

CHAPTER SIX

Leapfrogging to Ensure No Child Is Left Without Access to a Twenty-First Century Education

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Many people agree that education plays a crucial role in helping address a range of burning problems around the globe. Those worried about how to constructively harness the talents of the world's youth, with four in ten people being under the age of twenty-five, globally, argue that an essential piece is providing them the needed training and skills to actively and positively contribute to society through employment and civic engagement.¹ Concerns over rapid technological progress, especially the increasing automation of tasks among both blue collar and white collar jobs, leads many business leaders, policymakers, and pundits to call for a doubling down in education and skills development to help both the young and old adjust to this changing world. Education is also often emphasized as a crucial part of the solution to growing income inequality within nations and seen as a solution to a range of other social ills.²

But the real question is, what type of education can contribute to reducing inequality? Should communities and jurisdictions looking to harness the power of education to address inequality focus first and foremost on getting all children through the school door? Once this is accomplished, should they turn their focus

1. World Bank, "Atlas of Sustainable Development Goals" (<http://datatopics.worldbank.org/sdgatlas/>).

2. Reeves (2017).

to improving schoolchildren's acquisition of central academic knowledge and skills, such as literacy and numeracy? Then, finally, once this is well established, should they turn their attention to ensuring that students develop higher-order thinking skills especially relevant to the world of work such as problem-solving and digital literacy? Indeed, this has, by and large, been the approach used around the globe and across time for developing universal schooling systems that are intended to serve all young people, not just children of the elite.

The problem with this approach is that there is a high degree of risk that it will maintain a different kind of inequality in the long term. Focusing on a "back to basics" education for the children who are furthest behind, often the poorest children living in the poorest countries, alongside a twenty-first century education for those children who have mastered the basics—often the richest children in the richest countries—will move the goalposts for both groups but maintain the gaps.

Take the case of Madagascar versus Finland, which exemplifies how education policy is playing out around the globe. In Madagascar, only 42 percent of children have completed primary school, and just 28 percent of in-school children of primary age are proficient in reading.³ The government's education sector plan is heavily focused on helping young people enroll and stay in school and on improving students' academic learning, especially in basic literacy and numeracy. As only 20 percent of teachers in the country have received professional training, significant government effort will be needed to train teachers and place them in rural and hard-to-reach communities.⁴

Meanwhile, in Finland, often heralded as one of the best education systems in the world, with top scores in the international skills assessment of fifteen-year-olds, educators are taking seriously the prospects of educating children for a changing world.⁵ They are not content to rest on their laurels as one of the consistently top-scoring systems; instead, the government is ushering in reforms that seek to prepare students for a fast-paced, boundary-bending, technology-enabled world. Recent reforms require schools to increase the teaching of multidisciplinary themes, such as urbanization or the environment, allowing students to draw on the range of traditional school subjects to solve problems rather than keep knowledge development compartmentalized as the organizing principle of learning.

What will happen to the students entering school in Madagascar twenty years from now? Will they stand any hope of developing the broad range of skills that Finnish students will likely have by then? Skills such as collaborative problem-solving or using technology not only to consume information but to

3. UNESCO, "World Inequality Database on Education" (www.education-inequalities.org).

4. World Bank (2018, 11).

5. OECD, "Program for International Student Assessment" (<http://www.oecd.org/pisa/>).

create solutions, all essential competencies to thrive in a world where automation is on the rise. Or, despite improved access to schools and mastery of literacy and numeracy, will they again be woefully left behind, missing crucial skills they need to thrive?

This challenge frames the focus of this chapter. What new education strategies and approaches are needed to truly help level the playing field and make sure the poorest children in all societies are not left behind? Any country that wants to ensure its workforce has capabilities needed to manage a changing world will need to adopt an education system that emphasizes skills such as critical thinking, digital literacy, and collaboration, no matter how difficult that may seem.

We argue that it is possible to close gaps in education, or to “leapfrog” educational progress, so all children, whether in Madagascar or Finland, experience a twenty-first century education that will deliver on the promise of schooling for improving the range of social ills societies face. In this chapter, we draw on our existing work, *Leapfrogging Inequality: How Remaking Education Can Help Young People Thrive*, to discuss the why, where, and how of leapfrogging in education so no child is left behind.⁶ We begin by discussing the state of global education inequality in section one and outlining what children and where are the furthest behind. In the second section, “Why We Need to Leapfrog: A Hundred-Year Education Gap in Twenty-First Century Education,” we present arguments for why the current stepwise approach of ensuring access, quality, and relevance is not working, and why we need to embrace new mental models for rapidly accelerating—in other words, leapfrogging—education progress. In the third section, “How to Leapfrog: Harnessing Innovation that Reaches Those Left Behind,” we discuss in depth how to leapfrog in education, including providing a clear definition of the concept as well as a map outlining the main education approaches that can deliver access, quality, and relevance all at once and ultimately close educational gaps faster than current approaches allow for. In the final section, we offer recommendations to the global community on how to elevate the leapfrog mindset and approach as a standard way of thinking about educational development.

