Education and Design Roundtable

November 5, 2012, World Economic Forum, New York City

Summary

by Martha Chahary and Nico Daswani, World Economic Forum

Speakers

Seth Andrews, Founder and Superintendent, Democracy Prep
Tim Brown, President, IDEO
Paul Kruchoski, Special Assistant for Policy, US Department of State
Toshiko Mori, Robert P. Hubbard Professor in the Practice of Architecture, Harvard University Graduate
School of Design

Moderated by Paola Antonelli, Senior Curator, Department of Architecture and Design, Museum of Modern
Art, New York, and Chair of the Global Agenda Council on Design Innovation

Opening remarks by Michael Drexler, World Economic Forum

Introduction by Paola Antonelli

- Roundtables reflect a desire to have a conversation with other councils where design can make
  contributions.
- This is the first roundtable, a prototype of which the outcomes will be shared at the Global Agenda
  Summit in Dubai.
- Education is the first theme, there are many other topics. Education is a vast theme: we will try to
  think about education as a path to job creation and in a holistic way as an integral process for
  thinking about the future.

Seth Andrew on K-12 Education

Democracy Prep is an example of how we can rethink and redesign public education. Democracy Prep is a
network of public charter schools in New York that started seven years ago with one school, now have
seven schools serving about 2,000 students from K-12. Scores perform better than Westchester County, the
richest suburb in New York, despite being located in Harlem and Camden, New Jersey.

What are public charter schools (PCS)?
- PCS are accountable to the government, publicly funded, open to all—major difference with regular
  public school is autonomous from the centralized administration in which it operates. 8,000 charter
  schools serving 2 million students in the USA.
- PCS trade autonomy for accountability – PCS accountable for results, which provides autonomy to
  social entrepreneurs and educators to think about public schools in a different way.
- The term PCS does not reflect quality or design – only tradeoff is autonomy for accountability which
  is why one PCS can be very different from another. What you do with the autonomy differs from

school to school - which is why many PCS are not doing so well. Democracy Prep didn't want to have a supply-side model, we wanted to have a demand-side model.

<u>What is the demand and how do we create the demand for high quality schools in our communities? How do we create a political voice for our community? How do families without economic resources, college education, or social capital, start to demand great schools instead of being comfortable with the status quo?</u>
Public charter schools are schools of choice, everyone who is in our school is there by choice which means we don't have a union contract. Our teachers get paid 25% better than the traditional district but become at-will employees and give up job security. We recruit people from across the country.

From day one we asked ourselves how we could make our model replicable. We don't take philanthropy because otherwise it won't scale – use only public funds. We use rigorous research to figure out what works and the variables needed to make work impactful.

<u>How do we leverage the best practices and lessons learned? (Korea example)</u>
If we were a hospital and we found a vaccine that even partially made a cancer patient better, people would be demanding this. But in education this is not the case. What is the formula, the vaccine needed and how do we distribute it to millions of kids around the world so that they can have an education that entitles them to opportunities?

Democracy Prep's Five Design Pillars
Talent (great teachers)
- The most single important design element is the Talent in the building. Great teachers and great leaders. That's above pedagogy, technology, curriculum, classroom management, architecture – the single most important factor of great schools is the adults in the room.
- In other countries in the world teachers are taken from the top third of college classes, in the US, according to a McKinsey study, we take teachers from the bottom third of college classrooms.
- If we have great teachers in our classrooms than we will have a solid foundation and avoid the centralized supply-side model.

Culture
- This pillar stems from teaching experience in Korea where I taught kids of poor families - given their history of war and turmoil, after the war, they considered teaching as one of the most honorable professions, 1) teachers are golden, 2) hard work equals success, 3) education is of the highest value
- It comes down to a culture of high expectations that we can set in a community and in a school because we have the tools necessary to do so
- Education has the highest value – building a culture of teaching and education

All kids will go to college
- No exceptions, no excuses; some will take longer than others to make it to college but expectations are set high from day one

Time
- Rethinking what time means. School from 7.15am to 5.15pm, school on Saturday and school in summer on most days. 75% more educational time than regular public schools.

