Dissatisfied Yet Optimistic:

Moving Faster Toward New School Models

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WHAT IF?

What if every young person in America finished high school prepared and inspired to achieve their most ambitious dreams and plans? What if students were empowered and equipped to take control of their learning, and it was tailored to their individual needs and interests? How might we focus on more than scoring well on state tests and college entrance exams, helping students build habits and skills they need to achieve personal success throughout their lives? How might we design schools and classrooms that accomplish this? How close are we to having them, and what will it take to get there?

Today you can visit almost any school or classroom in the country and find students who struggle. They can't read, write or calculate. They have a hard time sitting still, following directions, and getting along with others. If you are able to really talk with them, they'll tell you in their own way that school isn't working for them. They sense that the path they are on isn't going to lead to the life they really want – the economic opportunity, the personal and career options, or the happiness. Meanwhile, in these same schools and classrooms, you will also find students who can read, write and calculate, sometimes very well. They follow directions, do what they are told. When you talk to these students and their parents, the word you most often hear is "fine" – they're doing fine, they will be okay, they will turn out alright in the end.

We wake up in the middle of the night thinking about these children, all of them. We work hard to figure out ways to ensure that each one of them can learn how to read, do math, and much more. How to help them achieve their full academic and personal potential and equip them with everything they need to achieve their dreams. We could very easily spend the remainder of our careers working hard on these aims – only to find that our schools still produce no more than "fine."

In writing this paper, the four of us are choosing a different path. It is fueled by a deep dissatisfaction with the status of even our best schools, but also an extraordinary optimism that together we can and will change them. We know that students are capable of so much, and so are our schools. Despite our hard work, we are far from realizing our full aspirations: classrooms, schools and systems where every student is joyfully realizing his or her potential.

But we are optimistic that there has never been a better moment to harness this potential. We know more than ever about how people learn, what motivates them, and what drives success and satisfaction in life and work. We have access to technology that can help students and educators create and pursue knowledge more effectively than ever before, technology that can even bring communities together. And we are beginning to see glimpses of what's possible when schools embrace the challenge of entirely redesigning the way they meet students' needs and interests.

We (the four authors) have come together from overlapping but different roles in an effort to redesign schools. Our collaboration is grounded in a humble realization that individually we will never be able to reach the ambitious vision we share for America's children and that a casual alignment won't get us there either.

We've come together to provoke explicit action. We hesitate to call it bold or radical because we believe that many people are inclined already in the direction we propose, but struggling with how to make it real.

To that end, we are:

- Sharing a framework for our theory of change
- Opening a discussion about how to make it better
- Collaborating so that our efforts are deliberately aligned to the framework
- Inviting our peers, colleagues and partners to do the same

The foundation of our action is a realization that we need to change what we are patient and impatient about:

- **We must be far less patient about expanding our vision of what it means for students to be successful and developing effective ways of supporting and measuring this broader view.**

  Doing well academically remains important, but young people need much more to realize their full potential in the short- and long-term. This includes building critical habits of success such as self-awareness, agency, drive, curiosity and empathy. Over the past few years, parents in many communities have become increasingly frustrated with a narrow focus on boosting reading and math scores, with many channeling

their dissatisfaction as opposition to state tests. Our schools must be designed to help young people develop a full range of skills, habits, and mindsets that are necessary for academic, career, and life success beyond high school. And we need reliable ways of assessing them so that educators can adjust and improve, and so that families, communities, policy makers and funders can hold schools accountable for outcomes in ways that go beyond a compliance mentality.

- **At the same time, we must be far more patient about the investment (time, money, and energy) needed to design, build and refine better models of schooling.**

  There is compelling evidence from other sectors and our own that suggests a different approach will lead to better outcomes and economically sustainable models. Specifically, we need to make larger and longer investments in a small group of innovators and engage in a robust and coordinated set of activities to identify and support early adopters of the best designs that emerge from the work of the innovators. Doing this will require nurturing effective improvement cycles within and across each group.

In the rest of this paper, you will find:

- A vision of the future
- A theory of change for getting there
- Our invitation to action

A Vision of the Future

Our current model of schools is a legacy of a historical system, that was created to address the shift from an agrarian society to an industrial one.[1] This model was designed to take students from diverse backgrounds (many immigrants) and efficiently give them basic knowledge and skills, while also showing them what it means to be an American. Many call this model of schooling the "factory model" because it was codified during the industrial revolution and follows the contours of a factory – blocks of students going down the conveyor belt of standardized subjects and grade levels to produce industrial workers.[2] While the separation and sorting of the industrial model worked for some students, it has consistently left behind many others – especially students of color, low-income students, and students with learning differences.

Today, it is clear that this legacy model of school is insufficient for *all* students. For the last half-century, despite massive increases in school spending, national reading scores have remained level, graduation rates have stagnated[3], and American students have fallen behind their international peers.[4] They live and learn among an increasingly diverse population – more than half of K-12 students are racial or ethnic minorities, English language learners, or from low-income families. They will work in an increasingly global economy in which advanced skills are growing in value and change is the only constant. More students than ever before must be prepared for success in higher education – as a critical link to good jobs and careers, but also, as MIT's Mitchel Resnick puts it, to create "a society of creative individuals who are constantly inventing new possibilities for themselves and their communities."[5]

Young people have incredible aspirations for themselves. A number of surveys show that between 85% and 95% of eighth graders across ethnicities and income levels say they plan to go to college. Four years later, fewer than 40% will finish high school prepared to complete college. Only 17% of low income students do well enough on college entrance exams to indicate they are likely to complete their programs. It's no surprise then that only 9% of students in the lowest income quartile

go on to complete a degree within six years of high school graduation. In terms of career aspirations, 64% of high school seniors believe they will have a professional career though fewer than 20% of them will. As authors Po Bronson and Ashley Merryman put it, "Clearly we've engineered students to have inflated hopes, but not actually equipped them with the skills to succeed."[6]

American young people deserve a better model of schooling. Creating it requires us to rethink the way we design and operate schools. We cannot simply change one piece, such as standards or curriculum, or to add on a few new programs. Such "point solutions" can make an important difference, but usually in narrow or isolated ways. They do not add up to radically different outcomes for all students, because for any one element to work well, it must work in concert with all of the other pieces. As Leah Hamilton and Anne Mackinnon put it while program officers at the Carnegie Corporation of New York:

> *By purposefully integrating many of these advances in a comprehensive school design, much more can be accomplished than applying each individually. When the best practices around what we know works in schools are combined to create intentional new school designs that leverage talent, time, money, and technology to meet the needs of each individual, it produces powerful results."*[7]

We agree. Let's entirely redesign how we do school and aim for an expanded definition of student success.