The Global Education Challenge: Twenty-First Century Education for Too Few

If the education community continues to use current approaches, by 2030, the target date for achieving the UN Sustainable Development Goals (SDGs), 884 million children and youth—more than half of all school-age children in

6. Winthrop, Barton, and McGivney (2018).

the world—will not be on track to achieve basic secondary-level skills across a breadth of competencies, including literacy, numeracy, problem-solving, and critical thinking.⁷ This is, indeed, an urgent and global problem. Children and young people not well-served by today's education systems comprise various demographics and groups, yet the greatest predictor of whether a child will have access to a quality twenty-first century education is based on income level both between and within countries. In low-income countries, nine out of every ten young people are projected to be left behind by 2030—meaning they will not achieve basic secondary-level skills—compared to five out of ten young people in middle-income countries and three out of ten in high-income countries.⁸

These deep disparities highlight that in most countries around the world, schools serve some children well and others poorly. This inequality is a multidimensional problem involving access—getting students through the school doors; quality—ensuring students master central academic competencies; and relevance—providing an education that meets the demands of the twenty-first century.

Out-of-school children face multiple barriers to access, including the intersecting disadvantages of poverty, gender, and location. In the world's poorest families, children are not sent to school because they need to provide either labor or income to support their families. And while many countries have eliminated school fees, poor families often have prohibitive indirect costs for materials such as uniforms and books.⁹ Girls, conflict-affected children, and children with disabilities often face additional barriers to schooling, particularly in low-income contexts.¹⁰

Approximately 263 million children and youth between the ages of six and seventeen are out of school today, a number that has remained almost the same for the past decade.¹¹ Of these children, 64 million are of primary school age, with more than half living in sub-Saharan Africa, and 199 million are of lower and upper secondary school age.¹² An estimated 50 percent of all out-of-school children of primary age reside in conflict-affected countries.¹³

When we look at access to education through a country lens, we find that countries with the lowest primary school completion rates are South Sudan,

7. Education Commission (2016, 13).

8. UNESCO (2015, 13–14).

9. Bentaouet, Kattan, and Burnett (2004).

10. Hindman (2009, 4); UNESCO Institute for Statistics and UNICEF (2015); Wodon and others (2017).

11. UNESCO Institute for Statistics (UIS) (2018, 1).

12. *Ibid.* (7).

13. UNESCO Institute for Statistics and UNICEF (2015, 11).

Chad, Niger, Guinea-Bissau, and Burkina Faso.¹⁴ However, the countries with some of the poorest-performing education systems often have relatively small populations. So—while it is crucial to find ways to address their needs—if we are to meet SDG 4, the global community will also need to focus on those countries that have the largest total number of children not accessing quality education. Research from Brookings colleagues Homi Kharas, John McArthur, and Krista Rasmussen estimates that if recent trends continue, by 2030 half of all children who do not complete primary school will come from just five countries: Ethiopia, Uganda, Pakistan, Sudan, and Mozambique (see figure 6-1).¹⁵

However, getting children through the school door is only the first step. All too often, children are not mastering basic academic content while in school. Economist Lant Pritchett has documented the flat “learning achievement profile” of students in several countries: for every year spent in school, the amount that students have learned in subjects like literacy, numeracy, and science barely increases.¹⁶ Here again, income level often plays a role in whether a student achieves basic proficiency. In poorer countries, such as India, Bangladesh, Kenya, Pakistan, and Tanzania, assessments show that 50 percent or more children finish their primary schooling unable to read simple texts or solve basic math problems.¹⁷ Even in a developed country like the United States, the gap between rich and poor students on the secondary-school mathematics proficiency examination under the PISA is the largest in the world—nearly 40 percentage points.¹⁸

Lack of quality education can be due to numerous factors. To begin with, there are simply not enough teachers for all of the world’s children. In fact, UNESCO estimates 69 million new teachers will be needed to reach SDG 4, which includes replacement for attrition and recruitment of new teachers to bring class sizes down to 40 students or less.¹⁹ Teachers in the poorest countries are often teaching classes of 60 or more students at a time, with 10 students for every book and rarely enough room for all children to have a place to sit.²⁰ A Ugandan education official recently expressed his frustration to us that class sizes in his district are closer to 120 students.²¹ In many African countries, students average

