THE LEARNING CHALLENGE:

How to ensure that by 2020 **every child learns**

Fenton Whelan
Foreword by Sir Michael Barber

April 2014

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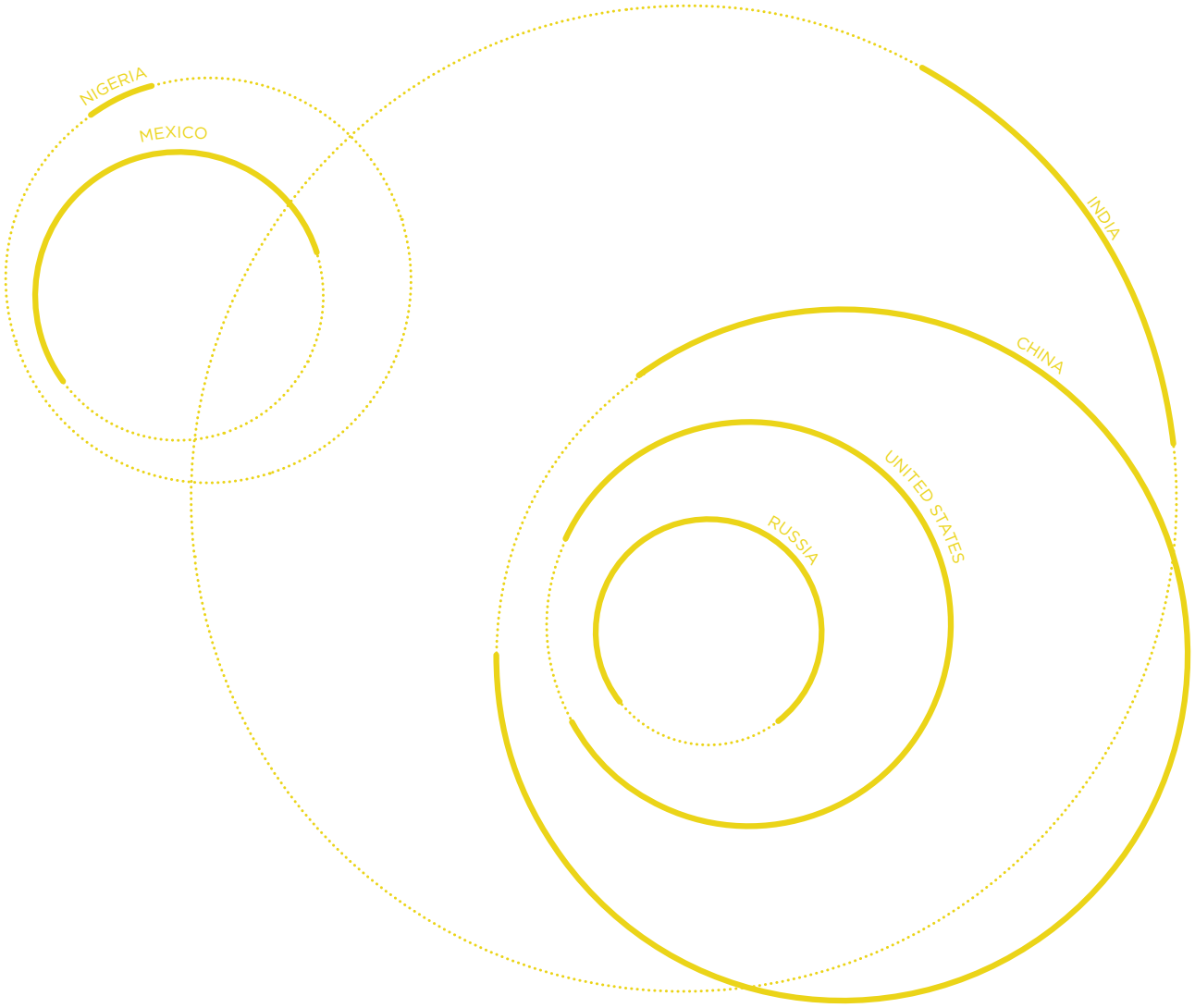

Fenton Whelan | April 2014

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Fenton Whelan

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Foreword

UNESCO estimates that there are still 57 million children of primary school age not in school. For all the millions of words spoken on the subject of the Millennium Development Goal for 2015, it will not be met. To make matters worse, while the vast majority of children do attend primary school, more than 250 million do not master the basics. As Fenton Whelan argues in this report that means that 'very few of the world's children are getting the education they need to access the opportunities the 21st century offers them.'

This failure is scandalous; a loss of life chances and liberation for the children concerned, a loss of production for the world economy, a loss of capacity to solve the world's environmental and other challenges and a loss of engagement in the debate about the future of humanity. Of course, education alone is not the solution to all these problems but equally none of them can be solved without greatly improved educational outcomes and equity across the globe.

Over the last four years Fenton Whelan has worked with me on improving the school system in Punjab, Pakistan. The Punjab School Reform Roadmap, led with energy and commitment by the Chief Minister Shahbaz Sharif, is delivering both improved enrolment and improved outcomes. The number of primary school children enrolled has increased by 1.5 million in the last three years, teachers are present over 90 percent of the time and student attendance is over 90 percent. Substandard buildings have been repaired and nearly all now have drinking water and toilets. Every child has new textbooks, teachers have lesson plans, which they have been trained to use, and all the indicators suggest that from a low base quality has improved too. Of course, all this is only the beginning. The Chief Minister and my team, including Fenton, are in this for the long haul.

During that time we have collectively learnt a lot about what it would take to get every child in school and learning not just in Punjab but across the world. The biggest lesson of all is that, to misquote Bertolt Brecht, universal primary enrolment will not come after a night of sleep. It has to be worked at vigorously, consistently and unremittingly not just in national capitals but also on the ground in the towns and villages of the relevant countries. This is what is happening in Punjab and it is why Punjab is delivering results.

In this excellent paper, with great clarity, Fenton Whelan sets out the details of our learning and applies it to the global challenge. He dissects the world's education problem; sets out what the evidence suggests would be needed to solve it and then describes the emerging science of delivery, which is based on work I and

others around the world have done to improve the capacity of governments to implement reform successfully.

On our very first to Pakistan in August 2009, Fenton and I learnt that the last thing Pakistan needed was a new report or another speech; it needed a sensible set of policies that were systematically implemented, as Punjab is now doing. The same is true across the world. Whether education is the responsibility of a province, a state or an entire country, there are lessons to learn from this report both about what to do and how to do it. We will of course learn more as we go and continue to share that learning. In the mean time, there is no excuse for not getting started. We just need the political will to get this done. This report from Fenton Whelan is, therefore, an invaluable contribution.

Sir Michael Barber

Sir Michael Barber

Sir Michael Barber is a leading authority on education systems and education reform. Over the past two decades his research and advisory work has focused on school improvement, standards and performance; system-wide reform; effective implementation; access, success and funding in higher education; and access and quality in schools in developing countries.

Sir Michael is Chief Education Advisor at Pearson, leading Pearson's worldwide programme of research into education policy and efficacy, advising on and supporting the development of products and services that build on the research findings, and playing a particular role in Pearson's strategy for education in the poorest sectors of the world, particularly in fast-growing developing economies. He also works with the Chief Minister of Punjab in Pakistan on an ambitious programme to improve the school system.

Prior to Pearson, Sir Michael was a Partner at McKinsey & Company and Head of McKinsey's global education practice. He is also Distinguished Visiting Fellow at the Harvard Graduate School of Education and holds an honorary doctorate from the University of Exeter. He previously served the UK government as Head of the Prime Minister's Delivery Unit (from 2001–2005) and as Chief Adviser to the Secretary of State for Education on School Standards (from 1997–2001).

Executive Summary

In school but not learning

In the modern world, a child's chances in life depend not on whether they go to school, but on how much they learn. By this measure, despite great progress in expanding access to schooling, very few of the world's children are getting the education they need to access the opportunities the 21st century offers.

For every hundred primary-age children in the world, 96 will attend some schooling. Ninety-one are in school now. However, just 37 will reach a basic level of learning in literacy and numeracy, equivalent to the 20th percentile in the developed world. Even fewer will reach a high level of learning.

This varies greatly around the world. In a few countries, more than 90% of children reach at least a good basic level of learning. In 32 countries, less than 10% do.

What works in countries with the lowest learning levels

The best school systems spend hundreds of thousands of dollars educating each child, and use those funds to achieve high levels of learning. However, 50% of the world's children live in countries where the total public funding available to fund their entire education is less than $3,000. Twenty-five percent live in countries where the total available is less than $2,000. Ensuring that every child learns will mean finding ways to provide a good education at these funding levels.

A few school systems are already able to achieve good results at these funding levels. BRAC in Bangladesh and Gyan Shala in India are two of the best, but there are others. They, and a range of other evidence, suggest that schools which are going to achieve good results at low cost need six features:

- Excellent teaching materials, including books and teacher guides which are easy to use, provide lots of guidance for teachers, and have been rigorously tested and refined based on feedback from the field
- Intense coaching and support to help every teacher teach well, typically including at least weekly mentoring and coaching in the field
- More time on task through a longer school year, high student attendance, high teacher attendance, and a high level of activity during the school day
- Mother-tongue instruction in the early grades to enable children to acquire numeracy and literacy quickly and give them a strong foundation for the acquisition of other languages

- Good basic facilities to provide a simple but adequate learning environment
- Strong accountability and management to ensure that schools stay focused and the system is constantly learning and finding ways to improve

None of these features are highly complicated. However, the challenge of quickly implementing them across school systems with millions and sometimes tens of millions of students is formidable. Fortunately, a science for how to do that is rapidly emerging.

An emerging science of delivery

Over the past 15 years, a set of techniques for successful implementation in government has begun to emerge, which Jim Kim, President of the World Bank, refers to as a "Science of Delivery." If those techniques could be applied consistently across the world's large school systems, it would dramatically change the world's education landscape.

As a coherent theory of how to make change happen in government, Delivery first emerged in the Prime Minister's Delivery Unit in the United Kingdom, under the leadership of Michael Barber. Since then (and often under Sir Michael's guidance), delivery has been applied in a wide range of countries, including Australia, Brazil, Canada, Malaysia, Mexico, Rwanda, Sierra Leone, Thailand, the United States and others. Since 2011, with Michael's support, the Government of Punjab has applied the same techniques in Punjab, Pakistan, the largest test of the approach so far in the developing world.

From those experiences, a set of lessons about how to successfully reform large school systems is emerging. They suggest that five things will be essential to get every child in school and learning:

- Political leadership is essential, but is as much the product of a successful delivery effort as an ingredient for it
- Prioritization is the single most important factor determining the success of delivery. Reforms which exceed the system's capacity to implement them are doomed
- Data and other measures of progress are essential so that the system knows whether it is making progress, can understand what works, and can tackle underperformance
- The speed and effectiveness of the delivery effort depends on the extent to which it can create and spread learning about what works. In most systems, the answers are already out there somewhere, the challenge is to find and spread them
- In particular, routines and stocktakes are essential to drive progress and unblock problems as they emerge. A stocktake with the President or Prime Minister on every priority area once every three months can drive the system forward

The opportunity today

Ten years from now, two futures are possible. In one, the world's largest school systems continue along incremental paths of improvement. The issues of implementation are not seriously confronted, the policy prescription is not adapted to the needs of the poorest countries, and improvement happens slowly, if at all. In this future, hundreds of millions of children will never gain access to the education they need to seize the opportunities of the 21st century.

In the other, the world's largest school systems embark today on ambitious reforms of their school systems, based on the emerging knowledge of what works and how to implement at scale. They adapt, refine and build on that knowledge. They work within the real fiscal and other constraints to find the best possible solutions for their systems. And they create a world in which, ten years from now, the promise of education for all is truly becoming a reality.

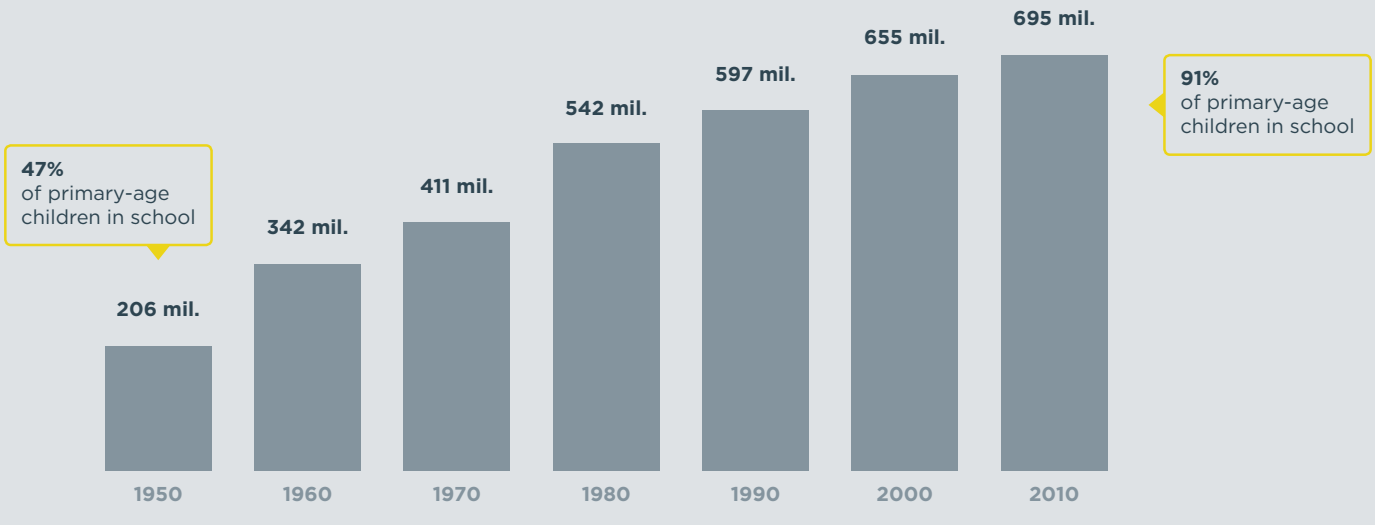
The Learning Challenge

There are more children in school today than at any point in human history

Today, more children go to school than at any point in human history. In 1950, just under half of the world's primary-age children went to school. By 1999, that number had risen to 84%.[1] Today, following a major global effort during the first decade of the 21st century, around 91% of primary-age children go to school.[2] A further 5% are not in school now but will attend school at some point. In total, 96% of the world's children receive at least some formal education.[3]

A few pockets remain (see map, page 10). A large number of the world's out-of-school children live in a few large developing countries. Around 15 million of them—one quarter of the global total—live in Nigeria or Pakistan. Sudan, South Sudan, Chad, the Democratic Republic of the Congo and Somalia all have large numbers of children not in school. A belt of countries in Central Africa from Liberia to Somalia still has relatively low enrolment. In addition, in some countries with relatively high levels of enrolment, a small proportion of children, particularly those from minority groups or those with special needs, do not yet have access to education.

TOTAL ENROLMENT IN PRIMARY SCHOOLS



The vast majority of children, however, do now go to school. Furthermore, in most of those places where some children still do not go to school, the problem is not specifically an education problem, but rather a broader challenge of governance, the rule of law and extreme poverty. Regions such as Northern Nigeria or Balochistan in Pakistan struggle with a whole range of development indicators, not just education. They have weak overall governance, which makes it difficult to provide healthcare, basic infrastructure, sanitation, and even security and stability, in addition to education. As effective government and stability improve in those places, so will education, and without a broader improvement, the challenges of education will be difficult to address. As one expert noted of Afghanistan, "The principle challenge for Afghanistan's schools is that they are in Afghanistan." In most places where low enrolment persists, progress depends mainly on other factors outside of the school system.

