just the beginning. Over the next weeks and months, we will continue this process to ultimately craft strategies and guidelines for educators to implement in their communities.

Forum Panelists:

- **Ron Bogle**, Co-Moderator, National Design Alliance, Reimagine America's Schools
- **Joshua Elder**, Co-Moderator, Director of Grants Management, Siegel Family Endowment
- **Sheryl Abshire**, Educational Consultant, former CTO, Calcasieu Parish Public Schools
- **Ashley Arhart**, Built Experience Innovator & Principal, BCG Platinion & MAYA Studio
- **Satya Basu**, Digital Innovation Strategist Associate, Perkins and Will
- **Richard Culatta**, CEO, International Society of Technology in Education
- **Marilyn Denison**, Ed.D., K-12 Education Planner, DLR Group
- **Daniel Foreman**, Associate Director of Professional Learning, Digital Promise
- **Ace Parsi**, Director of Innovation, National Center for Learning Disabilities
- **Lisa Ramirez**, Chief Innovation Officer, Lubbock ISD
- **Kecia Ray**, Strategic Advisor & Consultant, K20 Connect
- **John Syvertsen**, FAIA, Architect

Summary

Throughout the discussion, several key themes emerged, many of which addressed the challenges of equity, access, technology, school design and the nature of education. First, there are key foundational challenges that need to be addressed including food security, safety, emotional and mental well being of children even as we address issues of connectivity and access.

All participants agreed that the internet must be made available to all students and should be converted to a utility model rather than a subscription service. Second, technology is developing more rapidly than policy and legislation can respond. Operational as well as ethical concerns are potentially jeopardized. Third, professional development is required at all levels of education, and should also include training for educational decision-makers and parents. Fourth, and perhaps most importantly, are the fantastic yet plausible ways in which existing and emerging technologies can interact with the design of a school to create a learning experience that supports significant changes in the education experience and promising increases in student learning.

Internet Access: A Right for All

Ultimately, we cannot move forward until we acknowledge the limitations of the current school model. Especially limitations on issues of access and inequity that have been made ever more apparent during the pandemic. Participants recognized that people are coping with multiple challenges as a result of COVID-19, even as we seek to improve access, professional development and new policies, and the Internet needs to be seen and regulated as a utility in order to provide equity in learning opportunities.

Sheryl Abshire: You can have 300,000 iPads and you can give a lot of Wi-Fi devices out, but if you live in a community that has no connectivity or a rural area or an urban area that's oversubscribed, then our students are not connecting and they don't know what blended learning is. One of the things around this policy issue is that the FCC needs to think very differently about how we use these massive funds that are there to help with connectivity. To make learning really 24/7 and to make sure that there is an equitable learning environment for every child. It's not just the device. If they can't connect to anything and McDonald's turns off their Wi-Fi at night, then some of these kids cannot connect. So they are getting more and more disenfranchised by the minute. We should do better and we can do better.

Ashley Arhart: I think relative to the physical plant, that is the school building we are actually presented with, is an opportunity that's no less transformative than the inclusion of indoor plumbing and indoor electricity or electricity generally. When you think about the way architecture changed to incorporate these new utilities, positioning internet access as utility is a really great foundational premise that we should all advocate for.

Dan Foreman: The internet is a utility, it is not a luxury. Especially if public education is requiring students to be able to learn online. The other piece of this is that if learning used to be the constant and time and space were always the constants as a part of that. Well now, learning and space are now the variables and learning is the constant. So now we have to really rethink what we are doing and what the future will look like. We've always had this idea of learning happening in a school, within a space. Our entire public education system is structured around that, all the research is structured around that. The belief is that school over there is better than this school over here because my student needs to go to that space to be able to learn. We've torn down that wall.

Richard Culatta: When we build a school, we spend a lot of time getting it right. We have all these things that we expect in the design of our physical spaces. Yet, we have not held that same standard of design to a lot of the software that we're willing to put in front of kids. Our standard of expectation for the design of virtual environments is low. I would hope that as we think about our role, we focus both on designing physical and virtual environments. That they should be intuitive and accessible and inviting spaces. I do think there's some work that we need to do there.