14. UNESCO, “World Inequality Database on Education” (www.education-inequalities.org).

15. Kharas, McArthur, and Rasmussen (2018, 18).

16. Pritchett (2013, 14).

17. *Ibid.*

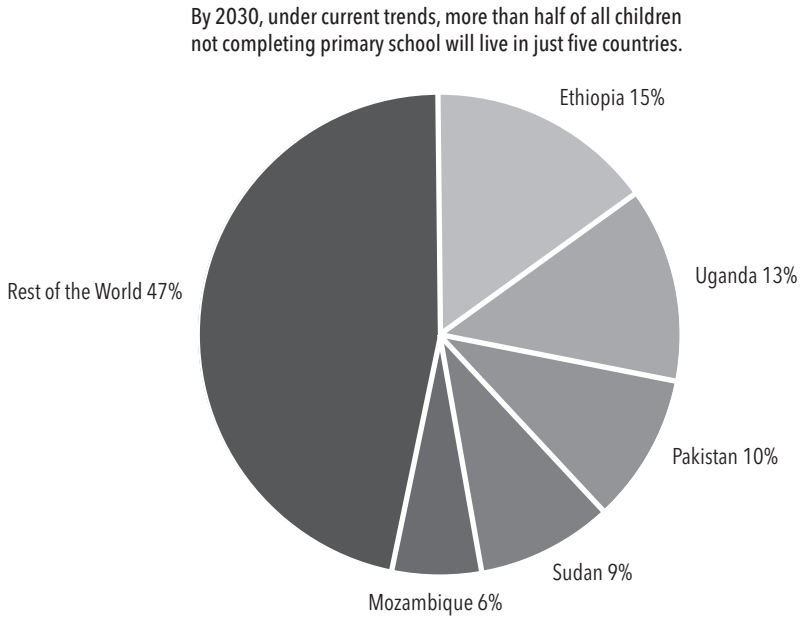
18. UNESCO, “World Inequality Database on Education” (www.education-inequalities.org).

19. UNESCO Institute for Statistics (2016).

20. Benbow, Mizrahi, Oliver, and Said-Moshiro (2007); Results for Development Institute (2016).

21. Personal communication with Amos Opaman, Uganda National Examinations Board, April 17, 2019.

Figure 6-1. Number of Children Who Do Not Complete Primary School



Note: Due to insufficient data, Nigeria was not included in the analysis.

just under three hours of instruction each day.²² And, too often, poorer countries spend a disproportionate amount on wealthier and better-off students. UNICEF estimates that low-income countries spend on average 46 percent of total public education resources on the most educated 10 percent of students, largely due to the higher per capita costs of secondary and post-secondary education that the more advantaged students attend, relative to the cost of primary school.²³

In addition to a lack of access and poor quality, the final way education systems leave children and youth behind is through lack of relevancy. Education is relevant if the content, competencies, and skills young people learn connect with and help prepare them for the world they will enter after school completion. Relevant education systems recognize that technology is changing the way we live our lives and the skills we need to thrive. Research from the OECD finds that 50 to 70 percent of a worker's tasks may become automated due to advances in technology, and hence require different skill sets from employees.²⁴ For example,

22. Bold and others (2017).

23. UNICEF (2015, 58).

24. Arntz, Gregory, and Zierahn (2016).

the World Economic Forum finds that in South Africa, core job skills across all industries are shifting, and skills like flexibility, knowledge of information and communications technology, and emotional intelligence are increasingly desirable.²⁵

Developing these types of competencies requires not only connecting the class lessons with the daily lived experiences of students and their communities but also different teaching approaches. Young people need, for example, to practice being flexible or working together with others to solve problems, all of which entail a more experiential form of learning than is typically experienced by students.²⁶ Practicing applying math, science, and history concepts to collectively solve a problem in their community is one way to ensure education is relevant. Indeed, evidence shows that today, most students in most countries are in schools that have only a limited use of these types of student-centered learning approaches. In Ethiopia, for example, one study found that student-centered activities account for only 11 percent of class time.²⁷ A similar study in Cambodia found that 61 percent of class time is devoted to direct student instruction and only 15 percent is used for student-led work.²⁸ Even in the developed world, teachers rely heavily on teacher-led instruction. In all education systems across the OECD countries, for example, students report using memorization more frequently than learning strategies that involve making connections and finding new ways to solve a problem.²⁹

In light of the changing demands of work and also citizenship, relevant education systems recognize that students need opportunities to put their subject knowledge, from literacy and numeracy to science and art, into practice in their communities. A focus on developing the breadth of skills and competencies needed to thrive in a fast-changing world ensures that young people will be able to adjust to rapidly shifting demands in work and life.