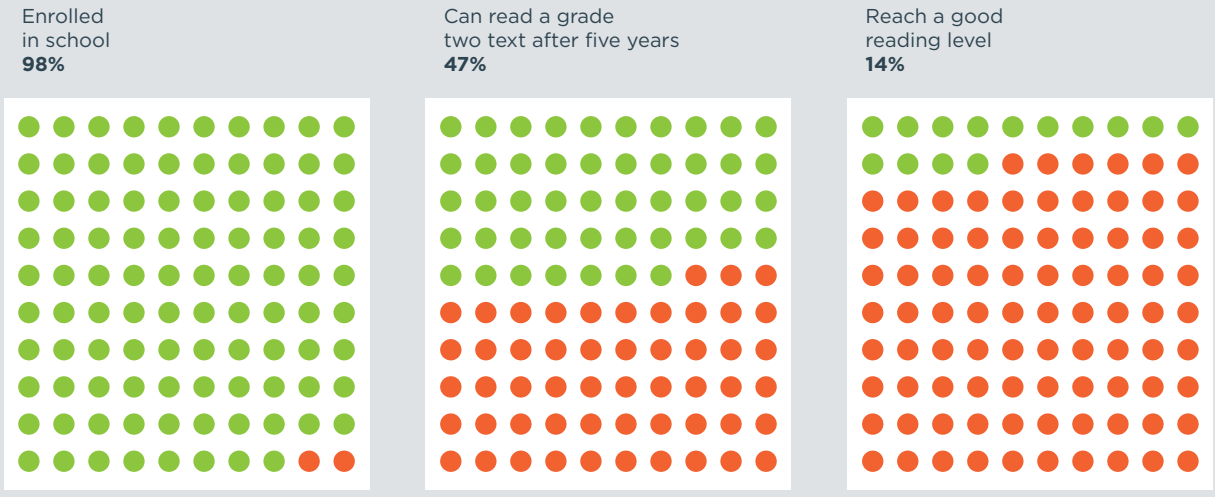
This success in getting children into school deserves to be celebrated. However, it also masks a more fundamental challenge. While most children go to school, few are learning well.

In school but not learning

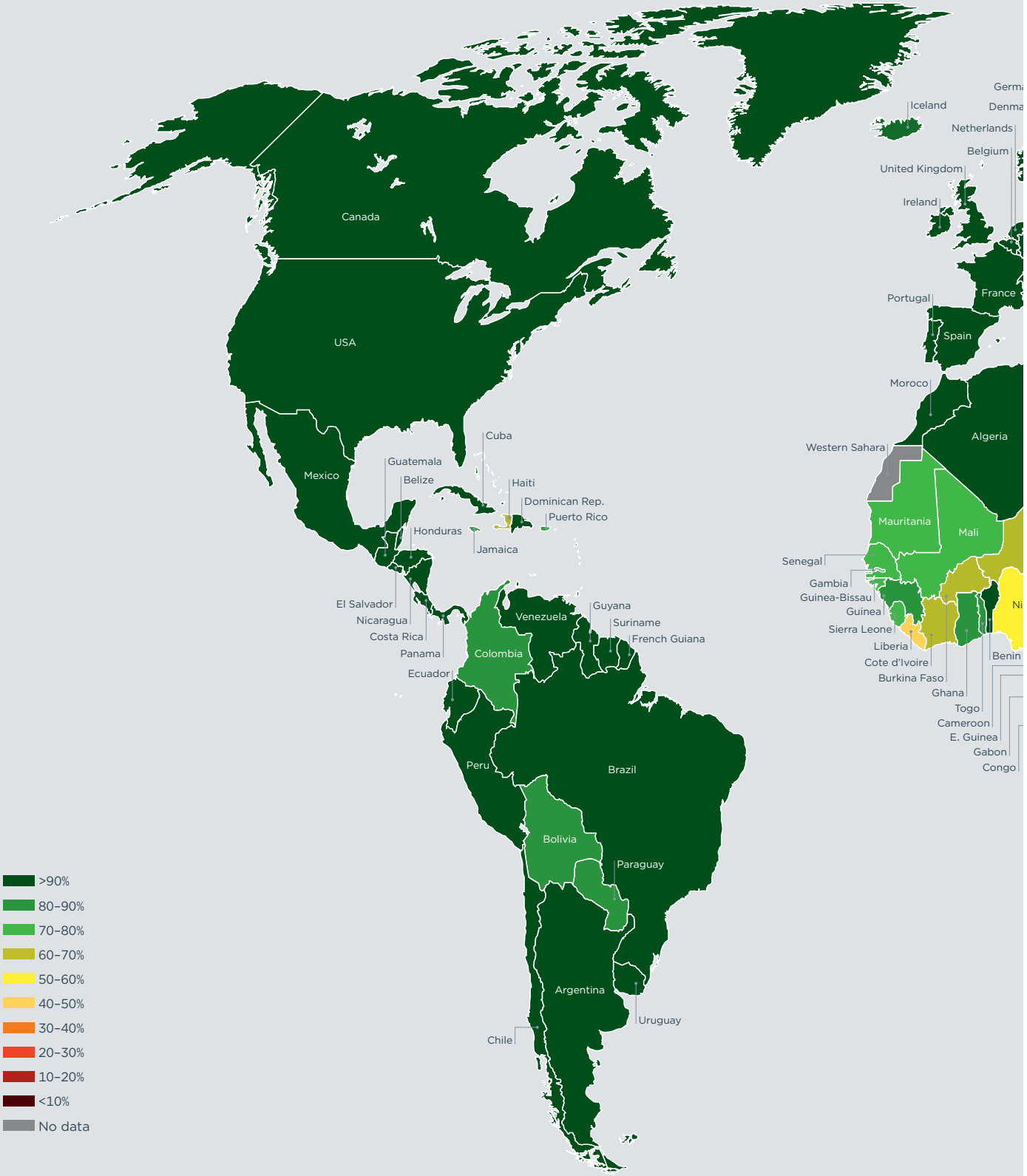
India is home to 20% of the world's children, more than any other country. During the first decade of the 21st century, it ran one of the most successful enrolment campaigns ever seen, reducing the number of primary-age children not enrolled in school from 20 million to two million.[4] Today, 98% of India's primary-age children are enrolled in school.[5]

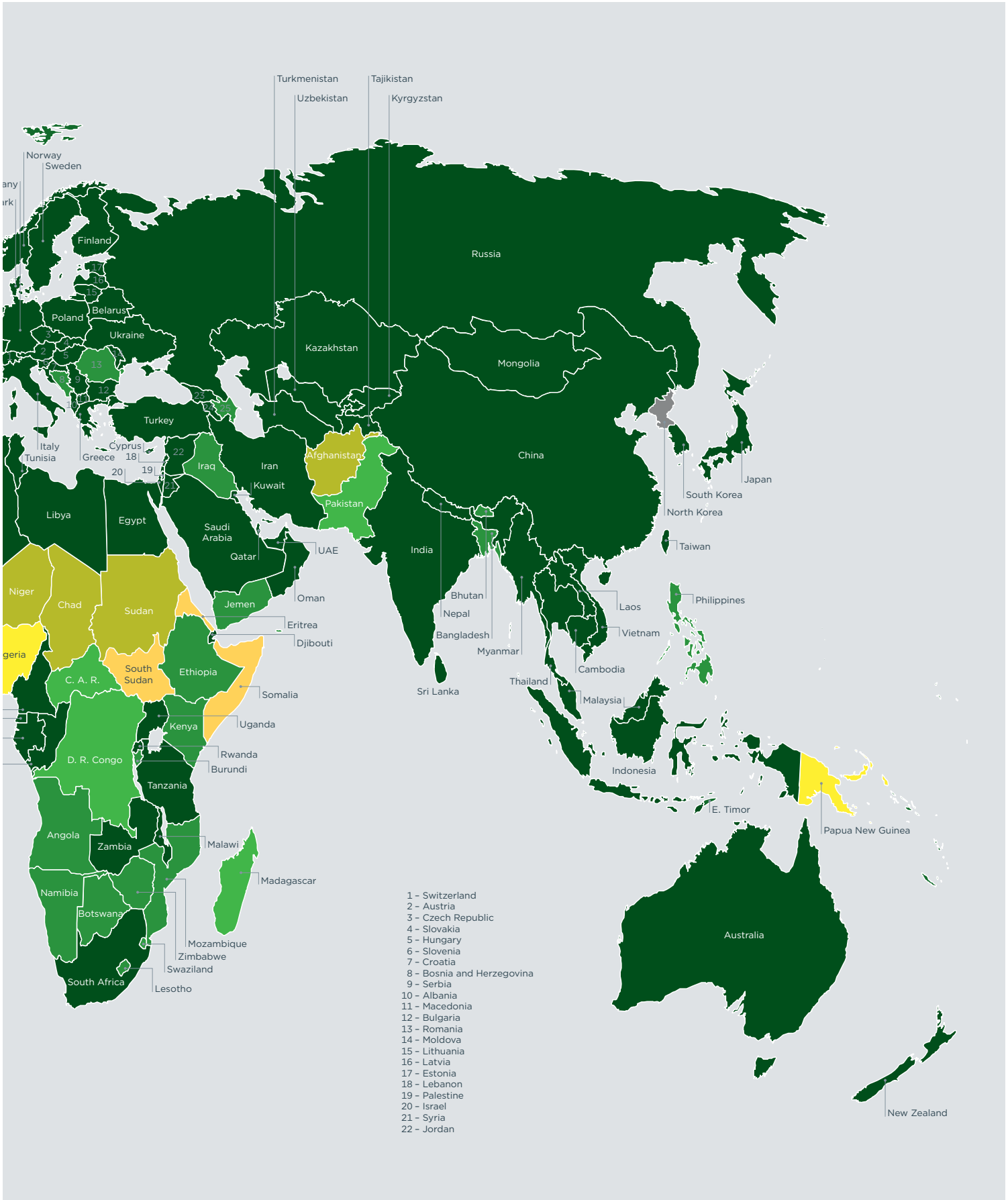
However, while the vast majority of children in India are enrolled in school, far fewer are learning. One independent survey of children in rural areas (70% of

LEARNING LEVELS FOR PRIMARY-AGE CHILDREN IN RURAL INDIA



% OF PRIMARY-AGE CHILDREN IN SCHOOL

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Myanmar
Laos
Vietnam
Cambodia
Thailand
Philippines
Malaysia
Indonesia
Sri Lanka
Eritrea
Djibouti
Ethiopia
South Sudan
C. A. R.
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Uganda
Rwanda
Burundi
D. R. Congo
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Zambia
Malawi
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Mozambique
Zimbabwe
Swaziland
South Africa
Lesotho
E. Timor
Papua New Guinea
Australia
New Zealand
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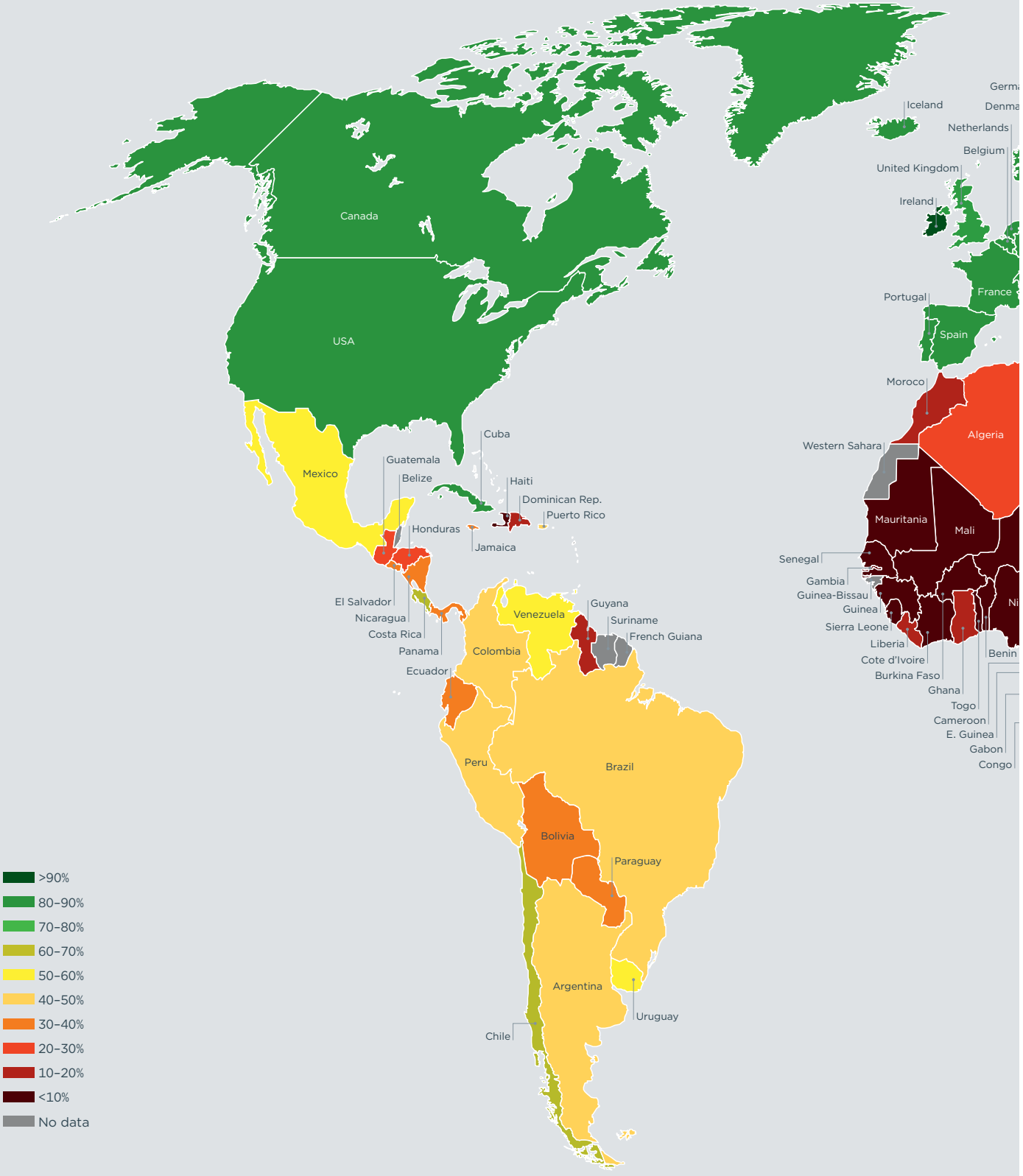
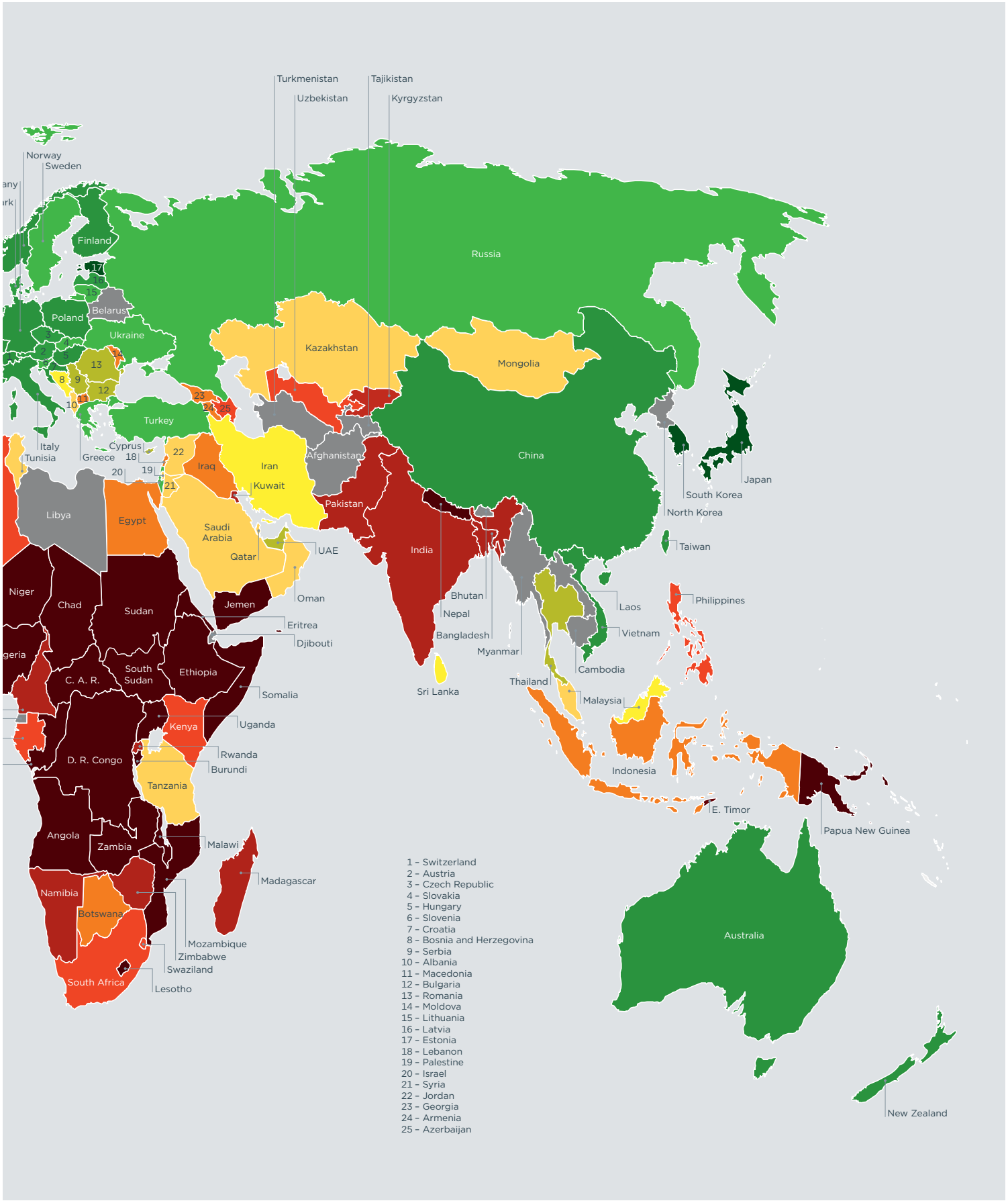
3 – Czech Republic
4 – Slovakia
5 – Hungary
6 – Slovenia
7 – Croatia
8 – Bosnia and Herzegovina
9 – Serbia
10 – Albania
11 – Macedonia
12 – Bulgaria
13 – Romania
14 – Moldova
15 – Lithuania
16 – Latvia
17 – Estonia
18 – Lebanon
19 – Palestine
20 – Israel
21 – Syria
22 – Jordan