These schools of the future should:

- **Start with learning goals that are broad, deep, and interdisciplinary** across academic, cognitive and social-emotional aims; and, hold the **highest of expectations for all students** to meet these ambitious goals
- **Give students the freedom and power** to own their learning, choosing the pace and types of learning activities that work best for them, in service of their goals
- **Personalize the learning experience** to meet every student based on where she is, what she needs, and her goals and strengths

- **Equip parents to be active partners** with the school and with their children
- **Foster a community of togetherness,** with diverse groups of students, educators, and parents constantly sharing and working together

We can accomplish these aspirations by:

- **Engaging deeply with families and students** to understand their needs and aspirations and work with them to design schools that work better for students
- **Reimagining the roles of educators,** with different people wearing different hats based on specialized strengths or expertise, combining in different ways at different times
- **Rethinking the use of time and space,** to break free of traditional boundaries and constraints
- **Leveraging technology** as a backbone that enables all of the above and enhances – not replaces – human interactions
- **Embracing continuous learning through rapid iteration,** refining and redesigning as we learn more and more

We developed a more complete description of these attributes and contrasted them to features of the current factory model of schooling in Appendix A of this paper.

Such dramatic redesign reflects the growing ambitions of young people and their families, educators, community members, and businesses across the country. The next section describes our theory for how dramatic redesign might evolve from the hard work of pioneering innovators to more widespread adoption.

A Theory of Change for Getting There

This section covers a number of topics:

- Our diagnosis of why the fundamental design of school has not changed over decades
- Shifting conditions that make us optimistic that now is the time to ignite fundamental innovation
- Our current view about how change might happen in the coming years
- Early evidence we see of these shifts beginning to play out

Why the fundamental design of school has not changed over decades

We are nowhere near the first people to note the limitations of the factory model. In fact, people across time and philosophical spectra – educational and political – have highlighted the limits of the factory model. As far back as 1912, Frederick Burk commented that schools are:

> *...constructed upon the assumption that a group of minds can be marshalled and controlled in growth in exactly the same manner that a military officer marshals and directs the bodily movements of a company of soldiers. In solid, unbreakable phalanx the class is supposed to move through all the grades, keeping in locked step. This locked step is set by the 'average' pupil–an algebraic myth born of inanimate figures and an addled pedagogy. The class system does injury to the rapid and quick-thinking pupils, because these must shackle their stride to keep pace with the mythical average. But the class system does a greater injury to the large number who make slower progress than the rate of the mythical average pupil . . . They are foredoomed to failure before they begin. Could any system be more stupid in its assumptions, more impossible in its conditions, and more juggernautic in its operation?*[8]

Nearly a century later in 2009, British education expert Ken Robinson made similar observations:

> *We have a system of education that is modeled on the interests of industrialism and in the image of it. We still educate children by batches, as if the most important thing about them is their date of manufacture. If you're interested in a model of learning you don't start from this production line mentality. Essentially it's about conformity...and increasingly...about standardization.*[9]

These are only two of many quotes we could have cited from over the decades. However, **despite widespread agreement about the insufficiencies of the factory model, it has been persistently difficult to change, even among our "highest performing" schools. Why is that?**

We believe that everyone within the system is working incredibly hard, yet they each face practical dilemmas that make it challenging to fundamentally transform schools and systems. Specifically:

- **Teachers** often relish the opportunity to innovate and serve their students better, but struggle to reconcile new approaches with existing requirements – not to mention limited time and resources.
- **Principals and system administrators,** burdened by the overwhelming task of running schools on a day-to-day basis, face these same challenges. Without demonstrated alternatives to their existing designs and the supporting practices and tools that would make it possible to move to a new model, they understandably feel forced to persist in their current approach rather than jeopardizing existing results and incremental progress with too much experimentation.
- **Parents and students,** steeped in the current paradigm of what school means and unfamiliar with viable alternatives, rarely push schools to be dramatically different or look for ones that are. Parents understandably focus on their own children rather than the system as a whole, and most advocate for the best, lowest risk opportunities for their child within the school or district they attend.
- **Funders** want better results, but many let their desire for existing "evidence" get in the way of concurrently placing meaningful bets

on innovative approaches that could result in new evidence about effective designs and practices. As a result, they fund replication of more familiar incremental practices that demonstrate smaller but reliable effect sizes using conventional, often narrow measures of success. This behavior reinforces the innovation dilemmas faced by teams of educators by rewarding modest change and rapid scaling of incremental improvement.

On its own, each of these dilemmas is challenging enough to overcome; together, they paralyze our ability to drive fundamental innovations and thereby perpetuate the status quo.

Why is now the time to catalyze fundamental innovation in the basic design of schooling?

