# World Development Report 2018

# Realizing the Promise of Education for Development

## Concept Note

January 2017

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# Contents

*"Education is the most powerful weapon we can use to change the world."*

*—Nelson Mandela (2003)*

*"If your plan is for one year, plant rice. If your plan is for ten years, plant trees. If your plan is for one hundred years, educate children."*

*—Kuan Chung (7th Century BC)*

*"The guarantee of education is meaningless without satisfactory learning. There are serious implications for India's equity and growth if basic learning outcomes do not improve soon."*

*—Pratham, Annual Status of Education Report, India (2013)*

## Why a World Development Report on education?

1. **Education should need little justification as a topic for a WDR.** It is conventional to open a WDR concept note by explaining why the World Bank has chosen this topic, but for the topic of education, the answer may already be self-evident to the reader. First, reading a document like this and understanding the arguments requires literacy and numeracy. Second, assessing the arguments' validity employs critical thinking that goes beyond these foundational skills—using higher-level abilities that are developed through a good post-basic education. Third, the typical reader is reviewing this concept note only because these skills opened doors to a relevant job or inspired a passionate interest in education and development. Fourth, the reader may well have made schooling decisions for family members (such as the reader's own children or siblings) that reveal a very high valuation of education. And finally, turning from the personal to the policy level, getting education right is clearly a core responsibility of public policy.

2. **Maybe the question should instead be, "Why hasn't there been a WDR on education before?"** Surprisingly, there has never been a Report devoted to education in the almost 40 years of the WDR series. Other WDRs have had valuable messages on education, but they have not had the space to analyze the sector in as much depth as the WDR 2018. With a surge in high-quality, policy-relevant research and innovative approaches in education during this century, it is time to take stock of what we have learned—about what the successes and remaining issues are, how to tackle the latter, and how to make solutions sustainable when education systems are inevitably embedded in complex social, political, economic, and cultural contexts.

3. **Education is a foundational building block for achieving nearly every other development goal.** High-quality, widespread education is a powerful tool for achieving the Bank's twin strategic goals, eliminating poverty and promoting shared prosperity. Education was a key to the MDGs, and it remains central to the SDGs: schooling, skills, and the knowledge that result from them improve employment and productivity, health outcomes, quality of governance, and many other outcomes. Indeed, it is no coincidence that the first WDR to be announced after agreement on the SDGs is on education.

4. **Getting education right—and fulfilling its promise as a driver of development—is essential; the focus of the WDR 2018 is on how to do this.** This WDR will offer guidance on how to integrate education, learning, and skills with the drive to meet broader development challenges. The Report will make four main points: (i) education is a powerful driver of both individual and national well-being, but it could achieve much more than it is now achieving; (ii) promoting universal learning and skills is the priority now—because while the world has achieved massive growth in school participation in recent years, many systems have struggled to ensure that students learn and acquire relevant skills, at a time when jobs are changing rapidly; (iii) we now know much more about what policies and programs hold promise for improving student learning and why, thanks to the explosion of good research and innovations over the past 15 years; and (iv) promoting learning and skills at scale requires much more than getting these interventions right: it requires careful attention to the technical, political, and social challenges of aligning an education system toward delivering relevant learning and skills.

## Key themes

5. The Report will argue that **to tackle the learning crisis, countries have to start acting as if learning really matters to them**.

6. What does this mean in practice? A serious commitment to learning means: (1) systematically **measuring** learning and using that metric to guide investments and policies, (2) making better use of what we've learned about **what improves learning,** including outside the school system, and (3) taking on the **technical and political barriers** to improving learning system-wide.

7. To make the case for this argument, the Report will cover four main themes:

### 1. The promise

8. **Education is a powerful instrument for eradicating poverty and promoting shared prosperity, but fulfilling its potential requires better policies and delivery—both within and outside the education system.** Widespread quality education promotes both of the twin development goals targeted by the World Bank: eliminating poverty and promoting shared prosperity. Giving someone an education is the surest way to extricate him or her from poverty: one of the most robust results in microeconomics is that schooling typically leads to an earnings gain of some 6 to 12 percent for each year of education. Education's benefits extend beyond that into other pecuniary and non-pecuniary benefits, for both individuals and societies. Among other benefits, educated individuals lead healthier lives and are more engaged citizens, and their families end up healthier and better educated—reducing the intergenerational transmission of poverty. At the societal level, education spurs productivity and economic growth, and it also appears to increase social capital and improve the functioning of institutions. Finally, education multiplies the effects of other interventions and policies, such as agricultural extension, provision of health care, or improvements in infrastructure.

9. But as the Report will also emphasize, education is no panacea. The full returns to educating a child take years to materialize, so it isn't a quick fix. Sometimes the highest-return investment in learning will be outside the education system, for example in nutrition and other ways to prepare children for school. Nor can education do it alone, even when it does produce learning: For example, a poor investment climate or barriers to women's employment may constrain the returns to education. Moreover, education can yield social "bads" as well as social goods if schooling is delivered in ways that deepen social inequalities, for example by reserving better access or quality for favored groups. Finally, schooling that does not led to learning undermines the promise. A public economics lens provides guidance on role and responsibility of government for overseeing, financing, and delivering education, taking into account the many private and social benefits of education, as well as its limitations.

### 2. The learning crisis and learning metrics to guide reform

10. **Despite gains in access to education, recent assessments of student learning have highlighted that many children and youth are leaving school unequipped with the skills they need for life and work, and often without even the most foundational literacy and numeracy skills. Measuring learning provides a metric to monitor progress.** Low- and middle-income

countries have made great progress in getting children and youth to enter and stay in school: many countries are approaching universal primary completion, gender gaps have been narrowed and in some cases closed completely, and secondary and tertiary enrolment have surged. But evidence is mounting that students are learning far too little in many countries, relative both to the countries' own learning standards and to common-sense expectations about what schooling should deliver—as well as to the demands from the labor market. Deficits in learning and skills are especially large among the poorest and other excluded groups, with the result that schooling exacerbates social inequity. The WDR will present this evidence, together with evidence on the proximate causes of the learning crisis—such as poor readiness to learn, shortcomings in teacher preparation, inputs that never reach the classroom, and education and training systems that do not link well to societal or economic needs. The costs of these learning and skills deficits will grow as markets continue to globalize and technology transforms the world of work.