% OF PRIMARY-AGE CHILDREN WHO WILL REACH A BASIC STANDARD OF LEARNING

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India
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Nepal
Bangladesh
Myanmar
Laos
Vietnam
Cambodia
Thailand
Philippines
Malaysia
Sri Lanka
Indonesia
E. Timor
Papua New Guinea
Ethiopia
South Sudan
C. A. R.
Somalia
Kenya
Uganda
Rwanda
Burundi
D. R. Congo
Tanzania
Angola
Zambia
Malawi
Madagascar
Namibia
Botswana
Mozambique
Zimbabwe
Swaziland
South Africa
Lesotho
Australia
New Zealand
1 – Switzerland
2 – Austria
3 – Czech Republic
4 – Slovakia
5 – Hungary
6 – Slovenia
7 – Croatia
8 – Bosnia and Herzegovina
9 – Serbia
10 – Albania
11 – Macedonia
12 – Bulgaria
13 – Romania
14 – Moldova
15 – Lithuania
16 – Latvia
17 – Estonia
18 – Lebanon
19 – Palestine
20 – Israel
21 – Syria
22 – Jordan
23 – Georgia
24 – Armenia
25 – Azerbaijan

all Indian children) tests tens of thousands of children each year to measure learning levels in Indian schools. The results show that just 10% of children meet the expectations for their grade level. After five years, less than half can read a simple text. Just one quarter can do division problems like "658÷4", and only half can do basic subtraction. Among fifth graders, 20% cannot even recognize numbers between 10 and 99.[6]

The number of children who achieve a good basic level of learning is even lower. The proportion of students who achieve a level of learning equivalent to the minimum standard in a developed country (say the level that around 80% of children would be expected to reach in the United States) is less than 15%.

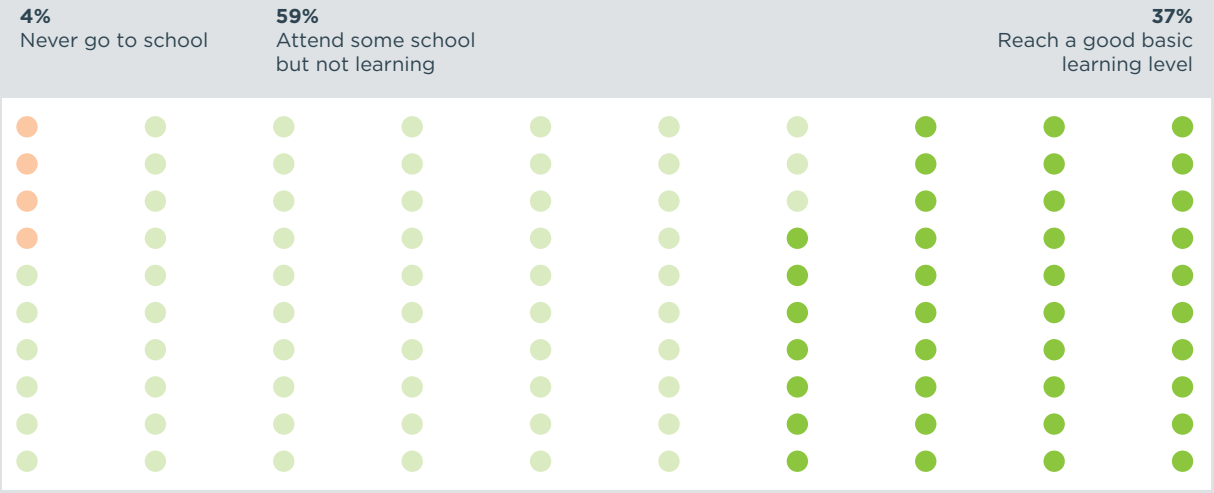
This is a problem across much of the developing world. Many studies in a wide range of countries have found that while most children are enrolled in school, large numbers are not learning.[7] The first step in this work was to aggregate all of those data sources into a single global picture of how many children are learning (and not learning) around the world.

The detailed methodology is described separately. In brief, we took data from a range of international tests, including PISA, TIMSS, PIRLS, SACMEQ, PASEC and SERCE, and calculated what proportion of students could be expected to read at a good basic level of learning at primary school—equivalent to the 20th percentile in the United States. For countries that did not participate in these tests (of which there were many), we sought out national assessment data or other benchmarks that would allow us to make an estimate. In most of these cases, we used tests of reading ability in primary schools. Statistics on enrolment and dropout rates were used to estimate the proportion of children who never enrol in school or dropout early. In total, we were able to make estimates for 146 of the world's 156 largest countries.

The results are not perfect. The underlying data is of variable accuracy; each test has its own margin of error and may not always reflect the performance of the system more broadly. The multiple sources are difficult to compare. Occasionally, different sources for the same country in the same year yield widely diverging results. The methodology and the final results bear testament to the lack of reliable data on learning levels in many countries, itself a major obstacle to improvement. However, the overall spectrum of performance is extremely wide, and even with these challenges, it is possible to develop a reasonably accurate estimate of where each country falls on that spectrum.

The results show that of the world's 650 million primary-age children, just one third will reach a good level of learning by the end of primary school. Even though 96 out of every 100 children receive at least some schooling, just 37 can expect to reach a good basic level of learning while at school. This is important, because the life chances of those children depend not on whether they go to school, but on how

% OF PRIMARY-AGE CHILDREN (WORLD)



much they learn while they are there.

The proportion of children who do learn varies widely by country. In Hong Kong, Singapore, Japan, Estonia, Ireland and South Korea, more than 90% of children will reach a good basic level of learning. In 30 countries, less than 10% will.

In some parts of the world, learning levels are uniformly good. In Northern Europe, together with Australia, Canada, Cuba, Japan, New Zealand, Singapore, South Korea and Vietnam, more than 80% of children reach a good basic level of learning. China comes close to this despite being significantly less developed economically. As Andreas Schleicher, head of the PISA program, notes of China, "Even in rural areas and in disadvantaged environments, you see a remarkable performance… Shanghai is an exceptional case—and the results there are close to what I expected. But what surprised me more were the results from poor provinces that came out really well."[8]

In other parts of the world, learning levels are uniformly low. Of the 30 countries where fewer than 10% of children will achieve a good level of learning, 25 are in Africa (together these countries are home to around half of Africa's children). In South Asia, home to 165 million primary-age children, only Sri Lanka (home to around two million of those children) has relatively good levels of achievement.

Within regions there is still tremendous variation. In Ukraine, 74% of children learn to a good level, compared to just 39% in neighbouring Moldova. At 49%, Tanzania's learning level is higher than Moldova's, while in neighbouring Malawi, just 1% of students are reading at a good level by the end of primary school.

For a full picture of the global education challenge to emerge, we also need to factor in the relative size of each country's school-age population. Many of the developed countries that have good levels of education also have small and often declining populations of school-age children. Conversely, many of the countries with the largest populations of school-age children (with the important exception of China) have extremely low levels of learning achievement in their schools. For instance, the number of children reaching school age each year in Nigeria—one of the 30 countries where fewer than 10% of children reach a good level of learning—is the same as the total number of children reaching school age in the whole of the European Union.[9]

In order to illustrate this, the following map shows learning levels for each country, but with each country represented by a circle sized according to the number of school-age children to which that country is home. Among the largest countries, only China and the United States have a high proportion of children reaching a good basic level of learning. The high learning levels of many countries in the developed world are, due to their relative size, eclipsed by the many large developing countries with very low levels of education.

The relatively basic level of education used as the benchmark here is, in any case, arguably inadequate to meet the demands of the 21st century. Children in the developed world achieving at this level (approximately the 20th percentile) will not go to college, have a relatively high chance of unemployment and will have significantly lower lifetime earnings than the average citizen. There is rightly much discontent about the state of education in many of the countries that score highest on the scale. Even if every child in the world were to reach a good basic level of learning, that would not be enough to give them full access to the opportunities of the 21st century. So if anything, the dramatic statement that only one third of the world's children are learning in school is actually an understatement. That, in turn, is a bigger problem than ever before.

Education matters more than ever before

Peoples and societies around the world have long valued education. The first Surah of the Quran to be revealed commands believers to read. Confucius wrote that one should "never tire of studying or teaching." It has been two millennia since Sparta and the Kingdom of Israel established some of the first compulsory education systems.

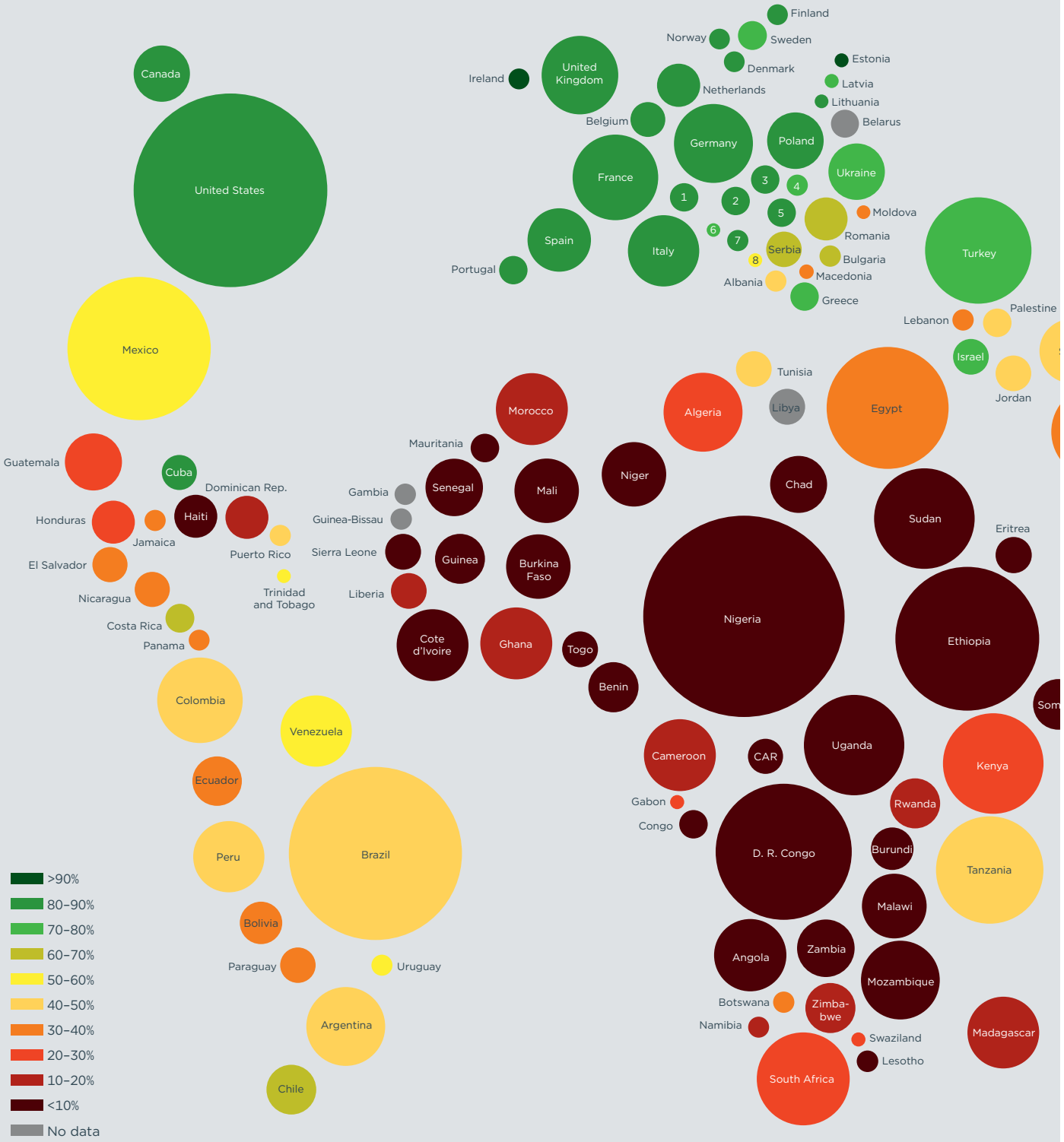
However, in the 21st century, changes in the economy and society have made education more important than ever before. Across all countries, people with higher levels of education earn more. In the United States, holders of professional degrees earn more than twice as much as the average high school graduate. In Pakistan, each additional year of schooling increases earnings by 7%.[10] These relationships hold even when a range of other factors are controlled for.

