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# Designing the Education Workforce

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This working paper is based on four blog papers that Ju-Ho Lee had worked with his co-authors during his sabbatical leave in 2018-2019.

## < Abstract >

There is rising evidence that traditional ways of teaching are failing to provide adequate learning opportunities and breadth of skills for the 21st century, likely to leave millions of children and young adults behind. The challenge of meeting the demands of each student with vastly different backgrounds and abilities within today's models of education has limited the capacity of teachers and education systems to provide the personalized learning that students need. A new approach is required. The Education Commission is partnering with select countries, higher education institutions, schools and tech thought leaders to test the applicability and adaptability of "High-Touch High-Tech (HTHT)" learning in diverse contexts. The first pilot - currently in Vietnam - will incrementally expand to other select countries in Asia, Latin America, and Africa. HTHT learning is an opportunity for new collaborators to become part of a transformative effort to personalize learning for enhanced learner success through the application of Artificial Intelligence. Based on the report, "Transforming the Education Workforce: Learning Teams for a Learning Generation" that the Education Workforce Initiative (EWI) released during 2019 UN General Assembly, we propose new approaches for harnessing the potential of teachers and the broader education workforce to ensure HTHT learning and, more broadly, quality education for all students.

# 1. Innovating to learn

We are in the midst of a global learning crisis. This is the clear message from recent major reports: According to the World Bank's 2018 World Development Report on learning, "hundreds of millions of children reach young adulthood without even the most basic life skills." And the [Education Commission's 2016 Learning Generation report](#) estimates that "over three-quarters of a billion young people in low- and middle-income countries will not be on track to acquire basic secondary-level skills." Alarms are being raised that while the substantial resources being spent on education by governments and families have succeeded in increasing enrollments to unprecedented levels, schools are failing to produce more learning, including the skills needed to lift the productivity and competitiveness of economies.

## 1.1. The challenge of the classroom

As enrollments in schools and universities rise, so does the diversity of those who attend them. It has become patently unrealistic to expect today's classrooms to cater for the needs of every student. The tendency to teach to the 'median student' has been a powerful impetus to reach targets like 'education for all.' Even those admirable teachers who succeeded in one-room schoolhouses a century ago would be hard-pressed to impart the knowledge required in today's curriculum. Both the scale and scope of instruction have changed dramatically. Enrollment numbers have expanded in all countries, resulting in larger class sizes, with students from a wider range of economic and cultural backgrounds. In addition, teachers are expected to cover increasingly heavier curricula that include instruction of the 3 R's as well as a variety of subjects including computer literacy, civics, fitness and health, sex education, and environment. These changes reflect the important roles that we want schools to play in our societies and economies, but many schools are ill-prepared and ill-equipped to do so.

As we look into the future, it's hard to predict what knowledge and skills students will need. A [2017 McKinsey report](#) on jobs in 2030 says that, because of automation, the "transition will be very challenging – matching

or even exceeding the scale of shifts out of agriculture and manufacturing we have seen in the past.” The [2019 World Development Report: The Changing Nature of Work](#) warns of “the vast uncertainty involved in making predictions about the future” and how technological change is making it “harder to anticipate which job-specific skills will thrive and which will become obsolete in the near future.” So, how can schools change to deal with such disparity and uncertainty?

Technology can help. Recent years have seen promising education technologies develop remarkably fast. Adaptive learning through artificial intelligence and big data, social learning through digital platforms, immersive learning through virtual reality (VR), augmented reality (AR), and gamification are among the smart tools that can provide personalized learning for every student. These technologies deliver an unlimited world of knowledge to connected students, as well as tools for honing specific problem-solving skills. Support outside the classroom, like the online videos on numerous subjects produced by the Khan Academy, can be accessed for free by students and teachers anywhere on the planet as long as web connectivity is available. In classrooms at [Arizona State University \(ASU\)](#), students are using a computer-based adaptive learning system that provides personalized feedback and suggests learning pathways based on their performance. This “high-tech learning” system has enabled ASU professors to focus their teaching time on “high-touch learning” such as project-based learning and hands-on learning through laboratory experiments in small groups.

For now, research has shown that the use of new technologies in schools is not a panacea. A [recent 3ie review](#) on what works to improve education shows that the impact of computers in classrooms on learning from rigorous studies is not statistically indistinguishable from zero. The studies that show a positive effect are those in which the technological intervention is linked to teacher training and curriculum redesign. The lesson from the review is that investments in technological innovations must go hand-in-hand with changes in pedagogy that involve more than just putting digital devices in classrooms or the hands of students. Indeed, it takes a system – and more specifically, an innovation system.

## 1.2. An innovation system for education

A 2011 report by [Deborah Jackson of the National Science Foundation](#) argues that fostering innovation requires a system which “models the ... complex relationships that are formed between actors or entities whose functional goal is to enable technology development and innovation.” Several frameworks have been developed for what such an innovation systems might look like. These frameworks share four common components that need to be in place to nurture innovation: people, infrastructure, economic resources, and an enabling environment. How do these four components in education systems measure up? In our opinion, not very well...yet.