11. The Report will discuss how to design and deploy different metrics (classroom, national, regional, and global) so that they can effectively guide reform—including the technical and political challenges of doing so.

### 3. Promising approaches to improve learning

12. **Recent developments in brain science and in the evaluation of education innovations has identified interventions that promote learning in certain contexts. These findings cannot be translated directly to other settings, but they help identify areas and principles for context-specific experimentation.** Advances in cognitive neuroscience have shed light on cognitive processes and how to stimulate them. Schools and systems around the world are constantly innovating, and evidence on the value of different school- and community-level interventions to improve education and learning has exploded over the past 15 years. The Report will summarize this burgeoning evidence base. To identify which results show most promise, the WDR will focus on (1) **why** interventions work, rather than just whether they work, and (2) areas with the greatest **potential** for improving learning, compared to current practice. The team tentatively plans to present these opportunities around four key elements in the "production function" for learning and skills: prepared learners, effective teaching, classroom-focused inputs, and relevant and responsive post-basic education programs.

### 4. Learning at scale

13. **Reforming systems will require tackling technical complexity and political challenges, and deploying metrics for identifying effective combinations of investments and policies.** Systems are complex entities, with many components, and achieving system-level change requires these various components to be coherent with each other and aligned toward student learning. For example, if a new curriculum emphasizes higher-order analytical skills but teacher training and student assessment do not adjust too, students are not going to acquire those skills; or if financing levels and structures are not linked to roles, responsibilities, and accountability for learning, then learning is unlikely to improve. In addition, education systems have multiple social and political objectives beyond access and learning, and multiple actors are involved. Strategies for change that do not take those objectives and actors into account and approach the challenge only from a technical perspective—treating the "production function" as a static engineering problem—are doomed to fail. This is especially true in cases where the system is locked in a low-quality, low-

accountability equilibrium. The WDR will describe these technical and political challenges, and it will also present strategies for taking them on. Breaking out of a low-level equilibrium will require: (1) Deploying politically salient and actionable information (including learning metrics and indicators of service delivery) on how well the system is delivering; (2) Building coalitions to support reform; and (3) Experimenting with combinations of investments and policies in an agile way, with feedback loops based on whether these improve the learning metrics.

## How this WDR builds on past Reports and links to broader WBG priorities

14. **Although this is the first WDR devoted to education, the WDR series hasn't ignored the topic entirely.** In the past 15 years, the Reports of 2004 (*Making Services Work for Poor People*), 2007 *(Development and the Next Generation)*, 2012 *(Gender Equality and Development)*, and 2013 *(Jobs)* have all included substantial discussions of education. The WDR 2004, in particular, has had real influence over the Bank's education work over the past decade, by shifting the Bank's focus toward the ground-level service delivery on which education depends. And even Reports without a major education focus—including the three immediate predecessors of this Report, on *Mind, Society, and Behavior (2015)*, *Digital Dividends (2016)*, and *Governance and the Law (2017)*—have often drawn on the educational sector for inspiration and examples, and have important implications for education.

15. **But no past WDR has been able to delve deeply into the key questions that confront education policy and practice.** These questions include: How can education drive development in all its dimensions, from employment to health to social cohesion—and how does poor policy sometimes undermine this promise of education? Are students acquiring the knowledge and skills they need to thrive, and if not, why not? What can countries do to promote learning and skills for all children and youth? And how can we make sure that when improvements do happen, they happen system-wide, and not just in the context of localized and often unsustainable interventions?

16. **These questions are always important, but they are more pressing today.** Even as low- and middle-income countries have made great strides in extending educational access, they have increasingly found the ground shifting beneath their feet. Past models of production and growth required lower skill levels in the workforce, so to thrive economically, it was often sufficient to get people through some basic level of schooling. But technological change and global integration put a premium on learning and skills, including at higher levels of education. The global community has highlighted the increasing importance of learning under Sustainable Development Goal 4, the associated indicators, and the Education 2030 Framework for Action—all of which go beyond the Millennium Development Goal of primary completion.

17. **The WDR 2018 can address these questions effectively only by looking well beyond education, into areas like governance, health, social protection, technology, productivity, and labor.** Ultimately, while this WDR focuses on education, it will by no means be a WDR only about education—or it will fail to achieve its purpose. Consider several examples:

- Readiness to learn in school requires well-designed early-years investments in the ***health and nutrition*** of the child, from conception through age 5.

- Promoting student learning will increasingly require harnessing ***digital technologies*** to the task of giving all students an opportunity to learn at a level where they can thrive, in a way that complements strong support from highly professional teachers.
- Learning and skills acquisition will happen at scale only if the ***governance*** mechanisms make learning a shared goal of all the key actors system-wide (and conversely, further improvements in society-wide governance will depend on well-educated citizens and government officials).
- Analysis of the ***employment and productivity*** consequences of skills acquisition—and of how these will change in the coming decades as the nature of jobs changes—will underpin the Report's focus on learning.

18. **In addition to building on previous WDRs, this Report will leverage the broad range of previous work from both outside and inside the World Bank.** Prominent recent global reports addressing related themes include the Education Financing Commission report (2016), which focuses on how to mobilize and deploy resources to underpin a "learning generation", and UNESCO's Global Education Monitoring Report (2016), which reviews the ways in which education can contribute to all of the Sustainable Development Goals. The WDR 2018 will also draw on the full range of World Bank analytical work. It draws inspiration from the WBG's *Education Sector Strategy 2020: Learning for All*, which prioritized learning with equity and underlined the importance of a systems approach. Other relevant studies include the recent and upcoming *Poverty and Shared Prosperity* reports (2016 and 2017), which emphasize education's role in promoting shared prosperity and reducing intergenerational transmission of poverty. It also includes a large number of regional and country studies, some of which are being carried out as companions to the WDR 2018. Finally, the Report will rest on a strong foundation of operational experience and research generated by academics, World Bank staff, and partner institutions.