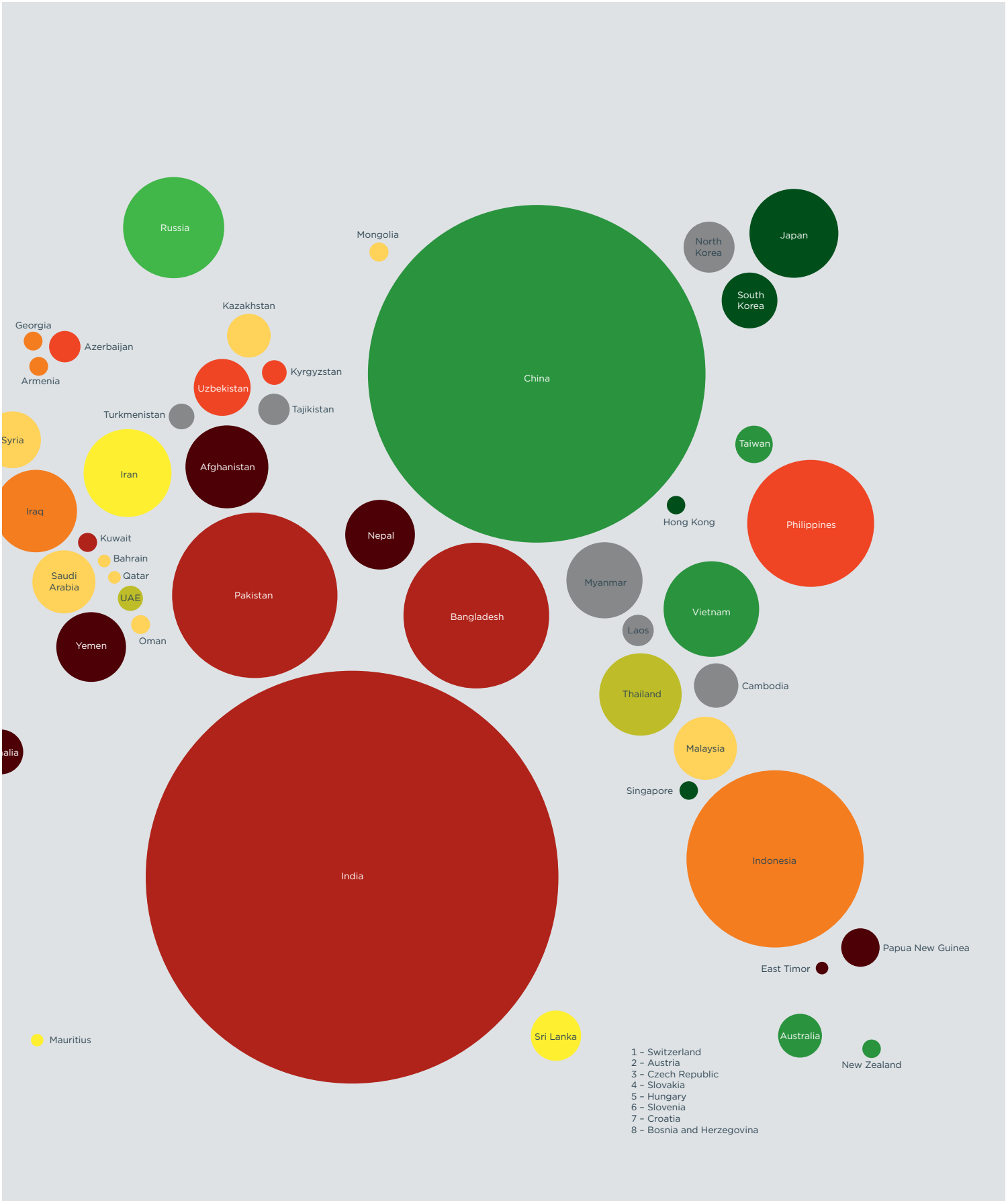
More importantly, these differences are growing. In the United States, three decades ago, the average household headed by a degree holder earned 45% more than one headed by a high school graduate.[11] Today it earns almost twice as much. This has happened over a period when the number of graduates has also increased dramatically. So education has become less scarce and more valuable at the same time.

This in turn reflects a more fundamental change in the

% OF PRIMARY-AGE CHILDREN WHO WILL REACH A BASIC STANDARD OF LEARNING

Each circle is sized in proportion to the number of children

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Thailand
Cambodia
Malaysia
Singapore
India
Indonesia
Papua New Guinea
East Timor
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2 – Austria
3 – Czech Republic
4 – Slovakia
5 – Hungary
6 – Slovenia
7 – Croatia
8 – Bosnia and Herzegovina

global economy, which is likely to continue and potentially accelerate. Technology is displacing large numbers of low-skill jobs and creating, in their place, smaller numbers of high-skill jobs.[12] What happened first in agriculture and then in manufacturing is now happening in services. Demand for highly educated individuals is increasing, as is their potential to create value, while demand for those with low education is decreasing. MIT economics professor Lester Thurow writes, "Unskilled labour is simply going to be worth less and less. Arguments about the relative size of the roles played by globalization, capitalism and the knowledge-based economy... are irrelevant. The solution in all three cases is found in education."[13] If everyone can be educated to a high standard, then everyone can participate in an increasingly productive economy. However, without better education systems, many will be left behind.

What is true at the level of individuals—that greater education leads to greater wealth—is also true at the level of countries. In the past, the impact of education on the economy has generally been measured using quantitative measures of educational achievement. The most common of these is the average number of years of schooling that each person in the country has attended. The economy of a country in which the average adult has completed nine years of education is estimated to grow 0.4% faster than one in which the average adult has completed only eight years of education. This is clearly a crude measure: a year of schooling in a poor part of Nigeria does not produce as much learning (or by extension, economic productivity) as a year of schooling in Finland, as the data presented earlier demonstrates. That same data presented earlier allows us to investigate the relationship between education and economic outcomes using the more refined measure of whether students are learning. Instead of looking at the relationship between wealth and the amount of schooling that a country delivers, we can look at the relationship between wealth and the amount of learning a country produces.

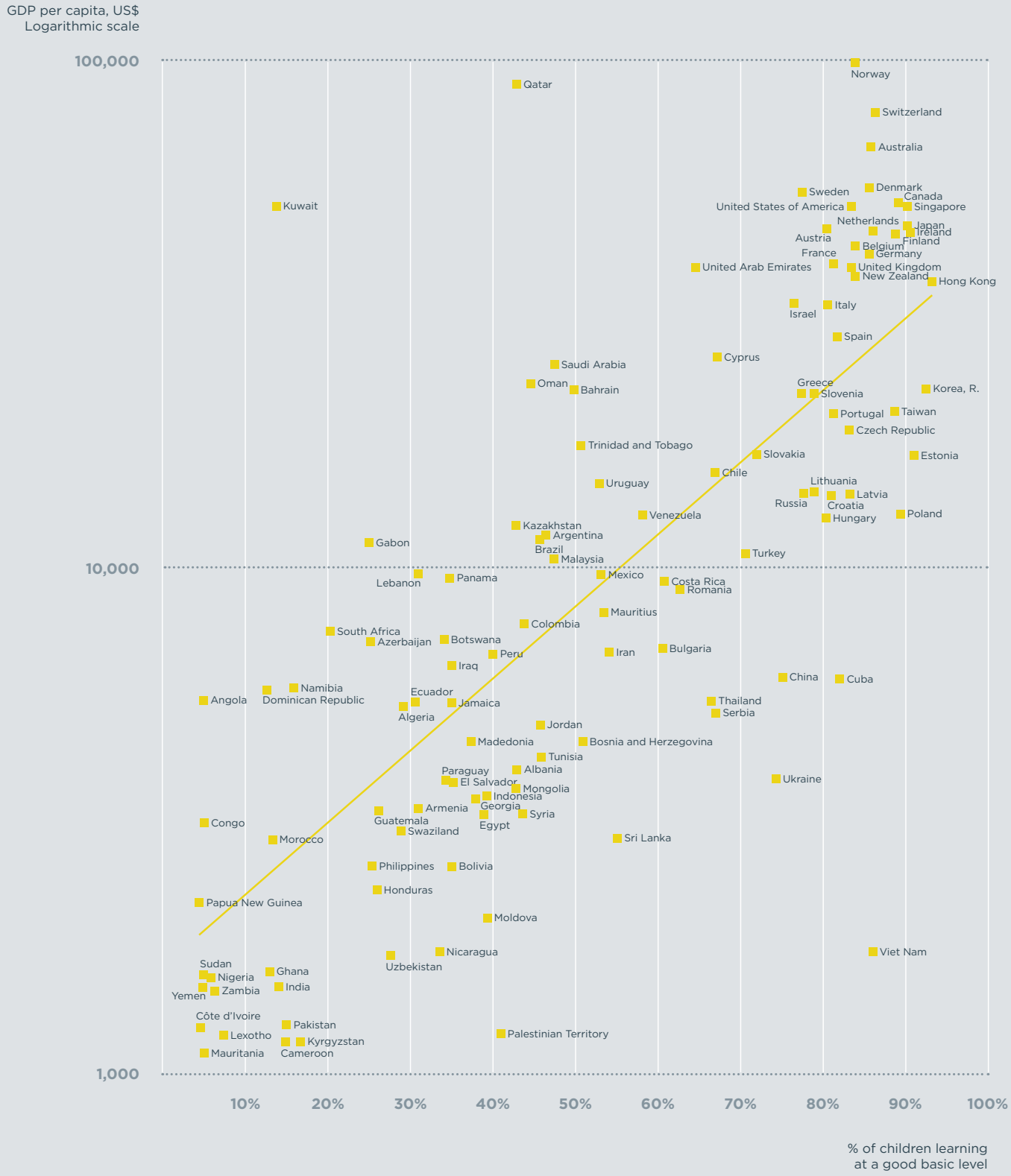
This data produces a far stronger correlation between education and wealth, a result consistent with similar analysis using the PISA datasets.[14] If the oil-rich GCC countries, which derive much of their income from hydrocarbon wealth and its indirect impacts on their economies, are excluded, the correlation is 69%.

Of course, that correlation does not necessarily imply causality. Better education is both a driver and a product of higher levels of development, and it rises together with a range of other factors that also contribute to economic growth. As Thurow notes, "If a country can run a good school system, it undoubtedly has the social organisation to engage in social development."[15] However, the strength of the correlation using this data does demonstrate that education is more closely linked to wealth and development than other comparisons suggest, and that it may be more fundamental to the process of development than is often acknowledged. Hanushek and Wößmann, in a similar but more rigorous analysis examining a range of other variables using data from the OECD, concluded that, "Cognitive skills can account for growth differences within the OECD, whereas a range of economic institutions and quantitative measures of tertiary education cannot."[16]

Even if education were not important to wealth and economic growth, it would be important for other reasons. Aside from the intrinsic value of education to individuals and societies, better education is associated with higher levels of health, stronger democracies, greater individual happiness and improved social cohesiveness.[17] A whole range of studies demonstrate education's importance to these and other outcomes.

While more education is being provided to more children than ever before, the fact that so few children are learning is therefore deeply problematic. Could it be different?

LEARNING AND GDP PER CAPITA



What Works

Providing a good education for $200 a year or less

Almost all of the world's children are in school, but most are not learning. How quickly that can be changed will affect the lives of hundreds of millions of children and human progress more broadly.

Many attempts to improve schools in the developing world look to the world's top performing school systems for inspiration. Finland and Singapore are often cited as examples of the world's best school systems. Despite a recent small decline, Finland achieved some of the highest levels of performance and equity, while Singapore's story is one of a dramatic rise in standards over a period of four decades.

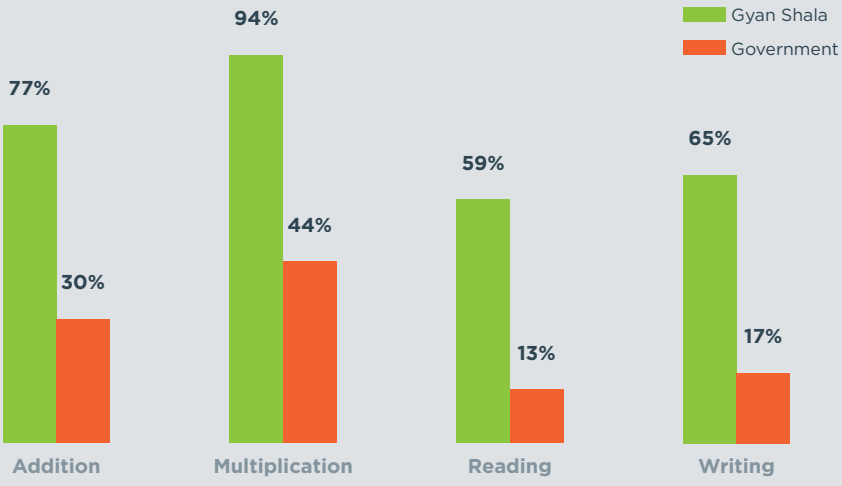
These systems can of course provide many lessons and insights into what makes a school system perform well. However, despite their success, they are not always a good model for the developing world. This is because there are big differences in the context in which they operate and the resources available to them when compared to the developing world. Specifically:

- **Time:** Finland had a school system that was already good by international standards in 1960 and improved to its current excellent level of

GYAN SHALA

Location: **India**
Students: **17,400**
Annual cost per student: **$45**

% OF COMPETENT STUDENTS (GRADE 3)



performance over a period of three decades.[18] At similar rates of improvement, it would take a country like India three centuries to reach the performance level of Finland today.

- **Human Capital:** In Finland, all primary school teachers have master's degrees, and the root of the Finnish school system's success lies in this deep pool of human capital in its teaching workforce.[19] It takes Finland six years to train a new primary school teacher. No countries in the developing world have such a deep pool from which to draw qualified individuals, nor the capacity to fund and provide such long and high quality teacher training programs.

- **Social context:** Most developed country school systems perform well, in part, because most students have parents who are themselves well educated. In fact, in many of these systems children of parents with low education levels themselves learn much less at school. In developing countries, the majority of parents will have a very low level of education themselves, making the overall challenge the school system faces greater.

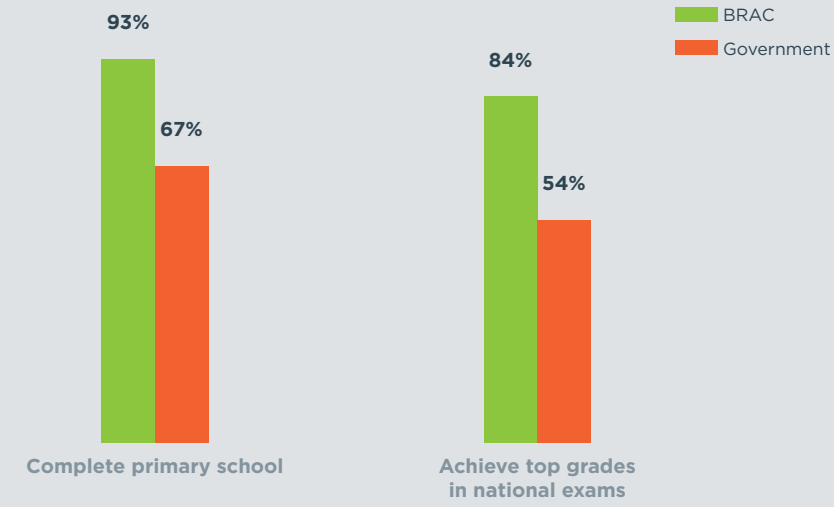
- **Funding:** Primary schooling in Finland costs around $7,400 per student per year. All of the world's top-performing school systems spend a similar amount or more. In contrast, most developing countries have an annual budget of between $100 and $400 per child.