Lisa Ramirez: I know we've mentioned a couple times already, that the foundational challenges have been overcome. I'd like us to just step back for a second and look at this through the lens of equity. As we make these assumptions, we also have this opportunity to look at our different community plans and revisit the assumptions and the limitations in which that plan was written. We have now learned in very quick order that although every child in our district has access to a Chromebook and we provided hotspots for students, we have learned there are even more foundational pieces that some of our students did not have. That could be a simple thing such as electricity. Having electricity, having literacy, computer literacy skills. Actually knowing how to use this. Having supports that are built in that will help them to continue to demonstrate student growth.

When we think about this new space that we're walking into — I don't want to really say 'new' because blended learning has been something this particular district has been working with for some time — it is important that we think about whether or not we're actually giving the students true options rather than false choices that they will never be able to access. Even if they select the box to go in the virtual platform, they will not be growing at the rate that they'll need to be competitive.

Satya Basu: One of the things we can think about as we think about technology as scale is finding small and broad applications, which also helps address equity because it keeps everyone raising together. Let it start small and wide and then find the opportunities that emerge when you connect 30 million school children together, even at the simplest level. Then build on top of that platform.

Equity, Access, Technology and Design

Communities, families, and students are all experiencing the widespread social and emotional traumas that have resulted from the pandemic. It is now clear that we have an obligation to rethink and redesign schools that will address access and equity concerns, and reflect on how schools can become a de facto community resource. Furthermore, technology is advancing faster than legislation can keep up; we haven't had the time to think through the ethical implications, or how policy will reflect this new digital landscape. There is also an urgent need to create a new vocabulary between educators and technology experts. At the moment we are stuck in thought silos and lack a common vocabulary to create a new policy landscape for the future.

Sheryl Abshire: How do we use these massive amounts of funds that are there to help with connectivity that leads to equity? What should the FCC be doing to make sure that there is an equitable learning environment for every child? It's not just about the device.

Marilyn Denison: What is the community missing that we can start working with our schools to help support the community become richer and more developed as we continue to raise our kids through our schools? Could schools be seen as learning labs for the community?

Ace Parsi: There are going to be social and emotional learning issues that are going to emerge because of the pandemic. These are trauma-informed issues. Some of that is going to really need human interaction, as well as high-quality pedagogy. We need to be able to acknowledge that in

the conversation... So I would say if we're thinking that the device or connectivity is the revolution, we are missing the ball. We need to think about what the actual learning experience of the students is; it's not all rosy, kids are isolated.

Kecia Ray: I think of a report from the Center for Online Learning in Students with Disabilities, which was run out of the University of Kansas. This report examined online learning environments for students with disabilities and highlighted that most states and districts haven't thought about those issues of accessibility in a really in-depth way. We as a community must demand that ourselves. We can't just say we're innovating and let's forget about all these civil rights laws that have protected kids' rights. We have to also note where it's not working and why it's not working. Make sure that we hold the same high standard for our failures as any other environments.

John Syversten: What do school buildings have to do with learning? So what if we said that going back into the school space, we think of it differently as a place for occasions that didn't occur before. That bridges gaps in neighborhoods and addresses issues of equity. That split the idea not only of the physical classroom but that maybe we don't teach math and science, maybe we teach the nature of the broader conditions in the world ... So I think there is a chance here to blow apart this whole question of what a school environment is going forward.

Professional Development for Leaders, Teachers and Parents

If we are to make the necessary advances in our schools, we must dismantle the barriers that close schools off from the community and encourage greater parental, civic leadership and community engagement and involvement.