## The WDR's four themes

19. In this section, we describe in more detail the central arguments under each of the WDR's four core themes.

### Theme 1: Education's promise

**Under this theme, the Report will argue that education is central to reducing poverty and promoting shared prosperity—but also that education is not a panacea.**

20. The discussion will start by recognizing the ***intrinsic value of education***—reflected in the fact that education is a human right, that it is a critical component of human capabilities, and that it enables people to live richer lives. It will emphasize the many ways that education pays off, at both the individual and societal levels, through its effects on human capital. At the individual level, education is ***the most powerful and consistent tool for escaping poverty***—and broadening access to education can help close social gaps linked to gender, disability, and other forms of exclusion. This is reflected in the well-established literature that shows how schooling drives higher earnings for individuals, both in the formal or informal sectors. While schooling in some settings may play a signaling role, much of the return is due to the learning and skills it confers—the human capital accumulated through schooling and the resulting increase in productivity. Education's benefits are

especially apparent in changing environments: people with stronger skills are better able to take advantage of new technologies and new work opportunities. With all of these benefits, education can be a powerful force for reducing inequality.

21. At the national level, education has been shown consistently to underpin ***sustained growth and development***. Theoretical models feature human capital as an important determinant of growth, either in steady state or in the (often long) transition to steady state. And while there is debate about the robustness of the cross-country evidence, it nevertheless points to a systematic effect of education on productivity and growth. This causal hypothesis is bolstered by the evidence coming from "natural experiments" such as changes to compulsory school ages, and from the cases of countries, such as the Republic of Korea, that have used strategic investments in education to drive development over the long run. As the Commission on Growth and Development (2008) concluded in *The Growth Report*, "[n]o country has sustained rapid growth without also keeping up impressive rates of public investment in infrastructure, education and health."

22. Beyond its direct impacts, ***education increases the returns to other investments and policies***. Education, for example, enables individuals to make better use of financial or health products. Education was a hinge that enabled the adoption and diffusion of green revolution technologies. This multiplier effect is implicit in many theoretical models of growth, which posit an interaction between physical and human capital. In practice, education was the critical factor that enabled countries to take advantage of other reforms and investments, such as export-oriented policy reforms in East Asia, or technological breakthroughs.

23. But ***education's benefits are not just pecuniary***. Even controlling for income, education improves health, resilience, and life satisfaction, and its benefits are manifested across generations, as education inhibits the intergenerational transmission of poverty. At the community and societal levels, education leads to better-functioning institutions and service delivery. Education can foster greater social cohesion, and since human capital is difficult for others to appropriate (unlike natural resources or even physical capital), wealth built on human capital can create fewer incentives for conflict than other types of wealth. Last, education has been consistently associated with reducing behaviors that have negative externalities such as smoking, open defecation, and crime.

24. But while education yields many benefits, both intrinsic and instrumental, its promise is not always fulfilled, nor are education investments always the highest-return vehicles for improving learning:

- First, education can't deliver on its own: the country's ***economic, political and social institutions affect how much education pays off***. For instance, education can do only so much for women's empowerment if the law discriminates against them, or if social norms prohibit them from using their skills. The promised high individual and broader returns to schooling materialize only if the economy actually rewards the skills acquired—and this won't happen if economic incentives are distorted. Many countries have achieved high schooling levels but failed to sustain growth or drive down poverty because of a poor investment climate.

- Second, ***education systems can deliver social "bads" as well as "goods."*** The promise of education is corrupted when the quality of service delivery perpetuates, rather than reduces,

broader economic inequalities; or when it exacerbates social exclusion, because the education system favors students from certain groups over others. In addition, education systems have been used for political ends, often with negative consequences.

- Third, ***education investments are not always the highest-return investments to promote learning and skills.*** Many factors affect student learning, and not all of them lie within the school system. One clear example is investments in child development in the early years, before children reach school age. Such investments—in nutrition, stimulation, and parental education—can be an effective way to prevent disadvantaged children from falling far behind before school can begin to help them learn. Another example (outside the scope of this Report) is acquiring skills through work experience.

- Finally, ***schooling without learning voids the promise of education and sets up false expectations***. If schooling isn't about learning, then individuals may have to rely on their kinship or other networks to access employment opportunities, rather than their skills—which can lead to frustration. Moreover, the society won't reap the full broader economic benefits, because learning and skills appear to explain much of the association between schooling and growth. As Theme 2 will emphasize, this concern about education without learning is not hypothetical.

Moreover, even when investing in education does pay off, many of its returns accumulate only over decades. This can make the promise appear illusory in the short term.

25. The Report will analyze the appropriate role of government in overseeing, financing, and delivering education, using the perspectives of both public economics and political economy. Public economics emphasizes the importance of market failures that lead to underinvestment in education, and government's potential for addressing those failures. This rationale rests on the gap between private and social returns (including equity) to education, and it can help societies find their appropriate balance of public and private financing and provision. A political economy lens focuses attention on government failures, as well as on the responsibility that governments have traditionally taken for education and the multiple aims that stakeholders have for education systems. Together, these perspectives guide the analysis in the rest of the Report.

### Theme 2: The learning crisis and learning metrics to guide reform

**Under this theme, the Report will highlight the learning crisis and resulting skills gaps, and describe the proximate determinants of this crisis. The discussion will span all levels of education and training, including primary, secondary, and tertiary, as well as the foundations built from conception through pre-primary schooling. It will also explore what types of learning metrics are best suited for different purposes, and will argue that systems should use learning metrics to set priorities and guide experimentation. Tackling the learning crisis is essential, because the changing nature of work will steadily increase the cost of skills gaps.**