Many developed country governments spend more than $200,000 educating each child over the course of their time in school and higher education. Norway, one of the highest spenders, spends $290,000 on every child. The United States spends $215,000. In contrast, more than half of the world's children live in countries where the funding available is less than $3,000 per child (this is the

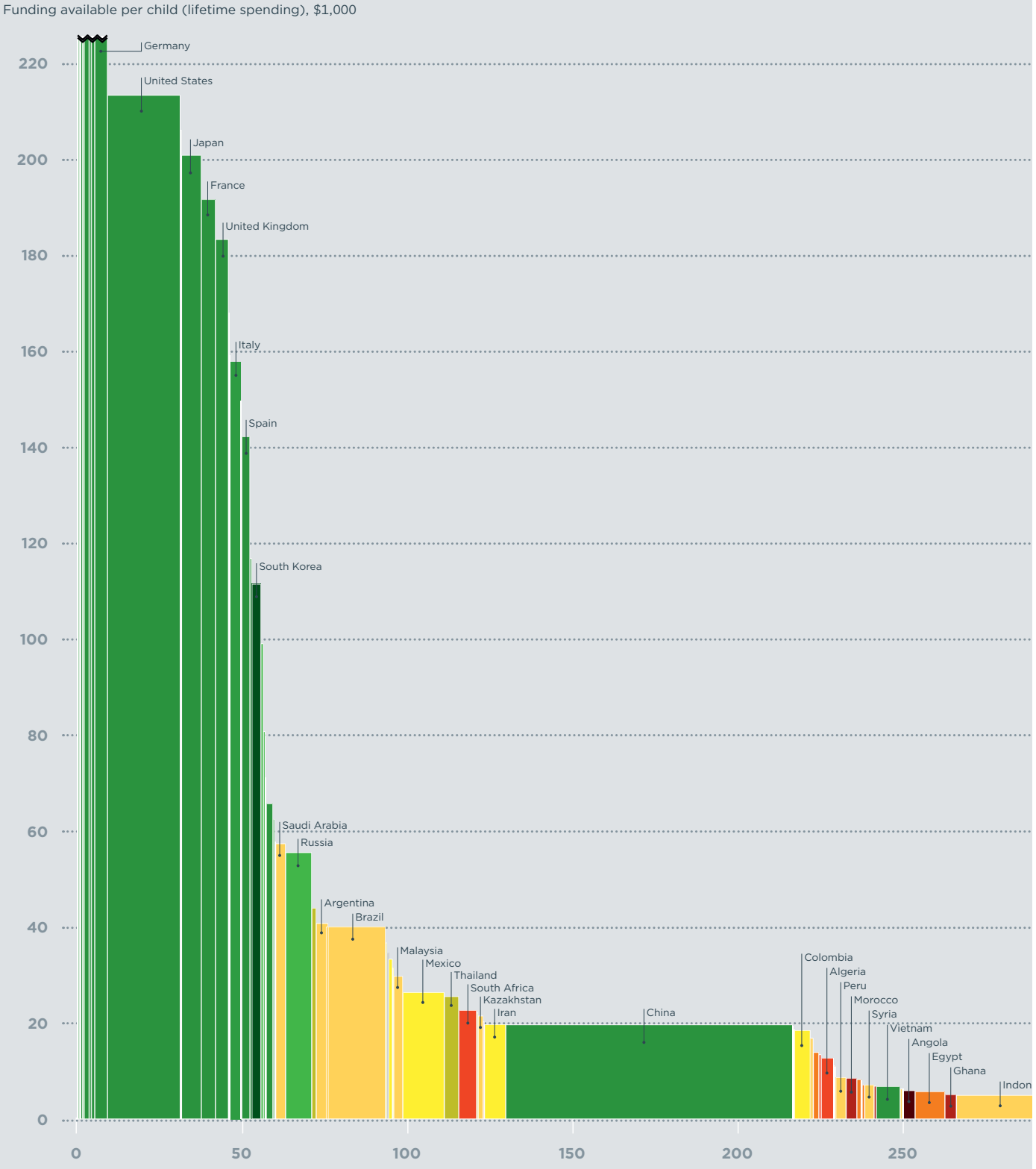
BRAC

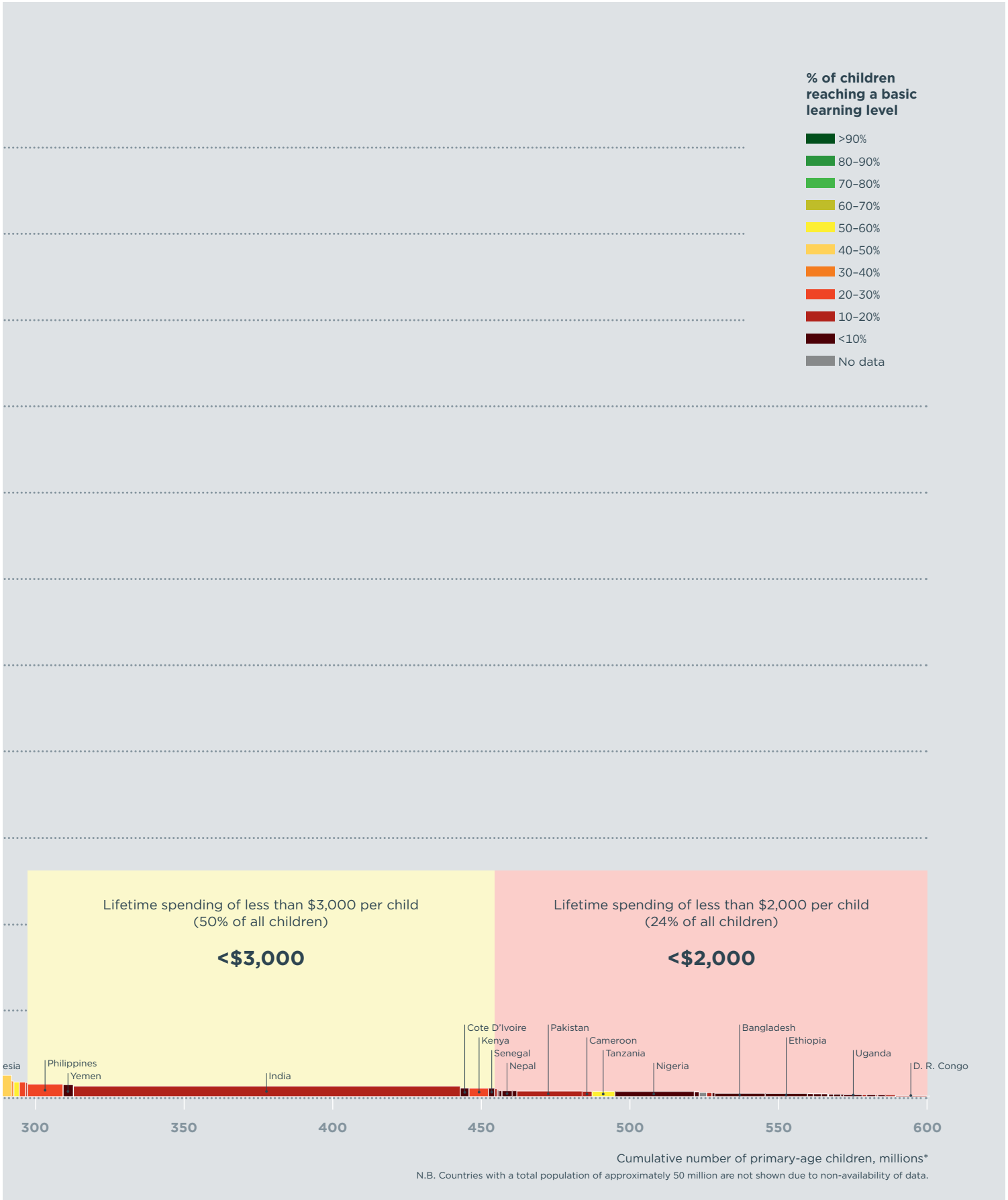
Location: **Bangladesh**
Students: **1.1 million**
Annual cost per student: **$72**

% OF COMPETENT STUDENTS (GRADE 3)



FUNDING AVAILABLE PER CHILD TO FUND A FULL COURSE OF EDUCATION, BY COUNTRY ($)





N.B. Countries with a total population of approximately 50 million are not shown due to non-availability of data.

total available to fund all of their education, including primary, secondary and tertiary). In India, home to 20% of the world's children, the average is just below $3,000. One quarter of the world's children live in countries where the total available for each child is less than $2,000.[20] (See graphic page 22.)

As a result, models borrowed from the developed world are unlikely to work well in the developing world. A model that works well with funding in excess of $200,000 per child is unlikely to work with just $2,000 per child (or around $200 each year).

To tackle the broader learning challenge we need to start by finding good schools that are operating at scale and within these constraints. Essentially we need to ask, how do you provide a good education, in a poor country, for less than $200 a year?

Schools that work

Gyan Shala is a chain of low-cost schools in Northern India.[21] It operates 650 classrooms, mainly in the states of Gujarat and Bihar, serving a total of 17,400 children. Its schools are located in some of the poorest communities in India, with around 70% of the children coming from families where the mother herself is illiterate. The schools operate on a budget of around $45 per student per year, funded mainly though donations, and employ teachers who are themselves not highly educated.

Despite this, the schools achieve exceptional results—below but comparable to learning levels in developed countries—and do so consistently across a large number of schools. Outcomes are particularly strong in higher order domains. For instance, the graph shows the dramatic differences in the percentage of questions answered correctly by grade three children in Gyan Shala schools and grade three children in nearby government schools.

In 2011 CFBT, a British organization that, among other things, runs part of the school inspection system in England, assessed students in Gyan Shala schools using standards for achievement from British schools. They rated outcomes in mathematics and science as good, roughly equivalent to the second quartile of British schools, and outcomes in Gujarati and English as satisfactory, equivalent to the third quartile of English schools. Dropout rates are low, at around 5%, with most dropouts caused by external factors (for instance, a family deciding to move to a different town).

BRAC is the world's largest NGO, operating development programs in many sectors.[22] Its schools serve more than one million primary and preschool students from the poorest communities in Bangladesh and a growing number of children in other countries, including Pakistan, Afghanistan and parts of Africa. Its primary-school students are either dropouts from regular schools or children who had not enrolled in school by the age of eight (the official starting age is six).

Despite their background and late start at school, within four years students in BRAC schools outperform students in government schools. Of the children who enrol in BRAC schools, 93% complete primary school, compared to 67% of children who enrol in government schools. Of those who complete BRAC's primary school program, 98% transition to secondary school.

The Government of Bangladesh runs a primary-school leaving examination at the end of grade five. In this examination, 84% of BRAC students achieve one of the top three grades, compared to 54% of students nationally. Informal evaluations by British school inspectors suggest a comparable level of learning to Gyan Shala schools, particularly in the early grades.

BRAC and Gyan Shala are arguably the best examples of large school systems that are getting good results at low cost. However, they are not the only ones. Ghana's School For Life,[23] the Balsakhi[24] and Naandi programs in India, and a number of other school chains and programs are also demonstrating good results. A range of successful reforms and interventions in larger school systems also shed light on what works.

What differentiates these schools from other schools? Of course many small details and practices play their part in raising standards, and all of those practices and details are underpinned by a collection of mindsets, cultures and beliefs. However, at the risk of oversimplification, the schools that are getting good results at low cost share six features:

- Excellent teaching materials
- Intensive coaching and support
- More time on task
- Mother-tongue instruction in the early grades
- Good basic facilities
- Strong accountability and management

The following pages examine each of those features in more detail.

1. Excellent teaching materials

All of the good low-cost school systems provide teachers with high quality materials to use during their classes. These include

FEATURES OF THE EFFECTIVE LOW-COST SCHOOL SYSTEMS

Excellent teaching materials

Excellent materials which are easy to use, contain detailed instructions and are constantly being refined and improved

Intensive coaching and support

Regular (weekly) high quality coaching and training for every teacher, focused on helping them deliver the curriculum

More time on task

A longer school year (double the days) combined with high teacher attendance and good use of the school day

Mother-tongue instruction

Instruction in the mother tongue for at least the first year to ensure that basic literacy is established

Good basic facilities

A good low-cost learning environment will all of the essential facilities (but often without extras like furniture)

Strong accountability

Regular and effective monitoring of schools and teaching with fast intervention to address low performance

detailed instructions on how to teach each lesson, worksheets for the children to complete, good textbooks and a range of simple learning aids (for instance, number cards or counters for teaching mathematics).

These materials have a number of features that set them apart from similar (but less effective) materials provided in other systems:

- They include everything required to teach the lesson
- They are easy for students and teachers to use
- They contain detailed instructions
- They use language that is simple and direct
- They match perfectly (e.g., lesson plans exactly match worksheets)
- They have been tested extensively in real classrooms
- They are constantly being refined and improved

These materials make it as easy as possible for teachers to consistently deliver good lessons, and as such, provide the foundation to ensure that every child is learning.

At BRAC, for instance, lesson plans are provided for every day of the 276-day preschool program and the 1,104-day primary program. Lesson plans are broken into approximately 30-minute units. Each unit contains a learning objective, suggested seating arrangements for the children, teaching instructions and an allocated time period. The pedagogy is outcome-focused and lively. Children undertake lots of activities and for much of the day work together in small groups. The lessons use lots of learning aids—for instance, each student has a set of straws or bamboo sticks that they use for counting practice. The more academic lessons are broken up by co-curricula activities, including songs, dances, drawing and acting. These activities keep the children engaged, break up the day and help achieve a range of other non-academic learning outcomes. The lesson plans include instructions for assessment and checking student learning throughout the day, and teachers regularly do a quick check of each student's work. The effect is to ensure that every lesson is of consistently high quality.

Gyan Shala, Ghana's School for Life, and all of the other successful low-cost schools and programs provide their teachers with similar materials, and say they are crucial to their approach. Evidence from other studies of textbooks,[25] learning materials[26] and teacher guides[27] similarly confirms the impact of all three interventions.

Some critics argue that these materials, and the lesson plans in particular, infringe upon teachers' professionalism and force teachers to deliver standardized lessons rather than adapting their teaching to the circumstances and needs of each class. They argue that it would be better for schools to train teachers to create their own lesson plans, based on the needs of their individual students. This would be exactly the right approach in Singapore or Finland, where highly skilled teachers can and do create excellent lessons every day (though many use standardized lesson plans as a starting point or source of ideas).

However, this approach does not work well in most schools in the developing world. The reality is that most teachers there benefit greatly from having high-quality lesson plans to guide their work, as long as they are simple and easy to use, and without them find it difficult to create and develop consistently effective and engaging lessons. Of course, teachers should always be allowed to adapt the plans to their own needs where they feel comfortable doing so, and they should never be forced to use them. The best teachers can and do use them as a base on top of which they build their own lessons, which is even better. In every classroom there also needs to be constant formative assessment so that teachers can spot when the plan is not working and modify it to ensure that children are learning. Providing teachers with this sort of guidance seems to be of one the best ways to get every classroom up to a good level fast, and is exactly the approach BRAC, Gyan Shala and others have taken.

2. Intensive coaching and support

Each week, every teacher in every Gyan Shala school receives one or two hours of one-on-one coaching in their classroom. The coaching is delivered by an experienced Gyan Shala teacher who is assigned around 15 teachers to coach and is structured with the goal of helping the teacher deliver the lessons well. The most junior teachers receive three hours of coaching.

On top of this, there is a full day of training every month during which teachers review the curriculum for the following month, receive guidance on how to teach the most difficult bits of it, watch demonstration lessons, revise content points and give feedback on the curriculum from the previous month. Twice a year there is a full week of training to reinforce curriculum and pedagogy. Training is focused on helping teachers teach better in the classroom, and as such, the amount of theoretical or conceptual content

is limited—the focus is on guiding teachers towards effective practice in their classrooms. Training is continuous through the year, so that teachers receive guidance and help just before they teach a particular lesson, not over a long summer vacation months before they actually come to teach it.

To deliver this amount of support, in addition to the learning materials described above, Gyan Shala has a completely different budget structure from other schools. Most school systems in the developing world spend less than $1 on teacher training and teaching materials for every $10 they spend on teacher salaries (many spend far less). Gyan Shala spends $20 on teacher training and teaching materials for every $10 it spends on teacher salaries. So while most school systems spend lots of money on teachers, and very little on making them effective, Gyan Shala does exactly the opposite.