Despite the lack of progress to date in driving fundamental change to the basic design of schooling, the last decade has produced a number of necessary conditions that make us optimistic that the innovation we need is now more possible than ever before. Together, these conditions completely change the landscape of what is possible:

- **Lessons from high-performing schools.** Over the past fifteen years, the emergence of high performing, "no excuses" schools — often (though not exclusively) part of charter networks such as KIPP, Aspire, Achievement First, YES, and Uncommon Schools — generated further proof that when students have the support they need

to reach high expectations, they reach them. These pioneers demonstrated that with enough autonomy, talent and hard work, the industrial model of schooling can produce sufficiently high levels of academic achievement to earn most students admission to college. But some of the school networks that have figured out how to consistently help all students score very well on state tests and college entrance exams are disappointed with the college persistence and completion rates of their students. **Educators are hungry for research-backed practices that support habits of success, social-emotional learning and the development of student agency as keys to enduring academic and personal success for all students.**

- **Growing interest from mainstream schools and districts.** In October 2014, President Obama announced Future Ready, an initiative of the U.S. Department of Education. The effort is focused on inspiring and supporting school districts to create more personalized learning environments for students by incorporating education technology. Within six months, nearly 2000 public school districts took the Future Ready Pledge, indicating their commitment to the project. Since then hundreds of districts have attended regional workshops to learn more about how to shift to new school models. Districts and schools that have been awarded grants from Next Generation Learning Challenges, the League of Innovative Schools, and others are proving that demand in traditional district schools is real and growing. We count scores of innovative schools and districts in all corners of the country including Lindsay, CA; Reynoldsburg, OH; Albemarle, VA; and Fulton County, GA. The level of interest is exciting, even though the capacity to make the shift is very different from place to place. If we can figure out how to harness the momentum, the **growing demand for better models could help spur change faster** than we have experienced with other types of reforms.
- **Learning science.** As Rick Hess and Bror Saxberg put it, we have seen **tremendous advances over the decades in the learning sciences,** though these are often underutilized in education practice.[10] These advances have provided new insights about how students learn to read, write and reason, what learning differences mean and require, how memory works, and what contributes to learner motivation.

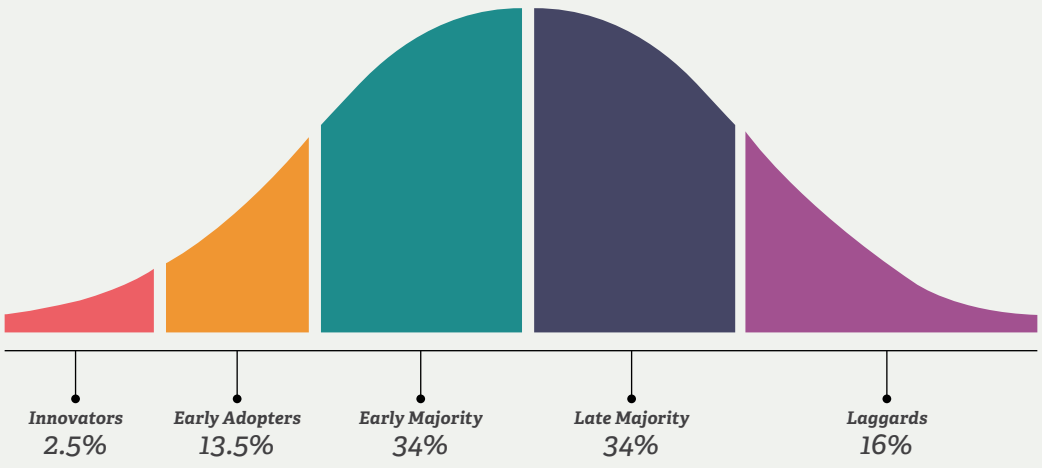
- **Human centered design.** Design science has been around for decades, but in the past twenty years it has attained a level of mainstream understanding and appreciation that has made it a practical and powerful tool for educators. Institutions like the Stanford Design School and firms like IDEO and WhatIf!? have codified and packaged methodologies in highly accessible and practical ways. Around the world, **educators are using "design thinking" to better understand problems in a human-centered way and generate innovative solutions,** often together with end-users.
- **Better technology.** Access to high speed bandwidth, devices and powerful software is cheaper and more ubiquitous than ever, and will only become more so. These factors have reshaped so many other industries - from taxis to hotels to real estate to banking - and are similarly poised to reshape education. Students, educators, and families can now have access to educational content from anywhere in the world, instant feedback, real-time data, and even new sources of community. **Entrepreneurial teams with world-class education and engineering talent are creating breakthrough courseware and platforms to support new school models.**

Capitalizing on these conditions, we are already seeing educators around the country taking steps – even in small-scale ways – to try new approaches, whether flipping classrooms, blending learning so students progress at their own pace, trying new staffing models such as high-dose tutoring, blurring the boundaries of school walls and communities, empowering students to develop and pursue projects that matter to their communities, just to name a few. Through this, teams of educators are showing what's possible when we begin reimagining the traditional model of schooling. And a small set of "innovators" is emerging from this group, who are more fundamentally rethinking every aspect of schools, capitalizing on all that's possible.

A Theory of Change: What it Will Take to Redesign Schooling over the Next Decade

Everett Rogers developed an adoption curve to explain how new innovations spread through a community. A few radical "innovators" (2.5% of the total "market") create the solutions, and a group of "early adopters" take them up (13.5% of the total "market").[11]