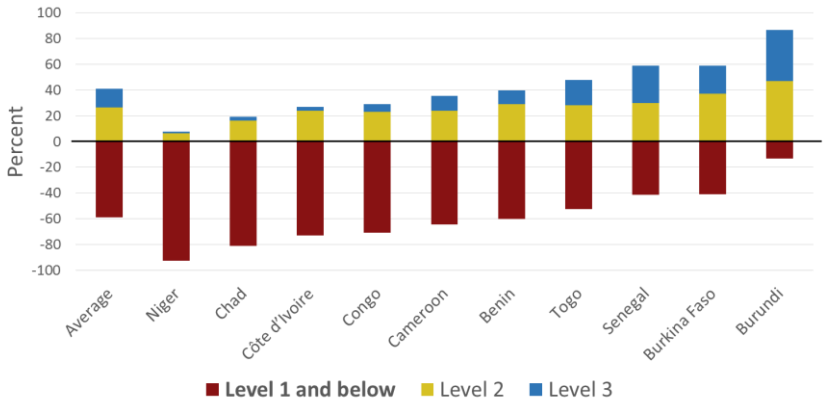
26. The last 25 years have seen an enormous expansion in the number of children who are able to complete a full course of primary education. While not all countries have reached the goal of a 100 percent primary completion rate, the progress has been impressive. In Sub-Saharan Africa

(SSA), the recent rate of progress in net enrollment rates rivals the historic performance of high-growth countries, and it exceeds by a large margin the performance of the typical high-income country during its education expansion phase (Lee and Lee 2016). Progress in basic education has raised aspirations and demand for upper secondary and higher education everywhere.

27. Despite this success, progress on enrollment and completion has not been universal. Improvement in gender parity at both primary and secondary levels has been rapid—but many countries, and even some entire regions (SSA and Middle East/North Africa), still fall well short of equal enrollment rates, according the UNESCO's *Global Education Monitoring Report 2016*. Within countries, particularly in low-income countries, there remain large deficits in school participation of ***girls,*** children from ***poor*** families, and other groups that suffer from ***exclusion***. For example, children with disabilities, children from marginalized groups, and refugee children have substantially lower school participation rates. In ***fragile and post conflict settings,*** overall school enrollment rates remain low.

**Figure 1 By the end of primary school, high proportions of students can only perform the most basic mathematical operations**

Percentage of students scoring at each level of the PASEC 2014 Math Assessment




*Source*: Malpel et al. 2015.

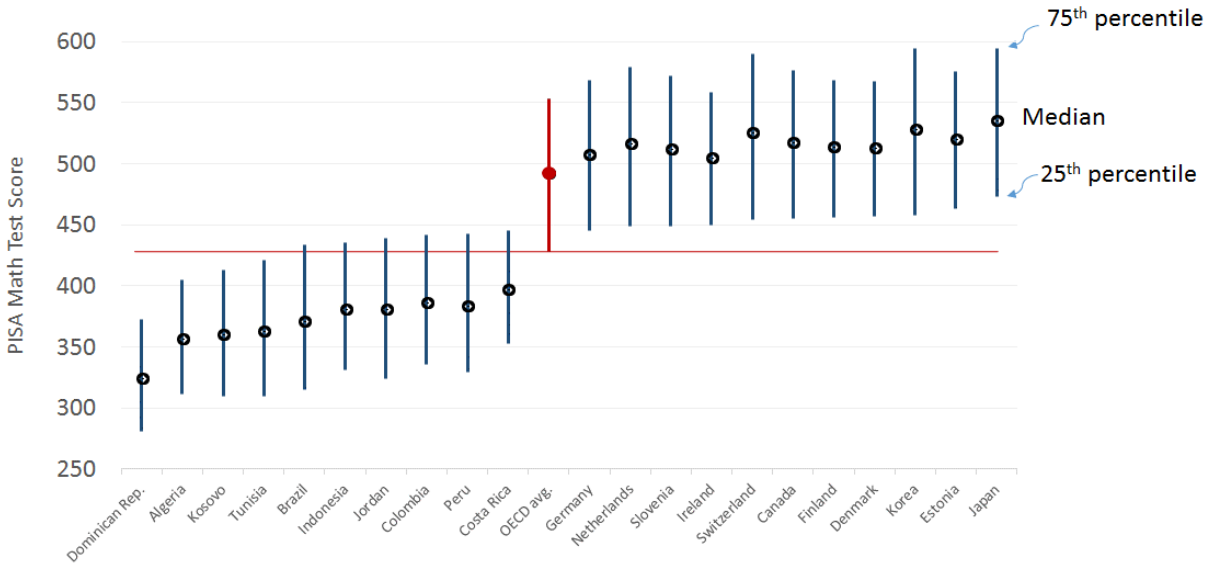
*Note*: At "Level 1" students can perform only the most basic operations and are considered below "sufficient" for continued schooling.

28. This progress, however, has highlighted a critical challenge: the difficulty of ensuring that ***schooling leads to learning***. Alarming statistics on learning now abound, providing evidence of what has been dubbed by UNESCO the "learning crisis". In numerous low-income countries, learning assessments reveal that many young children lack the most basic literacy and numeracy skills. In Malawi and Zambia, over 80 percent of students at the end of the second grade could not read a single word; in India only 75 percent of grade 3 students could not do two-digit subtraction. The situation is still dire at the end of primary: Across ten Francophone African countries, 47 percent of grade 6 students could not go beyond the most basic operations in mathematics (figure 1), with many below even this low threshold. In reading, 71 percent could not make simple inferences from written material. Learning levels are low, and the progress of individual students from year to year (the "learning profile") is often minimal.

29. These learning deficits are largest for the poor, ***exacerbating economic and social inequalities***—with inequalities in cognitive capacity and development starting at the very earliest ages. Parental and household characteristics are important factors in inequality of opportunity, but schools can help compensate for these disadvantages. School systems that are able to generate high levels of learning overall are also those that reduce inequalities stemming from student backgrounds (and they do so from an early age).

30. The learning crisis is not an issue for only the poorest-performing countries. In a broad range of countries, it manifests itself as young people failing to develop the skills they will need for work and life. Many middle-income countries have learning levels that fall far below their own expectations for themselves, as the newly released PISA 2015 results highlight. In Algeria, the Dominican Republic, Republic of Kosovo, and Tunisia, for example, student performance at the 75$^{th}$ percentile on the PISA math test is below that at the 25$^{th}$ percentile in the average OECD country (figure 2). And others—such as Brazil, Indonesia, and Jordan—barely exceed this benchmark. So even in these countries, addressing the learning crisis will require improving performance by orders of magnitude. Doing so is critical if low- and middle-income countries are to be globally competitive and to take advantage of opportunities that new technologies offer.

