

LEARNING

TO REALIZE EDUCATION'S PROMISE

OVERVIEW



LEARNING

TO REALIZE EDUCATION'S PROMISE

OVERVIEW



This booklet contains the overview, as well as a list of contents, from *World Development Report 2018: Learning to Realize Education's Promise*, doi: 10.1596/978-1-4648-1096-1. A PDF of the final, full-length book, once published, will be available at <https://openknowledge.worldbank.org/>, and print copies can be ordered at <http://Amazon.com>. Please use the final version of the book for citation, reproduction, and adaptation purposes.

© 2018 International Bank for Reconstruction and Development / The World Bank
1818 H Street NW, Washington DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

Some rights reserved

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

Rights and Permissions



This work is available under the Creative Commons Attribution 3.0 IGO license (CC BY 3.0 IGO) <http://creativecommons.org/licenses/by/3.0/igo>. Under the Creative Commons Attribution license, you are free to copy, distribute, transmit, and adapt this work, including for commercial purposes, under the following conditions:

Attribution—Please cite the work as follows: World Bank. 2018. “World Development Report 2018: Learning to Realize Education's Promise.” Overview booklet. World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO

Translations—If you create a translation of this work, please add the following disclaimer along with the attribution: *This translation was not created by The World Bank and should not be considered an official World Bank translation. The World Bank shall not be liable for any content or error in this translation.*

Adaptations—If you create an adaptation of this work, please add the following disclaimer along with the attribution: *This is an adaptation of an original work by The World Bank. Views and opinions expressed in the adaptation are the sole responsibility of the author or authors of the adaptation and are not endorsed by The World Bank.*

Third-party content—The World Bank does not necessarily own each component of the content contained within the work. The World Bank therefore does not warrant that the use of any third-party-owned individual component or part contained in the work will not infringe on the rights of those third parties. The risk of claims resulting from such infringement rests solely with you. If you wish to re-use a component of the work, it is your responsibility to determine whether permission is needed for that re-use and to obtain permission from the copyright owner. Examples of components can include, but are not limited to, tables, figures, or images.

All queries on rights and licenses should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; e-mail: pubrights@worldbank.org.

Cover design: Kurt Niedermeier, Niedermeier Design, Seattle, Washington.

Interior design: George Kokkinidis, Design Language, Brooklyn, New York, and Kurt Niedermeier, Niedermeier Design, Seattle, Washington.

Contents

v Foreword

vii Acknowledgments

1 Overview: Learning to realize education's promise

4 The three dimensions of the learning crisis

Learning outcomes are poor: Low levels, high inequality, slow progress

Schools are failing learners

Systems are failing schools

Still, there are reasons for hope

16 How to realize education's promise: Three policy responses

Assess learning—to make it a serious goal

Act on evidence—to make schools work for all learners

Align actors—to make the whole system work for learning

27 Learning to realize education's promise

37 Contents of the *World Development Report 2018*

Foreword

Education and learning raise aspirations, set values, and ultimately enrich lives. The country where I was born, the Republic of Korea, is a good example of how education can play these important roles. After the Korean War, the population was largely illiterate and deeply impoverished. The World Bank said that, without constant foreign aid, Korea would find it difficult to provide its people with more than the bare necessities of life. The World Bank considered even the lowest interest rate loans to the country too risky.

Korea understood that education was the best way to pull itself out of economic misery, so it focused on overhauling schools and committed itself to educating every child—and educating them well. Coupled with smart, innovative government policies and a vibrant private sector, the focus on education paid off. Today, not only has Korea achieved universal literacy, but its students also perform at the highest levels in international learning assessments. It's a high-income country and a model of successful economic development.

Korea is a particularly striking example, but we can see the salutary effects of education in many countries. Delivered well, education—and the human capital it creates—has many benefits for economies, and for societies as a whole. For individuals, education promotes employment, earnings, and health. It raises pride and opens new horizons. For societies, it drives long-term economic growth, reduces poverty, spurs innovation, strengthens institutions, and fosters social cohesion.

In short, education powerfully advances the World Bank Group's twin strategic goals: ending extreme poverty and boosting shared prosperity. Given that today's students will be tomorrow's citizens, leaders, workers, and parents, a good education is an investment with enduring benefits.

But providing education is not enough. What is important, and what generates a real return on investment, is learning and acquiring skills. This is what truly builds human capital. As this year's *World Development Report* documents, in many countries and communities learning isn't happening. Schooling without learning is a terrible waste of precious resources and of human potential.

Worse, it is an injustice. Without learning, students will be locked into lives of poverty and exclusion, and the children whom societies fail the most are those most in need of a good education to succeed in life. Learning conditions are almost always much worse for the disadvantaged, and so are learning outcomes. Moreover, far too many children still aren't even attending school. This is a moral and economic crisis that must be addressed immediately.

This year's Report provides a path to address this economic and moral failure. The detailed analysis in this Report shows that these problems are driven not only by service delivery failings in schools but also by deeper systemic problems. The human capital lost

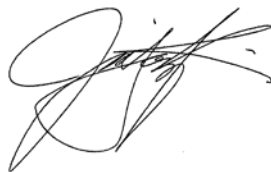
because of these shortcomings threatens development and jeopardizes the future of people and their societies. At the same time, rapid technological change raises the stakes: to compete in the economy of the future, workers need strong basic skills and foundations for adaptability, creativity, and lifelong learning.

To realize education's promise, we need to prioritize learning, not just schooling. This Report argues that achieving learning for all will require three complementary strategies:

- *First*, assess learning to make it a serious goal. Information itself creates incentives for reform, but many countries lack the right metrics to measure learning.
- *Second*, act on evidence to make schools work for learning. Great schools build strong teacher-learner relationships in classrooms. As brain science has advanced and educators have innovated, the knowledge of how students learn most effectively has greatly expanded. But the way many countries, communities, and schools approach education often differs greatly from the most promising, evidence-based approaches.
- *Third*, align actors to make the entire system work for learning. Innovation in classrooms won't have much impact if technical and political barriers at the system level prevent a focus on learning at the school level. This is the case in many countries stuck in low-learning traps; extricating them requires focused attention on the deeper causes.

The World Bank Group is already incorporating the key findings of this Report into our operations. We will continue to seek new ways to scale up our commitment to education and apply our knowledge to serve those children whose untapped potential is wasted. For example, we are developing more useful measures of learning and its determinants. We are ensuring that evidence guides operational practice to improve learning in areas such as early-years interventions, teacher training, and educational technology. We are making sure that our project analysis and strategic country diagnoses take into account the full range of system-level opportunities and limitations—including political constraints. And we will continue to emphasize operational approaches that allow greater innovation and agility.

Underlying these efforts is the World Bank Group's commitment to ensuring that all of the world's students have the opportunity to learn. Realizing education's promise means giving them the chance not only to compete in tomorrow's economy, but also to improve their communities, build stronger countries, and move closer to a world that is finally free of poverty.



Jim Yong Kim
President
The World Bank Group

Acknowledgments

This year's *World Development Report* (WDR) was prepared by a team led by Deon Filmer and Halsey Rogers. The core team was composed of Samer Al-Samarrai, Magdalena Bendini, Tara Bêteille, David Evans, Märt Kivine, Shwetlena Sabarwal, and Alexandria Valerio, together with research analysts Malek Abu-Jawdeh, Bradley Larson, Unika Shrestha, and Fei Yuan. Rafael de Hoyos and Sophie Naudeau were members of the extended team. Stephen Commins provided consultations support. Mary Breeding, Ji Liu, Christian Ponce de Leon, Carla Cristina Solis Uehara, Alies Van Geldermalsen, and Paula Villaseñor served as consultants. The production and logistics team for the Report consisted of Brónagh Murphy and Jason Victor.

The Report is sponsored by the Development Economics Vice Presidency. Overall guidance for preparation of the Report was provided by Paul Romer, Senior Vice President and Chief Economist, and Ana Revenga, Deputy Chief Economist. In the early months of the Report's preparation, guidance was provided by Kaushik Basu, former Senior Vice President and Chief Economist, and Indermit Gill, former Director for Development Policy. The team is also grateful for comments and guidance from Shantayanan Devarajan, Senior Director for Development Economics. The Education Global Practice and the Human Development Global Practice Group provided consistent support to the Report team. The team is especially grateful for support and guidance provided by Jaime Saavedra, Senior Director, and Luis Benveniste, Director, of the Education Global Practice.

The team received guidance from an advisory panel composed of Gordon Brown (who, together with the Chief Economist, cochaired the panel), Michelle Bachelet, Rukmini Banerji, Julia Gillard, Eric Hanushek, Olli-Pekka Heinonen, Ju-Ho Lee, and Serigne Mbaye Thiam. Although the team valued their advice and found it very useful, the views expressed in the Report do not necessarily reflect those of the panel members.