Why We Need to Leapfrog: A Hundred-Year Education Gap in Twenty-First Century Education

The prevailing education mindset of attending first to access, then to quality, and finally to relevance will prevent us from helping young people in Madagascar catch up with those in Finland and ultimately from ensuring no child or youth is left behind. We need to find new ways to advance education, characterized by

25. World Economic Forum (2017).

26. Sawyer (2014).

27. Frost and Little (2014).

28. Benveniste, Marshall, and Araujo (2008).

29. Echazarra and others (2016).

new mental models that will facilitate rapid acceleration of progress. In other words, we need approaches that can leapfrog progress. There are four main arguments for why these types of new approaches are needed.

First, the current pace of change is simply too slow. For example, on many education measures there is a shocking “hundred-year gap” between the poorest and most wealthy students.³⁰ In our past work *Why Wait 100 Years: Bridging the Global Gap in Education*, we show that with current education approaches it would take approximately a hundred years for girls and boys in poor countries to catch up to the education levels of children in rich countries. This gap will likely only grow bigger when looking at the ability of students to master twenty-first century skills.

The slow pace of change is just as evident between poor and rich communities within countries and regions. For example, given the current projected growth in completion rates in sub-Saharan Africa, boys in the top wealth quintile are expected to achieve secondary school completion by 2041; however, girls in the lowest wealth quintile will need 70 additional years until 100 percent of them reach that milestone.³¹ Extensive studies of educational inequality in the United States also highlight the alarming slowness of efforts to close the gap in achievement scores, social and emotional skills, and college completion between high- and low-income students.³² At current rates, it will take another 60 to 110 years to close the gaps in the academic and behavioral competencies between high- and low-income children entering kindergarten in the United States today.³³

Second, we know that the prevailing incrementalist approach to change will not be enough to close the vast education gaps. In a careful review of what types of approaches are needed to meet the education SDG, the 2016 International Commission on Financing Global Education Opportunity (Education Commission) argues that progress can be made by improving the efficiency of the existing education system with evidence-based and inclusion-oriented policies. But it also strongly argues that without harnessing new models we will never succeed. “Education systems must innovate and change rather than just replicate past success,” especially because of the evolving nature of skills that young people need and because many countries are “hitting the limits” of what their education systems can achieve through incremental approaches.³⁴

Third, scholars of innovation theory argue that breaking free from dominant logic—namely, entrenched patterns of thought and action—and the resulting

30. Winthrop and McGivney (2016).

31. UNESCO (2014).

32. Murnane and Duncan (2011).

33. Reardon and Portilla (2016).

34. Education Commission (2016, 16).

tendency to act in accord with past decisions, also known as path dependence, can be one of the biggest barriers to harnessing new approaches.³⁵ True educational innovation and change requires a break from the dominant stepwise logic of progress. Ever since the concept of universal schooling for all citizens arose in Prussia in the mid-1700s, national systems of education have been guided by a mindset that educational development should follow a stepwise approach of first expanding access, then attending to academic quality, and last, pursuing relevance. This stepwise approach was how schooling systems took hold and developed across Europe and North America over the past two hundred years. It also is what has characterized the development of education systems in the latter half of the twentieth century throughout much of the global south.

As a recent example, the Millennium Development Goals focused first and foremost on access to schooling for girls and boys. Only in the last ten years, as the global community gained more comparable data on student proficiency, have global education decisionmakers begun to focus more seriously on quality, or on how much—and in many cases, how little—children are learning on essential academic subjects such as literacy and numeracy. Achieving the sort of learning that students across the world both need and deserve requires an entirely new mental model of innovation-based leapfrogging.

Fourth, and perhaps most important, while many actors in the global education community may argue that the idea of embracing new models so all young people can get a twenty-first century education is simply too difficult or unrealistic, there is a strong demand from national governments to do just that. In a survey by our Brookings colleagues Esther Care and Helyn Kim, of 152 countries' education policies and implementation plans, the vast majority, 73 percent, articulate a vision and objective that sets forth clear goals around helping all young people develop both strong academic skills as well as the twenty-first century skills needed to thrive in the future. The problem, however, is that very few countries have an understanding of how to accomplish this goal. Only 17 percent of countries surveyed have a detailed and clear plan on how to implement reforms that would provide this type of well-rounded education for every child.³⁶ There is an urgent need to provide education decisionmakers with new, practical approaches that could help them begin to envision what leapfrogging in education could look like. Providing this guidance is essential if the global community is to truly respond to the demand coming from countries around the world.

35. Prahalad and Bettis (1986).

36. Care and Kim (2018).

How to Leapfrog: Harnessing Innovation that Reaches Those Left Behind

While there is a compelling case for why we need to embrace a leapfrog approach in education, the question still remains on how exactly this should be done. We turn now to three questions in an attempt to develop a clear picture of leapfrogging: What is the definition of leapfrogging in the education sector? What does a leapfrog approach to education look like? Is leapfrogging in education possible in the here and now?