1. **People.** Unlike entrepreneurs who try hard to create new products, services, or procedures to maximize profits, teachers don't have any incentive to find new ways of providing a learning experience for their students. Most teachers consider it their job to teach curriculum designed by others. So there is a critical need to redefine the education workforce, and figure out the roles teachers and principals can play to transform schools so they deliver the learning goals of every student. The Education [Commission's Education Workforce Initiative \(EWI\)](#) aims to bring fresh thinking and new approaches to this key area.
2. **Infrastructure.** We've seen the rapid emergence of new smart technologies, often called the “fourth industrial revolution,” which refers to the greater and wider availability of the internet of things, artificial intelligence, big data, 3-D printing, mobile devices (e.g., e-books), and 5G wireless communications that can be harnessed in schools for instruction and learning. However, schools are often the last places where teachers and students can find these technologies. For example, while Korea has some of the best ICT infrastructure in the world, including free Wi-Fi in every subway line, only 19 percent of classrooms had Wi-Fi connection in 2016. This is due to both the resistance of principals and teachers to embrace new technologies, and the concerns of parents about student addiction to internet use and gaming. But in lower-income countries, poor general infrastructure – for instance, lack of dependable power supply and telecommunications towers, especially in rural areas – are the binding constraint, coupled with school buildings that cannot keep technological devices safe from extreme weather or theft. In addition, the absence of

computer know-how and technical services outside cities can render existing school infrastructure such as computer labs almost useless after an initial period of use.

3. **Economic resources.** There is often very little or no discretionary funding that innovative teachers and principals can work with. The Education Commission estimates that getting more children in school and learning will require governments to double their spending from just 2 percent of GDP to 4-5 percent and the international aid community to supplement this increased level of domestic funding. However, the budget for innovations in teaching need not overload the education budget. With connectivity, content libraries are available for free to teachers and students. These innovations can also make it possible to reach excluded learners at lower cost while enhancing their learning through more targeted instruction and content material.
4. **Enabling environment.** Despite the uncertainty about the impact of education technologies on learning, there's an unstoppable positive buzz about them and a growing number of projects that apply these new technologies in education systems. [Mike Trucano of the World Bank](#) who has been following this field closely notes that "the overall volume of such projects, and the sophistication of many of them, are quite notable," and that "[t]here is more happening, in more places, than ever before." He identifies 20 emerging education technologies from around the world including Mindspark, an adaptive-learning product from [Educational Innovations](#) that aims to help children in India improve their skills in mathematics, and [Eneza](#), which offers low-cost quizzes and related products to help learners in Kenya prepare for exams. Having this abundance of information easily available to students is a boon to learning, but teachers and school leaders must be able to help students use the information. Inertia is powerful, and vested interests within the education system may be reluctant adopters of innovations. System changes rather than piecemeal reforms could more effectively overcome this resistance.

### 1.3. Innovating to leapfrog

Unless education systems embrace new technologies and turn them into effective tools of teaching and learning, schools are likely to remain mired



in the past – with a teaching model that was good for the Industrial Revolution but not for the Digital Revolution. Transforming systems is a daunting task—but the returns would be enormous. Education systems that develop an innovation ecosystem are equipped with the tools to leapfrog, allowing underperforming education systems to bound forward faster than the progress that rich countries have made over 150 years. They may even be able to outpace them, according to Rebecca [Winthrop at the Brookings Institution](#). In industry, by taking advantage of new digital technologies within a robust innovation ecosystem, Korea surpassed Japanese and Western companies in the manufacture of mobile phones, TVs, and computer displays. Why couldn't this work for education? There are many challenges that education systems around the world must address, but they can hardly go wrong by investing in a learner-centered innovation system.

## 2. Combining High-Tech and High-Touch to Personalize Learning for Every Child

The Education Commission [Learning Generation](#) report delivered a stark warning: if nothing changes, by 2030, 825 million young people – roughly half of the young generation today – would reach adulthood without the skills they need to thrive. The World Bank's [2018 World Development Report](#) echoed a similar warning and described the global learning crisis as “a moral crisis.” Its [2019 WDR on The Changing Nature of Work](#) called on countries “to invest in education and health with a fierce sense of urgency to harness the benefits of technology and to blunt its worst disruptions.” The crisis is exacerbated by the rapidly shifting global economic, social, and geophysical environment. The World Economic Forum predicts that 65 percent of children entering primary school today will eventually work in jobs that do not yet exist. Education systems developed in the age of the first industrial revolution are far outpaced by the current fast changing environment for which they should be preparing young people. There has been rising evidence that this traditional way of teaching is failing to provide adequate learning opportunities and breadth of skills for the 21st century, which might be leaving millions of kids and young adults behind.

### 2.1. Root Causes of the Global Learning Crisis

We have to look back almost two centuries to find the root causes of today's global learning crisis. The current classroom and schooling model, where teachers deliver uniform and standardized content through lectures for students with little space to adjust to students potential and needs, appears not much different from the mass production systems of the first Industrial Revolution era in the late 18th century.