The team also benefited at an early stage from consultations on emerging themes with the Chief Economist's Council of Eminent Persons. Council members providing comments were Montek Singh Ahluwalia, François Bourguignon, Heba Handoussa, Justin Yifu Lin, Ory Okolloh, Pepi Patrón, Amartya Sen, Joseph Stiglitz, Finn Tarp, and Maria Herminia Tavares de Almeida.

Paul Holtz was the principal editor of the Report. Bruce Ross-Larson provided editorial guidance, and Sabra Ledent and Gwenda Larsen copyedited and proofread the Report. Kurt Niedermeier was the principal graphic designer. Alejandra Bustamante and Surekha Mohan provided resource management support for the team. Phillip Hay, Mikael Reventar, Anushka Thewarapperuma, and Roula Yazigi, together with Patricia da Camara and Kavita Watsa, provided guidance and support on communication and dissemination. Special thanks are extended to Mary Fisk, Patricia Katayama, Stephen Pazdan, and the World Bank's Formal Publishing Program. The team would also like to thank Maria Alyanak, Laverne Cook, Maria del Camino Hurtado, Chorching Goh, Vivian Hon, Elena Chi-Lin Lee, Nancy Tee Lim, David Rosenblatt, and Bintao Wang for their coordinating roles.

The team is grateful for generous support for preparation of the Report provided by the Knowledge for Change Program (KCP, a multidonor Trust Fund) and especially from the governments and development agencies of the following KCP donor countries: Finland, France, and Norway. Background and related research, along with dissemination, are being generously supported by the Bill & Melinda Gates Foundation, Early Learning Partnership Trust Fund, LEGO Foundation, and Nordic Trust Fund.

Consultation events attended by government officials, researchers, and civil society organizations were held in Bolivia, Brazil, Canada, China, Côte d'Ivoire, Finland, France, Germany, India, Indonesia, Japan, Kenya, Malaysia, Mexico, Senegal, South Africa, Tanzania, Thailand, Turkey, the United Kingdom, and the United States, with participants drawn from many more countries. The team thanks those who took part in these events for their helpful comments and suggestions. Further information on these events is available at <http://www.worldbank.org/wdr2018>.

Interagency consultations were held with the Association for the Development of Education in Africa (ADEA), Global Development Network (GDN), Global Partnership for Education (GPE), International Commission on Financing Global Education Opportunity (Education Commission), International Monetary Fund (IMF), Organisation for Economic Co-operation and Development (OECD), United Nations Children's Fund (UNICEF), and United Nations Educational, Scientific, and Cultural Organization (UNESCO). Consultations with bilateral development partners included representatives of the governments of Canada, Finland, Japan, the Republic of Korea, Norway, and Sweden, and of Australia's Department of Foreign Affairs and Trade (DFAT), the French Development Agency (AFD), German Agency for International Cooperation (GIZ GmbH), German Federal Ministry for Economic Cooperation and Development (BMZ), Japan International Cooperation Agency (JICA), U.K. Department for International Development (DFID), and U.S. Agency for International Development (USAID). The team also held consultations with the advisory board of KCP. The team is grateful to all those who took part in these events.

Civil society organizations (CSOs) represented at consultations included, among others, ActionAid, Bill & Melinda Gates Foundation, Education International, Global Campaign for Education, LEGO Foundation, MasterCard Foundation, ONE Campaign, Oxfam, Save the Children, Teach for All, and World Vision. In addition, a diverse group of CSOs participated in a CSO Forum session held during the 2017 World Bank/IMF Spring Meetings and in an e-forum held in March 2017. The team is grateful to these CSOs for their input and useful engagement.

Researchers and academics provided helpful feedback at WDR-oriented sessions at the 2016 Research on Improving Systems of Education (RISE) Conference at Oxford University, 2017 meetings of the Allied Social Sciences Associations (ASSA), 2017 meetings of the Society for Research on Education Effectiveness (SREE), 2017 Mexico Conference on Political Economy of Education, and 2017 meeting of the Systems Approach for Better Education Results (SABER) Advisory Panel. In addition, events dedicated to the WDR were organized by the Aga Khan Foundation and Global Affairs Canada in Ottawa; Brookings Center for Universal Education in Washington, DC; Columbia School of International and Public Affairs and Cornell University in New York; Development Policy Forum of GIZ GmbH, on behalf of BMZ, in Berlin; JICA in Tokyo; Université Félix Houphouët-Boigny in Abidjan; and USAID in Washington, DC.

This Report draws on background papers prepared by Violeta Arancibia, Felipe Barrera-Osorio, Tessa Bold, Pierre de Galbert, Louise Fox, Dileni Gunewardena, James Habyarimana, Michael Handel, Anuradha Joshi, Kanishka Kacker, Michelle Kaffenberger, Upasna Kaul, Elizabeth M. King, Gayle Martin, Eema Masood, Ezequiel Molina, Sebastian Monroy-Taborda, Kate Moriarty, Anna Popova, Lant Pritchett, Christophe Rockmore, Andrew Rosser, Maria Laura Sanchez Puerta, Priyam Saraf, M. Najeeb Shafiq, Brian Stacy, Jakob Svensson, Namrata Tognatta, Robert Toutkoushian, Michael Trucano, Waly Wane, Tim Williams, and Attiya Zaidi.

The team drew on the analysis, research, and literature reviews of researchers and specialists from across the world. In addition, the team would like to thank the following for their feedback and suggestions: Christine Adick, Ben Ansell, Manos Antoninis, Caridad Araujo, David Archer, Belinda Archibong, Monazza Aslam, Girindre Beeharry, Penelope Bender, Peter Bergman, Raquel Bernal, Robert Birch, Tarsald Brautaset, Barbara Bruns, Annika Calov, Michael Clemens, Luis Crouch, Rohen d'Aiglepierre, Rossieli Soares da Silva, Momar Dieng, Rob Doble, Amy Jo Dowd, Margaret Dubeck, Sandra Dworack, Alex Eble, Marcel Fafchamps, John Floreta, Eli Friedman, Akihiro Fushimi, Paul Gertler, Rachel Glennerster, Paul Glewwe, Amber Gove, Oliver Haas, James Habyarimana, Jeffrey Hammer, Michael Handel, Christoph Hansert, Blanca Heredia, Sam Hickey, Veronika Hilber, Arja-Sisko Holappa, Naomi Hossain, Huang Xiaoting, Ali Inam, Dhir Jhingran, Emmanuel Jimenez, Maciej Jubowski, Ravi Kanbur, Cheikh Kane, Jouni Kangasniemi, Devesh Kapur, Vishnu Karki, Nina Kataja, Venita Kaul, Kim Kerr, Elizabeth M. King, Kenneth King, Geeta Kingdon, Eiji Kozuka, Michael Kremer, K. P. Krishnan, Kazuo Kuroda, Elina Lehtomäki, Henry Levin, Brian Levy, Krystelle Lochard, Karen Macours, Lu Mai, Akshay Mangla, M. A. Mannan, Santhosh Mathew, Imran Matin, Jordan Matsudaira, Karthik Muralidharan, Essa Chanie Mussa, Charles Nelson III, Aromie Noe, Munaz Ahmed Noor, Mario Novelli, Mead Over, Jan Pakulski, Benjamin Piper, Lant Pritchett, Ritva Reinikka, Risto Rinne, Jo Ritzen, Francisco Rivera Batiz, John Rogers, Caine Rolleston, Andrew Rosser, David Sahn, Justin Sandefur, Yasuyuki Sawada, Andreas Schleicher, Ben Ross Schneider, Dorothea Schonfeld, Olaf Seim, Abhijeet Singh, David Skinner, William Smith, Prachi Srivastava, Liesbet Steer, R. Subrahmanyam, Sudarno Sumarto, Jan Svejnar, Jakob Svensson, Soubhy Tawil, Valerie Tessio, Auli Toom, Miguel Urqiola, Jouni Välijärvi, Olli Vesterinen, Joseph Wales, Libing Wang, Michael Ward, Kevin Watkins, Mark Wenz, Yang Po, Khair Mohamad Yusof, and Andrew Zeitlin. Team members also drew heavily on their own experiences and interactions with the many dedicated educators, administrators, and policy makers who work in often difficult conditions to provide students with the best educational opportunities possible.

A number of World Bank colleagues provided insightful comments, feedback, and collaboration: Junaid Ahmad, Omar Arias, Nina Arnhold, Ana Belver, Hana Brix, James Brumby, Pedro Cerdan Infantes, Marie-Hélène Cloutier, Aline Coudouel, Amit Dar, Jishnu Das, Amanda Epstein Devercelli, Gregory Elacqua, Emanuela Galasso, Diana Hincapie, Alaka Holla, Peter Holland, Sachiko Kataoka, Stuti Khemani, Igor Kheyfets, Kenneth King, Eva Kloeve, Steve Knack, Xiaoyan Liang, Toby Linden, Oni Lusk-Stover, Francisco Marmolejo, Yasuhiko Matsuda, Julie McLaughlin, Muna Meky, Ezequiel Molina, Caitlin Moss, Matiullah Noori, Anna Olefir, Owen Ozier, Andrew Ragatz, Vijayendra Rao, Dan Rogger, Audrey Sacks, María Laura Sánchez Puerta, Indhira Santos, William Seitz, Shabnam Sinha, Lars Sondergaard, Dewi Susanti, Christopher Thomas, Michael Trucano, Adam Wagstaff, and Melanie Walker.