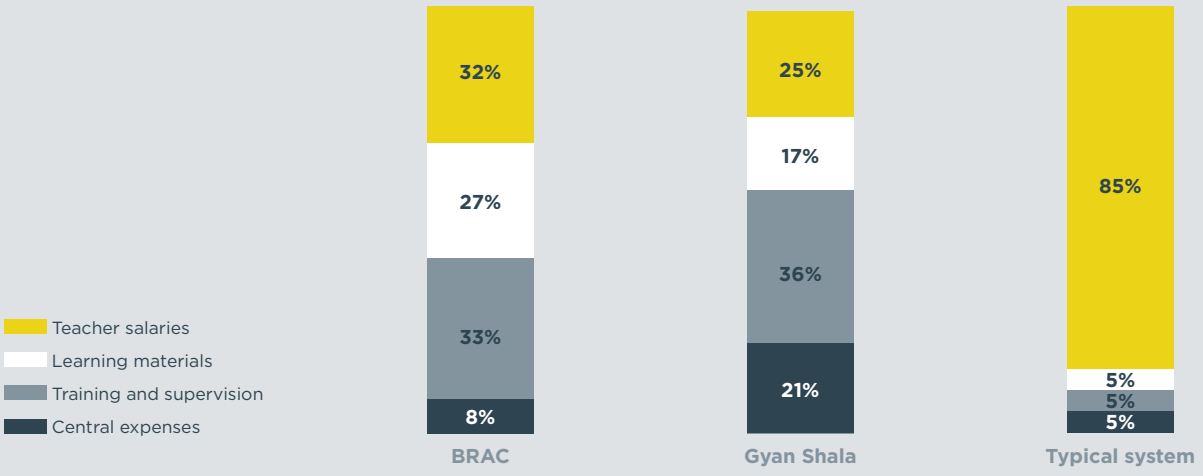
Given its small budget, this means that Gyan Shala can only pay low teacher salaries. It makes an explicit trade-off in choosing to spend less money on salaries in order to invest more in quality. This distinguishes it from the top performing school systems in the developed world. In 2007, we wrote, after observing schools in countries like Finland and Singapore, that "the quality of a school system cannot exceed the quality of its teachers." Pankaj Jain, the brilliant founder of Gyan Shala, asked instead, "What if it has to?" The model recognises that even the best teachers available in that context, unsupported, will not be good enough, and instead focuses on making the teachers who are available as effective as possible. In doing so, it manages to create a system that is greater than the sum of its parts.

3. More time on task

In parts of India, the official school year in most states lasts around 200 days. However, student attendance is around 71%, and approximately 20% of teachers are absent on any given day.[28] This means that, in effect, the average student receives just 120 days of schooling each year. Even when everyone is in school, there are long periods when very little teaching or learning are happening—studies have found that teachers in India often spend less than half of the school day actually teaching.[29] This is typical of many school systems in developing countries.[30]

At BRAC, the amount of time students spend learning is much higher. BRAC schools are open for a remarkable 274 days each calendar year. They are open six days a week and 50 weeks each year, less a few national holidays and teacher training days. Student attendance is 96% (in government schools in Bangladesh it is 61%). Teacher attendance is 95%, and on days when a teacher is away, another teacher covers the class. Once classes start, teaching and learning continue non-stop until the day is over. This means that the average student is in school and learning 257 days each year—more than double the average for government schools in India or Bangladesh. When their actual time on task—how much time

DISTRIBUTION OF SPENDING (%)



they actually spend learning—is considered, the difference is even greater. This, combined with the high quality of teaching they receive, probably explains most of the difference in how much children in these schools learn.

How do BRAC (and others) do this?

First, BRAC keeps the school day relatively short (around three or four hours depending on the grade level of the students, compared to six hours in government schools). This makes teachers and students more likely to attend even if they have other demands on their time. It is also based on ample evidence that for learning to happen, frequency is more important than duration[31]—three hours of learning six days a week is better than six hours of learning three days a week. Individual communities decide on the opening and closing times of the school, which enables any local circumstances or conditions to be taken into account.

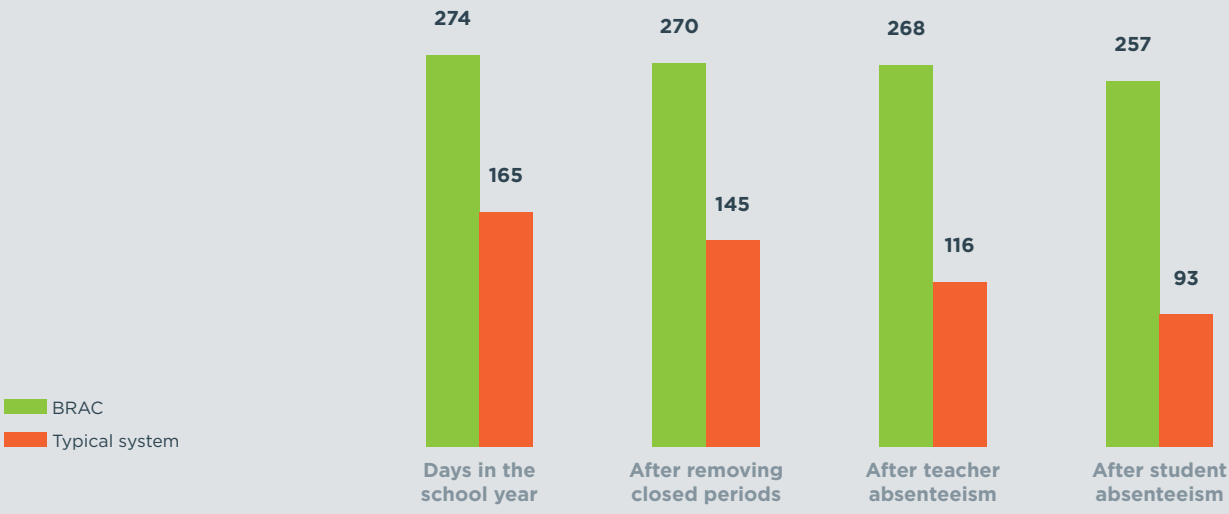
Second, the high quality of teaching and curriculum in the schools contributes to high attendance. Four hundred years ago Shakespeare described the archetypal schoolboy "creeping like a snail unwillingly to school."[32] Schools like those run by BRAC demonstrate that when pedagogies are lively, engaging and pitched at the right level, children enjoy going to school, and attendance and time-on-task increase.

Third, schools are located in areas that are accessible for children—in the middle of urban slums or at the centre of rural villages—making it easier for children to attend regularly and reducing parental concerns about safety on the journey to and from school. Government schools, by contrast, are often constructed on land outside the village or away from urban slums. BRAC is establishing 500 boat schools—one-room floating classrooms designed to provide access to marginal communities living on or next to the country's many rivers. Sometimes for children to come to school, the school has to come to the children.

Fourth, a range of techniques are used to drive up student attendance. Simple measures, such as instructing teachers to send students to homes of absent classmates to enquire about the reason for absence or working with community leaders and parents to explain the importance of regular attendance, make a large difference.

Finally, the schools have high teacher attendance. Teacher attendance is a problem that many school systems in the developing world face. One study of several countries found rates of absenteeism that ranged from 16% in Bangladesh to 27% in Uganda, and had a significant impact on learning.[33] Good monitoring of teachers can reduce this to below 10%.[34] BRAC requires that if a teacher is absent, a teacher from a neighbouring school must teach the absent teacher's class after they have finished teaching their own. Not only does the policy ensure that children do not miss a day of school, it also creates strong peer accountability. In addition, teachers are always recruited from the local community, creating a high level of accountability

MORE TIME ON TASK



to the parents and reducing the chances of travel problems preventing teachers from reaching school.

4. Mother-tongue instruction in the early grades

India is home to communities that speak more than 400 different languages. Of these, 22 are recognized as official languages and 60 have more than 100,000 speakers.[35] Indonesia and Nigeria are both home to speakers of more than 500 languages. Faced with linguistic diversity, even at a much smaller scale than this, framing a policy on language of instruction is difficult and involves a range of competing considerations.

In particular, many school systems are under pressure from parents and politicians to teach in English (or sometimes other *lingue franche*). In India, for instance, English is taught from grade one in 18 out of 28 states. This combination of linguistic diversity and the teaching of English (or other national languages) at early grades means that a large number of children in the developing world are taught in a language other than the one they use at home.

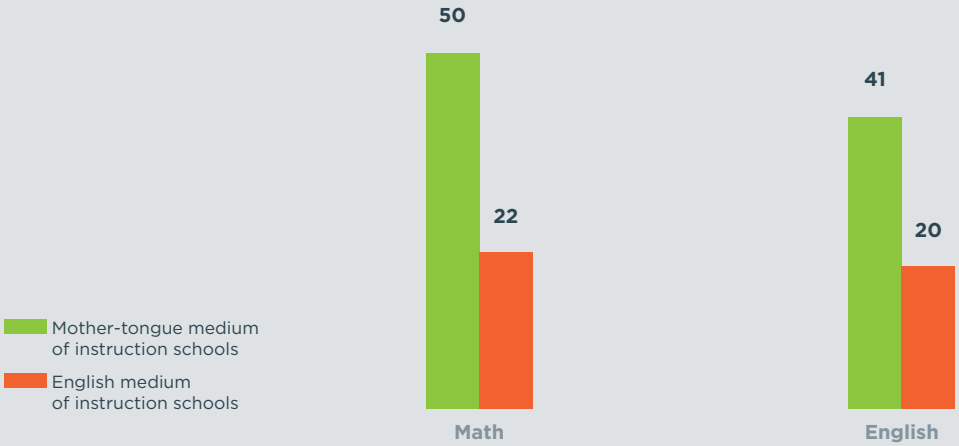
This reduces learning significantly.[36] Children find it much more difficult to grasp basic concepts and acquire literacy when they are taught in a language they do not use at home or at least hear around them in the community. Where the teacher is also unskilled in the language of instruction (as is often the case with English), the quality of teaching and learning declines even further. Of course, excellent teachers can overcome all of these problems (as happens in Singapore, where teaching in English has been largely successful[37]) but that is beyond the capabilities of most teachers working in schools that are operating on $200 a year.

There are good economic and social reasons why governments and parents might want children to learn in English or a national language. Adults who are not fluent in the language of business in a country—whatever language that may be—will generally earn less. However, there is strong evidence that even where the ultimate goal is proficiency in English, teaching in the mother tongue for the first few years is still the best way to achieve both generally literacy and proficiency in English. When children are taught in a language they are not familiar with during the first few grades, they generally fail to acquire literacy in both their mother tongue and the new language. Conversely, when children are taught in their mother tongue for the first two or three years and then start to learn a second language, their fluency in the second language at the end of primary education is actually higher than if the second language is taught from grade one. This is because it is easier for students to learn a new language once they have a foundation of basic literacy in a language with which they are already familiar.

One study from Cameroon illustrates this finding well. Some children were enrolled in schools

MOTHER-TONGUE INSTRUCTION IN THE EARLY GRADES

Grade three test scores in Cameroon



where they were taught mainly in English, while others enrolled in schools where they were taught mainly in their mother tongue. After three years, the children in the mother-tongue schools scored higher on tests of literacy and numeracy. But surprisingly, they also scored higher in English. Having gained a foundation of literacy in their own language, they were able to learn English faster, more than compensating for the fact that they had less class time exposure to the language.[38]

In Ghana, an innovative program called School for Life provides a nine-month course in literacy, numeracy and basic subject knowledge to children who have not enrolled in primary school.[39] The program operates in northern areas of the country where literacy rates are below 5% and has so far enrolled more than 100,000 children. After just nine months, 52% of the children read, write and perform basic mathematics at a good level, and most of the remaining students are well on track to establishing a good level of basic literacy and numeracy, an impressive success rate for such a short intervention in challenging circumstances. Graduates of the program then enter the regular primary school system at grade four. The cost of the program is around $40 per student.

Like BRAC and Gyan Shala, School for Life provides detailed teaching guides and materials, and extensive coaching and training for its teachers. It has a short school day (around three hours, five days a week) and a student attendance rate above 90%. Importantly, however, all of the teaching and learning takes place in the local language (School for Life operates in several different languages to meet the needs of different communities). This makes it easier for them to acquire basic numeracy and literacy skills. After the program, when the children go on to attend government schools in grades four and five, they still outperform their peers in government schools in English, despite the fact that their peers have been in school for at least two years longer and many are taught in English from grade one.

This is exactly the approach used in the other effective low-cost high-quality schools, including BRAC and Gyan Shala. All teach mainly in the mother tongue for the first few grades (often forcing them to produce materials in many different languages to meet the needs of different communities), and then progress onto other languages once children have a secure foundation in their mother tongue. For instance, BRAC teaches non-Bangla minorities in their mother tongue for the first two years before switching to Bangla. In doing so, it enables children to reach a higher level of learning in both languages.

5. Good basic facilities

BRAC schools are very basic. Each is a one-room building of cheap construction. There is no furniture (children sit on colourful mats on the floor), no technology and no other facilities. A study of BRAC notes that the organization does not put much emphasis on facilities. For BRAC, "Development is not about buildings; it is about what goes on inside the buildings, and inside the heads of the people in the buildings. It is about persistence, hard work, enterprise, optimism, common sense, and values."[40]

However, the schools are still excellent places of learning. They are exceptionally clean and organized. They are well decorated. They are light and airy with a fan to beat off the heat. There is drinking water available. The good low-cost schools spend just $10 on facilities for each child each year, yet they manage to create a welcoming, functional learning environment.

Gyan Shala is similar. Its schools are often located in people's homes (the rooms are used as a school during the day, and then revert to a home once the school day is finished). Like BRAC schools, they are clean, light and functional. While facilities are basic, they incorporate all of the essentials. Teachers say that good toilets and drinking water are important for convincing parents to send their children, particularly girls, to the school. Their location makes them highly accessible to the students and maximizes interaction with and ownership of the school by the community it serves. It also means that children can walk to school in safety, helping raise attendance.

This is in contrast to many government schools in the developing world. In rural India, many schools lack very basic facilities. Twenty-seven percent of rural schools lack drinking water and 43% lack functioning toilets[41]—both essential to ensuring that children can focus on learning. Schools are often located on large plots of land outside the village, making them less accessible to the community. A World Bank study in Chad found that enrolment declined by 25 percentage points when the school was located up to a kilometre outside the village rather than in the village itself.[42] This lack of basic, accessible facilities contributes greatly to low learning.

6. Strong accountability and management

Underpinning the success of all of the schools is good management and strong accountability for teaching and learning.

This starts with good monitoring. Teachers at BRAC and Gyan Shala schools are visited by supervisors

in their classrooms once a week. At School for Life, visits occur once a month. Supervisors check all aspects of the school but focus on the quality of teaching and learning. In the case of Gyan Shala, the visits by supervisors are complemented by regular testing of students (BRAC and School for Life do not carry out large-scale assessments, but instead rely on informal assessments by supervisors—both models seem to work).

This monitoring is complemented by constant intervention to make sure things are working, and to improve the learning materials and pedagogies. Gyan Shala prints new textbooks every three months, each time incorporating new refinements based on observations about what is working in the schools. There are monthly meetings to get feedback on the lessons and input on how they can be improved. Small teams are constantly observing what is happening in schools and looking for detailed refinements; as BRAC's founder, Fazle Hasan Abed, counsels the organization, "Don't ever slow down; don't ever stop innovating." This combination of strong management and a culture of constant improvement and refinement underpins the effectiveness of the schools.

An important caveat though, is that while accountability is essential, it is not enough. Across many parts of the developing world there are increasingly large numbers of low-cost private schools. These schools—small fee-charging schools run by entrepreneurs—have an extremely high level of accountability. If they do not deliver, parents will not pay. This strong accountability leads to higher performance—children in low-cost private schools generally learn more and the schools perform better on many input indicators, particularly teacher presence and facilities.[43]

However, their performance is not much higher. Without all of the other five components described above, and a constant culture of improvement, strong accountability seems to produce an incremental rather than transformational improvement.