In the meantime, however, economic systems have been continuously transformed from the 1st to 2nd, 3rd and now 4th Industrial Revolution. They have moved from mass production toward mass customization. In addition to digital technologies, artificial intelligence (AI) technologies are now creating disruptive change in markets for products and services by calculating optimal solutions for everyone in the digital space, combining big data and cloud computing, and providing them cheaply in the physical space with 3D printers or digital devices. This approach is being applied to

address some of the world's most intractable problems, such as the preservation of natural capital. The [Global Forest Watch](#), for example, is using billions of satellite data points and cloud computing to monitor and manage forests around the world, call out unsustainable activities, defend the land and resources, and fight climate change.

A critical question before us is how we could take advantage of new technologies to develop human capital with a similar personalized approach? Education experts and policy makers have long recognized the importance of personalized learning – the education term for customization. But it has never been realized in practice for all students, only for the lucky few. Addressing the global learning crisis and providing equal opportunities for all children and young adults hinges on our ability to provide personalized learning at scale for every student.

But how can this be done? It could be a daunting challenge. The insurmountable burdens of meeting the demands of each student with vastly different backgrounds and abilities within today's models of education have hindered and discouraged even the most enthusiastic teachers from providing the personalized learning students need. A new approach is needed.

## **2.2. High-Touch High-Tech Learning**

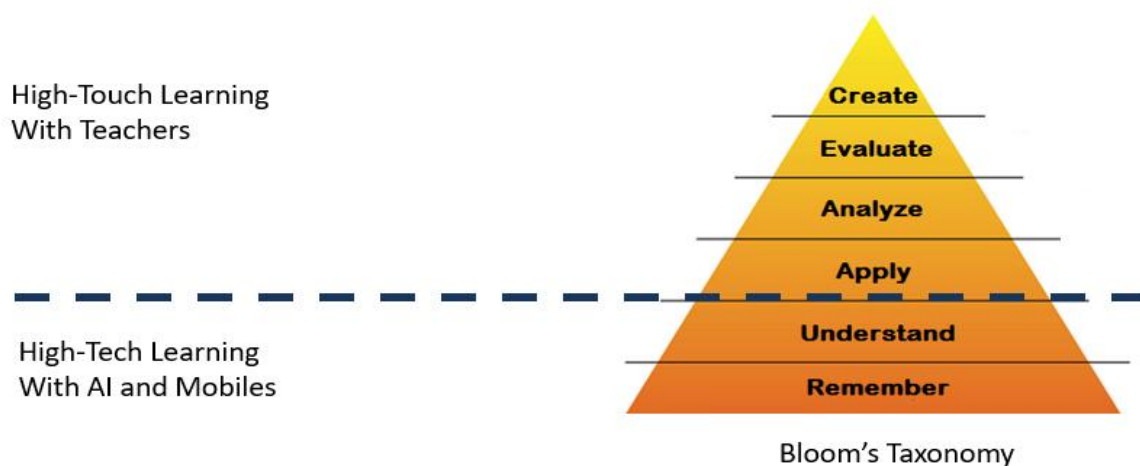
Technologies that have so far been used as solutions to address the learning crisis [have had mixed results](#) at best. New tools are constantly emerging, however, and we believe that one of the most promising breakthroughs towards truly making education available for all in a personalized way could be through the application of artificial intelligence (AI). Why? Because new types of technologies like AI are able to cater to the different abilities and backgrounds of every student, something that earlier and more standardized technological applications were not able to do. In this way AI addresses one of the key binding constraints of learning, which is the [mismatch between classroom instruction \(delivered in a standard way\) and student learning levels](#).

AI adaptive learning algorithms have advanced with remarkable speed in recent years. They can provide targeted support at scale by adapting teaching materials to students' prior knowledge. Students can use AI tools to understand and remember content in different subjects at their own pace. Teachers can use AI algorithms to provide different learning paths for each student because AI can analyze learning progress of each individual student.

One example of successful integration of a personalized, technology-aided instruction called Mindspark can be found in India. According to a [recent evaluation](#) finds that “a key feature of the software is that it uses its extensive item-level database of test questions and student responses to benchmark the initial learning level of every student and dynamically personalizes the material being delivered to match the level and rate of progress made by each student.” A study of the effects of the instruction program with middle school students in India shows significant effects on test scores. While the study finds similar absolute gains in test scores for all students, relative gains for academically weaker students were greater. This underlines that well-designed technology-aided instruction can sharply improve productivity in delivering education.

Another positive example can be found at the Arizona State University (ASU), where more than 65,000 students have already benefited from an adaptive learning system in 12 basic courses. These basic courses are often a predictor of academic success because they serve as a gateway to numerous academic majors and career paths. Introducing the adaptive algorithm called Assessment and Learning in Knowledge Spaces (ALEKS) in a college algebra course resulted in the drastic increase in completion rate by 20.5 percent on average and by 28.5 percent for those with math placement below algebra. Students who received adaptive tutoring rather than traditional algebra were also more likely to attempt a subsequent, more advanced mathematics course and major in a STEM field.