- We make time the variable. Core subjects such as debate, art, music are cut out of traditional schools not because of money but because of time. Currency in school is time not money.
- We make time a variable and expand it. We set rigorous expectations and have more time to do what we set out to do.
- Kids at Democracy Prep travel to 5 continents before graduating high school

Data
- Education is measurable. We love tests. We think of tests as assessments of what kids know and what they need to know – we test them all the time to measure what we need to adjust to better teach our kids. Makes teaching a quantitative rather than qualitative profession.
- Joel Klein: "collaboration is the elixir of the status quo crowd". We won't fix poverty until we fix our public schools.
- We need to have more conflict than collaboration – we need to disrupt the system. Only 8% of kids of color have likelihood to graduate high school.

Toshiko Mori on Post-graduate education

- Constant redesign of curriculum
- How to advance studies to prepare students for complex world?
- Visualization is a new tool – breaks language barriers – essential tool that breaks boundaries
  o Visualization of complex situations
- Linear narrative – we have to figure out interrelationships of elements, break up silos
- Connections and mobility
  o How do we work and think in this dynamic world?
- Parallel processes (time is linear)
  o What beats time?
  o Criss-crossing of data and issues – visualization helps to understand brain processes that help breakthrough innovation in education
- Harnessing traditional wisdom
  o Not forgetting traditional crafts that were/are innovative but lost with time. What we thought we knew from thousands of years ago is taken for granted – however, some methods are quite advanced
  o Working with traditional craftsmanship to develop solutions to poor communities

- Constituents
  o Kids are learning in a vacuum. Who are you learning for? What can you convey? Who will you be serving?
- How do we implement what we share? – team learning, sharing
  o The way social media is a platform for sharing ideas, the same is not fully advanced for sharing what is created. Implementation devices; How do we advance what we share, create?
- Agricultural model for education: you are preparing the soil, cultivating, for life, cross-pollinating
  o Need resilient model
  o Resource management
  o Growth development, skills development
  o Cultivation for the economy
  o Continuity

- Why are we learning, why are we studying, why are we teaching?

Paul Kruchoski on Technology innovations for education

- 3 technology innovations that will transform the way we think about education, particularly the undergraduate experience, over the next 5-6 years:
  - Open Educational Resources (OER): free-to-use teaching and learning content. Students spend $1k to $1,5k on textbooks per semester. This in additional to the $1 trillion in student loans. Can we develop free textbooks? There are now textbooks that are free to download, translate, edit.
    - Example: Washington State University invested $1.14 million two years ago to have 84 textbooks for use in community colleges saving students $1.4 million in one year.
  - Massive Open Online Courses (MOOCs)
    - Anyone can take entire courses online. Antioch University will now give credit to students using certain MOOCs. Students can take the courses anywhere and anytime. Changing the classroom experience.
  - Open Badges
    - Mozilla Foundation sparked idea: What would happen if we rethought the bachelor's degree? If we rethought credentialing? So that anyone, anywhere can get a certificate that credits skills developed through a particular course, anywhere.
    - Traditionally, universities act as gatekeepers but this system allows any credible authority to create a "badge" i.e. the credential
- $16 billion spent per year on education in US – we can save money to allocate to other resources
    - The above technologies can be integrated into courses and can start saving money
- Why have huge lecture halls that require economic resources for maintenance when we can have students take courses on their laptop and then have them meet in smaller study groups? Why not have these discussions online first? We can transfer and utilize the badge system to make universities more robust.
- How do we not destroy universities but make them stronger?

Wrap-up and additional questions by Tim Brown

- Three categories to wrap discussion:
  - Theme of broadening skills - Educational system and skills: We are asking educational system to produce student with broadest set of skills ever
    - Need to be creative and innovative in employee base, however, there exists a fear of being creative, fear of taking risks. An IBM survey asked CEOs what they needed most in their workforce. They said they were unable to deal with volatility in the world, and need innovations and creativity.
    - How are we going to create an educational system that can build creative confidence in 100% of output?
    - Is college the best way to acquire skills?
    - Example of Germany: learning through doing, 60% of high school graduates go into apprenticeships – perhaps why strong manufacturing industry.