The six features described above would raise learning levels dramatically if they could be consistently implemented across the world's large school systems. They are cheap, scalable and practical. However, the challenge of large-scale implementation is formidable. Many similar efforts have failed not at the conceptual or piloting phase, but rather in the long grind of implementation. Many leaders in the field say, "We know what to do, the question is how to do it?" Fortunately, a new set of techniques is emerging that dramatically raise the chances of successful implementation at scale.

The Science Of Delivery

The Implementation Gap

There are 32 countries where less than 10% of primary-age children reach a good level of learning. All 32 have plans and policies in place to improve education. Twenty-five of those plans have been judged to be of sufficient quality to receive funding from the Global Partnership for Education. Nigeria has had four national education policies and countless plans at national and regional levels since 1977. Pakistan has had more than 25 national plans to improve education.

Many of these plans are good plans. They correctly identify the challenges, set out the right types of activities to address them and set good targets for improvement. These countries face many challenges in improving education; a shortage of plans and policies is not one of them.

The problem is that, almost without exception, governments have struggled to implement those plans. Sir Michael Barber writes of Pakistan: "The problem was, in a single word, 'implementation'. Pakistan had 62 years of reports and experts, sector plans and political promises. There had even been published, a month or so earlier, a National Education Plan supported by all the provinces and the Federal Government. It was a sound plan. What Pakistan lacked was the capacity or even the serious intent to implement the plan. As with the previous 25 Education Plans in Pakistan's history, this plan would remain just words."[44] Tony Blair, reflecting on his work since stepping down as Prime Minister of the United Kingdom, says, "When I look at the work I am doing with my Africa charity—supporting the presidents of Rwanda, Sierra Leone, Guinea, and Liberia—[...] the single most important thing they need is the capacity in government to get things done."[45]

Across the developing world, non-government organizations are making great contributions to getting more children a good education. However, ultimately, whether or not the world's 650 million children get a good education will depend mainly on whether governments are able to implement, at scale, the types of changes described in the previous chapter of this report. An outline of how that could happen is beginning to emerge.

Delivery emerges

While implementation remains challenging, the good news is that over the past 15 years, a set of techniques for successful implementation in government has begun to emerge. Jim Kim, President of the World Bank, refers to this as a "Science of Delivery"[46]—a set of proven methods that enable governments to get things done. If delivery could be applied consistently across the world's large school systems, it would dramatically change the world's education landscape.

As a coherent theory of how to make change happen in government, Delivery first emerged in the Prime Minister's Delivery Unit in the United Kingdom, under the leadership of Michael Barber. The Delivery Unit built on Michael's earlier success in education and, between 2001 and 2005, helped to drive significant improvements in education, health, transport and crime. The story is captured in Sir Michael's book, *Instruction to Deliver.*

Since then (and often under Sir Michael's guidance), delivery has been applied in a wide range of countries, including Australia, Brazil, Canada, Malaysia, Mexico, Rwanda, Sierra Leone, Thailand, the United States and others. Since 2011, with Michael's support, the Government of Punjab has applied the same techniques in Punjab, Pakistan, the largest test of the approach so far in the developing world. The story of that work so far is captured in *The Good News from Pakistan*.[47] While it has yet to transform learning outcomes at scale, the early results are impressive.

Other attempts to use Delivery have been less successful. The Presidents of South Arica and Indonesia both tried to use the same techniques without achieving a significant improvement in outcomes. Sierra Leone established a Delivery Unit in 2008, but in its first two years, the Unit's achievements were modest. The Unit was reformed and refocused in 2010 and since then has had a positive influence.

The exact techniques are best described in *Deliverology 101*[48], a new version of which, incorporating lessons from a wealth of experience in the United States, is set to be released in 2014. This chapter attempts to draw together the different experiences of actually doing delivery in the developing world—the successful and the less successful—and draw out some lessons about what it would take to use delivery to transform education in the developing world. The experience so far suggests that reforms with five features would transform education in the developing world. They are:

- Political leadership is essential, but is as much the product of a successful delivery effort as an ingredient for it
- Prioritization is the main determinant of success and failure
- Good data and measurement of progress are crucial and require innovation, investment and constant refinement to maintain accuracy
- The speed and effectiveness of the delivery effort depends on the extent to which it can create and spread learning about what works
- Routines and stocktakes are essential to drive progress and unblock problems as they emerge

1. Political will

There is a tendency in some development circles to undervalue or ignore the role of political leadership in driving reform. In the context of his work in Africa, Tony Blair notes that: "In the West, we instinctively recognize that politics and performance go hand in hand, and that [political] leadership is essential to drive through reform. But in Africa we have a tendency to treat government as a technocratic exercise that we can somehow make to fit our own plans and timetables… In so far as they have thought about leadership at all, the development community has often been preoccupied with minimizing leaders' ability to do harm, not maximizing their ability to do good."[49]

Strong political leadership underpinned the success of all of the effective delivery efforts. In Rwanda, President Kagame was personally involved in every step of the delivery effort across multiple sectors. In Punjab, The Chief Minister chaired a progress review for the education sector every six to eight weeks for three years, and consistently put his weight behind decisions, even where they were politically difficult. In Malaysia, the Prime Minister reviewed progress on a weekly basis.

FIVE ELEMENTS OF DELIVERY WOULD GIVE EVERY CHILD THE OPPORTUNITY TO LEARN

Political leadership

Political leadership is essential, but is as much the product of a successful delivery effort as an ingredient for it. Except in the most fragile political environments, most political leaders will support successful reforms.

Prioritization

Prioritization is the single most important factor determining the success of delivery. Reforms which exceed the system's capacity to implement them are doomed. The best reforms start small and grow as the system builds confidence and momentum.

Data

Data and other measures of progress are essential so that the system knows whether it is making progress, can understand what works, and can tackle underperformance. Building good data systems requires investment and constant refinement.

Learning

The speed and effectiveness of the delivery effort depends on the extent to which it can create and spread learning about what works. In most systems, the answers are already out there somewhere, the challenge is to find and spread them.

Routines

Routines and stocktakes are essential to drive progress and unblock problems as they emerge. A stocktake with the President or Prime Minister on every priority area once every three months can drive the system forward.

There is broader evidence that political leadership is an important factor in the success of reforms. A 2010 McKinsey report that investigated 20 successful education reforms found that: "In all 20 of the 20 systems [...] a new leader sparked the fires of reform. [...] Once installed, successful leaders of improvement journeys have another thing in common—staying power. The median tenure of the leaders in our systems is six years for strategic leaders and seven years for political."[50]

This contrasts with a much lower level of political leadership in the cases where delivery has been less successful. In South Africa, President Zuma sought to replicate the experience of the Prime Minister's Delivery Unit in the United Kingdom by establishing a Department for Performance Monitoring and Evaluation within the President's Office. Initially he showed an impressive level of commitment. However, the Department failed to adequately prioritize, deciding setting targets for all 34 Ministries. A year later, with much of the President's political capital spent trying to agree the many targets with his Ministers, and implementation yet to begin, the President's commitment began to waver, and with it the effectiveness of the effort.

In other cases, the challenge for reformers has been a more fundamental weakness of political leadership. In Indonesia, the President's first attempt to establish a Delivery Unit failed due to the weakness of his own coalition. Similarly, an attempt to use delivery to drive reforms in Khyber Pakhtunkhwa province in Pakistan initially struggled to get off the ground in the context of a weak coalition government that was fast approaching an election. Writing about the challenge of implementation and the need to act quickly when political leadership is strongest, Andrew Adonis, one of the main architects of England's school reforms, observes, "Power is finite and evaporates much faster than you expect."[51]

More often, however, the political will to drive reform seems to be a function of the effectiveness of the reform itself. Most leaders are fundamentally committed to education reform. However, many do not have a clear sense of what to do or even what is possible. They support reforms but their commitment wavers when results are not forthcoming. Alternatively, they try and fail and are reluctant to try again. In these, probably the majority of cases, political will is as much the product of successful implementation as an ingredient for it.

Shahbaz Sharif, the Chief Minister of Punjab, had always been committed to education. However, until 2011, he had not made a serious attempt to reform the government system. The failure of many previous attempts and the lack of any credible plan cannot have helped, nor can long and unfocused briefings on the many problems. One meeting in late 2010 lasted nine hours and presented a long enough list of challenges and issues to terrify even the boldest of reformers.

The difference in 2011 was that through the delivery effort (called the Roadmap), suddenly there was a plan that looked viable, promised to deliver results and came with just one simple request—an hour of the Chief Minister's time every two months to review progress. Over time, as progress was made, the Chief Minister's confidence and commitment increased, and he began to take progressively bolder steps. His increasing commitment was as much a product of the success of the Roadmap as it was a driver of it. More importantly, as the Roadmap became more successful, the circle of supporters increased, making it less dependent on the leadership and commitment (unfailing as it has been) of a single individual.

The reverse happened in South Africa. President Zuma was rightly inspired by the experience of delivery in England and the opportunity it presented for his country. However, the efforts failed to deliver sufficient results quickly enough to sustain the investment of political capital required. The benefits were not worth the costs, and his confidence in the approach faltered.[52] In an age where governments are judged ever faster on whether they are delivering, achieving results quickly (what Idris Jala, head of Malaysia's Delivery Unit, calls "Big Results Fast") is ever more important.

While some political leadership is required to get started, the real test is whether the effort can generate enough results fast enough to warrant a progressively greater investment of political capital and leadership time. For this, the other four components of successful delivery are crucial.

2. Priorities

Developing a sector plan for education has become accepted as the starting point for any reform effort. Typically plans are developed after an extensive period of analysis and consultation. Occasionally, this takes so long that the process has to be restarted midway because the plan and analysis on which it is based are becoming too far out of date.

Almost all of these sector plans set out sensible and thoughtful actions to be taken by the government. By and large they are the right actions. But in almost every case, there are far too many of them. If you look at the historical capacity of the system to implement improvements and

compare it to what is described in the plan, the plan typically exceeds the capacity for implementation by a factor of five, or ten, or even one hundred. On top of that, insufficient attention is typically given to how things will actually be done.

The result is that efforts become fragmented as the system chases multiple goals and ends up doing none well. Since it is not clear which goals are really the most important, what gets done is not what would make the biggest difference. Most importantly, perhaps, nobody really believes in the plan, certainly not in the sense of regarding it as a statement of what will actually be done over the relevant period. A plan that nobody really believes in is little better as an instrument of implementation and coordination than no plan at all.

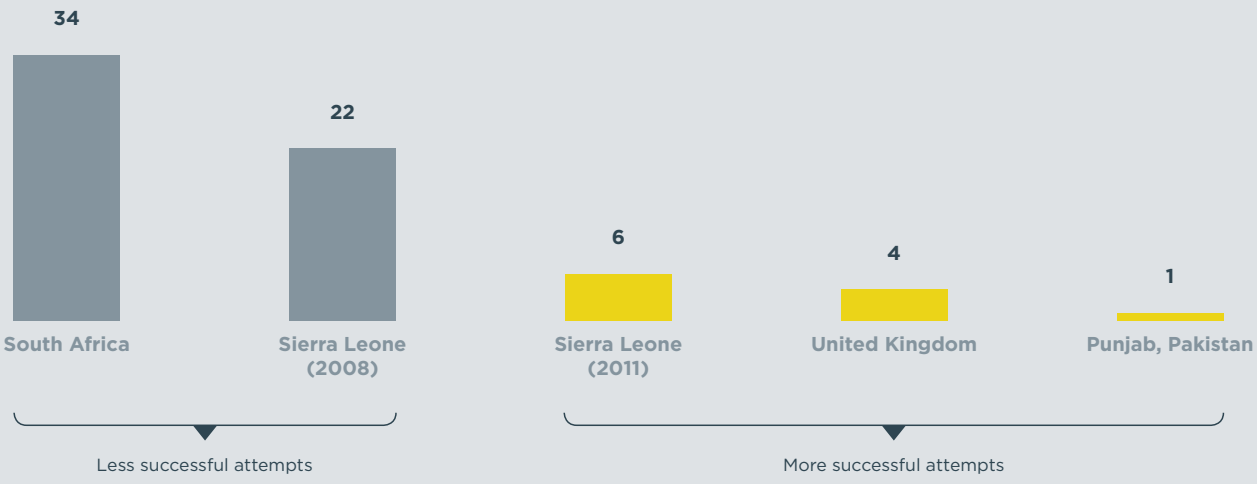
The single greatest factor affecting the success of the different attempts to do delivery so far has been the extent to which they have prioritized sufficiently. Focused efforts overcame barriers and could expand their scope over time, while unfocused efforts used their limited political capital before they got results and then lost political support. South Africa and Indonesia's attempts to do implementation were doomed from the beginning by a lack of prioritization. Sierra Leone initially got very limited results for the same reason. After two years it identified six main projects as priorities, after which it began to get results. All of the more focused attempts to do delivery have gotten results, except where political leaders in government were too weak to drive even modest progress. As Tony Blair observes: "The first lesson is to prioritize ruthlessly. As a leader everyone you meet is looking to convince you that their issues should be at the top of your to-do list. But if everything's a priority, then nothing gets done. You need to pick a small number of priorities and maintain a laser-like focus on delivering them."[53]

The first step in any delivery effort is to set clear priorities. This is more about deciding what not to do than about deciding what to do. The sector plan approach, because of its collaborative methodology, tends to produce a list of all the things that could be done rather than seriously engaging in a debate about what are the most important things to do. This is, in a sense, the opposite of strategy, eloquently described by Michael Porter as "deciding what not to do."

Luckily, there is now a growing base of evidence about which actions make the most difference (some of it summarized in the previous chapter). *Deliverology 101* describes a number of techniques and methods to help identify priorities. In Punjab, the initial focus was on five things: enrolling every child in school, making sure they attended regularly, making sure teachers attended regularly, providing basic facilities and teacher guides to every school, and strengthening the district administration. These priorities were not the product of a long consultative process—it was already clear to everyone what needed to be done.

In some cases, the choice of priorities may need to be somewhat

NUMBER OF MINISTRIES WITH TARGETS AS PART OF THE DELIVERY EFFORT



arbitrary. Faced with a number of equally worthy goals, the system must still prioritize to ensure that the agenda does not overwhelm the capacity of the system to implement it. As such, the priorities hinge not so much on what is crucial, or what the system would like to do, but what can actually be done. If the prioritization turns out to be too narrow, or if, as should happen, the system's capacity to implement increases as delivery takes hold, the number of priorities can always be increased. However, if the initial prioritization is insufficiently ruthless, and implementation fails in its earliest stages, it is very difficult to rally the system for another go (though Sierra Leone proves that it is not impossible).

3. Good data

Michael Bloomberg, one of the main champions of delivery in the United States, once tweeted: "In God we trust. Everyone else, bring data."[54] Once a set of priorities is established, the system needs good data on each of them. The data is essential so that the system:

- knows whether or not it is making progress towards the target
- is able to identify areas of high performance and, by extension, what works
- is able to identify patterns that can help unlock root causes of performance
- is able to identify areas of low performance so that these can be tackled
- is able to provide detailed information to leaders through the system on what is working where and when
- can introduce, where appropriate, greater accountability for performance

Ideally, the system would have quantitative data on each of the main priorities. Often this is not possible, and sometimes it is not appropriate (particularly when the outcomes sought are difficult to measure). In the absence of good data, the system still needs good information on what is happening. This can come from field visits to check on progress on the frontline, expert reviews, evidence provided by officials of action taken, complaints from parents and a range of other sources. Even when good quantitative data is available, the later sources add important contextual information to understand what is really happening.

Good data has typically been a stumbling block for delivery efforts in the developing world. Either the data does not exist, or it is incomplete, or it is unreliable, or, more often, a combination of all three. Without it, the system cannot do delivery. South Africa Sierra Leone and Indonesia all struggled to get results in the absence of good information about what was actually happening.