The team would also like to thank the World Bank colleagues who helped organize and facilitate consultations and advised on translations: Gabriela Geraldine Bastos, Paolo Belli, Moussa Blimpo, Andreas Blom, Leandro Costa, Oumou Coulibaly, Meaza Zerihun Demissie, Safaa El-Kogali, Tazeen Fasih, Ning Fu, Elena Glinskaya, Marek Hanusch, Pimon Iamsripong, Susiana Iskandar, Nalin Jena, Hamoud Abdel Wedoud Kamil, Adriane Landwehr, Dilaka Lathapipat, Khady Fall Lo, Norman Loayza, André Loureiro, Hope Nanshemeza, Mademba Ndiaye, Koichi Omori, Azedine Ouerghi, Tigran Shmis, Taleb Ould Sid'ahmed, Lars Sondergaard, Dewi Susanti, Yasusuke Tsukagoshi, and Michael Woolcock.

In addition, the team is grateful to the many World Bank colleagues who provided written comments during the formal Bankwide review process: Cristian Aedo, Inga Afanasieva, Ahmad Ahsan, Edouard Al Dahdah, Umbreen Arif, Nina Arnhold, Anna Autio, Arup Banerji, Elena Bardasi, Sajitha Bashir, Ana Belver, Raja Bentaouet Kattan, Luis Benveniste, Moussa Blimpo, Erik Bloom, Vica Bogaerts, Susan Caceres, César Calderón, Ted Haoquan Chu, Punam Chuhan-Pole, Fernando Ramirez Cortes, Michael Crawford, Laisa Daza, Bénédicte de la Brière, Gabriel Demombynes, Shanta Devarajan, Sangeeta Dey, Ousmane Diagana,

Ousmane Dione, Safaa El Tayeb El-Kogali, Marianne Fay, María Marta Ferreyra, Carina Fonseca, Marie Gaarder, Roberta Gatti, Ejaz Syed Ghani, Elena Glinskaya, Markus Goldstein, Melinda Good, David Gould, Sangeeta Goyal, Caren Grown, Keith Hansen, Amer Hasan, Caroline Heider, Katia Herrera, Niels Holm-Nielsen, Dingyong Hou, Elena Ianchovichina, Keiko Inoue, Sandeep Jain, Omer Karasapan, Michel Kerf, Asmeen Khan, Igor Kheyfets, Youssef Kiendrebeogo, Daniel John Kirkwood, Eva Kloeve, Markus Kostner, Daniel Lederman, Hans Lofgren, Gladys López-Acevedo, Javier Luque, Michael Mahrt, Francisco Marmolejo, Kris McDonall, Mahmoud Mohieldin, Lili Mottaghi, Mary Mulusa, Yoko Nakashima, Shiro Nakata, Muthoni Ngatia, Shinsaku Nomura, Dorota Agata Nowak, Michael O'Sullivan, Arunma Oteh, Aris Panou, Georgi Panterov, Suhas Parandekar, Harry Patrinos, Dhushyanth Raju, Martín Rama, Sheila Redzepi, Lea Marie Rouanet, Jaime Saavedra, Hafida Sahraoui, Sajjad Shah, Sudhir Shetty, Mari Shoji, Lars Sondergaard, Nikola Spatafora, Venkatesh Sundararaman, Janssen Teixeira, Jeff Thindwe, Hans Timmer, Yvonne Tsikata, Laura Tuck, Anuja Utz, Julia Valliant, Axel van Trotsenburg, Carlos Vegh, Binh Thanh Vu, Jan Walliser, Jason Weaver, Michel Welmond, Deborah Wetzel, Christina Wood, and Hanspeter Wyss.

The team apologizes to any individuals or organizations inadvertently omitted from this list and expresses its gratitude to all who contributed to this Report, including those whose names may not appear here.

The team members would also like to thank their families for their support throughout the preparation of this Report. And finally, the team members thank the many children and youth who have inspired them through interactions in classrooms around the world over the years—as well as the many others whose great potential has motivated this Report. The *World Development Report 2018* is dedicated to them.

OVERVIEW

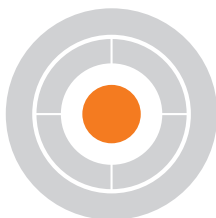
Learning to realize
education's promise



Learning to realize education's promise



Assess learning



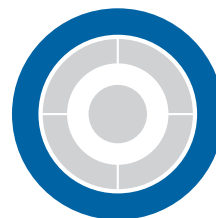
to make it a serious goal

Act on evidence



to make schools
work for all learners

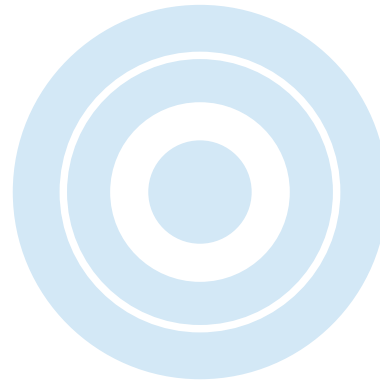
Align actors



to make the whole
system work for learning

OVERVIEW

Learning to realize education's promise



“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)

Schooling is not the same as learning. In Kenya, Tanzania, and Uganda, when grade 3 students were asked recently to read a sentence such as “The name of the dog is Puppy,” three-quarters did not understand what it said.¹ In rural India, just under three-quarters of students in grade 3 could not solve a two-digit subtraction such as $46 - 17$, and by grade 5 half could still not do so.² Although the skills of Brazilian 15-year-olds have improved, at their current rate of improvement they won’t reach the rich-country average score in math for 75 years. In reading, it will take more than 260 years.³ Within countries, learning outcomes are almost always much worse for the disadvantaged. In Uruguay, poor children in grade 6 are assessed as “not competent” in math at five times the rate of wealthy children.⁴ Moreover, such data are for children and youth lucky enough to be in school. Some 260 million aren’t even enrolled in primary or secondary school.⁵

These countries are not unique in the challenges they face. (In fact, they deserve credit for measuring student learning and making the results public.) Worldwide, hundreds of millions of children reach young adulthood without even the most basic life skills. Even if they attend school, many leave without the skills for calculating the correct change from a

transaction, reading a doctor’s instructions, or interpreting a campaign promise—let alone building a fulfilling career or educating their children.

This learning crisis is a moral crisis. When delivered well, education cures a host of societal ills. For individuals, it promotes employment, earnings, health, and poverty reduction. For societies, it spurs innovation, strengthens institutions, and fosters social cohesion. But these benefits depend largely on learning. Schooling without learning is a wasted opportunity. More than that, it is a great injustice: the children whom society is failing most are the ones who most need a good education to succeed in life.

Any country can do better if it acts as though learning really matters. That may sound obvious—after all, what else is education for? Yet even as learning goals are receiving greater rhetorical support, in practice many features of education systems conspire against learning. This Report argues that countries can improve by advancing on three fronts:

- *Assess learning—to make it a serious goal.* This means using well-designed student assessments to gauge the health of education systems (not primarily as tools for administering rewards and punishments). It also means using the resulting

learning measures to spotlight hidden exclusions, make choices, and evaluate progress.

- *Act on evidence—to make schools work for all learners.* Evidence on how people learn has exploded in recent decades, along with an increase in educational innovation. Countries can make much better use of this evidence to set priorities for their own practice and innovations.
- *Align actors—to make the whole system work for learning.* Countries must recognize that all the classroom innovation in the world is unlikely to have much impact if, because of technical and political barriers, the system as a whole does not support learning. By taking into account these real-world barriers and mobilizing everyone who has a stake in learning, countries can support innovative educators on the front lines.

When improving learning becomes a priority, great progress is possible. In the early 1950s, the Republic of Korea was a war-torn society held back by very low literacy levels. By 1995 it had achieved universal enrollment in high-quality education through secondary school. Today, its young people perform at the highest levels on international learning assessments. Vietnam surprised the world when the 2012 results of the Programme for International Student Assessment (PISA) showed that its 15-year-olds were performing at the same level as those in Germany—even though Vietnam was a lower-middle-income country. Between 2009 and 2015, Peru achieved some of the fastest growth in overall learning outcomes—an improvement attributable to concerted policy action. In Liberia, Papua New Guinea, and Tonga, early grade reading improved substantially within a very short time thanks to focused efforts based on evidence. And recently, Malaysia and Tanzania launched promising societywide collaborative approaches to systematically improving learning.