**Figure 2 Performance at the median and at the 75$^{th}$ and 25$^{th}$ percentiles of PISA 2015 Math Assessment**




*Source*: OECD 2016.

31. The process by which students develop skills—whether cognitive, socio-emotional, or technical—is both reciprocal and cumulative. That is, skills are both the consequence of and the basis for learning. As a result, skills gaps and mismatches, highlighted in discussions of employment and productivity, have their foundation in the learning crisis. At the same time, post-basic education too often exacerbates the skills crisis: it fails to recognize that students need remedial education before tackling more job-relevant skills, or it offers education and training that is disconnected from what employers want.

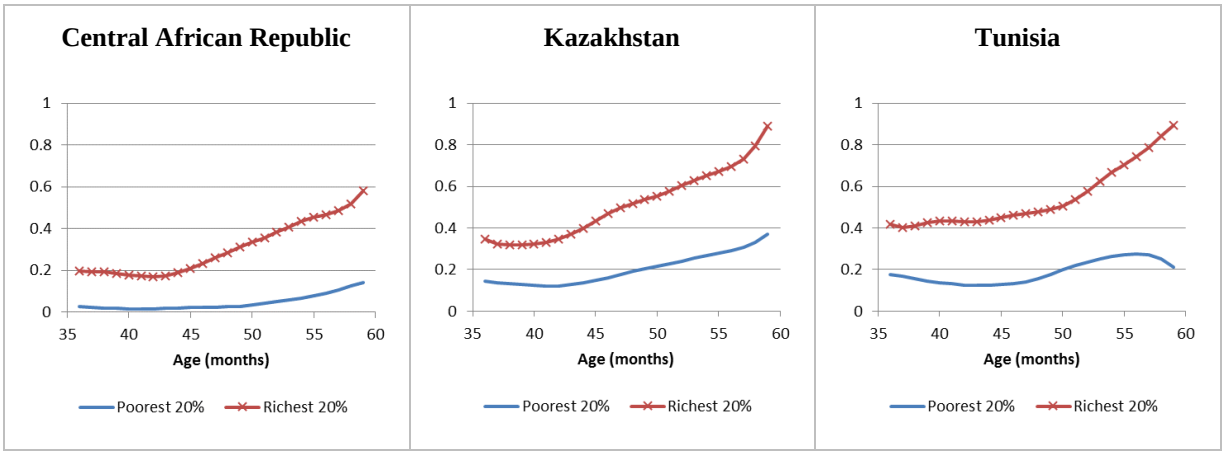
32. In addition to describing the learning crisis, the Report will document its ***proximate causes***. It will organize the discussion using a production function framework that highlights the main channels for improving learning. Examples of blockages in these channels include:

- School entrants who **already lag behind** (figure 3)
- Students who lack **family support or motivation**
- High rates of **teacher absence** from schools and classrooms
- Low levels of **teacher subject knowledge**
- Ineffective **pedagogy**
- Principals without **management skills**
- Unused or inappropriate **materials**
- Programs teaching **unmarketable skills**

In later sections, the Report will return to the production function framework and show that—because the inputs in the production function are themselves the result of decisions and behaviors—removing the blockages is not a simple technical matter.

**Figure 3 Socioeconomic gaps in cognitive achievement grow with age—even in the preschool years**

Proportion of children who can recognize 10 letters of the alphabet, by age in months and socioeconomic quintile




*Source*: Authors' analysis of Multiple Indicator Cluster Survey data.

33. To tackle the learning crisis, systems need to have the right ***learning metrics*** to guide their efforts. Many systems lack reliable and actionable measures of student learning; as a result, even policymakers who want to improve learning outcomes are often "flying blind." The Report will discuss how to design and deploy different student learning metrics (classroom, national, regional, and global) so that they can effectively guide reform. Different metrics have different purposes: for example, high-frequency but low-stakes sample-based assessments can serve as management

metrics to track and guide reforms; classroom assessment by well-trained teachers can guide the teaching and learning process; and national or international sample-based assessments (such as PISA, TIMSS, and regional assessments) can serve as benchmarks and provide checks on the more frequent assessments. Under this theme, the WDR will argue that better learning measures are a prerequisite for any serious effort to improving learning. But it will also stress that poor use of metrics can distort incentives and undermine progress.

34. The ***cost of the learning crisis*** is high. Because learning is cumulative, poor foundations mean that all subsequent investments in learning or skills development will be less effective—and ultimately will lead to lower pecuniary and non-pecuniary returns. At the system level, low levels of learning waste vast amounts of financial and human resources. For societies, the foregone earnings and growth add up to substantial costs.

35. Moreover, the cost is disproportionately borne by those who can least afford it. Both the learning crisis and proximate causes most afflict children who are already disadvantaged, whether because of poverty, gender, location, ethnicity, or disability. But because reliable measures of learning and proximate causes are often lacking, this problem becomes has aptly been labeled a ***"hidden exclusion"*** (Save the Children UK 2013)—much less obvious than exclusion from schooling, but equally damaging. For these reasons, ***the learning agenda is fundamentally an equity agenda***, and promoting learning is essential to fulfilling the universal human right to education in a meaningful way.

36. Nor is this just a problem of today; education systems must prepare for the ***future of work***. The cost of inaction on learning will likely rise as the global economy evolves and the nature and demands of jobs change with global integration and the growth of the digital economy. Demographic change will lead to youth bulges in some regions, making it even harder to deliver quality education and potentially worsening learning outcomes further. In other regions, the working-age population is declining, so new entrants need to be much more productive to offset those losses. With all these changes, the premium to many types of skills will likely increase, but in particular to skills that foster adaptability and allow individuals to "learn how to learn." These skills depend heavily on the foundational skills that many systems are failing to provide today.