- What do 21st century apprenticeships look like? What form might they take? What are the skills and topics that it might cover?
  - How much space do we have to redesign the system based on our constraints?
    - To Seth's point on talent – what do we do when we don't have access to superstar teachers – What opportunities do we have to change or play around with the whole system to still get productive results without having superstar teachers to rely on?
      - Materials that enable students to learn without high caliber teachers
  - Model of education
    - Education is highly front-end loaded; we depend on the state to provide us with education
    - What does an individual, life-long curriculum look like? What will technology such as MOOCs and badges look like? How can we capture what has been learned? Can badges stay with us through life like our 401k or medical records?
    - Badges system: What is the equivalent of these badges to capture qualities that we want in the workplace? What are the qualities we want students to have? (creative confidence, analytical thinking, social engagement, political engagement?) Can we teach how to attain these qualities?

Discussion

Paola
- Not a question of what are the new models, because new models are already being created
- Q: Linda Fried, Dean of School of Public Health, Columbia University – GAC on Ageing
- Young people need to be prepared to lead longer lives – should make young people understand this opportunity
- What kinds of social capital can older adults bring to the education of others in terms of partnership, across generations, community knowledge?
  - Seth:
    - Human capital side:
      - Most school are not leveraging teacher talent – How can we get great teachers to leverage these educational tools (MOOCs, etc) to impact more students?
    - Talent side:
      - We have barriers to entry to the profession of teaching: need certification which protects status quo which prevents Democracy Prep from accepting a wide range of people (especially age and background) into the profession
    - What does it mean to be a teacher? Rethinking what teaching means. If we can break down barriers to who can teach we can get better people to come in.
  - Paola:
    - Question for Toshiko: need for continuity, there needs to be context for the way we teach, from K-12 we probably still need physical presence of teachers
    - How do we modulate distance, flexible, customized learning to instill rigor and invest in learning?
  - Paul:
    - How we use new innovative tools will depend on circumstances; online learning can help free up some of the time used in classrooms (hard skills learning) to focus on soft skills development through seminars, trips, etc.

- o Paola:
  - Is policy helping this?
- o Paul:
  - It will be schools like Democracy Prep that drive innovation, not the federal government.
- o Tim:
  - Interesting to think that today the classroom is the dullest part of the day when it should be the most exciting, when kids are with other kids and teachers, we should be able to design ways to deliver the content
- o Toshiko:
  - The notion of learning stops at school – going back to ageing – MOOCs is helping to understand that we learn beyond school
    - MOOCs is taking that stigma out by allowing different people to interact together
    - Cross-generational interaction, interesting synergy
    - Need to get rid of stigma of going back to school – should be pleasure, life-long learning
- o Paul:
  - Learning doesn't start until they leave the classroom – college experience being rethought around that
  - Service learning: take skills that you learn and apply them to community work
  - Incubating: Stanford gives credit for starting an organization, initiative

- Q. Michael Drexler, World Economic Forum
- Do we have a consensus of what education is supposed to do?
  - o Toshiko:
    - Evolving question I ask myself as a teacher: Why am I teaching, who am I teaching and how do I teach?
    - Broad humanitarian question: mission and continuity of knowledge
    - Issues of social contract – that's why we teach, that's why we learn – broader agenda
  - o Seth:
    - Question can be split into two: <u>What is the purpose of public schools? What is the purpose of education?</u>
    - Purpose of public schooling is to enhance and support democracy – reason for mandatory public schooling is one of the 5 responsibilities of being a US citizen
      - Tool that we have to sustain and build our democracy...what is our democracy? The idea of our democracy is to enhance choice and voice to give them the power to choose what they do in their lives.
    - What is the purpose of education question relates more to post-secondary education which assumes that we have gotten there. It assumes that we have intrinsic motivated students who can say I want to take a MOOC, to go to college, etc.
    - Need to shift from extrinsic to intrinsic motivation – need to force upon kids in extrinsic way

- Q. Name (?) – Is this not a bandaid? Making education an intrinsic motivation – stereotype about charter school that they exist as bandaids. What are the drivers of radical innovation in K-12 schools?