What Is the Definition of Leapfrogging in the Education Sector?

Leapfrogging, often described as the ability to jump ahead or make rapid and nonlinear progress, is not well defined in the education sector. Sometimes, in the business literature, it is associated with innovation that disrupts existing paradigms rather than sustains them in a different form.³⁷ More frequently, leapfrogging is used colloquially to describe examples of rapid change. For example, the term “leapfrogging” often appears in relation to telecommunications sector in the developing world, where certain nations have been able to bypass whole phases of infrastructure and institution-building that other countries had to experience. Many African countries, for example, never systematically invested in laying telephone lines, yet today access to mobile phone service on the continent has grown so rapidly that in many cases communities are more likely to be connected to the outside world via mobile phone service than to have access to electricity or running water.³⁸

For the education sector, we define leapfrogging as any practice, whether new or old, that can improve access, quality, and relevance at the same time, closing gaps much faster than the current rate of change. There are two important distinctions for how we use the term “leapfrogging” in education compared to its use in other sectors, such as telecommunications. First and foremost, it is essential to be clear on the type of education you wish to leapfrog toward, as the objective of education varies widely by constituency. For us, leapfrogging focuses on generating dramatic acceleration in progress toward providing all young people with the breadth of skills and competencies they need to thrive in the twenty-first century.

37. See, for example, Christensen, Horn, and Johnson (2008); Keeley (2013); and Voelpel, Leibold, and Tekie (2004). In academic literature more broadly, “leapfrogging” as a term is used to describe widely different concepts across diverse disciplines, from patterns of urban development to improvements in hospital performance to descriptions of voting patterns. There is no clear definition that cuts across disciplines. See, for example, “Look Before You Leap,” *Economist*, August 6, 2016; and Sommer (2013).

38. Winthrop (2016).

Second, leapfrogging does not necessarily mean throwing out the legacy infrastructure of education systems (e.g., schools) but rather building on it to obtain greater results. Leapfrogging harnesses innovation to help education systems go further than their traditional limits. This is distinctly different from sectors such as telecommunications, where the old approach of laying copper wire for connectivity has given way to cell phone towers altogether. Hence, although leapfrogging often connotes skipping steps to advance along a particular path, we do not stick narrowly to this idea. We take inspiration from the overarching concept that rapid and nonlinear progress can be made without following the usual path, perhaps skipping steps but also possibly ending up in a new place.

What Does a Leapfrog Approach to Education Look Like?

The goal of leapfrogging is to move from pursuing educational development in the traditionally sequential process of access then quality then relevance (figure 6-2) to pursuing access, quality, and relevance all at the same time. How, one might ask, can this be done, especially for those who are the furthest behind? After more than three years of research, including a review of the existing literature, conducting over a hundred interviews, and analyzing almost three thousand education innovations from 166 countries, we developed a “leapfrog pathway” (figure 6-3), which provides a map for leapfrogging in education while recognizing context and leaving room for ongoing growth.

There are four elements to our leapfrog pathway. The first two are essential for transformation. The latter two accelerate the scale-up of leapfrog approaches to reach those furthest behind, but may not be essential in every context. They are each briefly described below.

Essential Elements of Educational Leapfrogging

1. *Transforming teaching and learning to be more student-centered.* This implies children having education experiences that include not only teachers’ direct instruction on key subjects, something necessary for students to remember and understand important concepts, but also experiences where teachers let students lead, allowing them to make judgments, evaluate, and create new work, experiences that are essential in helping develop the twenty-first century skills young people need.
2. *Transforming recognition of learning to be more individualized.* This implies that when students’ learning is assessed, teachers are tracking progress against a variety of measures from academic mastery to ability to work with others to solve problems. It also means students are allowed to progress

onto more difficult material once a skill is developed rather than when the grade is completed, and given the opportunity to demonstrate competence directly to employers rather than rely so heavily on diplomas from educational institutions—in other words, approaches that increasingly recognize individual differences in students’ learning and skills.