### Theme 3: Promising approaches to improve learning

**Under this theme, the Report will highlight the explosion of innovations and evidence on how to improve learning and skills. Systems can improve learning by drawing on evidence and experience in four key areas: ensuring that learners are prepared, promoting the teacher-learner interactions that actually lead to learning, deploying inputs that support those interactions, and offering post-basic education and training systems that are agile and linked to the labor market. Because context is crucial, this evidence cannot translate directly into programs for application in a new setting, but it does offer the most promising starting points for local innovation.**

37. Biological, operational, and research evidence on how to improve learning outcomes has multiplied rapidly over the past 15 years. Advances in cognitive neuroscience have shed light on cognitive processes and how to stimulate them. Schools are innovating in approaches to pedagogy, professional development, and use of new technologies. And systems are innovating in how to

incorporate accountability. Notably, the evidence base that relies on rigorously established counterfactuals to identify "what works" is mushrooming: in 2000, there were only about 25 such impact evaluations of interventions on learning outcomes; by 2014, there were 225. With this expansion in research, the Report will be able to draw on evidence from all types of economies and settings, including all levels of income and educational development, and encompassing countries suffering from fragility, conflict, and violence.

38. Drawing lessons from this growing evidence base is hard, because the production function for learning is complex and involves many actors. Many of the inputs into that production function are themselves choices made by the actors, choices that are made in reaction to the actual and anticipated choices of the other actors. The Report will rely on two strategies to navigate these complexities. First, to guide approaches to improving outcomes, it will tease out the ***principles*** that drive actors' choices, rather than focusing narrowly on the ***point estimates*** from evaluations of individual interventions. Second, to help policymakers set priorities, it will highlight interventions that offer ***opportunities for the biggest improvements***. One hypothesis that the team will investigate is that the biggest gaps between potential and actual practice emerge where market failures are most severe—whether because of information asymmetries, misaligned incentives and missing markets, cognitive biases, or other factors. Together, these two strategies for sifting through the evidence identify four key entry points for better interventions:

### (1) Prepared learners

- Even in adverse environments, the return to early child development is high. Skills development depends on nutrition and stimulation in the very early years, as well as cognitive and socioemotional development in the pre-school years. Together, these provides the essential foundation for subsequent learning, as findings from neuroscience emphasize.

- In a parallel way, preparation for skills training is an essential part of that training—when foundations are weak, remedial education is necessary.

- Demand-side incentives have been effective at getting marginalized children to school, although they haven't improved student learning much.

### (2) Effective teaching

- Countries spend a large amount on teacher in-service professional development, but there is little evidence that most of this is effective. Evaluations have identified approaches that have worked in many settings—individualized, repeated training with follow-up, or training linked to a specific pedagogical approach (figure 4)—but these are not the ones that are usually deployed at scale. This suggests that a change in teacher professional development strategies could substantially improve learning outcomes.

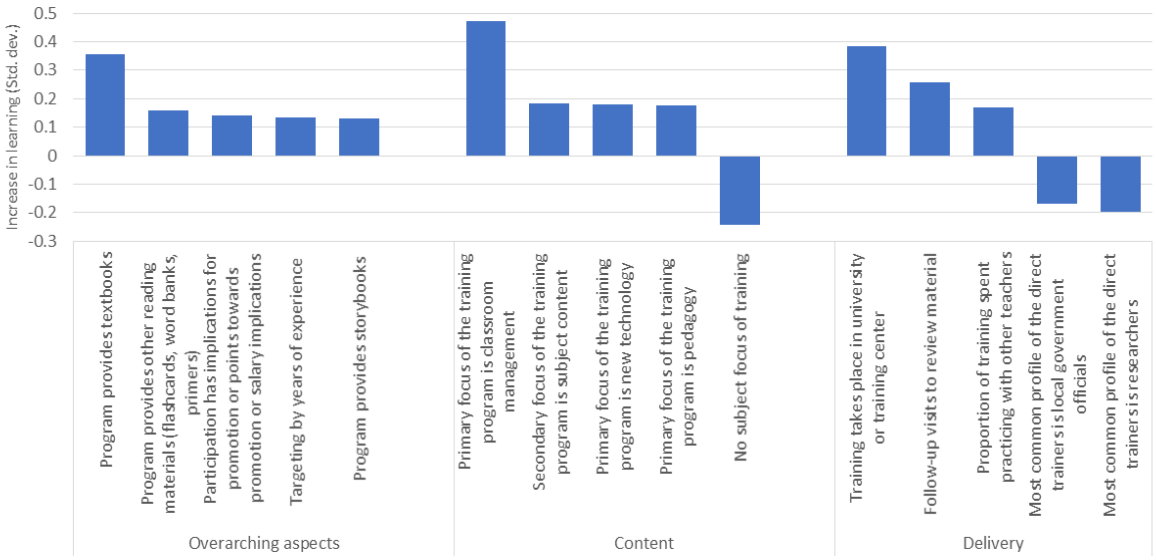
- No amount of teacher training or inputs will substitute for teacher effort. Teacher incentive programs can be effective at improving learning, but implementing them outside of tightly controlled experimental settings has not worked as consistently. Approaches that build on

teachers' intrinsic motivation and that recognize performance in a more holistic way show promise.

- Teachers often teach to the level of the top students in the class—either because this is easier or because this is where an ambitious curriculum tells them to be. Approaches that show promise enable teachers to teach to the level of the students, either through ability grouping (whether for the whole class or part of it), or through better formative assessment that helps identify student needs.

**Figure 4 Teacher training programs that are linked to a specific pedagogical approach, that include follow up, and that are individualized have the largest impact on student learning**

Standard deviation increase in student learning associated with features of teacher training programs




*Source*: Popova, Evans and Arancibia 2016, *Background Paper for the WDR 2018*.

## (3) Classroom-focused support

- Inputs and infrastructure mostly help to get children to school; it is only when they facilitate the teaching and learning process that they also affect learning outcomes.