In Punjab, 800 ex-soldiers were hired (before the delivery effort began) to inspect every school once a month. The data they provided was crucial to the whole effort. It meant that the delivery team could see month-by-month which districts were improving and which were not. It enabled the team to identify the top-performing districts and dispatch teams to understand what they were doing and then train others. It also meant, that, for the first time, districts could be given detailed monthly data packs with school-level data that helped them drive improvement. In addition, a household survey was commissioned to provide data on out-of-school children, and the delivery team made hundreds of field visits each year to check progress on the frontline. Building the systems to collect data required a significant investment, but helped to deliver huge results relative to that investment. As Sir Michael notes: "For the education reform to work, you have to know what's happening across the province as near to now as possible. That way, if something isn't working, you can address the problem immediately. If what you try first doesn't work, you can try something different. The point is, you know and then you act… The monthly data collection system in Punjab is a wonderful example of how this can be done in a low-tech but highly effective way. Without it the Roadmap would not work."

Rwanda, lacking the same granular data on its priorities, innovated based on a traditional system. Districts prepared reports on activities and results achieved. Then, an audit team comprised of senior government officials undertook a two-day audit of each district. The audits took a month to complete—a major investment of senior leadership time—but were fundamental to ensuring delivery on the ground.

4. Learning

While the data is essential so that the system knows what is happening, it is useless unless people know what action to take to improve. The speed and effectiveness of the delivery effort ultimately depends on the extent to which it can create and spread learning about what works.

One of the main challenges of delivery is that, at the beginning, it is often unclear how the problem can be solved. Even where the broad outlines of a solution are clear, the details of how to make it work in the

USING DATA TO TRACK PROGRESS IN PUNJAB, PAKISTAN

Teacher Presence – Average by District, Gender and Month

Comparison with two-year, provincial average = (88.47%)

MALE

		April	May	September	October	November	December	January	February
South	Bahawalnagar	0.15	1.54	0.20	-1.23	0.44	3.48	4.19	5.19
	Bahawalpur	2.44	2.24	0.87	-0.89	-3.31	0.66	3.43	1.18
	Dera Ghazi Khan	1.55	3.06	2.38	2.62	3.29	2.26	4.73	4.58
	Layyah	-0.22	0.96	-1.40	-3.57	-1.69	-2.16	2.34	-0.09
	Lodhran	-3.70	0.71	1.09	-1.85	-1.73	4.70	5.97	4.09
	Multan	-2.13	0.77	1.31	0.37	1.99	1.43	3.01	3.63
	Muzaffargarh	-0.59	-0.79	0.16	-1.12	0.73	1.86	1.44	1.70
	Rahimyar Khan	-1.81	0.58	-0.12	-2.07	-0.98	1.39	2.85	1.41
	Rajanpur	-1.62	2.96	-2.63	-4.01	-0.73	-0.71	-1.34	-0.56
Central & North	Attock	-1.69	-1.00	-2.67	-5.05	-1.25	1.39	1.40	1.12
	Bhakkar	2.09	3.08	0.55	0.30	3.71	5.59	6.22	3.09
	Chakwal	-1.98	0.60	-1.73	0.76	2.32	2.79	3.84	1.88
	Chiniot	1.21	3.20	3.48	1.82	2.90	3.68	3.96	2.92
	Faisalabad	2.15	2.94	2.40	2.74	3.97	6.88	6.73	6.42
	Gujranwala	-3.42	-1.29	0.69	-4.35	-4.45	-0.93	0.98	0.70
	Gujrat	-2.09	-0.85	2.17	-1.57	2.63	2.72	1.91	3.32
	Hafizabad	-1.25	0.47	-0.06	-3.98	-0.84	2.70	4.68	3.61
	Jhelum	-2.43	2.64	2.14	1.19	-1.90	1.79	3.84	1.32
	Jhang	0.11	2.82	-0.02	-0.27	3.03	5.55	5.27	4.69
	Kasur	-1.87	1.20	-0.70	-2.81	-1.20	2.10	2.35	-0.26
	Khanewal	-1.28	1.74	0.49	-0.06	0.74	6.39	4.67	2.94
	Khushab	-3.18	0.79	0.38	-0.27	-0.97	0.59	3.79	-0.44
	Lahore	-0.28	0.67	0.48	-1.26	-1.48	2.80	3.50	2.29
	Mandi Baha Ud Din	-1.80	1.11	1.10	0.56	-0.32	1.75	3.70	2.39
	Mianwali	-0.92	1.62	-0.88	-4.35	0.26	3.93	4.60	-0.27
	Nankana Sahib	-2.29	-0.20	-0.02	-2.00	-1.83	2.38	2.89	2.37
	Narowal	-2.25	0.63	1.42	-1.23	-1.54	0.29	2.26	0.39
	Okara	0.27	2.69	1.67	1.21	2.58	3.43	5.12	4.05
	Pakpattan	-4.60	-0.87	-1.94	-4.51	-2.23	1.38	3.12	3.54
	Rawalpindi	-3.14	0.56	0.10	-3.04	-0.50	4.78	3.27	1.48
	Sahiwal	2.94	5.35	2.67	1.40	4.15	1.91	4.90	6.12
	Sargodha	-2.15	0.78	-0.16	-0.59	1.57	3.68	4.27	1.55
	Sheikhupura	-1.10	-0.23	-0.45	-0.91	-2.24	1.79	3.97	3.57
	Sialkot	-6.54	-3.90	3.13	-0.23	0.76	-1.47	1.78	-4.39
	Toba Tek Singh	2.84	3.81	2.37	2.15	2.01	4.68	6.41	6.73
	Vehari	-0.91	0.83	0.15	-3.88	-2.61	0.59	3.68	-0.18
	Average	-1.10	1.15	0.52	-1.11	0.15	2.39	3.60	2.28

	FEMALE									
March	April	May	September	October	November	December	January	February	March	Average
1.65	-1.33	-1.38	-5.22	-6.05	-3.49	0.27	0.39	3.28	-1.42	0.04
1.87	3.17	1.69	-0.87	-2.52	-3.90	0.20	1.86	0.63	1.17	0.55
3.70	0.65	0.62	-1.30	0.43	1.26	0.77	1.55	1.82	0.07	1.89
-0.73	-1.62	-1.59	-5.88	-8.20	-5.56	-3.54	-1.24	-2.57	-3.88	-2.26
3.13	-3.78	-2.45	-3.11	-6.57	-6.36	0.55	2.50	0.93	-0.13	-0.33
1.74	-1.34	-0.21	0.30	-1.19	0.74	0.99	2.84	2.58	0.65	0.97
2.31	-3.31	-3.64	-5.09	-4.59	-4.05	-1.60	-2.20	-1.33	-1.09	-1.18
1.24	-2.73	-1.20	-5.28	-5.92	-4.92	-0.67	0.14	-1.90	-1.36	-1.19
0.54	-3.43	0.20	-6.17	-8.56	-5.40	-3.96	-5.86	-4.07	-3.98	-2.74
-1.51	-2.77	-2.08	-4.70	-5.26	-3.11	0.49	-0.49	-1.39	-2.73	-1.74
2.04	-0.56	-0.41	-4.17	-2.17	-0.05	2.30	2.68	-0.30	-1.53	1.25
0.95	-1.94	-0.29	-2.18	-1.23	-0.11	0.92	2.67	0.00	-0.07	0.40
0.28	-0.11	1.74	1.72	0.54	0.93	1.84	1.39	1.44	-0.05	1.83
2.55	0.60	1.30	-0.97	-0.07	1.49	4.80	3.89	3.87	0.88	2.92
-0.47	-5.01	-3.88	-2.43	-7.22	-5.24	-4.02	-3.14	-2.45	-1.70	-2.65
-0.66	-1.86	-2.27	-0.66	-2.29	-0.10	0.77	0.05	-0.76	-1.58	-0.06
-0.08	-2.92	-2.10	-3.07	-6.22	-4.68	-1.14	1.31	0.87	-2.08	-0.82
-0.08	-2.07	0.32	-0.56	-1.82	-3.72	0.18	1.32	-1.39	-1.63	-0.05
1.65	-1.46	1.08	-2.66	-2.46	0.35	3.94	3.26	3.20	0.63	1.59
-2.37	-4.29	-2.98	-4.89	-7.58	-5.49	-1.48	-2.30	-3.79	-5.35	-2.32
1.80	-2.43	-1.71	-2.25	-4.10	-2.72	4.56	0.79	-0.96	0.84	0.52
2.03	-2.48	-1.90	-3.40	-2.66	-4.37	-0.74	0.04	-2.55	0.05	-0.85
-0.03	0.21	0.14	-0.90	-3.29	-2.13	0.80	2.03	0.40	0.65	0.25
-0.66	-4.58	-2.95	-3.85	-4.54	-4.73	-1.98	-0.91	-1.19	-4.56	-1.19
-0.97	-3.95	-2.78	-4.17	-7.10	-3.24	-0.02	0.27	-3.27	-3.60	-1.38
0.24	-3.58	-3.76	-3.51	-5.61	-4.47	0.07	-0.24	-1.13	-2.46	-1.29
-0.72	-2.38	-2.09	-1.81	-4.78	-3.45	-2.90	-1.20	-2.90	-2.24	-1.36
3.94	-0.62	-0.09	-0.97	-0.30	0.46	3.03	3.96	3.18	1.89	1.97
0.01	-4.52	-2.71	-6.13	-8.37	-8.89	-2.00	1.12	0.15	-0.82	-2.13
-0.63	-1.98	-1.05	-1.61	-4.39	-2.39	3.41	1.79	0.08	-0.50	-0.21
5.95	1.19	2.66	-0.93	-2.23	-0.91	-1.59	2.71	4.54	3.16	2.44
1.22	-1.94	-0.69	-3.30	-3.41	-1.60	1.45	2.37	0.37	0.67	0.23
0.45	-3.47	-3.33	-5.22	-5.85	-7.12	-1.60	0.74	-0.05	-1.97	-1.28
-7.67	-4.31	-7.58	0.37	-2.36	-0.94	-5.08	-1.49	-5.65	-7.45	-2.94
6.30	1.30	1.55	-2.38	-2.33	-1.43	1.06	3.60	4.11	3.34	2.56
1.16	-1.36	-1.76	-4.12	-6.06	-6.09	-2.95	0.46	-3.51	-1.37	-1.55
0.84	-1.97	-1.27	-2.82	-4.06	-2.93	-0.08	0.74	-0.27	-1.10	

Reviewing progress at a stocktake

specific context of the system are often unknown. Many plans fail because, at the time when the plan is made, there is insufficient understanding of what works. Chip and Dan Heath, describing why so many efforts at implementation fail, observe that too often "you plan, and then you execute. There is no 'learning stage' or 'practice stage' in the middle." Even where piloting is done, it rarely produces the insights required about how to drive implementation at scale.

When fighter pilots are trained, one concept they are taught is the OODA loop. The loop consists of four stages: O—Observation: understanding the situation; O—Orientation: getting a perspective on the situation; D—Decision: deciding on what action to take; and A—Action: implementing the action taken. Action is followed by observation, and the loop starts again. The theory is that in an evenly matched fight, the pilot with the fastest OODA loop will win.

In development, the length of the OODA loop is typically measured in years. A situation analysis is undertaken, a plan is developed, implementation is launched, a third-party evaluation is commissioned and then the cycle begins again. There is little allowance for learning during the process, or for experimentation and refinement to hone in on what works—the learning happens mainly at the end (if at all), and is then fed back into planning for the next cycle.

One aim of delivery is to reduce the length of the OODA loop down to months or even weeks. With monthly or quarterly data, the system is capable of quickly learning about what works and taking corrective actions. In Punjab, data arrived on the tenth day of each month, and was quickly analyzed, redistributed and acted upon. Even where data was not available, regular observation in the field helped to understand what was working. A small team was continuously visiting districts learning about what worked and then sharing the lessons with others. Where solutions could not be found, the team launched experiments or pilots to uncover them. Good practice was documented, scripted or videotaped, and then disseminated back out into the field. The top 80 officials assembled once every six months for a two-day training session in which, increasingly, the emphasis was on officials learning from one another rather than from experts. That learning, combined with good data, enabled them to take the action necessary to improve outcomes.

5. Routines and stocktakes

Once the delivery effort is underway, the key to sustaining it is a set of routines. The routines ensure that pressure is constantly applied to drive progress, and that problems can be uncovered and solved as they arise.

The most important of these is a routine of stocktakes to review progress with the prime minister, president or equivalent. At the stocktake, the head of the delivery unit or team presents an update on progress, based on objective data and assessments of action taken. As Sir Michael says of stocktakes in the British Prime Minister's Delivery Unit: "The stocktakes had to have certain key ingredients. The first was this focus on performance; the second was regularly focusing on the same handful of priorities; the third was the regular attendance of the Prime Minister himself and the relevant secretary of state; and the fourth was ensuring that the data presented in the meeting was shared and accepted by everyone present. Each of these characteristics seems relatively straightforward, but the combination was revolutionary."[55]

The routines drive progress in three ways. First, they create accountability for action, a pressure to deliver and an assurance that deadlines will be taken seriously. Typically, activity peaks in the week before a stocktake as the government hurries to make sure everything is done before the meeting. Second, the routine of stocktakes ensures that progress is sustained over a period of years, rather than fading after an initial burst of energy or as other priorities or crises take over. Third, they provide a forum for resolving problems and unblocking issues as the delivery effort progresses.

Across the different delivery experiences, the frequency and quality of stocktakes has contributed strongly to the rate at which obstacles are overcome and the degree of focus of key officials on the effort. In Punjab, high quality stocktakes every six to eight weeks, no matter what, enabled progress and focus to be sustained over several years. The Chief Minister himself noted that, "The biggest difference is that we are regularly checking progress." The frequency of the stocktakes kept the momentum for reform high, and the quality ensured that a large number of issues and blockages could be resolved in each stocktake. As Michael notes, "Once this central routine with the powerful political leader was established, the entire system could be driven forward to meet the monthly deadline of the stocktake…This is the first critical step any government needs to take to move from crisis management to delivering results."[56]

Conversely, in the delivery attempts where stocktakes were less frequent—for instance, once a year in South Africa—implementation was slow. The routine was insufficient to build momentum, and there was only one opportunity each year to resolve problems at the highest levels. Without the right frequency and quality of routines, the contribution of the delivery effort to improving implementation was limited.

The science of delivery is still emerging and remains as much an art as a science. As an emerging theory of how to make change happen, it offers a dramatically improved approach to systematic reform of school systems. The question now, is to what extent governments will use it as an alterative to more traditional approaches to reform.

Conclusion

Over the past few decades, the world has made massive progress in ensuring that every child has access to at least some education. Despite that progress, hundreds of millions of children have little opportunity to learn and develop to their full potential.

For the first time in human history, an outline of how to provide good quality education to all is emerging. Both the models of schooling that would work to provide it, and the means to implement it at scale, are becoming clearer, and will continue to do so over the coming years. If they could be applied consistently across the world's large developing country school systems, it would transform the global education landscape and the life chances of hundreds of millions of children.

Ten years from now, two futures are possible. In one, the world's largest school systems continue along incremental paths of improvement. The issues of implementation are not seriously confronted, the policy prescription is not adapted to the needs of the poorest countries, and improvement happens slowly, if at all. In this future, hundreds of millions of children will never gain access to the education they need to seize the opportunities of the 21st century.

In the other, the world's largest school systems embark today on ambitious reforms of their school systems, based on the emerging knowledge of what works and how to implement at scale. They adapt, refine and build on that knowledge. They work within the real fiscal and other constraints to find the best possible solutions for their systems. And they create a world in which, ten years from now, the promise of education for all is truly becoming a reality.

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