Progress like this requires a clear-eyed diagnosis, followed by concerted action. Before showing what can be done to fulfill education's promise, this overview first shines a light on the learning crisis: how and why many countries are not yet achieving “learning for all.” This may make for disheartening reading, but it should not be interpreted as saying that all is lost—only that too many young people are not getting the education they need. The rest of the overview shows how change is possible if systems commit to “all for learning,” drawing on examples of families, educators, communities, and systems that have made real progress.

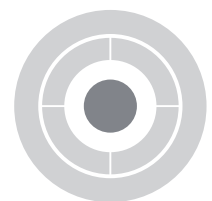
The three dimensions of the learning crisis

Education should equip students with the skills they need to lead healthy, productive, meaningful lives. Different countries define skills differently, but all share some core aspirations, embodied in their curriculums. Students everywhere must learn how to interpret many types of written passages—from medication labels to job offers, from bank statements to great literature. They have to understand how numbers work so that they can buy and sell in markets, set family budgets, interpret loan agreements, or write engineering software. They require the higher-order reasoning and creativity that builds on these foundational skills. And they need the socio-emotional skills—such as perseverance and the ability to work on teams—that help them acquire and apply the foundational and other skills.

Many countries are not yet achieving these goals. First, the learning that one would expect to happen in schools—whether expectations are based on formal curriculums, the needs of employers, or just common sense—is often not occurring. Of even greater concern, many countries are failing to provide learning for all. Individuals already disadvantaged in society—whether because of poverty, location, ethnicity, gender, or disability—learn the least. Thus education systems can widen social gaps instead of narrowing them. What drives the learning shortfalls is becoming clearer thanks to new analyses spotlighting both the immediate cause—poor service delivery that amplifies the effects of poverty—and the deeper system-level problems, both technical and political, that allow poor-quality schooling to persist.

Learning outcomes are poor: Low levels, high inequality, slow progress

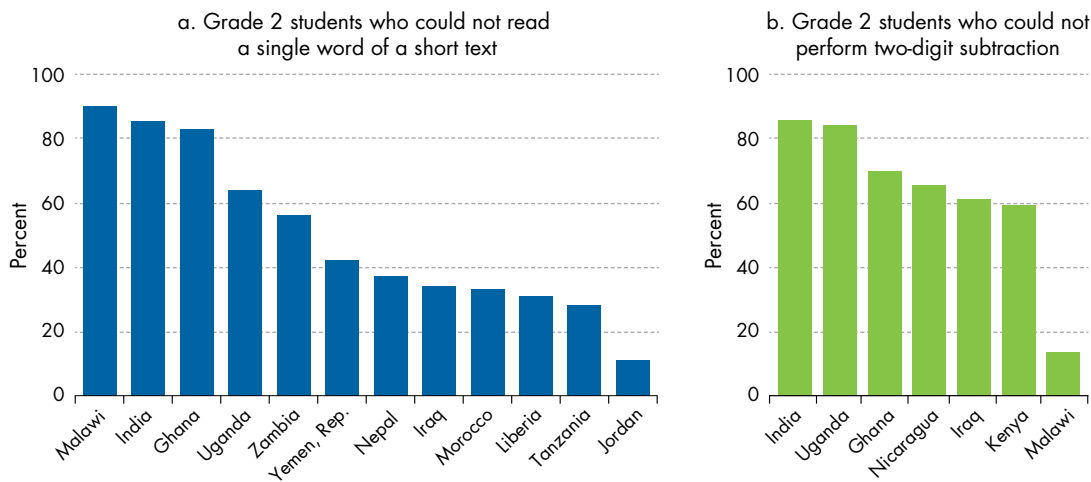
The recent expansion in education is impressive by historical standards. In many developing countries over the last few decades, net enrollment in education has greatly outpaced the historic performance of today's industrial countries. For example, it took the United States 40 years—from 1870 to 1910—to increase girls' enrollments from 57 percent to 88 percent. By contrast, Morocco achieved a similar increase in just 11 years.⁶ The number of years of schooling completed by the average adult in the developing world more than tripled from 1950 to



Problem dimension 1:
Outcomes

Figure O.1 Shortfalls in learning start early

Percentage of grade 2 students who could not perform simple reading or math tasks, selected countries



Sources: WDR 2018 team, using reading and mathematics data for Kenya and Uganda from Uwezo, Annual Assessment Reports, 2015 (<http://www.uwezo.net/>); reading and mathematics data for rural India from ASER Centre (2017); reading data for all other countries from U.S. Agency for International Development (USAID), Early Grade Reading Barometer, 2017, accessed May 30, 2017 (<http://www.earlygradereadingbarometer.org/>); and mathematics data for all other countries from USAID/RTI Early Grade Mathematics Assessment intervention reports, 2012–15 (<https://shared.rti.org/sub-topic/early-grade-math-assessment-egma>). Data at http://bit.do/WDR2018-Fig_O-1.

Note: These data typically pertain to selected regions in the countries and are not necessarily nationally representative. Data for India pertain to rural areas.

2010, from 2.0 to 7.2 years.⁷ By 2010 the average worker in Bangladesh had completed more years of schooling than the typical worker in France in 1975.⁸ This progress means that most enrollment gaps in basic education are closing between high- and low-income countries. By 2008 the average low-income country was enrolling students in primary school at nearly the same rate as the average high-income country.

But schooling is not the same as learning.⁹ Children learn very little in many education systems around the world: even after several years in school, millions of students lack basic literacy and numeracy skills. In recent assessments in Ghana and Malawi, more than four-fifths of students at the end of grade 2 were unable to read a single familiar word such as *the* or *cat* (figure O.1).¹⁰ Even in Peru, a middle-income country, that share was half before the recent reforms.¹¹ When grade 3 students in Nicaragua were tested in 2011, only half could correctly solve $5 + 6$.¹² In urban Pakistan in 2015, only three-fifths of grade 3 students could correctly perform a subtraction such as $54 - 25$, and in rural areas only just over two-fifths could.¹³

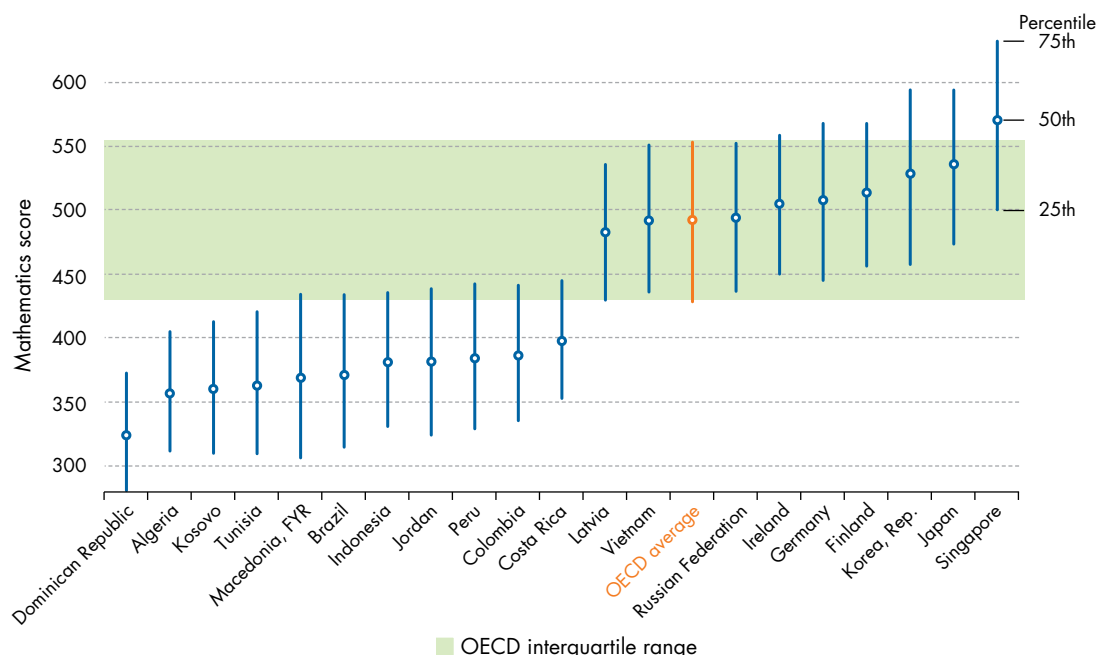
This slow start to learning means that even students who make it to the end of primary school do not master basic competencies. In 2007, the most recent year for which data are available, less than 50 percent

of grade 6 students in Southern and East Africa were able to go beyond the level of simply deciphering words, and less than 40 percent got beyond basic numeracy.¹⁴ Among grade 6 students in West and Central Africa in 2014, less than 45 percent reached the “sufficient” competency level for continuing studies in reading or mathematics—for example, the rest could not answer a math problem that required them to divide 130 by 26.¹⁵ In rural India in 2016, only half of grade 5 students could fluently read text at the level of the grade 2 curriculum, which included sentences (in the local language) such as “It was the month of rains” and “There were black clouds in the sky.”¹⁶ These severe shortfalls constitute a learning crisis.