Sheryl Abshire: We've got significant work to do with helping faculty and school leaders. To understand what this new environment could but more importantly, should be, stemming all the way back to producing young men and women out of colleges of education through alternative pathways to certification to teach. The default position is "I will teach the way I was taught or the way I was coached during some type of practicum teaching." If we're truly going to redesign and rethink this, we need to think seriously about what kinds of significant deep professional development do we provide for school leaders, district leaders, and certainly, classroom leaders. Honestly, when the door closes, as teachers, you are the master of your own fate. We've got to work harder to help practitioners and leaders think out of the box.

Kecia Ray: I think there is going to be a lot more inclusion of parents in this new evolving conversation from curriculum selections and even classroom modifications. There is an opportunity to truly reinvent architecture, to enable technologies. Keep in mind how quickly technology has evolved. We haven't talked enough about the new style of conversations that need to happen between technologists and architects. We should not presume that we know what 'right' looks like. Architects and technologists don't yet share the appropriate vocabulary. The place that I think is doing a good job of bringing physical and digital together is more object-oriented. Probably the most advanced benchmark would be autonomous vehicles where people are actually working in tandem and changing the nature of both the technology and the physicality.

Kecia Ray: Pedagogy has to shift but it can't shift overnight. You can't mandate it. So there has to be an evolution for the teachers, for example getting professional development built into their contracts. Going forward all of your instructional materials should actually be online. Your presence

in a physical environment should be for collaboration, for your social, emotional experiences. For one-on-one consulting with a teacher or a peer but not for instructional delivery. That is something you can actually get through an online platform.

Marilyn Denison: Space matters, so space and technology are the nudges to change behavior. But they must come with a clear vision, identified expectations and practices, and ongoing professional development support.

Joshua Elder: We can't go backwards, but we can only go forward with a strategic plan and a clear vision that intentionally allows for intersectionality between learning, design, and technology. It includes the voices of all stakeholders, including students and families. Making sure that everyone has a seat at the table for us to plan this new way forward.

A Blue Sky Opportunity to Rethink and Redesign the Learning Environment

There is no question that we should not go back to past practices. We can't rely on 20th Century school models. With a great deal of enthusiasm, all participants agreed that the pandemic is changing the way we think about new configurations for educational space. The learning environment is an essential part of the equation, but just what could it look like, and how can technology, space, and pedagogy be designed as a fully integrated solution and transform the learning experience?

John Syvertsen: What we've experienced during COVID, is a separation of the physical space of school from the experience of learning. When you do that, you lose something and you gain something; you can see space differently than you did before. So now we've stripped it away and kids are starting to come back. It's an incredible moment of exploration and excitement.

What if we said that we think of this space differently, as a place for occasions that didn't occur before. That bridges gaps in neighborhoods and addresses issues of equity. That splits the idea not only of the physical classroom but that maybe we don't teach math and science, maybe we teach the nature of border conditions in the world. Maybe we also say I'm going to school on the North side of Chicago. But today, I'm not just going to interact with the kids in my building, I'm going to interact with the kids on the South Side and the West Side.

I think there's a chance here to blow apart this whole question of what a school environment is. Thank goodness then that we had this pandemic to make us strip away the space for a while and come back and look at it freshly.

Richard Culatta: What do effective learning environments look like in a world that is highly technology infused, but a world that also has a very real physical presence to it... We need to be very bold about the conversation about what the future of learning spaces look like when physical and digital space are blurred.

Richard Culatta: The environment, if it is set up in a way that's appropriate for learning, is incredibly powerful and enabling. Pre-COVID, we were in a transition mode between physical learning spaces that had no technology and a very tech-rich environment. COVID accelerated it, but it has not changed the general trajectory. What we have not thought enough about is the intersection of those two. What do effective learning environments look like in a world that is highly technology infused, but a world that also has a very real physical presence to it? I think that's the shift that we need to make.

Satya Basu: I do love the idea of breaking down the boundary to say that collaborative project-based learning probably occurs more in a garage than it does in classrooms. That could happen on the school bus as well. So in a way, a design problem is not just about a physical thing. It's more of an attitude that you bring to a whole range of experiences.