Adaptive learning platforms provide a cost-effective way of learning at the right pace at the right level for students in resource constrained contexts. It highlights the potential for new technologies to enable low-income countries to leapfrog current constraints to development [as suggested in earlier research](#). Above all, the availability of such platforms could radically reduce the burden of teachers to provide basic content across a large number of diverse students and free up time for teachers to focus on “high-touch” learning of students through projects, discussions, hands-on experiences, and nurturing higher order skills like complex problem-solving and socio-behavioral skills such as teamwork. A combination of “High-Touch” and “High-Tech” learning models may be the best way forward. The diagram below, based on Bloom’s Taxonomy, shows how High-Touch High-Tech Learning enables students to create: they first remember and understand content through interacting with AI and mobile technology (high-tech), and then learn to apply, analyze, evaluate what they understand, and finally learn to create, through engaging with teachers (high-touch).



Modified from Dale Johnson (2018)

Source: Johnson, Dale P., *Adoptive + Active Model: A New Approach to General Education*, Arizona State University, 2018.

## 2.3. Taking Innovations to Scale

Despite the very impressive demonstration, High-Touch High-Tech learning is not always an easy sell. Innovation theorists stress that only one or two out of 1,000 good ideas are commercialized. Despite the odds, entrepreneurs are taking risks because they have strong incentives and an enabling environment to do so. Unlike an economic ecosystem where innovations have often been circulated and diffused rapidly, most innovations in education remain unable to be diffused and then disappear.

We can think about three possible channels for taking innovations in learning into scale.

### 1. The Education Workforce

Teacher colleges could help future teachers learn how to design and provide High-Touch High-Tech personalized learning for every student in the classroom, rather than passively deliver a set curriculum. Teachers could be trained to focus on students' higher-order cognitive skills and socio-behavioral skills, skills that are much less easy to be supported by technology. This could help redefine and enhance the role of teachers and possibly the whole education workforce. At ASU, the key to the successful application of AI has been professors who are enabled to embrace adaptive learning technologies for High-Tech learning and at the same time to change their roles from delivering lectures to High-Touch learning. At the

same time, they are supported by teaching assistants and instruction designers to help deliver High-Touch High-Tech learning.

## 2. **Education Finance**

Given the challenges for individuals to pay for adaptive learning tools, publicly financed initiatives will need to play an important role in delivering on their promise. Contrary to innovators in industry who have access to funds for their new initiatives from venture capitalists, accelerators, and angel investors, innovations in education often suffer from lack of sustained financial support. For example, in the Daegu school district – one of the most innovative school districts in Korea – the budget for innovation in learning including support for collaborative teaching, smart learning, and contests for innovative teaching as well as digital devices and school computer networks, amounts to only 0.3 percent of the total school district budget. This is strikingly small compared to the R&D expenditure of Korea, which is equivalent to 4.3 percent of GDP. This clearly shows that education finance is failing to support innovations in learning.

## 3. **Innovation Ecosystem for Learning**

Successful implementation requires a judicious mix between High-Tech and High-Touch learning, but the work of technology experts and those engaged in the teaching profession do not often overlap. An innovation ecosystem of collaboration should enable teachers, principals, professors, technology experts, business and community leaders, and policy makers to collaborate to design and implement the massively personalized learning model best suited for the context of a school, a district, or a country. This may require education systems to be much more decentralized.

## 2.4. **Education's Moment? Time for Global Action**

At country level, taking innovations in learning to scale has often clashed with political constraints: changes in teacher education are much less visible than building new schools and, therefore, much less bankable during electoral campaigns. Nurturing the innovation ecosystem for learning requires a long-term commitment of national and community leaders.

The international community has an important role to play to fill the void and promote a longer term vision. Rather than advising developing countries to follow the traditional learning model, we should encourage countries to explore a new path for future learning. There is a need for global action to develop stronger evidence for new tools and practices to show the way forward. It is also key to connect people working at the cutting edge of technological innovation with key education actors around the world in order to bring education into the 4th Industrial Revolution of

mass personalization. Governments, international organizations, and philanthropic foundations should join together to support innovators and key actors in education systems to co-design prototypes, test cases, and best practices and rigorously evaluate the outcomes before taking them to scale.

As an important first step, the [Education Workforce Initiative](#) (EWI) of the Education Commission is exploring the impact of technology on the roles of teachers and other members of the workforce. In the process, EWI is analyzing how High-Tech High-Touch applications are being introduced around the world. Building on this evidence, the Commission is testing the application of such approaches in different country contexts. For example, a collaborative project between ASU and the Ministry of Education and Training of Vietnam is developing a prototype for High-Touch High-Tech Learning for 7th grade mathematics. By demonstrating the impact of prototypes of High-Touch High-Tech Learning, the Commission hopes to stimulate and inspire actions for future learning in other countries – including high-income countries.

Financing challenges also need to be addressed. The costs of new technology to upgrade teacher training, school infrastructure, or learning are often outside the reach of public school systems. Inspired by the work of the GAVI Vaccine Alliance which helped reduce the costs of life-saving immunizations, diagnosis, and HIV medication, organizations such as the [Global Business Coalition for Education](#) (GBC- Ed) are mobilizing their network to negotiate similar agreements between technology companies and national education systems across the world. Through this work, a menu of reduced-rate, at-cost, and pro-bono technology resources for governments could be developed and supported by international organizations.