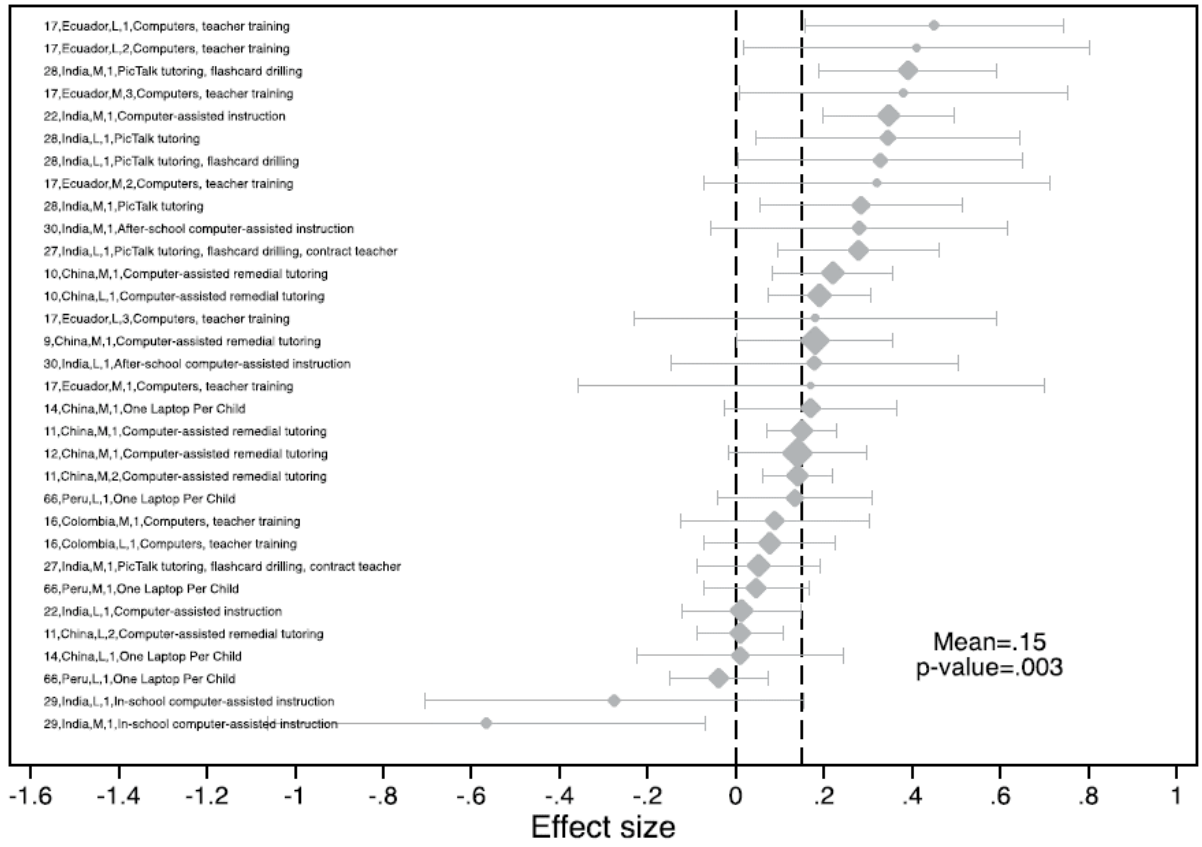
- While many promising interventions involve technology, a large percentage of technology interventions fail before they even make it to the classroom—suggesting that the focus should be on technologies that are truly implementable in current systems. Approaches that have worked in many settings are those that complement teachers, and that are enabled by teachers who can leverage the technology (figure 5).

- Devolving decisions to schools can set up the appropriate accountability framework—with the stakeholders with most knowledge and ability to monitor service delivery involved in decision-making. School grant programs, while sometimes presented as accountability-

enhancing approaches, often work only as funding transfer mechanisms and don't actually change accountability relationships.

**Figure 5 Technology in the classroom can help—but only sometimes. And many unevaluated technology interventions fail before they even reach the classroom**

Standard deviation increase in student learning as a result of evaluated technology-based interventions




*Source*: Reproduced from McEwan 2015.

## (4) Responsive post-basic education and training

- Education and training that aim to prepare workers for the job market need to be able to meet entrants where they are, and link them to their best option in the labor market. Approaches that work are able to adapt to the various needs of the students and trainees, throughout the process of lifelong learning.

- Linking post-basic education and training, including vocational education, to the labor market requires strong links between institutions and employers. These links can range from information that facilitates matching, to apprenticeships that provide experience, to on-the-job training.

39. These four key entry points—prepared learners, effective teaching, classroom-focused support, and responsive post-basic education and training—are all areas where current education practice in many countries diverges substantially from the strategies that evidence highlights as most promising. For example, many of the children who need it the most do not receive early nutrition and stimulation; most teachers do not benefit from effective professional development; school management committees are often ill-equipped to discharge their responsibilities; and training for youth often focuses on outmoded technologies and develops skills for which there is little demand. These findings indicate where countries might start as they undertake their own experiments with what works to increase learning in their specific context (as discussed further under Theme 4). If they are willing to target learning, take evidence seriously as a ***starting point for experimentation***, and crucially—as Theme 4 emphasizes—do what is necessary to make the system as a whole work, countries can better leverage evidence for improving learning.

### Theme 4: Learning at scale

**Under the fourth theme, the Report will highlight that even with all this new evidence, it's not enough to "scale up" effective interventions. Promoting learning at the level of a system requires tackling the technical and political complexities of education systems. This section will identify where to focus efforts for strategic change, and how to create opportunities by leveraging metrics, building coalitions, and learning through experimentation with feedback loops.**

40. ***Learning at scale is not just "scaling up".*** Even though evidence-based experimentation with the promising interventions under Theme 3 is crucial, it won't be enough to identify effective interventions and then multiply them across thousands of schools. When the Kenyan government tried to reduce student/teacher ratios using contract teachers—an intervention that had improved student outcomes when implemented by an NGO—the results were negligible. Careful analysis attributed this failure to both implementation constraints and political economy forces at the system level that hadn't come into play in the pilot. Under this theme, the Report will identify the technical difficulties of aligning systems towards learning, as well as the social and political forces that contribute to those misalignments. The WDR will argue that reform should start where the technical feasibility and political space create opportunities, and outline how leaders and other actors can create political space for strategic change.

41. The various components and actors of an education system need to be ***coherent*** with each other and ***aligned towards learning*** to achieve it. Three main characteristics of education systems lead to misalignment:

- First, a system as a whole has ***multiple objectives***, some of which may compete with learning;
- Second, the ***many actors*** in the system may individually have competing objectives, again which do not always include learning;
- Third, actors in the system are often ***ill-equipped*** to deal with this complexity.