Although not all developing countries suffer from such extreme shortfalls, many are far short of the levels they aspire to. According to leading international assessments of literacy and numeracy—Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Study (TIMSS)—the average student in low-income countries performs worse than 95 percent of the students in high-income countries, meaning that student would be singled out for remedial attention in a class in high-income countries.¹⁷ Many high-performing students in middle-income countries—young men and women who have risen to the top quarter of

Figure O.2 In several countries, the 75th percentile of PISA test takers performs below the 25th percentile of the OECD average

Performance of 25th, 50th, and 75th percentiles in 2015 PISA mathematics assessment, selected countries



Source: WDR 2018 team, using data from Programme for International Student Assessment (PISA) 2015 (OECD 2016). Data at http://bit.do/WDR2018-Fig_O-2.

their cohorts—would rank in the bottom quarter in a wealthier country. In Algeria, the Dominican Republic, and Kosovo, the test scores of students at the cutoff for the top quarter of students (the 75th percentile of the distribution of PISA test takers) are well below the cutoff for the bottom quarter of students (25th percentile) of Organisation for Economic Co-operation and Development (OECD) countries (figure O.2). Even in Costa Rica, a relatively strong performer in education, performance at the cutoff for the top quarter of students is equal to performance at the cutoff for the bottom quarter in Germany.

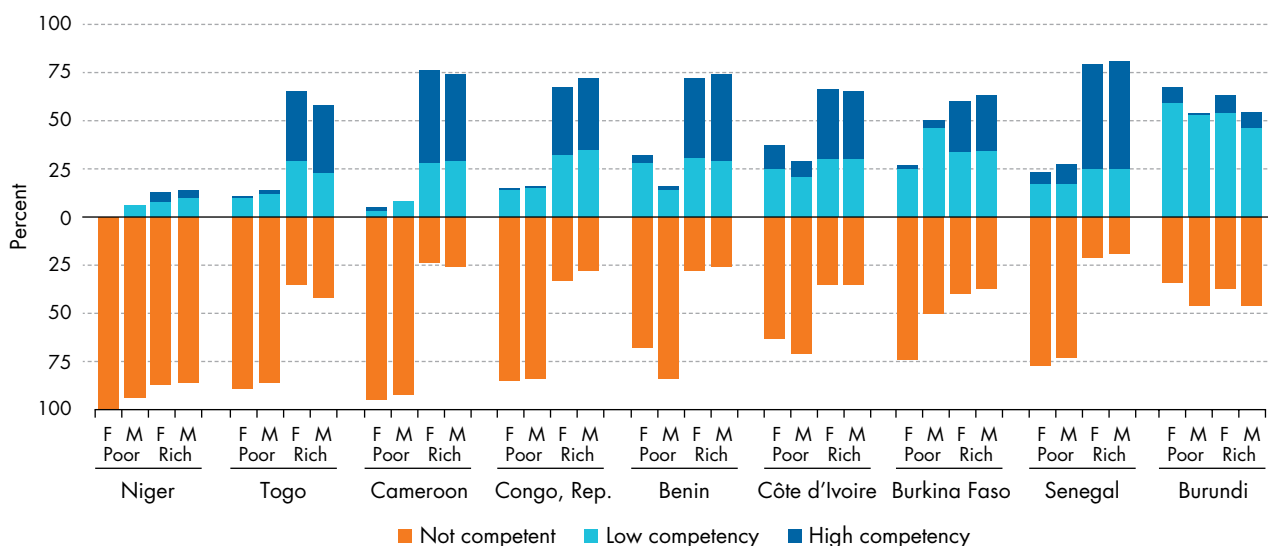
The learning crisis amplifies inequality: it severely hobbles the disadvantaged youth who most need the boost that a good education can offer. For students in many African countries, the differences by income level are stark (figure O.3). In a recent assessment (Programme d'Analyse des Systèmes Éducatifs de la Confemén, PASEC, 2014) administered at the end of the primary cycle, only 5 percent of girls in Cameroon from the poorest quintile of households had learned enough to continue school, compared with 76 percent of girls from the richest quintile.¹⁸ Learning gaps in several other countries—Benin, the Republic of Congo, and Senegal—were nearly as wide. Large gaps among learners afflict many high- and middle-

income countries as well, with disadvantaged students greatly overrepresented among the low scorers. Costa Rica and Qatar have the same average score on one internationally benchmarked assessment (TIMSS 2015)—but the gap between the top and bottom quarters of students is 138 points in Qatar, compared with 92 points in Costa Rica. The gap between the top and bottom quarters in the United States is larger than the gap in the median scores between Algeria and the United States.

Students often learn little from year to year, but early learning deficits are magnified over time. Students who stay in school should be rewarded with steady progress in learning, whatever disadvantages they have in the beginning. And yet in Andhra Pradesh, India, in 2010, low-performing students in grade 5 were no more likely to answer a grade 1 question correctly than those in grade 2. Even the average student in grade 5 had about a 50 percent chance of answering a grade 1 question correctly—compared with about 40 percent in grade 2.¹⁹ In South Africa in the late 2000s, the vast majority of students in grade 4 had mastered only the mathematics curriculum from grade 1; most of those in grade 9 had mastered only the mathematics items from grade 5.²⁰ In New Delhi, India, in 2015, the average grade 6 student performed at a grade 3

Figure O.3 Children from poor households in Africa typically learn much less

Percentage of grade 6 PASEC test takers in 2014 who scored above (blue) and below (orange) the sufficiency level on reading achievement: poorest and richest quintiles by gender, selected countries



Source: WDR 2018 team, using data from World Bank (2016b). Data at http://bit.do/WDR2018-Fig_O-3.

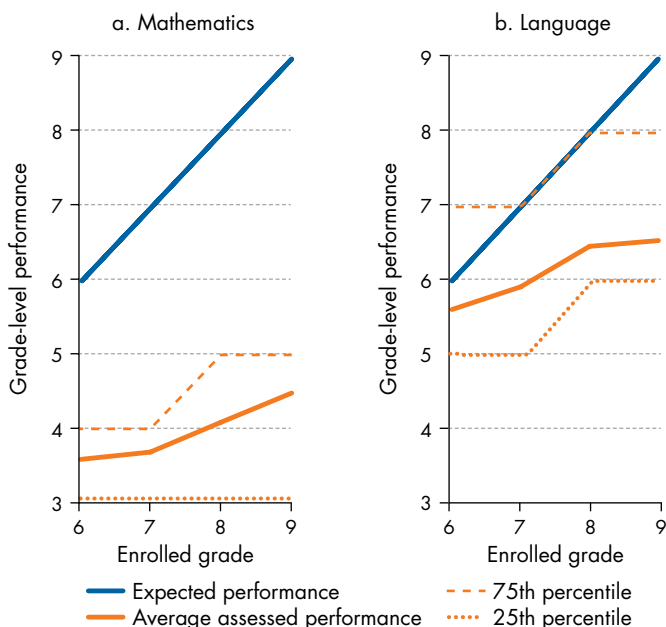
Note: Socioeconomic quintiles are defined nationally. “Not competent” refers to levels 0–2 in the original coding and is considered below the sufficiency level for school continuation; “low competency” refers to level 3; and “high competency” refers to level 4. F = female; M = male; PASEC = Programme d’Analyse des Systèmes Éducatifs de la Confemén.

level in math. Even by grade 9, the average student had reached less than a grade 5 level, and the gap between the better and worse performers grew over time (figure O.4). In Peru and Vietnam—one of the lowest and one of the highest performers, respectively, on the PISA assessment of 15-year-old students—5-year-olds start out with similar math skills, but students in Vietnam learn much more for each year of schooling at the primary and lower secondary levels.²¹

Although some countries are making progress on learning, their progress is typically slow. Even the middle-income countries that are catching up to the top performers are doing so very slowly. Indonesia has registered significant gains on PISA over the last 10–15 years. And yet, even assuming it can sustain its 2003–15 rate of improvement, Indonesia won’t reach the OECD average score in mathematics for another 48 years; in reading, for 73. For other countries, the wait could be even longer: based on current trends, it would take Tunisia over 180 years to reach the OECD average for math and Brazil over 260 years to reach the OECD average for reading. Moreover, these calculations are for countries where learning has improved. Across all countries participating in multiple rounds of PISA since 2003, the median gain in the national average score from one round to the next was zero.