Figure 1: Innovation Adoption Curve

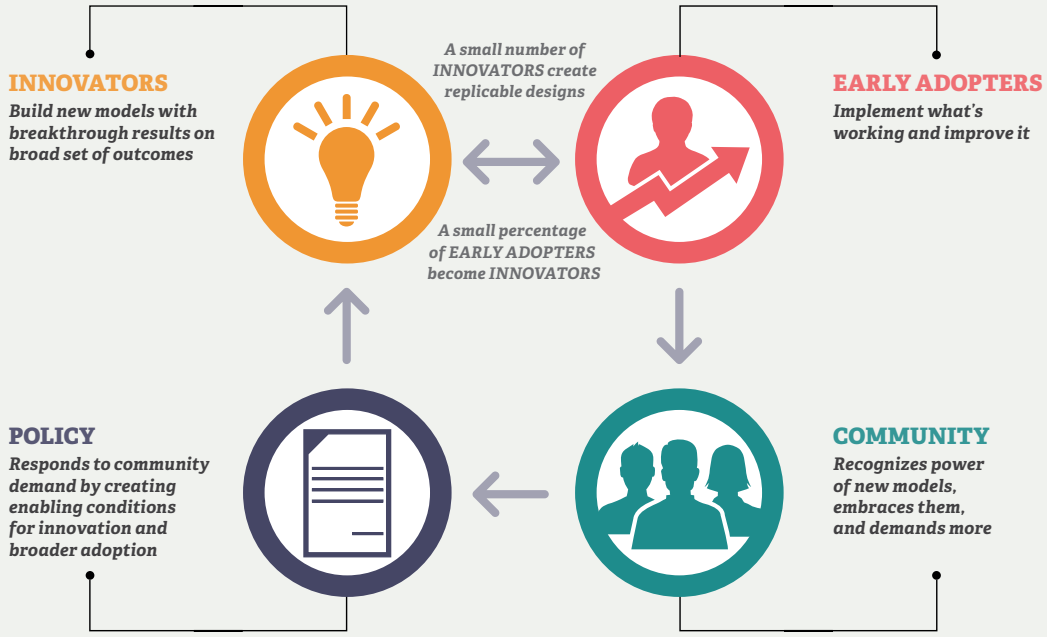


Our theory of change builds on this idea and focuses deeply on the bold teams of educators in this combined 16%, who we believe have the vision and track record to imagine and deliver on new school models:

Components of our theory of change:

- **Innovators:** IF visionary teams of educators and communities have sufficient time, design talent, and money to innovate and iterate, THEN they will build breakthrough models that transcend the limits of today's paradigm.
- **Early adopters:** IF models developed by innovators a) create dramatically better outcomes on a broad definition of student success, and b) are designed to be easy for others to implement, THEN early adopters, with modest design, implementation, and financial support will take up these models – in part or in whole – in their own districts and school networks. The set of early adopters is also a breeding ground for new innovators, who want to push the bounds beyond what currently exists.
- **Community demand:** IF those models resonate with what parents want for their children and prove results and students and families have meaningful exposure to them, THEN they will demand the experiences provided by these new models of schooling (including the requisite policy conditions) resulting in stronger outcomes for all students on an expanded definition of success.
- **Favorable policy conditions:** IF the policy context is conducive to the features of the new models (e.g., competency-based approaches to credit, accountability system based on individual growth in academic knowledge and skills rather than absolute proficiency, as well as an emphasis on additional dimensions of student success such as collaboration, communication, agency, self-management, etc.), THEN more and more districts/schools will have the ability to adopt new models in response to increasing demand from families and communities, and more innovation will emerge.
- **Virtuous cycle:** IF all of the above happen in continuous, mutually reinforcing cycles, THEN over the next 3-5 years, we will unleash unprecedented progress in driving and spreading breakthrough school models.

Figure 2: New School Models Theory of Change



This theory of change depends on several key factors:

- **Concentrated R&D funding.** The first two components of this theory of change - innovation and early adoption - require some financial support beyond the per-pupil funding most schools receive. In the innovator stage, this R&D funding enables fundamental rethinking, developing, prototyping, assessing, refining, and codifying (for others to adopt) of all components of new school models. As in all industries, this type of R&D requires significant capital. And as with all innovation, success is not guaranteed in every case or at every step, which means that multiple bets are required to yield a successful model. However, the bets need to be substantial enough to maximize the chances that:
  - fundamental rethinking can take place
  - teams have the resources to translate their vision into a strong design and then build, study, refine, and codify it over a few years

  So far, evidence suggests that fundamental, breakthrough redesign could require at least $5M of R&D funding per model spread over four or five years. These deep investments in models will pay off if they are designed to operate on the public dollar after the R&D phase, and can

spread across thousands of schools that can implement them with modest financial resources for customized implementation (around $200K per school)

- **Design talent/capacity.** Most school teams engaged in this work require additional capacity to develop, build, assess, refine, and codify whole school models. This capacity takes two forms:
  - "experts" who provide a robust link between accumulated knowledge in critical disciplines and the work of designing and building schools – including learning scientists, technologists, design talent, architects, data scientists, and instructional specialists.
  - "builders" who do the heavy lifting of developing out all elements of the school design, from instructional curriculum and assessments, to staffing models, to cultural rituals, to technology backbones, and so much more that is vital but often invisible for breakthrough designs to yield results.

  Without sufficient design capacity, we will see many great ideas but few that are translated into action in ways that yield replicable results.

- **Students, families, and communities deeply engaged from the beginning.** Students, their families and communities are the most important force for change. They need a few things to be true in order to engage. First, they need a clear and compelling vision of what school can be for their child; one that addresses their interests, aspirations and concerns. Then, they need a clear path to access and potentially shape that opportunity for their child – immediately. In short, they need a compelling reason to change what they are looking for in schools.
- **New measures of broader outcomes.** In order for young people to be fully prepared to create and pursue opportunities for long-term success, academic achievement alone is not enough. However, traditional measures of school success rely almost exclusively on student performance on standardized tests. To know whether innovative schools are succeeding along broader dimensions such as student agency, social-emotional learning, and executive function, we need valid, reliable, and agreed-upon measures. This will accelerate

the innovation process, both by demonstrating which new designs and practices are most successful and more clearly demonstrating the limitations of the industrial model.

- **Codified lessons.** As innovators and early adopters do their work, they will generate significant insights that have the potential to benefit each other and future pioneers. These lessons will include insights about the substance of the new models, the design process, and the change management required to bring new models into being. Capturing and sharing these insights in actionable and accessible ways will be vital for practitioners, communities, and policy-makers to understand what is required for the change to take hold and spread.
- **Human capital pipelines aligned to what new models will require from educators.** This topic warrants a full paper in its own right, which we will not attempt to undertake here. However, we recognize the essential role of human capital efforts that prepare and develop educators so their skills and mindsets align with what new models will require (which is different from what the industrial model asked of teachers).