The Education Commission has highlighted the growing need for new ways to effectively implement educational change, including by building evidence on [delivery approaches](#) and [reinforcing innovative ecosystems](#). One of its key motivations is to provide evidence that is useful to policy makers and leaders both at country and global levels as they formulate, adopt, and implement policies to improve education outcomes.

This is just a starting point and the Commission is looking forward to building a network with other organizations to turn research into action and create a Learning Generation.

## 3. Equitable Tech: Delivering High-Impact Learning with a Human Touch

Education is supposed to prepare children for the future, yet the current system is 100 years behind the times. Our system was created in the 19th century to build a workforce for the Industrial Revolution, and many schools today still churn out students like a factory assembly line — in a uniform manner, regardless of their cognitive and emotional development.

Today's economy functions on the principle of mass customization, and so should our education systems. We use new technologies such as artificial intelligence, cloud computing and a constellation of data points to address everything from environmental concerns to customer service. Today's employees thrive by collaborating on projects and solving problems creatively. To put this into digital-age terms: Our schools are overdue for an upgrade.

Still, this is not a job for computers alone. We need a learning environment that strikes a delicate balance uniting humans and machines. Omidyar Network believes that to make educational technology a true agent of change that empowers all learners, business leaders, policymakers and educators must unite to build an ecosystem for what we call Equitable Edtech. Technology — when thoughtfully designed and implemented — can unleash teachers and accelerate student progress.

### 3.1. Striking the Right Balance

High-Touch High-Tech Learning begins with figuring out what technology can do better than humans. For instance, evidence suggests artificial intelligence can be a highly effective tool for teaching information and allowing students to practice at their own pace and level. With that in mind, Arizona State University (ASU) introduced adaptive learning systems for introductory courses in algebra, using an applied algorithm known as



Assessment and Learning in Knowledge Spaces (ALEKS). The results are impressive: Students who used the algorithm are 20.5% more likely to complete the course.

ASU professors get extra time to adapt new teaching skills. They can test methods beyond the traditional lecture format, including peer-based projects or applying lessons to real-world problems. Instructors zero in on each student's development and design experiences that incorporate teamwork and problem-solving. Imagine what would happen if all teachers had that freedom.

### **3.2. Why Teachers Matter**

Beautiful as that vision is, it seems out of reach for many countries. For instance, Mexico spends one-quarter of what the United States does on each full-time primary and secondary school student. With resources scarce, Mexico's school districts probably cannot afford to build a new educational infrastructure or buy corresponding equipment.

Even US school districts that can afford it can stumble. In 2012, the Los Angeles public school system introduced a \$1.3 billion plan to provide 650,000 students with their own iPads. Some students hacked the iPads for entertainment purposes and, because the devices lacked keyboards, the iPads didn't do much to enhance learning or increase productivity. Two years later, the program ended with little to show for it.

Impactful edtech is not as easy as flooding classrooms with cool gadgets. This work requires retraining teachers, choosing high-quality, aligned content and software, communicating changes to parents and, ideally, implementing well-planned government policy. Systemic change like that can be overwhelming to put into place.

Fortunately, strategic incremental changes can yield results for students here and abroad. For instance, teachers juggle a lot of administrative tasks. Every day, they set aside hours to take attendance, schedule and oversee assessments, and grade homework and tests. If they could outsource those time-consuming, repetitive tasks to, say, a computer, they could

focus on more important goals such as inspiring their students to become lifelong learners.

Scaling Access and Impact: Realizing the Power of EdTech, a report by Omidyar Network, evaluated four countries that have successfully scaled edtech equitably, and found that in Chile — a country that has spent nearly 30 years promoting the use of digital education tools in its public schools through its ENLACES program — the use of technology has evolved to include more human and high-touch experiences. In the beginning, teachers used digital access to complete administrative tasks such as assigning homework or searching for content. Today, teachers in Chile use digital platforms to facilitate students' collaboration on real-world projects and problems.

### **3.3. What First Steps Look Like**

The Education Commission, chaired by U.N. Envoy Brown, recently worked with the Vietnamese government to pilot ASU's ALEKS program in seventh-grade math classes at three urban schools. If all goes well, Vietnam hopes to roll out the program in rural schools. The Education Commission is also looking into partnerships with Latin American and African educational leaders.

While the project is still new, Vietnam schools already hit on a fascinating discovery: Because ALEKS lets students learn at their own pace, math teachers reported that some of advanced students finished the entire computer-administrated curriculum in two weeks. Instructors can now think creatively about how to use this newfound time. Perhaps teachers can shift more of their attention to help lagging students, or to create project-based lessons to enrich the existing curriculum for the advanced kids. Better yet, invite advanced students to collaborate with struggling classmates.

The clear takeaway is, the right balance of technology with a human touch is a win-win for our children, our schools and our societies.

# 4. Reimagining the Broader Education Workforce

## 4.1. The challenge

There is a real risk the world will not achieve inclusive, quality education for all by 2030 as set out in SDG 4. There are still more than 260 million children out of school and more than 600 million who are in school aren't learning. The Education Commission estimated that on current trends, even by 2030, more than 800 million children will not be on track to achieve basic secondary level skills.