Figure O.4 Students often learn little from year to year, and early learning deficits are magnified over time

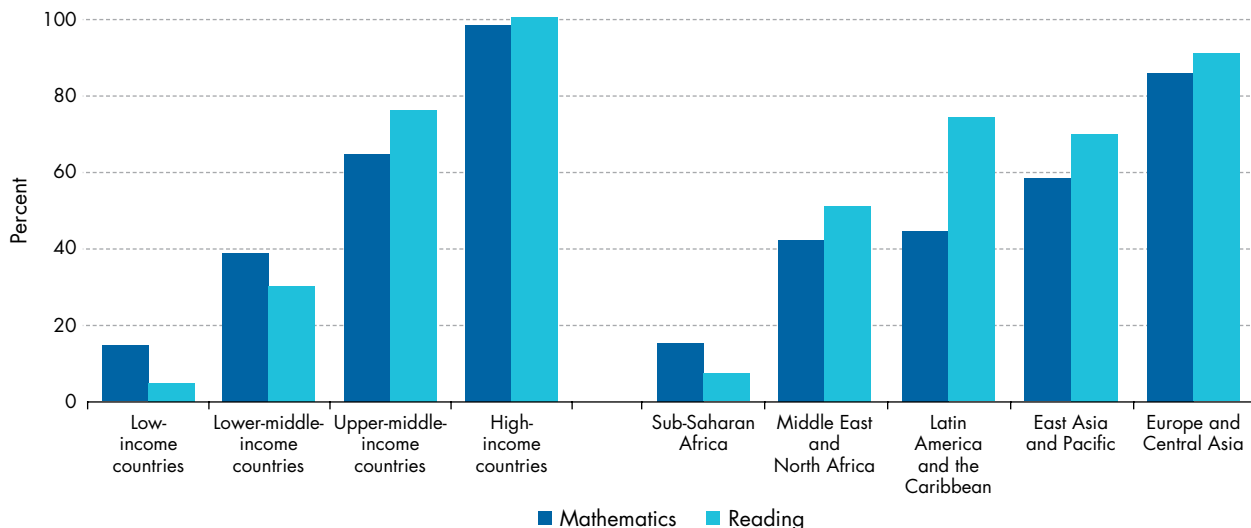
Assessed grade-level performance of students relative to enrolled grade, New Delhi, India (2015)



Source: WDR 2018 team, using data from Muralidharan, Singh, and Ganimian (2016). Data at http://bit.do/WDR2018-Fig_O-4.

Figure O.5 The percentage of primary school students who pass a minimum proficiency threshold is often low

Median percentage of students in late primary school who score above a minimum proficiency level on a learning assessment, by income group and region



Source: WDR 2018 team, using “A Global Data Set on Education Quality” (2017), made available to the team by Nadir Altinok, Noam Angrist, and Harry Anthony Patrinos. Data at http://bit.do/WDR2018-Fig_O-5.

Note: Bars show the unweighted cross-country median within country grouping. Regional averages exclude high-income countries. India and China are among the countries excluded for lack of data. Minimum proficiency in mathematics is benchmarked to the Trends in International Mathematics and Science Study (TIMSS) assessment and in reading to the Progress in International Reading Literacy Study (PIRLS) assessment. Minimum proficiency in mathematics means that students have some basic mathematical knowledge such as adding or subtracting whole numbers, recognizing familiar geometric shapes, and reading simple graphs and tables (Mullis and others 2016). Minimum proficiency in reading means that students can locate and retrieve explicitly stated detail when reading literary texts and can locate and reproduce explicitly stated information from the beginning of informational texts (Mullis and others 2012).

Because of this slow progress, more than 60 percent of primary school children in developing countries still fail to achieve minimum proficiency in learning, according to one benchmark. No single learning assessment has been administered in all countries, but combining data from learning assessments in 95 countries makes it possible to establish a globally comparable “minimum proficiency” threshold in math.²² Below this threshold, students have not mastered even basic mathematical skills, whether making simple computations with whole numbers, using fractions or measurements, or interpreting simple bar graphs. In high-income countries, nearly all students—99 percent in Japan, 98 percent in Norway, 91 percent in Australia—achieve this level in primary school.²³ But in other parts of the world the share is much lower: just 7 percent in Mali, 30 percent in Nicaragua, 34 percent in the Philippines, and 76 percent in Mexico. In low-income countries, 14 percent of students reach this level near the end of primary school, and in lower-middle-income countries 37 percent do (figure O.5). Even in upper-middle-income countries only 61 percent reach this minimum proficiency.

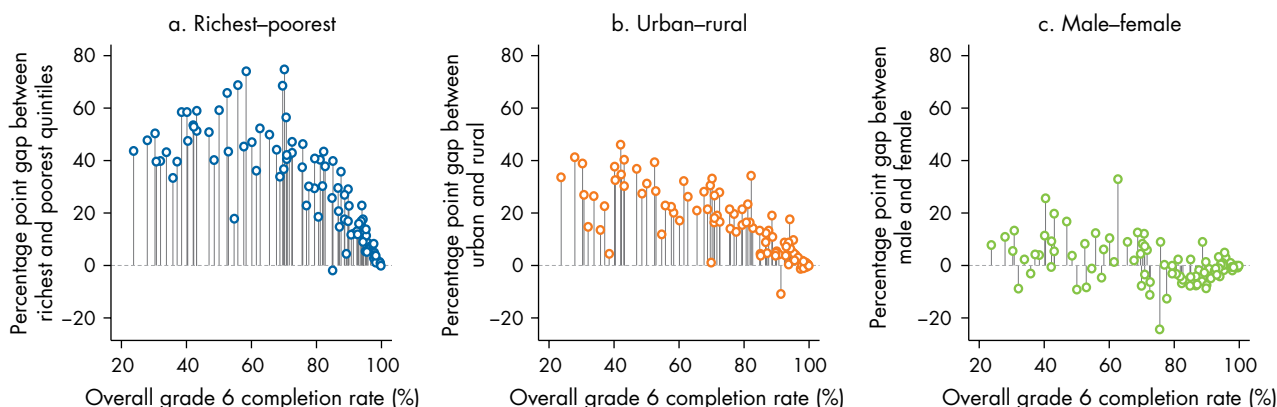
The ultimate barrier to learning is no schooling at all—yet hundreds of millions of youth remain out of

school. In 2016, 61 million children of primary school age—10 percent of all children in low- and lower-middle-income countries—were not in school, along with 202 million children of secondary school age.²⁴ Children in fragile and conflict-affected countries accounted for just over a third of these, a disproportionate share. In the Syrian Arab Republic, which achieved universal primary enrollment in 2000, the civil war had driven 1.8 million children out of school by 2013.²⁵ Almost all developing countries still have pockets of children from excluded social groups who do not attend school. Poverty most consistently predicts failing to complete schooling, but other characteristics such as gender, disability, caste, and ethnicity also frequently contribute to school participation shortfalls (figure O.6).

But it's not just poverty and conflict that keep children out of school; the learning crisis does, too. When poor parents perceive education to be of low quality, they are less willing to sacrifice to keep their children in school—a rational response, given the constraints they face.²⁶ Although parental perceptions of school quality depend on various factors, from the physical condition of schools to teacher punctuality, parents consistently cite student learning outcomes

Figure O.6 School completion is higher for richer and urban families, but gender gaps are more context-dependent

Gaps in grade 6 completion rates (percent) for 15- to 19-year-olds, by wealth, location, and gender



Source: WDR 2018 team, using data from Filmer (2016). Data at http://bit.do/WDR2018-Fig_O-6.

Note: The data presented are the latest available by country, 2005–14. Each vertical line indicates the size and direction of the gap for a country.

as a critical component.²⁷ These outcomes can affect behavior: holding student ability constant, students in the Arab Republic of Egypt who attended poorer-performing schools were more likely to drop out.²⁸

Learning shortfalls during the school years eventually show up as weak skills in the workforce. Thus the job skills debate reflects the learning crisis. Work skill shortages are often discussed in a way that is disconnected from the debate on learning, but the two are parts of the same problem. Because education systems have not prepared workers adequately, many enter the labor force with inadequate skills. Measuring adult skills in the workplace is hard, but recent initiatives have assessed a range of skills in the adult populations of numerous countries. They found that even foundational skills such as literacy and numeracy are often low, let alone the more advanced skills. The problem isn't just a lack of trained workers; it is a lack of readily trainable workers. Accordingly, many workers end up in jobs that require minimal amounts of reading or math.²⁹ Lack of skills reduces job quality, earnings, and labor mobility.

The skills needed in labor markets are multi-dimensional, so systems need to equip students with far more than just reading, writing, and math—but students cannot leapfrog these foundational skills. Whether as workers or members of society, people also need higher-order cognitive skills such as problem-solving. In addition, they need socioemotional skills—sometimes called soft or noncognitive skills—such as conscientiousness. Finally, they need technical skills to perform a specific job. That said,

the foundational cognitive skills are essential, and systems cannot bypass the challenges of developing them as they target higher-order skills.

Tackling the learning crisis and skills gaps requires diagnosing their causes—both their immediate causes at the school level and their deeper systemic drivers. Given all the investments countries have made in education, shortfalls in learning are discouraging. But one reason for them is that learning has not always received the attention it should have. As a result, stakeholders lack actionable information about what is going wrong in their schools and in the broader society, and so they cannot craft context-appropriate responses to improve learning. Acting effectively requires first understanding how schools are failing learners and how systems are failing schools.