Early evidence of this theory of change in action:

One of the reasons we see promise in this theory of change is the early evidence from examples in the field. One of these is Teach to One™, operated by nonprofit New Classrooms, which emanated from R&D in New York City schools. The middle school math model currently serves 6250 students in 16 schools across six states and is demonstrating strong academic results. California's **Lindsay Unified School District**, whose work was enabled by a $10 million Race to the Top grant, has been working to redesign schooling since 2009; rather than advancing based on their age or the calendar, high school students in Lindsay move to the next grade when they they can demonstrate to their learning facilitator (teacher) that they've mastered their learning objectives using a range of evidence, such as projects or other assignments.

One of the attempts that goes the furthest toward full redesign is **Summit Public Schools**, a charter school network of nine schools in California and Washington State, led by one of this paper's co-authors, Diane. Summit didn't start out by redesigning their whole model, but rather by experimenting with new ways of meeting student needs in math with Khan Academy, which inspired broader redesign. "Summit came to believe that blended learning held the promise to not just improve math scores, but to unlock students' ability to own their own learning and succeed independently – just like they would have to do in college," notes an FSG case study on Summit's work. "They soon realized that giving students greater agency was not about a single program or facet of their model, but had to be a radical design principle for everything the school did."[12] Summit allocated significant resources toward deep research and development around every component of their school model, from the instructional content they needed, to students' schedules and the structure of the facility, as well as the personalized learning platform that supports teachers and students day to day.

Four years into the work, Summit has developed and implemented a fully redesigned school model that meets the criteria set forth on pages 8-9 of this paper. Perhaps more importantly, Summit has created a culture of

continuous improvement that will ensure that their school model is never static, but rather constantly adapting to everything from individual students to advances in learning science to economic shifts. Consistent with our theory of change, Summit is one of the first innovators to create a network with early adopters in an effort to scale their innovations. Summit has launched a program called Basecamp that includes a cohort of 21 middle and high schools from across the country. As members of the Basecamp program, these schools, two-thirds of which are traditional public schools, will implement and contextualize the Summit model and curriculum, via a technology platform called the Personalized Learning Platform (PLP). The experience includes two intensive weeks of training for each school team in the Summit schools, a team of six full-time Summit educators serving as mentors to the schools including onsite support throughout the year, and access to Summit's professional development system and library. This close partnership between Summit as an innovator and several early adopters will help us understand the conditions, model codification, and change management processes needed to scale innovative models over time.

The table below maps Summit's story to each component of the theory of change:

Table 1: Summit Public Schools illustrating this theory of change

Components of theory of change	*Illustrative example: Summit*
Innovators IF visionary teams of educators and communities have sufficient time, design talent, and money to innovate and iterate, THEN they will build breakthrough models that transcend the limits of today's paradigm.	After 10 years of operating, Summit Public Schools had a proven track record of success based on state test scores and college admissions data. In 2011, the leadership team embarked on a deep research and design journey to pilot, test, design, and ultimately build out a promising next-generation model that touches on every aspect of the student experience including student ownership, instruction, facilities, technology, staff development, and school culture. This shift required thousands of hours of dedicated design and build capacity from leaders and experts inside and outside the organization and $7.8 million of R&D investment to date.
Early Adopters IF models developed by innovators a) create dramatically better outcomes on a broad definition of student success, and b) are designed to be easy for others to implement, THEN early adopters, with modest design, implementation, and financial support will adopt these models -- in part or in whole -- in their own districts and school networks.	Summit's results have been promising in terms of students' academic and personal growth and early adopters have been visiting Summit schools in droves to learn how to adopt the model into their own contexts. To meet this demand, Summit recently launched "Basecamp" as a way to provide early adopters deep access to the tools, curricula, training, and technology needed to adopt the model into new contexts. We believe that for a modest investment of $200K per school, we will see the Summit model spread to 20+ communities in the first year.

Components of theory of change	*Illustrative example: Summit*
Community Demand IF those models prove results and students and families have meaningful exposure to them, THEN they will demand these new models of schooling with an expanded definition of success, higher expectations, and stronger outcomes for all students.	In order to ensure that Summit's innovative model is not seen as an anomaly, we know that dozens and then hundreds of early adopters will need to successfully implement Summit's model and other innovative models. Islands of success can be dismissed; proof points across a myriad of contexts will create a movement. We also know we need many more models created by innovators like Summit.
Favorable Policy Conditions IF the policy context is conducive to the features of the new models (e.g., competency-based credit, accountability systems based on growth rather than absolute proficiency etc.), THEN more and more schools will have room to adopt new models in response to increasing demand from families and communities.	As a charter network, Summit enjoyed more favorable innovation conditions than many district schools who are constrained by regulations that inadvertently perpetuate the traditional model. We imagine that the proliferation of models like Summit's along with a groundswell of demand will at first put pressure on existing policies, but over time they will shift to enable many more schools and systems to adopt these models.
Virtuous Cycle IF all of the above happen in continuous, mutually reinforcing cycles, THEN over the next 3-5 years, we will unleash unprecedented progress in driving and spreading breakthrough school models.	Thus, a deep, focused design effort at Summit and others can catalyze a powerful cycle of innovation, adoption, parent demand, and favorable policy conditions that encourage more innovation and so on. The success of these initial innovation efforts animates this transformative shift towards schools that meet our highest aspirations.

Where will the next crop of innovators come from? One likely path is a lesson from the Summit story, and highlights the cyclical, iterative nature of innovation. Our view of what defines an "early adopter" is a team of educators who are dissatisfied with some aspect of their existing model, and picks up an approach or solution that was developed by an "innovator." Often this is a rather discrete activity. For example, when Summit decided to use Khan Academy to help all 9th graders fill in gaps in their math knowledge, they were an early adopter of using the online math content in a blended classroom rotational model at scale in a school. The work of implementation and its successes and challenges opened the Summit team's eyes to other parts of their model that could be redesigned, and more importantly to how a new approach to instruction unleashed students' ability to own their learning. After a couple of years of redesigning components, they were ready to completely rethink their entire approach to high school.

We believe a small but meaningful percentage of early adopters will similarly jump into the innovator category as their more limited redesign work leads to new insights and increased appetite and capacity for reinvention. Certainly some innovators will show up through different paths, but we believe many will begin as early adopters of the solutions developed by other innovators.