Figure 6-2. Traditional Pathway for Education Progress: Access, then Quality, then Relevance

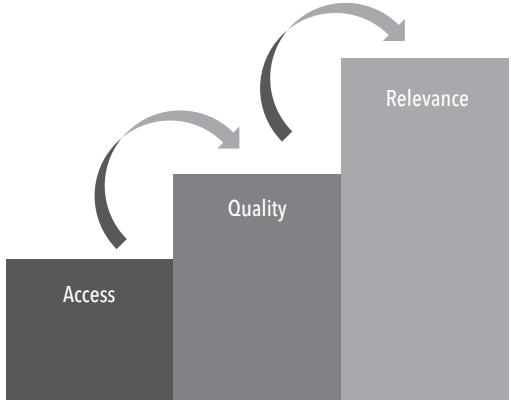
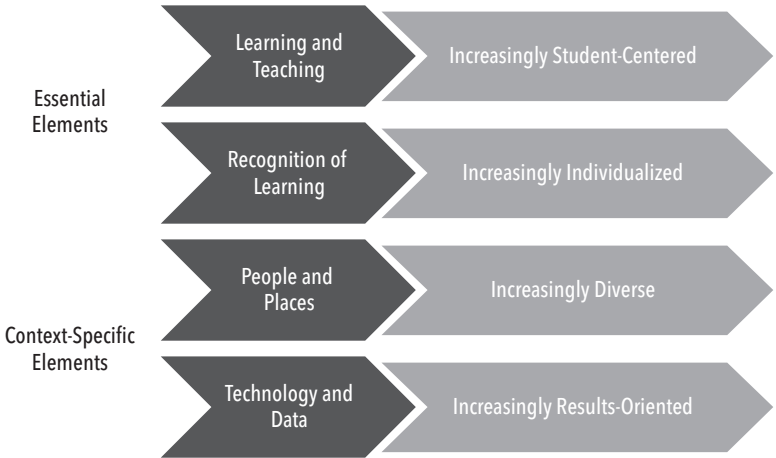


Figure 6-3. The Leapfrog Pathway: How to Pursue Access, Quality, and Relevance at the Same Time



Context-Specific Accelerators for Educational Leapfrogging

3. *Transforming the people and places where learning takes place to be more diverse.* This means that, in addition to learning from licensed teachers in the classroom, young people are engaging in learning from community leaders and professionals, frequently in interactions outside of school—including, for example, working on projects with civil society advocates or business leaders, or engaging in discussions with doctors or sanitation workers or scientists. Experiences that harness a range of human and physical resources outside the classroom walls can be especially powerful in contexts where trained teachers are in short supply but may not be needed to develop twenty-first century skills in all contexts.
4. *Transforming the use of technology and data to deliver better results.* This means that the effective use of technology and data will, for example, provide continuous feedback and information on the quality of the teaching and learning experience in a way that allows adults and children engaged in education activities to modify and adapt their work. It also means that these powerful tools will be harnessed to modify and redefine what is possible—for example, connecting students in remote towns to scientists in urban areas, rather than just replacing existing analog functions (e.g., multiplication worksheets on tablets versus on paper).

Is Leapfrogging in Education Possible in the Here and Now?

Even if the discussion of leapfrogging in education is convincing in theory, the question still remains as to whether it is actually feasible in practice in the communities that need it most. In our study of education innovations around the globe, we found that leapfrogging through innovation is indeed possible. To us, innovations are any ideas or technologies that reflect a break from previous practice, often new in a particular context, even if not new to the world. We found many education innovations that served marginalized communities utilizing leapfrog approaches, although by no means did all innovations have leapfrog potential.

A selection of examples below illustrates the potential of innovation to help education leapfrog. These innovations represent a mix of programs, policies, and types of schools. While many of them have developed on the margins of education systems, they demonstrate what is possible even in some of the hardest to reach areas of the world.

Colombia

Through its Literacy Education and Math Labs program (LEMA), the non-profit Literacy4All has reached almost 1 million young learners across four continents with simple board games that improve literacy and numeracy. At its core, LEMA is about teaching language systems—including the language of mathematics—through exploration, collaboration, and risk-taking. The concept originated in rural communities in Colombia as an intervention to teach literacy to adults and quickly expanded to schoolchildren around the world due to its fun and simple nature. LEMA games are low-tech and made from local materials and follow tried and tested approaches to learning. The games can take place during the school day in small-group sessions, as well as after school with the help of community members called learning coaches. Literacy4All provides training to learning coaches and teachers on how to model the games. Impact studies in the Dominican Republic show that over the course of one year, first-grade LEMA students improved their scores on a literacy assessment by 50 percentage points, ending the school year at a third-grade reading level. The games also help instill in students twenty-first century skills, like critical thinking.³⁹ LEMA transforms the teaching and learning experience by using gaming principles, actively engaging students, and relying heavily on diverse people and places where the learning experience can take place. Where there are limited numbers of trained teachers, community members can be supported to be learning facilitators, and the game often engages multiple generations in the community.