42. ***Misalignments*** manifest themselves in a number of ways. There is often ambiguity about which actors are responsible for what actions and results; financing is largely delinked from learning or the factors that support it; actors face incentives (both pecuniary and non-pecuniary) that do not align with learning; and information does not flow in such a way as to drive action. The point here is not to argue that specific structural models work best—for example, both centralized and decentralized systems can "work"—but any model needs to be coherent. For example, centralized systems require strong enforcement mechanisms, while decentralized systems require capacity at the local level. Ultimately, the various parts of the system need to reinforce each other; curricula, pedagogical approaches, teacher preparation, support to teachers, assessment, leadership, and incentives cannot be at cross-purposes. And that coherent system needs to be aligned toward learning to make a dent in the learning crisis.

43. If ***financing*** levels and structures are not aligned with roles, responsibilities, and accountability for learning, then learning is unlikely to improve. For example, education funds are not always allocated to the parts of the system that most need strengthening to improve learning outcomes. Funding for teacher salaries often absorbs over 80 percent of education budgets in low-income countries, leaving little room for spending in other areas that could perhaps be more effective at the margin. Mismatches between funding and the locus of decision-making authority are also common, as is ambiguity about responsibility for ensuring that the funding leads to results.

44. While it is hard to think of aligning the whole system at once, approaches that are too partial may be ineffective. School grants have often been promoted as a way to advance quality and learning, for example. But without effective school-level capacity, authority, and accountability, introducing grants has led to disappointing outcomes. The key is therefore to figure out which elements should be aligned first to foster learning.

45. But the sources of misalignment extend far beyond the technical. Education systems perform important ***social*** functions, and the actors within education systems have important ***political*** roles within societies; ignoring these roles leads policy advice astray. Education systems perform functions that go beyond learning: at the local level schools are centers of the community, and educators are important members of that community; at the national level, education systems aim to build national identities and reinforce social values. While learning is central to the economic value of education, the political roles played by teachers, politicians, bureaucrats, the business community, judicial and legal actors, and private providers (including faith-based, other non-profit, and for-profit), as well as parents and students, are important as well.

46. As a result, the technical misalignments plaguing many systems are not random but a predictable result of political and social forces. The interplay between key actors can result in collusive relationships based on informal but clearly understood reciprocal relationships, and creates groups of insiders and outsiders with uneven power—all of which complicates accountability. Another result is a loss of trust between actors, which complicates reform and traps the system in a low-learning equilibrium. Strategies that ignore these social and political factors are likely to fail, even if they are technically sound.

47. ***Launching the change process*** to improve learning in such a technically and politically complex environment is difficult. The Report will identify three types of approaches: ***Information and metrics, Coalitions and incentives, and Innovation and experimentation***.

- ***Information and the right metrics*** are key. The first step to improving system-wide learning is to put in place good metrics for monitoring whether programs and policies are actually delivering learning. Credible and reliable information can shape the political incentives facing politicians. Most notably, information on student learning and school performance—if presented in a way that makes it acceptable and salient—fosters healthier political engagement and better service delivery. Also, such information "turns on the lights" and helps policymakers manage a complex system.

- Actors have a variety of ***incentives*** and objectives that may be at odds with one another. Policymakers need to provide financing in a way that reinforces alignment towards learning. Successful reforms need to include strategies to address the potential of interest groups to block education reform, and so the Report will draw on case studies of where ***coalitions*** have formed to overcome obstacles. Strategies to build trust and foster cooperation—through a more open and contestable policy arena—increase the chance that reforms will stick (as discussed in WDR 2017). Bringing into the debate all the key stakeholders, including the students, parents, and employers who suffer most from the learning crisis, may improve the prospects of building a coalition for learning.

- ***Innovation and experimentation*** with feedback loops is another strategy to break out of low-level traps. Agile systems combine experimentation, information and appropriate metrics, and adaptation to find what works in context. Recent research on iterative and adaptive approaches shows how this can be done in practice. The approach can be implemented at various levels—from classrooms, to school districts, to states, regions, or even countries—with suitable selection of metrics and timeframes. The emergence of new technologies opens up the space for radical reform—but to use those technologies effectively will also require experimentation, iteration, and adaptation.

48. External actors, including the **World Bank**, can support the change process in three key ways. First, they can foster the creation of credible, salient ***information and metrics***—most notably reliable measures of student learning, but also actionable indicators of how effectively and equitably the system is delivering. Second, they can support ***flexible approaches*** that allow for innovation, experimentation and adaptation. Results-based approaches to financing—which link resources to results or factors that directly drive results, rather than to inputs—can help foster an agile system that allows for learning and adaptation. Third, they can support the creation of ***global knowledge*** to help guide the experimentation process. The Report will assess the effectiveness of current efforts in these areas and point to possible improvements.

# Timetable and team

## Timetable

Following the discussion of the Concept Note with the World Bank's Board on January 10, the team will prepare the draft of the Report. The Report is scheduled to be launched in late 2017, most likely after the WB/IMF Annual Meetings.

## Team

A team led by Deon Filmer and Halsey Rogers is preparing the Report, with the core team comprising Samer Al-Samarrai, Magdalena Bendini, Tara Beteille, David Evans, Märt Kivine, Shwetlena Sabarwal, and Alexandria Valerio. Rafael de Hoyos and Sophie Naudeau are members of the extended WDR team; Malek Abu-Jawdeh, Bradley Larson, Unika Shrestha, and Fei Yuan serve as research analysts; and Christian Ponce de Leon and Paula Villaseñor serve as consultants. The production and logistics team for the Report consists of Brónagh Murphy and Jason Victor. Stephen Commins provides consultations support.

The Report is sponsored by the Development Economics Vice-Presidency. Paul Romer, Senior Vice President and Chief Economist, and Ana Revenga, Deputy Chief Economist, will oversee the Report. Kaushik Basu, former Chief Economist and Senior VP, and Indermit Gill, former Director for Development Policy, supervised the Report in the early months of its preparation.