Our Invitation to Action

Before writing this paper, the four of us had our own journeys – personally and professionally – that helped us see the need for systemic change in how schools are designed. Through our common work in the sector and also through the Pahara-Aspen fellowship, we had the opportunity to work together on common issues and to explore underlying root causes through in-depth discussions, field visits, and shared networks. Especially as we each worked to shape our own organizations, we kept finding ourselves coming back to each other as thought partners on a set of common themes – the need to reshape the outcomes we're striving for, the need for deep R&D resources and talent to make massive breakthroughs, the need to build the next generation of schools *with* communities as opposed to *for* communities. As we came back to these themes, we felt the simultaneous need to get more precise about our common theory of change and to get real insights from people around the world who are grappling with these same questions. So we collaborated to write this paper as a way to capture our thinking and to invite others to sharpen our collective thinking and take action from multiple perspectives.

What can each of us do to support this vision?

Educators can...

- Ask themselves, "Are all of my students on a path towards fulfilling their potential and developing a wide range of viable options for thriving in life and transforming the future?"
- If the answer is anything but a wholehearted yes, then *innovate and learn!* Ask, "What can I be doing differently in my classroom or school or district to create learning models that fully engage, challenge, and support all students?"
- Look to innovators for examples - big and small - of ways to try new models of learning, rapidly test what works best for their students, and push on the traditional paradigms of schooling.

Students and families can...

- Encourage and in some cases demand that your school strives to realize an aspirational vision for learning and success.
- Support thoughtful efforts by your local school to adopt innovative designs and practices even if they challenge your notion and understanding of school.
- Act in partnership with your school providing thoughtful, constructive "user-feedback".
- Hold high expectations for the privacy of student data, while supporting the appropriate use of the data to drive iteration, improvement and personalization.

Funders can....

- Take a portfolio approach to grant making by including a few deep investments in innovation alongside support for more familiar existing approaches.
- Concentrate innovation capital in a small number of organizations best positioned to achieve deep, scalable breakthroughs.
- Expect outcomes beyond current academic measures and instruments; in fact, encourage and fund the search for measures that capture the development of skills, habits and mindsets necessary for long-term success.
- Remain open and patient with innovation projects; open about the critical inputs and patient about iteration necessary to truly redesign school models before pushing for scale.

Policymakers can...

- Create accountability systems based on individual student growth in academic subjects, and encourage the validation and adoption of measures of a broader set of student outcomes for personal growth such as agency, self-regulation, collaboration, and communication.
- Create incentives for new model design by developing competency-based credit systems and assessment solutions that support them.
- Adopt privacy policies and procedures that make students and parents feel safe using technology more extensively.

Researchers can...

- Develop new ways to measure growth in a fuller range of student outcomes.
- Work with designers and practitioners to measure impact in increasingly valid ways while still being able to iterate rapidly in real learning environments.
- Partner with designers and practitioners to translate scientific discoveries in learning and motivation into the model components that make up real schools.

What About You?

In order to ensure that this momentum continues forward, we ask that you:

- **Comment** on our vision for the design principles of student-centered learning and schooling. What did we get right, and what are we missing?
- **Share** with us your own criteria for assessing which innovations are taking us down the path toward full-scale redesign. How will we know when we're on the right track?
- **Tell** us who else is doing this work well. Where do you see the future of school unfolding?
- **Carry** the work forward. How might you and others help address other key needs in this cycle – such as changing policy conditions or engaging parents in this new vision for learning?
- **Partner** with others to push this work forward, even (and, perhaps, especially) with those with whom you have many disagreements. We all have common ground in terms of what we want for kids.

We believe that the conditions presented by this moment in time provide the potential for the United States to again excel in education. The world has changed dramatically since the design of the factory model of schooling. Just as we were successful at developing and proliferating schools optimized for the industrial age, we have the opportunity to lead the way again by establishing a new approach. One that prepares and inspires young people not only to thrive today, but to create their own

path to success in a world of constant change. America led the way in developing the work environments of the 21st century, but we never aligned our schools to prepare our children for such environments. Now, we have the chance to do so.

More About the Authors and their Personal Commitments

Collectively, the four of us are committing to the following and we invite you to join us:

- We will pursue rigorous, measurable academic outcomes and personal growth that is difficult to package and measure – habits, mindsets, agency. We will not be afraid of "backsliding" into a time when academic data was not used effectively; we know we can hold ourselves collectively responsible for both academic and personal growth.
- We will work to ensure that new school design and innovation does not align with any particular ideology or political agenda. We will work with educators, students and families from all backgrounds, community groups, policymakers, and funders to make sure that this effort is truly collective and reflects the aspirations and many diverse talents, perspectives, and voices we have as a broader community.

- We will remain convicted about the need to urgently pursue the theory of change we've described while being curious, open and adaptable as we learn what most works in reinventing school.

In addition to these collective commitments, we are also making individual commitments.

Stacey is CEO of NewSchools Venture Fund and an investor in teams of educators creating and redesigning schools.

I grew up in a working class family on the gulf coast of Texas. None of my grandparents finished high school, until my grandma earned her GED when I was three. My parents graduated from high school, but not college. They worked hard to make sure my three sisters and I could go to college and we did. I thought this was how America worked for everybody – each generation does a little better than the last.

When I was in 2nd grade my school was racially integrated through busing, 18 years after the Brown decision. My family moved later that year to a more rural, less diverse community where I eventually finished high school. Years later, as a young executive at a Fortune 500 company, I saw how millions of similar decisions and a lack of sustained investment over the years had devastated so many neighborhoods. We partnered with community colleges to help people move directly from welfare programs into hundreds of our entry level customer service jobs with full benefits and upward mobility. Nearly half the people who applied didn't qualify because they couldn't read at the 8th grade level, even though they had high school diplomas. I was stunned by the scale of this reality across the country. I've been working to change it ever since.