It is universally accepted that teaching quality is the most important determinant of learning outcomes at the school level. Yet, in many countries teachers are in short supply, inequitably distributed, isolated and not supported to provide effective teaching and learning. Globally, almost 69 million teachers must be recruited by 2030. In addition, many teachers who are currently in classrooms are ill equipped to teach. A study of seven countries in sub-Saharan Africa (conducted as part of the Education Commission's *Learning Generation* report) found that less than 10% of primary school language teachers could demonstrate a minimum level of subject knowledge.

In light of these challenges, the Education Commission's 2016 [Learning Generation report](#) recommended the creation of an international group to catalyze thinking on how to strengthen and diversify the workforce. In response, the Education Workforce Initiative (EWI) just released [Transforming the Education Workforce: Learning Teams for a Learning Generation](#) during this year's UN General Assembly. The report proposes new approaches for harnessing the potential of teachers and the broader education workforce to ensure quality education for all students.

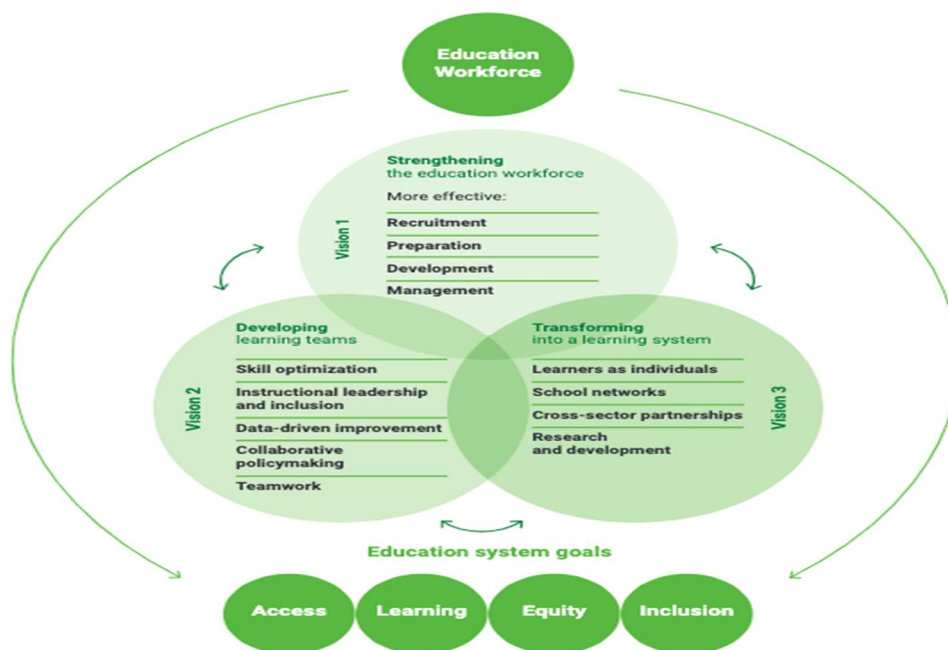
## 4.2. The opportunity

At the launch, the first author of this paper, Chair of the Education Workforce Initiative, noted that current workforce design is often based on an outdated model of education created to meet the labor needs of the industrial revolution and organized on the principle of mass production. Instead, ***“we need an education workforce for this century,”*** he said. ***“It is time to reimagine workforce we need now and for the future.”***

The world is continually changing. The education workforce must respond to demographic shifts, environmental changes and the need for new skills, at the same time ensuring that all children are learning the foundations. The education workforce must evolve to keep pace with rapidly changing societies spurred by global trends and new opportunities in education.

### 4.3. Visions for the education workforce

The [report](#) puts forward 3 interacting visions for the education workforce today, tomorrow and in the future.



- **Vision 1** involves incremental change to address immediate challenges through strengthening the existing education workforce
- **Vision 2** is a shift to a broader and more collaborative education workforce through developing learning teams
- **Vision 3** is a future oriented paradigm-shifting vision to transform education systems into learning systems

## ***Vision 1: Strengthening the education workforce***

*This vision is about investing in and building the ‘human capital’ of the workforce and re-orientating this human capital towards learning, equity and inclusion.*

This vision is focused on creating an effective education workforce at all levels in the system, with coherent approaches to the professionalization of teachers and other key roles (such as school leaders and district officials) and applying this throughout the workforce life cycle. This means from recruitment and preparation to professional development and career progression to leadership and management.

For example, to strengthen the workforce in underserved areas and address teacher shortages, **countries could consider alternative routes into the profession**. In the [GATE project in Sierra Leone](#), the local community selects women to first work as learning assistants and then, through school-based training, they become qualified teachers.