South Africa

Since 1999, the program Go for Gold has served disadvantaged youth in South Africa through its four-phase “education-to-employment” program. It is a successful example of diversifying the people and places where students learn, combining both traditional classroom and workplace experiences that create opportunities for students to engage in experiential learning and for potential employers to directly assess their abilities. Companies, particularly in the construction industry, are eager to participate, as they struggle to fill vacant jobs, especially for positions such as project foreman and engineer. Students involved in the program come from impoverished regions where dropout rates are high and unemployment rates even higher. The program begins in a student’s last two years of high school, when students complete after-school coursework in math, science, technology, and life skills and receive mentoring from employees in Go for Gold partner companies. In phase two, students secure a paid yearlong internship with a partner company; and in year three, if companies believe the

39. Winthrop, Barton, and McGivney (2018, 64–66); Literacy4All (www.literacy4all.org).

student has potential to be a good employee, go on to receive tertiary studies on scholarship from the company. The program ends with students receiving a technical degree and a job offer in hand, usually with the company where they interned, as companies have already invested in the student and have had a chance to see their work. Go for Gold stands as a unique model of authentically verifying learning. Instead of simply choosing candidates based on credentials such as post-secondary degrees—rough proxies for student skills and competencies at best—employers can evaluate learners directly in their future workplaces. More than 80 percent of Go for Gold’s four hundred participants achieved a bachelor’s pass on the secondary leaving exam—the score required to attend college. This stands in stark contrast to the 27 percent of South African youth who obtain such a result nationally. More promising yet, 80 percent of participants completed tertiary studies on time, and all secured full-time employment following graduation.⁴⁰

Tanzania

Camfed, a large international nonprofit focused on girls’ education in sub-Saharan Africa, has a Learner Guide Program that is an example of diversifying who teaches poor and rural girls. It also provides an innovative pathway for the ministry of education to recruit and certify more female teachers, which are desperately needed in hard-to-serve areas. In this program, Camfed trains recent graduates of secondary school to serve as mentors and peer teachers in rural African schools. These young women, known as learner guides, return to their rural schools no longer as students but to deliver a curriculum on self-awareness, resilience, and well-being to local learners and to provide tutoring and mentorship support. Upon completion of the twelve- to eighteen-month program, learner guides receive access to low-risk, interest-free loans and qualify for fast-track teacher certifications. So far, 5,425 learner guides have served more than 300,000 students across 1,643 schools in Tanzania and three other sub-Saharan African countries. An independent evaluation found that 91 percent of surveyed participants in Tanzania and Zimbabwe reported that the learner guide program positively affected their attitude toward school. Additionally, academic outcomes improved greatly. Program evaluations “have shown that in Tanzania, literacy test scores among marginalized girls reached by Camfed showed more than double the rate of learning than among girls in comparison schools—and in maths nearly five times the rate.”⁴¹

40. Winthrop, Barton, and McGivney (2018, 57–58); Go for Gold (<http://goforgold.org.za/>).

41. Winthrop, Barton, and McGivney (2018, 70); Campaign for Female Education (<https://camfed.org/our-impact/learner-guide-program/>).

South Sudan

South Sudan's ministry of education partnered with the nonprofit War Child to design and deliver its primary education distance-learning curriculum to young people in some of the most difficult-to-reach communities. This program, called Can't Wait to Learn, uses gaming technology to deliver literacy and numeracy skills to children in conflict-affected regions, and can be facilitated by diverse members of the community, including but not limited to trained teachers. The games are delivered via offline tablets at informal learning centers for out-of-school children, as well as in formal schools with the support of either a community facilitator or a teacher. Solar-powered charging stations ensure the tablets can always be in use, even in conflict-affected environments. Young people are learning both essential academic skills and ways to manipulate digital technology. The low-cost innovation has now spread to Jordan, Lebanon, and Uganda. A study of the innovation in South Sudan showed that children are learning from the game, particularly those furthest behind.⁴²

India

Mindspark is an adaptive learning platform developed by a private company and currently operating in seventy public schools in the low-income state of Rajasthan, serving over twelve thousand students and expanding across India and the United States. This technology uses machine learning to help students master essential academic competencies on their own. The product has been used in a range of contexts in India, including after school in study centers with students from low-income communities. In a randomized control trial study by the Abdul Latif Jameel Poverty Action Lab (J-PAL), researchers found that students who attended Mindspark centers for over four and a half months improved their math and Hindi scores by 0.36 and 0.22 standard deviations, respectively. In practical terms, this means that Mindspark students improved their test scores more than twice as fast as students who did not participate. This is an example of technology redefining what is possible for communities that lack high-quality schooling and instruction.