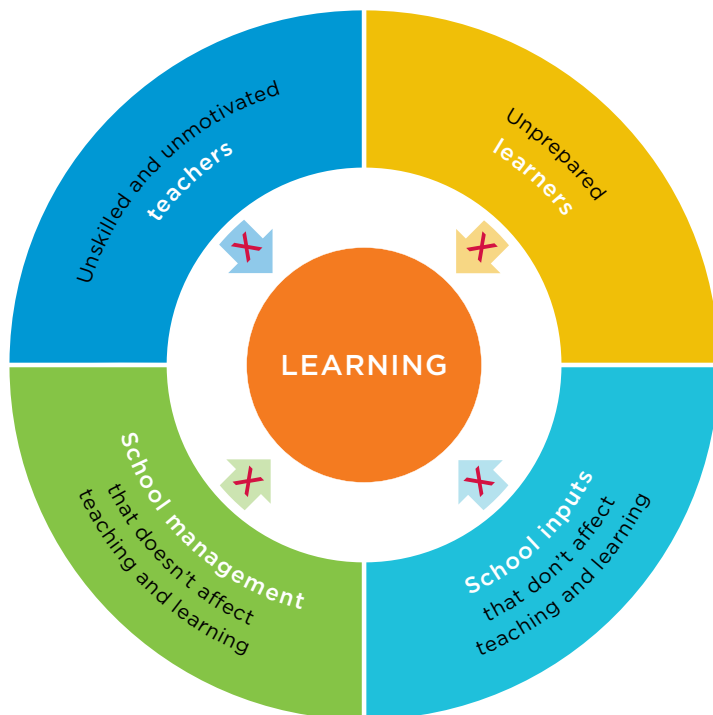
Schools are failing learners

Struggling education systems lack one or more of four key school-level ingredients for learning: prepared learners, effective teaching, learning-focused inputs, and the skilled management and governance that pulls them all together (figure O.7). The next section looks at why these links break down; here the focus is on *how* they break down.

First, children often arrive in school unprepared to learn—if they arrive at all. Malnutrition, illness, low parental investments, and the harsh environments associated



**Figure O.7 Why learning doesn't happen:
Four immediate factors that break down**



Source: WDR 2018 team.

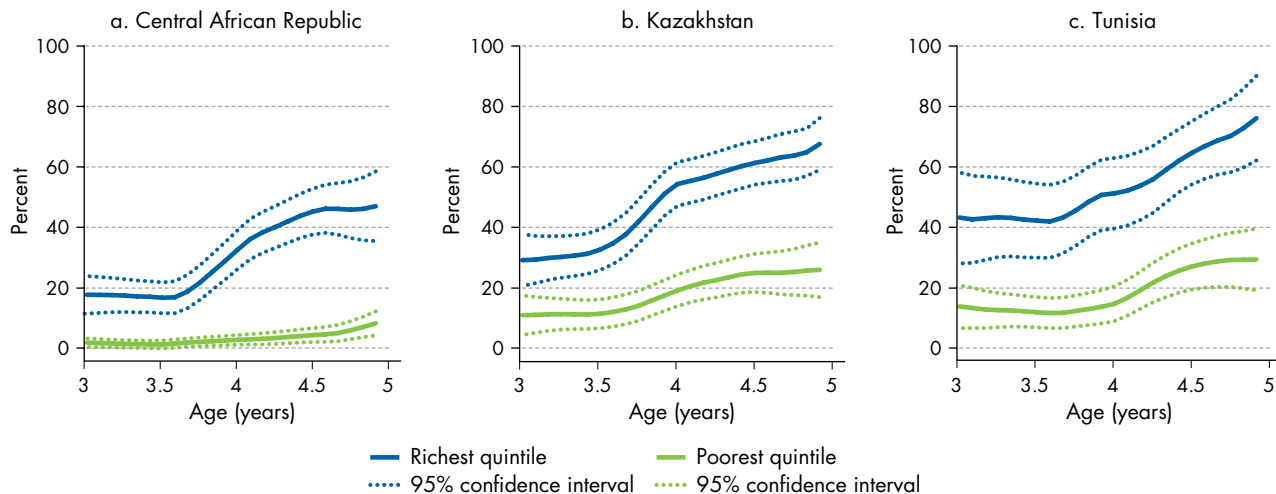
with poverty undermine early childhood learning.³⁰ Severe deprivations—whether in terms of nutrition, unhealthy environments, or lack of nurture by caregivers—have long-lasting effects because they impair infants' brain development.³¹ Thirty percent of children under 5 in developing countries are physically stunted, meaning they have low height for their age, typically due to chronic malnutrition.³² The poor developmental foundations and lower levels of preschool skills resulting from deprivation mean many children arrive at school unprepared to benefit fully from it (figure O.8).³³ So even in a good school, deprived children learn less. Moreover, breaking out of lower learning trajectories becomes harder as these children age because the brain becomes less malleable. Thus education systems tend to amplify initial differences. Moreover, many disadvantaged youth are not in school. Fees and opportunity costs are still major financial barriers to schooling, and social dimensions of exclusion—for example, those associated with gender or disability—exacerbate the problem. These inequalities in school participation further widen gaps in learning outcomes.

Second, teachers often lack the skills or motivation to be effective. Teachers are the most important factor affecting learning in schools. In the United States, students with great teachers advance 1.5 grade levels or more over a single school year, compared with just 0.5 grade levels for those with an ineffective teacher.³⁴ In developing countries, teacher quality can matter even more than in wealthier countries.³⁵ But most education systems do not attract applicants with strong backgrounds. For example, 15-year-old students who aspire to be teachers score below the national average on PISA in nearly all countries.³⁶ Beyond that, weak teacher education results in teachers lacking subject knowledge and pedagogical skills. In 14 Sub-Saharan countries, the average grade 6 teacher performs no better on reading tests than do the highest-performing students from that grade.³⁷ In Indonesia, 60 percent of the time in a typical mathematics class is spent on lecturing, with limited time remaining for practical work or problem-solving.³⁸ Meanwhile, in many developing countries substantial amounts of learning time are lost because classroom time is spent on other activities or because teachers are absent. Only a third of total instructional time was used in Ethiopia, Ghana, and Guatemala.³⁹ Across seven African countries, one in five teachers was absent from school on the day of an unannounced visit by survey teams, with another fifth absent from the classroom even though they were at school (figure O.9).⁴⁰ The problems are even more severe in remote communities, amplifying the disadvantages already facing rural students. Such diagnostics are not intended to blame teachers. Rather, they call attention to how systems undermine learning by failing to support them.

Third, inputs often fail to reach classrooms or to affect learning when they do. Public discourse often equates problems of education quality with input gaps. Devoting enough resources to education is crucial, and in some countries resources have not kept pace with the rapid jumps in enrollment. For several reasons, however, input shortages explain only a small part of the learning crisis. First, looking across systems and schools, similar levels of resources are often associated with vast differences in learning outcomes.⁴¹ Second, increasing inputs in a given setting often has small effects on learning outcomes.⁴² Part of the reason is that inputs often fail to make it to the front lines. A decade ago in Sierra Leone, for example, textbooks were distributed to schools, but follow-up inspections found most of them locked away in cupboards, unused.⁴³ Similarly, many technological interventions

Figure O.8 Socioeconomic gaps in cognitive achievement grow with age—even in preschool years

Percentage of children ages 3–5 who can recognize 10 letters of the alphabet, by wealth quintile, selected countries



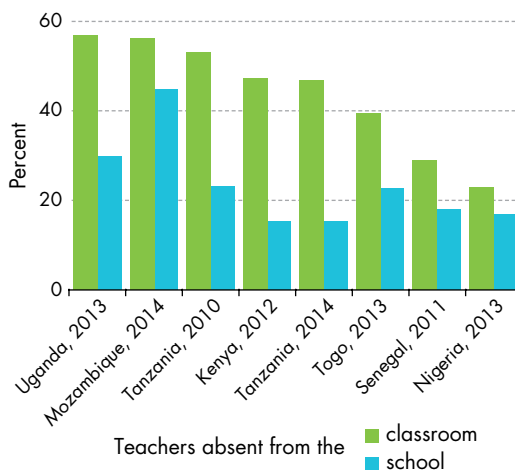
Source: WDR 2018 team, using data from Multiple Indicator Cluster Surveys (<http://mics.unicef.org/>). Data are for 2010 for the Central African Republic, 2010–11 for Kazakhstan, and 2012 for Tunisia. Data at http://bit.do/WDR2018-Fig_O-8.

fail before they reach classrooms, and even when they do make it to classrooms, they often do not enhance teaching or learning. In Brazil, a One Laptop Per Child initiative in several states faced years of delays. Then, even a year after the laptops finally made it to classrooms, more than 40 percent of teachers reported never or rarely using them in classroom activities.⁴⁴

Fourth, poor management and governance often undermine schooling quality. Although effective school leadership does not raise student learning directly, it does so indirectly by improving teaching quality and ensuring effective use of resources.⁴⁵ Across eight countries that have been studied, a 1.00 standard deviation increase in an index of management capacity—based on the adoption of 20 management practices—is associated with a 0.23–0.43 standard deviation increase in student outcomes. But school management capacity tends to be lowest in those countries with the lowest income levels, and management capacity is substantially lower in schools than in manufacturing (figure O.10).⁴⁶ Ineffective school leadership means school principals are not actively involved in helping teachers solve problems, do not provide instructional advice, and do not set goals that prioritize learning. School governance—particularly the decision-making autonomy of schools, along with the oversight provided by parents and communities—serves as the framework for seeking local solutions and being accountable for them. In many settings, schools lack any meaningful

Figure O.9 In Africa, teachers are often absent from school or from classrooms while at school

Percentage of teachers absent from school and from class on the day of an unannounced visit, participating countries



Source: Bold and others (2017). Data at http://bit.do/WDR2018-Fig_O-9.