I believe every young person deserves the preparation and support it takes to be in charge of their own lives. To set and achieve big goals for themselves, their families, their communities. This requires an education system that meets every kid where they are, and helps them figure out where they want to be and how to get there. We're a long way from this being true in every neighborhood, but we're going to get there.

In my work at NewSchools, I commit to:

- Fund and support innovators and early adopters and tailor the size and timeline of investments, and expectations for results, in ways that are appropriate for each category.
- Collaborate with many educators, researchers, and funders to identify, tryout, validate, and coalesce around measures of personal growth.
- Generate concrete lessons across our team's investment portfolio and share those lessons in ways that are easy to understand and act on.
- Think beyond the charter/district divide in order to ensure the majority of young people in the U.S. have a school in their neighborhood that works for them.

Aylon is a parent, school designer, and co-founder of Transcend.

As the first child in my family to be born in the United States, I had the privilege and burden to fulfill the hopes of an immigrant family. My mother quickly understood that students in our education system were tracked early in life; through sheer force of will, she moved mountains to ensure that I joined a "magnet" track at Los Angeles public schools. When I compare the expectations and rigor of most of my "honors" classrooms to what peers and neighbors experienced in "regular" classrooms, I know that hard work alone was not the only ingredient in my academic success.

When I had the chance to learn – through college, career, mentors – about how persistent and unequal educational opportunities are for students and families across the country I joined in the outrage of so many who have devoted their lives to solving education inequity. During my tenure at Teach For America, I had the chance to visit thousands of classrooms in all corners of the country, and one thing was true in every single one: the hardest working person in the room was always the teacher. This made me reflect on my own schooling, "was I really working as hard as I could...or was I doing just enough? What lessons and habits did I embody as a result? How much of my own potential has been left unrealized?" Thus, I came to believe that we need to address achievement gaps but that we also need to address gaps in unrealized potential and opportunity for all students.

Something funny happened when my wife and I welcomed our beautiful son into the world a few years ago. My definition of "potential" expanded beyond the definitions of academic success and fulfillment. I think about his potential to invent, to inspire, to love, and to make the world a better place. And I know that schools as we know them today were never designed to help realize all that potential. We have the collective will, knowledge and resources to build learning environments that will give my son, and all children, a chance to be the most beautiful and happy humans they can be.

I commit to:

- Engage in human-centered design to build school models that I would enthusiastically send my own child to attend. If "fine" isn't good enough for my kid, it's not good enough for anybody's kid.
- Work to provide a critical component of our theory of action by bringing the design/build talent, across disciplines to the work of building exceptional schools that can adopted by others.
- Ensure that insights from learning science – academic, social-emotional, motivational – are reflected in how we design and build schools.

- Bring a spirit of curiosity and optimism to a highly iterative and data-based process of designing and building schools.
- Openly share anything we design and build, our lessons learned, and our evolving process so that innovations reach students as quickly as possible.

Diane is the parent of a Summit student, the leader of Summit Public Schools and an active policy advocate.

I grew up poor in a rural community and in a home that was unstable and physically and emotionally unsafe. I know firsthand what it means to be a child with hopes and dreams that are as big as the very real fears and challenges that just living brings. I know what it is like to have my potential locked so deeply inside that it is nearly impossible for even well-meaning adults to catch a glimpse. I know firsthand what happens when perfectly rational adults make seemingly informed choices on my behalf based upon their pattern recognition of my demographics and behaviors. I was both rare and lucky that despite my circumstances I had a mother who decided to fight to pull me out of special education and put me into GATE (Gifted and Talented Education). Literally, to pick me up off of one track and place me on another and therefore fundamentally change the trajectory of my life.

I believe America can do better than luck. I think we have the capacity to deliberately place every single child, regardless of their life's circumstances on a pathway that enables them to realize their full and individual potential. I get out of bed every morning driven to achieve that mission and I think we are going to get there not only in my lifetime, but during my working lifetime.

I'm grateful to my husband and thirteen year old son who are my partners in this pursuit. They are a parent and student respectively in a Summit school and take an active role in holding Summit and me accountable for living up to our commitments to create a schooling experience and culture that is consistent with our values and beliefs and indeed realizes our dream of personalizing a compelling pathway for every child.

I commit to:

- Lead a network of public schools that are characterized by a drive to rapidly and continuously iterate towards achieving the aspirational vision shared in this paper.
- Share Summit's work openly, honestly and freely to enable adoption and improvement, specifically through:
  - Tours of the schools
  - Publications
  - Web-posting and multi-media
  - Convenings
- Make freely available the tools and professional development Summit uses to support our school model, specifically
  - The Personalized Learning Platform (PLP)
  - The entire curated Summit curriculum and associated assessments
  - The Professional Development Platform (PLP Pro), currently in prototype
- Support efforts to develop, test and validate measures of personal development.
- Advocate for local and federal policy and regulations that encourage and foster movement towards the new school models.

Jeff is a parent, leader at Teach For America, board member for several education organizations, and co-founder of Transcend.

In my life, I have had an abundance of blessings, and as a white, hetero-sexual, college-educated male, I have received more than my share of unearned privilege. As a child, I attended one of the "best" public school systems in the country. I both benefitted immensely from it and also felt stifled, both intellectually and socially. Most days during my time in school, my mind wandered to the question of how school could be more engaging and fulfilling for everyone. And yet, teachers discouraged me from going into education because they said I could "do better"; at the time, this left an impression, but later it became clear that I just could not follow that advice.

A key responsibility that comes with my privilege revolves around learning – both illuminating my own blind spots and fostering better learning opportunities for all. I feel that children's questions and learning moments are nothing short of sacred, and I have come to believe that new "school" models hold huge potential to unlock amazing learning moments.

My greatest wish for my own two kids – all kids – is to have an education that allows them to grow into their fullest potential as people, to create a wide range of options in life, and to develop as leaders who will make the world more just, sustainable, and loving. This is why I have committed my career to education – both at Teach For America and in co-founding (with Aylon) *Transcend*, an organization dedicated to the creation and proliferation of breakthrough school models.