Brazil

One of the few examples of system-wide leapfrogging comes from one of the remotest parts of the globe, the Amazon jungle. The Amazonas Media Center for Education was created by the state ministry of education to provide formal secondary education to rural communities in Brazil's Amazon region, where access traditionally was limited. This government-led innovation enables teachers in

42. War Child (<https://warchildholland.org/projects/cant-wait-to-learn>).

the region to support each other, simplifying the roles each plays while also providing students access to expert knowledge. The top teachers in the state are designated as “lecturing” teachers and are based in the region’s capital, providing lessons via a two-way video satellite uplink from a media center in the capital. Lecturing teachers broadcast to a thousand small classrooms around the state, where students are supported by “mentoring” teachers, who assist young people in navigating their homework, class discussions, classroom management, and other intra- and interpersonal support. Crucially, the lessons are all adapted to the local realities of rural children, allowing for natural connections between the lessons studied in class and the ways in which they experience their natural and social environment. Students are learning, many who never had access before, as evidenced by their performance on national exams. This creative use of technology, transforming teachers’ roles, and envisioning a different teaching and learning experience have all helped truly leapfrog education so that some of the children who have been the furthest behind have opportunities to access high-quality education that is relevant to their lives.

Recommendations

This chapter aims to share insights that can inspire action-oriented governments, civil society organizations, educators, philanthropic investors, and members of the business community to consider the serious prospect of rapid, nonlinear educational progress and to reflect on what more needs to be done to make leapfrogging in education a reality. There is no reason that the children and youth of Madagascar cannot develop the competencies and skills that their counterparts in Finland are learning, or that those young people left behind in any country could not access the type of twenty-first century education they so deserve.

We argue that the following three recommendations are essential if the idea of leapfrogging in education is to move into scaled-up practice for those who need it most:

1. *Leaders must adopt a leapfrog mindset.* Above all else, apex political leaders—from heads of state and government to ministers of finance and education and the global organizations that support them—must all believe leapfrogging is possible. The very act of articulating a new vision of education progress—one that harnesses innovation to achieve improved education access, quality, and relevance for the most marginalized communities—will help drive the types of changes that are needed to provide all children a twenty-first century education. Governments are the ultimate duty-bearer of children’s right to education, and the direction on how to achieve quality

and relevant education for all must first and foremost come from presidents and prime ministers. Breaking from the dominant logic of stepwise educational development will be difficult, but by articulating a clear vision of education leapfrogging and requesting consistent and thoughtful discussion among relevant ministers on how to leapfrog, top political leaders can certainly inculcate a mindset shift.

2. *A leapfrog lab must be established to help ministries of education use new education policy design approaches.* Each jurisdiction must find what innovative approaches are effective in their context and for the particular needs of their students. To achieve this, the process of designing education policies and their corresponding implementation plans in most contexts must be opened up to include the perspectives of new actors from technologists to sociologists to local teacher organizations to business communities to research groups and human-centered design organizations. Education decisionmakers and their teams need exposure to the range of different models that are possible and that help transform teaching and learning. One way of executing this is for the global community to establish a mechanism that pulls together existing leapfrog-related evidence, actors, and guidance from diverse disciplines that would provide ongoing advising to ministries of education. This virtual “leapfrog lab” would connect and build off existing organizations with similar interests to develop a space for creative and iterative design workshops with a range of stakeholders and unlikely thought partners at the beginning of the policy design progress.
3. *The global community must develop actionable evidence on scaling-up leapfrog approaches.* There is an urgent need to develop evidence that can be easily used by education decisionmakers to guide them on how to design and implement leapfrog approaches that scale. Currently most efforts, including our own, have focused on identifying and highlighting innovations and, in our case, putting forward a conceptual framework that identifies which innovations have the potential to leapfrog. But this is just the beginning. There is a need for the range of actors invested in developing evidence and public goods—from data sets to analytical tools—to look seriously at what they can do to advance understanding of approaches that provide access to quality and relevant education for all children, especially those in the hardest-to-reach communities.

Leaving No One Behind

At all levels of economic development, the leapfrog pathway to education is designed to address access, quality, and relevance at once, rather than following a slow, sequential approach. By making teaching and learning more student-centered and the recognition of learning more individualized, innovations can leapfrog progress in education much faster than the status quo. In addition, diversifying people and places and using results-oriented technology and data can support further transformation. In examining the current state of global education innovations through our catalog, we learned that the education innovations community is energetic, diverse, and widespread. Children from poor and wealthy families alike are participating in new approaches that are changing, with impressive results, how schooling is delivered, what is taught, and how teaching is done. Ultimately, this richness of education innovations holds promise for leapfrogging education that helps to address global education inequality.

Innovators, policymakers, and funders must work together to take the next steps that will make leapfrogging a reality to ensure that all children have access to a quality twenty-first century education. The world needs to set its sights on bringing promising practices to scale in diverse communities, starting first with the most marginalized. The international community can create an enabling environment that accelerates progress in education and ensures a generation of young people is not left behind.

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