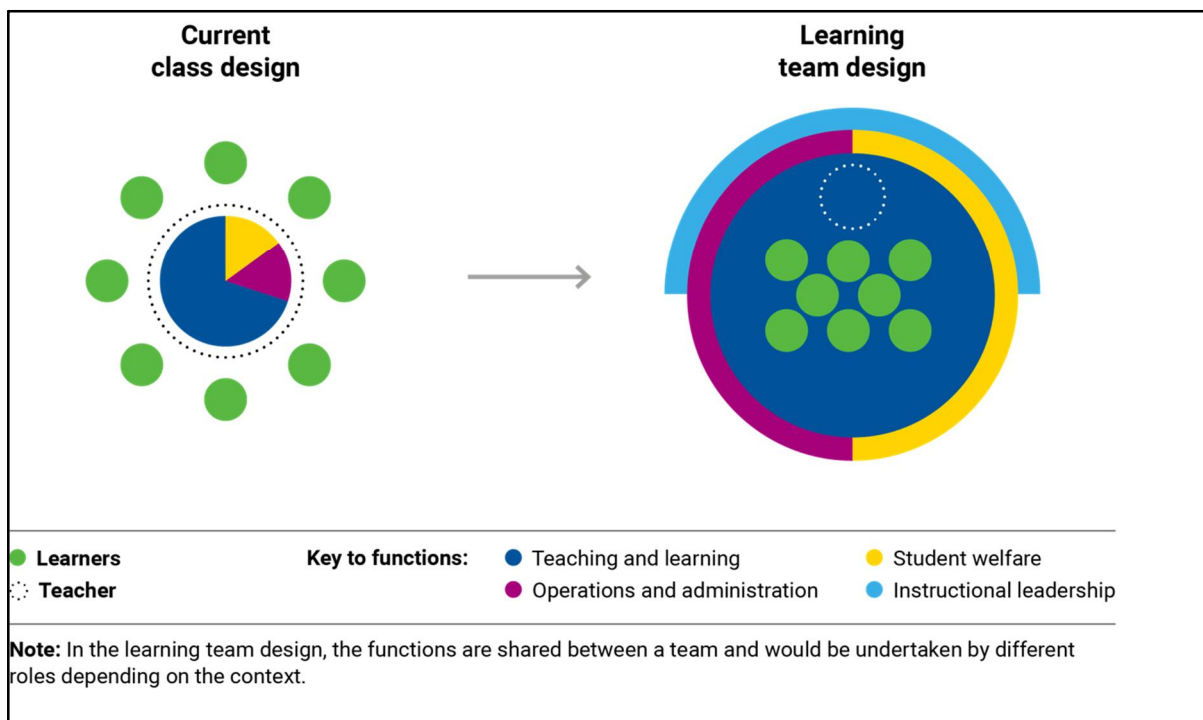
## ***Vision 2: Developing learning teams***

*This vision is about investing in the ‘social capital’ as well as the ‘human capital’ of the workforce.*

Countries need to harness the talent of the broader education workforce throughout the education system – such as school and district leaders, inclusion specialists, data analysts, learning assistants, parents, and community members. Many of these roles already exist but are often considered formally part of the education workforce, and there is very little understanding about how they can work together in low-income contexts to accelerate progress towards SDG 4.

It takes a team to educate a child. Teachers will always be critical but they cannot work alone. Teachers collaborating together is a key ingredient of highly effective schools. Team-based approaches are commonplace in other sectors like early childhood development and health, ***why not in education?***

The vision to develop “learning teams” sees education professionals collaborating inside the classroom, within schools, within districts, and even at national and international levels. These teams collectively focus on improving the learning and inclusion of all students and continually learn themselves.