In this work, I commit to:

- Continually challenge myself and others to ask if we're sufficiently questioning our traditional assumptions about schooling and thinking boldly enough about future possibilities.
- Champion efforts everywhere to fundamentally rethink the design of our classrooms and schools, wherever incremental change will not suffice for children.
- Ensure that students, families, and communities play a central role in the innovation process.
- Approach innovation with the lenses of diversity, equity, and inclusiveness front and center, mindful of the ways in which the design of schools has historically served to sort, separate, and oppress marginalized populations.

Endnotes

[1] See for example: John Sutter, "Why teaching is 'not like making motorcars,'" CNN, March 17, 2010; Joel Rose, "How to Break Free of Our 19th-Century Factory-Model Education System," The Atlantic, May 9, 2012; Michael B. Horn and Meg Evans, "New Schools and Innovative Delivery," Wisconsin Policy Research Institute, May 2013; and Frederick Hess, "There's Nothing Especially Educational About Factory-Style Management," Education Week, April 9, 2014,

[2] By school "model" we mean every aspect of the student, staff, family, and community experience – aims, use of time, facilities, roles of teachers, community culture, instructional practices, assessments, etc.

[3] Arthur Peng and James Guthrie, "The Phony Funding Crisis," Education Next, Winter 2010.

[4] "Does money buy strong performance in PISA?" PISA IN FOCUS, February 2012.

[5] Mitchel Resnick. "Rethinking Learning in the Digital Age". 2002.

[6] Po Bronson and Ashley Merryman, "On the Consequences of Self-Esteem & Innate Smarts," Nurtureshock blog, February 2007,

[7] Hamilton, Leah and Mackinnon, Anne. "Opportunity by Design: New High School Models for Student Success." New York: Carnegie Corporation of New York. Spring 2013.

[8] Charles E. Silberman in his book "Crisis in the Classroom".

[9] Ken Robinson animation 2009.

[10] Frederick Hess and Bror Saxberg. Breakthrough Leadership in the Digital Age: Using Learning Science to Reboot Schooling. Corwin, 2014

[11] For more on the path that innovation takes in education, see Everett Rogers' Diffusion of Innovations and Geoffrey Moore's Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers; for a more specific application of these theories and others to education, see Clayton Christensen and Michael Horn's Disrupting Class.

[12] "Self-Directed Learning at Summit Public Schools," FSG Report by Matt Wilka and Jeff Cohen, August 2014

Appendix A

	The historical model: *Fit the individual to the system*	***The future model:*** *Fit the system to the individual*
1. FOCUS OF SCHOOL	***Academics in core disciplines*** Preparing students to graduate and gain entrance into a stable, predictable job or higher education. Heaviest focus in subjects that are measured by standardized tests. Subjects typically separated to manage instruction.	***Learning goals that are broad, deep, and interdisciplinary*** Preparing students to thrive in and transform the fast-changing 21st century, which requires rigorous cross-disciplinary academics; as well as cskills, habits, and mindsets necessary for personal success.
2. EXPECTATIONS OF CHILDREN	***Set early, kept modest*** Modest expectations for many, high expectations for a few, and low expectations disproportionately biased towards low-income and minority students. Expectations set early on and unlikely to change over a students' time in school.	***High for all*** High expectations – and strong support – for ALL STUDENTS to fulfill their potential through attainment of knowledge/skills and continuous personal learning growth. Keep as many doors open, for as long as possible, for every student.
3. ROLE OF STUDENTS	***Obedient, passive recipients*** Obedient, passive recipients of knowledge who are directed to move in fixed groups through the same content at the same pace and in the same way. Students progress forward based on year-end assessments and seat time.	***Active owners*** Active owners of their own learning/future, who move through different content at their own pace and modality, building habits and pursuing skills that open doors to their own goals and dreams. Students progress forward by demonstrating competency based on ongoing assessments of mastery and readiness, whenever they are ready to do so.

	The historical model: *Fit the individual to the system*	***The future model:*** *Fit the system to the individual*
4. DELIVERY OF INSTRUCTION	***Fixed and classroom-based*** Schools buy instructional materials and staff delivers all instruction. Students assigned to fixed classrooms, with instruction provided by that classroom's teacher, who almost always inherits student with a wide range of capabilities and interests -- but has limited flexibility or tools to customize.	***Flexible and personalized*** Schools and teachers coordinate and curate curriculum and instruction based on student needs. Students have ongoing access to whatever instruction best matches their learning needs -- from peers, from various educators in their own school and surrounding community, from local or remote experts, from nearby or virtual educators, and from educational software and games. Varied and ongoing assessments to measure achievement and growth and to inform future instruction and learning.
5. ROLE OF EDUCATORS	***One person, many hats*** Classroom teacher responsible for everything that happens in a single subject or classroom, often isolated from collaborators. Roles often hard to sustain, but teachers are rewarded for sticking around.	***Many people, many hats*** Educators collaborate, with specialized roles that could split along different strengths or subject or skill expertise, and combine in different ways according to school and community needs. Roles more sustainable, with educators prized for adding value.
6. ROLE OF PARENTS	***Passive customers*** Passive customers often inadvertently kept at a distance by school structures or policies.	***Active partners*** Active partners with the school and with their children in students' choices and progress.

	The historical model: *Fit the individual to the system*	***The future model:*** *Fit the system to the individual*
7. ***NATURE OF SCHOOL COMMUNITY***	***Separation*** Separate classrooms, desks and lockers to keep order. Many schools have homogenous racial or economic populations.	***Togetherness*** Focus on collaboration and community – sharing/working together. Greater diversity – whether inside school or across school boundaries with other communities.
8. ***TECHNOLOGY***	***Peripheral*** Technology as peripheral; used for limited tasks that don't require a human touch.	***Embedded*** Technology as backbone that enables the above attributes to be managed effectively at scale; used to accelerate learning, enhance human interactions, and strengthen community by facilitating student/teacher collaboration and engaging parents.