Richard Culatta: The school is a very open collaborative space for elementary, pre-K through fifth grade. These students all have an iPad, they have space that is a large group space. They have small collaboration spaces that are very transparent, so you can see visible learning happening all the time. There's little space nudges that encourage kids to go into small groups or individual areas that they can do more reflective type thinking, working by themselves. The students are just working fabulously through this school. No fixed technology, we wanted everything to be very movable. So every space, every wall could be either a writing space or a projected space or can be utilized differently.

Marilyn Denison: We've done some study with the student engagement index and teacher engagement index, to really measure how students and teachers feel about their space and how they're utilizing that. We're seeing strong proponents to the space that allows students to move their furniture and be into groups, to collaborate, to be able to stand up and move or maybe lay on the floor or lay on a couch. Whether they're doing inquiry learning or working on their technology, they're far more engaged and willing to stay with their task much longer. So we want to continue to look at space that allows for that movement and creativity and that really inspires learning.

Sheryl Abshire: We did some work investigating and teaching students how to basically build their own devices using smaller microcontrollers, micro-bits, Arduino and things like that. Connecting more to the maker space and encouraging students to develop a curriculum for themselves; the questions they want to answer and then teaching them how to build technology to do that. We started with one class, a series of classes, then one school.

Ace Parsi: So I think as we redesign our schools; think about how they facilitate the types of project-based engaging learning experiences that we have. But to that end, again I think we have to think about this as the pedagogy and the types of learning experiences and lead with that. Then think, well, how technology facilitates that rather than doing it the other way. Starting with the technology and then thinking about how we fit our pedagogy within that technology. I think that's a different sort of paradigm shift that we need to be thinking about.

Satya Pasu: One of the big shifts we've seen is that just basically since 2007, is personal technology. Everyone now has these devices and the ownership of technology has changed somewhat. As a result, too, a lot of the disruptors we've seen in the world have been focusing on interface. There have been changing interfaces with this digital technology that everyone walks around with an interconnected, web-connected computer at all times... There are things we could start to do to start to leverage that interactivity of personal technology and the built environment as well as outside the built environment. Also — we need to expand the curricular box - the definition of computer science — so that it can take on more and have more freedom.

Ashley Arhart: I'd like to set a more extreme aspiration for how we might think about technology in this context. We have a tendency to anchor on technology as objects in physical space. I'd actually like to be a bit provocative and suggest that we think of the space itself as a technological entity. There are a couple of mental models that I think could be really helpful. One is a system of record. A system of record that we're all very used to interacting with, to your point, Satya is interfaces. We touch keyboards, we touch screens. Imagine the system of record that is actually three-dimensional, spatial, and you are operating within it. It is still capable of understanding human inputs, perhaps gesture, proximity, and identity. Then a system of intelligence. Of course, systems

of intelligence that we're all used to working with today and are certainly extraordinarily useful in remote learning are different software products. Imagine a software product that is capable of stitching together all of the activities that are going on in physical space. Also, integrating those more traditional software inputs that we do have access to through personal technology. Imagine a physical space that is intelligent and actually something that we can collaborate with.

Conclusion

These national conversations are imperative given where we are as a nation. The pandemic, the demand for greater equity and racial justice and the state of K-12 education require educators to accelerate their thinking about how technology can respond to the present crisis and help close the equity gap. Participants developed some key takeaways at the forum's conclusion:

- The internet should be considered a utility, not subscription-based, and access should be available to all members of a community.
- Technology is advancing at a rapid pace, but we have not thought through the ethical implications when it comes to the education of children; policy and legislation need to catch up.
- Current and future technology and user interfaces must be leveraged to develop an inclusive and holistic learning experience.
- As physical and digital lines are blurred, learning spaces must be designed to facilitate active & inquiry learning including STEM, STEAM, Maker, project based and personalized learning.

We're planning learning environments that support next-generation technology and new learning modalities. We have a unique opportunity to design the next generation of school facilities and we must grasp the moment. We can't go back - it's time to Reimagine America's Schools.