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- Seth:
  - Charter schools exist as a laboratory where we can get a model right and then scale up
  - Relinquishment: public schools are school systems, we should become systems of schools – decisions should be made more by teachers and principals (and family choice of which school child can go to) rather than central command systems while holding them responsible
  - Relinquishment back to the people
- Tim:
  - If we don't challenge constraints we don't have innovation – charter schools have ability to challenge those constraints
- Seth:
  - Problem: states have one standardized test – we need more; we can make our own metrics by using what we have now as a floor, not a foundation on what is taught
  - Trying to measure soft skills (change soft in hard skills) and move from qualitative to quantitative – we need to learn how to measure things we want to achieve (i.e. soft skills)
  - Trying to use "badges" to try to measure skills in arts, music, public speaking. Have you presented in public? In front of an elected body, in government? These can be questions that when answered can help demonstrate measuring a soft skill.

- Q. Sarah Potler, Founder and CEO, Dance 4 Peace
- What are the building blocks, metrics to create a culture where failure is ok? Where students can feel safe?
  - Tim:
    - Think of them as a culture rather than metrics, a support system that accepts failure and respects risk taking, creative collaboration
    - You can't mandate them, but you can build them
  - Paul:
    - Western Governors University (online) chartered by 26 western states: helps one master whatever skills they need into certain courses; students can take an exam and if show skill achievement don't have to take course; exam can be taken up to three times which allows one to fail but try again
  - Toshiko:
    - Within creative discipline you need trust, a teacher needs to create a life-rope that has a glimpse of the cliff but don't fall off of it

- Q. Robert Torres, Bill and Melinda Gates Foundation (work funds badges concept)
- Conversations have shed light on learning models and resource models
- Toshiko's model gives real recipe to model of education (emancipation of the mind)
- Teaching on how to decipher complexity
- Design and system thinking are two competencies that are broken down – asks who we are teaching for and for what – How do we develop innovators and designers? How to we enable people to solve complex problems?
- Who is the arbiter of credit? Begin to think of institutions in different ways
  - Working with NASA, for example, which gives legitimacy to what students are doing
- Paul:
  - Look at badges as an enabler of growing content
  - This will open social market of who can create solutions: Who can produce the best credentials?
- Tim:

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- o Coursera.org is already using social network to grade papers and develop metrics that help improve the system –

- Q. Carol Becker, Dean of School of the Arts, Columbia University – GAC on Role of Arts in Society
- What education should be for the future is a constant process where people can reimagine themselves but how can we create that environment? That's what arts schools do
- What is the environment that will allow people the fluidity and creative confidence? It's not about metrics or to that process, but adapting to the future
- Ability to create your own universe in arts
- Metrics is buying into the system. You can't measure arts, culture which is what makes them exciting, their illusiveness
- Conceptually we need to talk bigger than what exists
- Toshiko:
    - o Visualization is changing that: kids are looking at images and interactions are stimulating imagination – move towards visual language which will play huge role in future (away from alpha numeric learning), kids will have to imagine like artists
    - o Interest in art linked to visual conceptualization

- Q. Valerie Casey
- What's missing in these conversations is the role of status story. Each speaker is representing a certain brand. It's not just about craft and about taking a course and getting a badge. There is a currency around status that is ignored by measurement systems. The real value of design in recognized in context and creating conditions for new things to emerge. Is it about creating and facilitating a cultural narrative that allows a new way of thinking about education and status within society rather than changing the whole system?
- Tim:
    - o New norms and forms of education status are emerging
    - o As we connect people's educational experiences more and more, different forms of status will emerge
    - o role of design is to create these prototypes – opportunity to do so