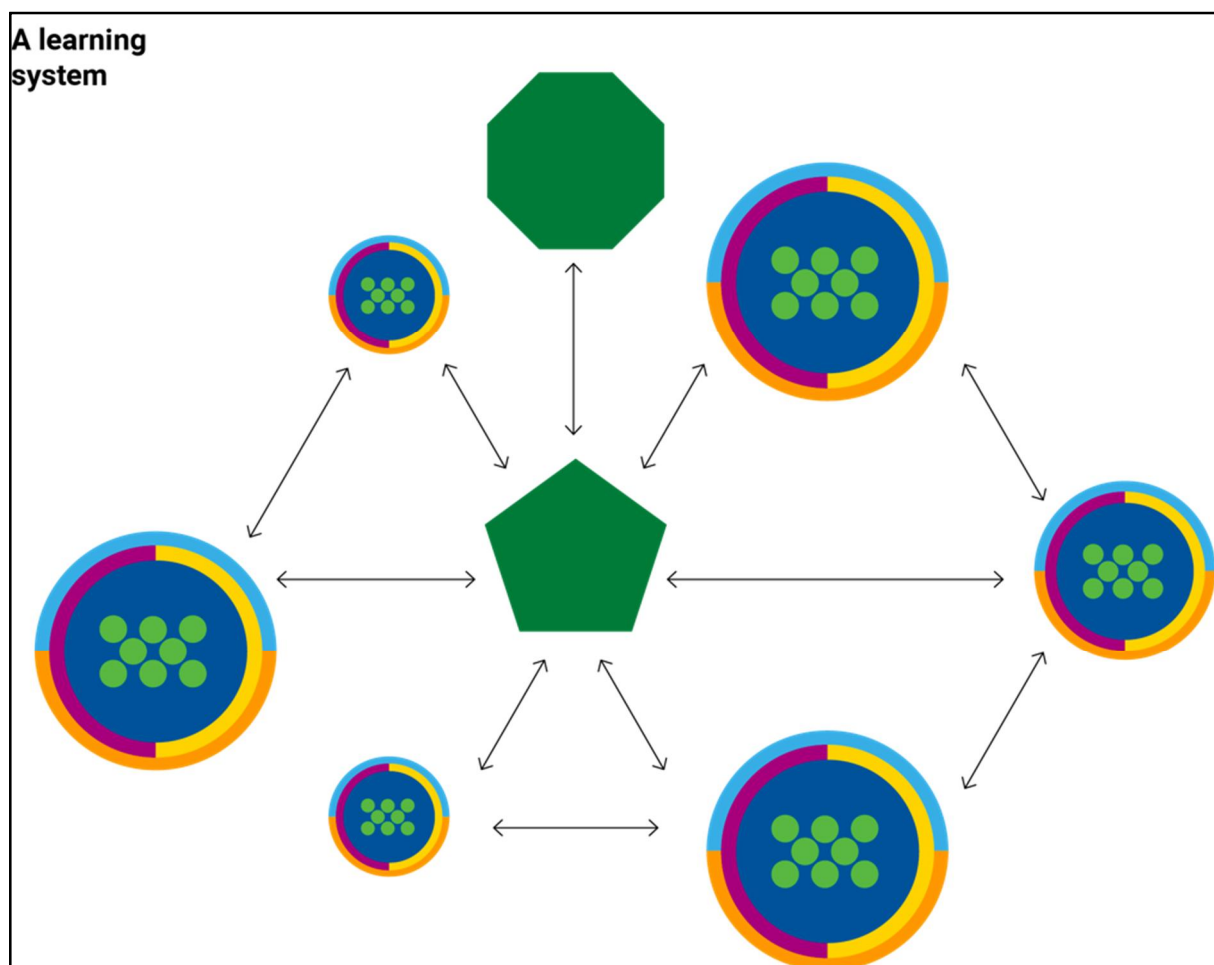
“This represents a big shift in how we design the workforce,” EWI Lead Amy Bellinger, highlighted at the launch. “In today’s class design, the teacher tends to be at the center doing many different things besides teaching. The report proposes a learning team design where the learners are at the center surrounded by teachers and other professionals supporting them. This means the diverse needs of students can be met and that teachers have better support.”

Learning teams will be different in every context and at every level in the system. They can include a variety of professionals in teaching and learning, leadership and management, and welfare and operations and administration. For example, **volunteers from the local community** can work with teachers to improve the learning outcomes of those furthest behind. [Ghana’s Teacher Community Assistant Initiative](#) does just this, utilizing existing high school graduates from the National Youth Employment Program to work alongside teachers to lead in- and after-school remedial classes for small groups of students in primary school leading to improved literacy and numeracy.

### ***Vision 3: Transforming an education system into a learning system***

The most future-oriented vision is to transform an education system into a learning system. This would harness learning teams, networks of education professionals, cross-sectoral partnerships, data, and evidence to create a system that is able to learn and adapt.

As the capacity of professionals grows, school networks become the engine of professional development with high-performing teachers sharing their expertise. **Evidence shows that when schools collaborate with one another, they improve more rapidly.** And, an education system with closer collaboration between health and social service sectors can help address systemic barriers to learning. In Kenya, the [Let Girls Succeed](#) program engages community health workers to work with girls and their communities to address factors that prevent them from going to school.



#### 4.4. How to get there

Workforce reform clearly requires a deep understanding of political context. Reform processes must **recognize members of the education workforce and their representative organizations as change agents** and engage them in genuine dialogue to design, implement, and sustain education workforce reforms. Ensuring the right resources are in place to support reform is also critical. This will need to include identifying efficiencies within the existing system as well as clearly articulating the cost and benefits of new reforms. To unlock resources, for example, **ministries of education need to make a convincing investment case for change.**

#### 4.5. Call to action

Now is the time for all actors – and most importantly policymakers and members of the education workforce themselves – to work and learn together. By building learning teams and learning systems, we can harness the human and social capital of the wider workforce and create a learning generation.

To help ignite workforce change globally, the [report](#) recommends three overarching areas for action:

1. Support countries to develop a **workforce diagnostic tool** underpinned by reliable data, indicators, and improved costing models
2. **Experiment, research, and evaluate** to explore what works and at what cost
3. **Lead coalitions for change** at all levels

We can't keep pace to meet SDG 4 unless we all take up the challenge and reimagine an education workforce that can support quality education for all.



## References

- Eliza Erikson and Ju-Ho Lee, “Equitable Tech: Delivering High-Impact Learning with a Human Touch,” [website of Omidyar Network in Positive Returns](#), 5th Dec. 2019.
- Jimenez, Emmanuel, Elizabeth M King, and Ju-Ho Lee, “Innovating to Learn,” [website of the Education Commission](#), 16th Oct. 2018.
- Lee, Ju-Ho Lee Liesbet Steer, “Combining High-Tech and High-Touch to Personalize Learning for Every Child,” [website of The Education World Forum](#), 8th Jan 2019. (coauthored with Liesbet Steer)
- Liesbet Steer and Ju-Ho Lee, “New Report Reimagines the Broader Education Workforce” [website of Global Partnership for Education](#), 24<sup>th</sup> Oct. 2019.