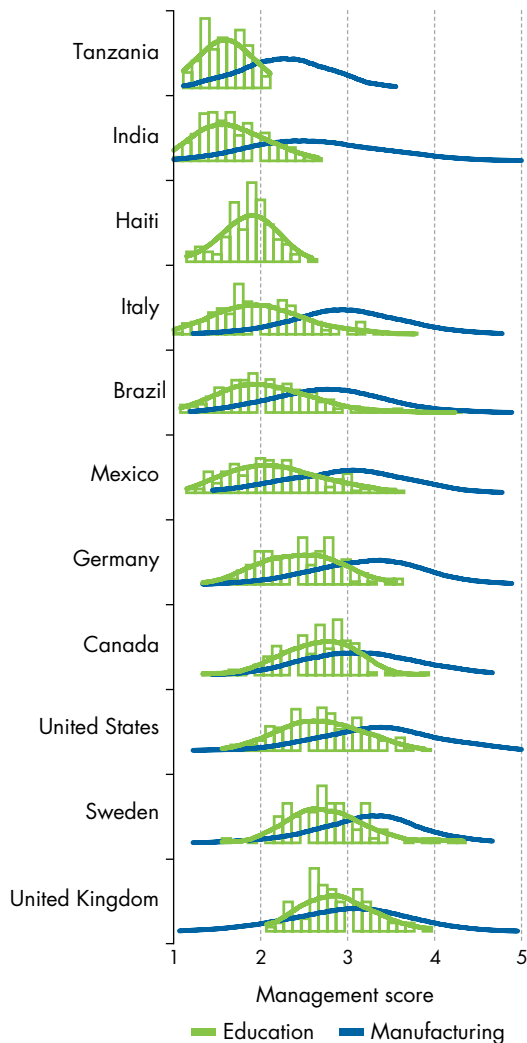
Note: “Absent from the classroom” combines absences from school with absences from class among teachers who are at school. Data are from the World Bank’s Service Delivery Indicators (SDI) surveys (<http://www.worldbank.org/sdi>).

autonomy, and community engagement fails to affect what happens in classrooms.⁴⁷

Because these quality problems are concentrated among disadvantaged children, they amplify social

Figure O.10 Management capacity is low in schools in low- and middle-income countries

Distribution of management scores by sector, participating countries



Sources: Bloom and others (2014, 2015); Lemos and Scur (2016), with updates. Data at http://bit.do/WDR2018-Fig_O-10.

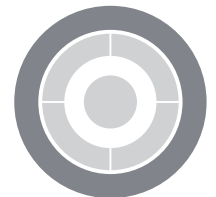
Note: The underlying distributions for the education data are shown as bars; for both sectors, the smoothed distributions are shown as curves. The indexes are constructed from the nine items that are comparable across sectors. Data on manufacturing are not available for Haiti.

inequalities. In low-income countries, on average, stunting rates among children under 5 are almost three times higher in the poorest quintile than in the richest.⁴⁸ In schools, problems with teacher absenteeism, lack of inputs, and weak management are typically severest in communities that serve the poorest students. It's not just that spending patterns

typically disadvantage marginalized communities, but also that resources are used less effectively there, exacerbating the problem. Public policy thus has the effect of widening social gaps rather than offering all children an opportunity to learn.

Systems are failing schools

Viewed from a systems perspective, the low level of learning and skills should come as no surprise. Technical complexities and political forces constantly pull education systems out of alignment with learning (figure O.11).



Problem dimension 3:
Deeper causes

Technical challenges:

Reorienting toward learning is hard

Complex systems and limited management capacity are obstacles to orienting all parts of an education system toward learning. First, the various parts of the system need to be aligned toward learning. But actors in the system have other goals—some stated, some not. Promoting learning is only one of these, and not necessarily the most important one. At times, these other goals can be harmful, such as when construction firms and bureaucrats collude to provide substandard school buildings for their financial gain. At other times, these goals may be laudable, such as nurturing shared national values. But if system elements are aligned toward these other goals, they will sometimes be at cross-purposes with learning.

Even when countries want to prioritize learning, they often lack the metrics to do so. Every system assesses student learning in some way, but many systems lack the reliable, timely assessments needed to provide feedback on innovations. For example, is a new teacher training program actually making teachers more effective? If the system lacks reliable information on the quality of teaching and the learning of primary students—comparable across time or classrooms—there is no way to answer that question.

To be truly aligned, parts of the education system also have to be coherent with one another. Imagine that a country has set student learning as a top priority and that it has in place reasonable learning metrics. It still needs to leap a major technical hurdle, however: ensuring that system elements work together. If a country adopts a new curriculum that increases emphasis on active learning and creative thinking, that alone will not change much. Teachers need to be trained so that they can use more active learning

methods, and they need to care enough to make the change because teaching the new curriculum may be much more demanding than the old rote learning methods. Even if teachers are on board with curriculum reform, students could weaken its effects if an unreformed examination system creates misaligned incentives. In Korea, the high-stakes exam system for university entrance has weakened efforts to reorient secondary school learning. The curriculum has changed to build students' creativity and socio-emotional skills, but many parents still send their children to private “cram schools” for test preparation.⁴⁹

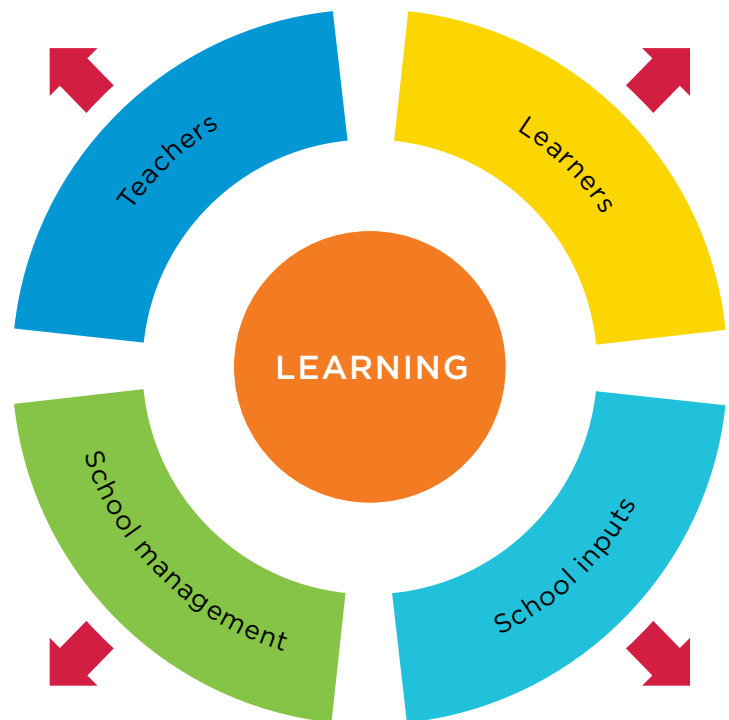
The need for coherence makes it risky to borrow system elements from other countries. Education policy makers and other experts often scrutinize systems that have better learning outcomes to identify what they could borrow. Indeed, in the 2000s the search for the secret behind Finland's admirable record of learning with equity led to a swarm of visiting delegations in what the Finns dubbed “PISA tourism.” Finland's system gives considerable autonomy to its well-educated teachers, who can tailor their teaching to the needs of their students. But lower-performing systems that import Finland's teacher autonomy into their own contexts are likely to be disappointed: if teachers are poorly educated, unmotivated, and loosely managed, giving them even more autonomy will likely make matters worse. South Africa discovered this in the 1990s and 2000s when it adopted a curriculum approach that set goals but left implementation up to teachers.⁵⁰ The approach failed because it proved to be a poor fit for the capacity of teachers and the resources at their disposal.⁵¹ Home-grown, context-specific solutions are important.

Successful systems combine both alignment and coherence. Alignment means that learning is the goal of the various components of the system. Coherence means that the components reinforce each other in achieving whatever goals the system has set for them. When systems achieve both, they are much more likely to promote student learning. Too much misalignment or incoherence leads to failure to achieve learning, though the system might achieve other goals (table O.1).

Political challenges: Key players don't always want to prioritize student learning

Political challenges compound technical ones. Many education actors have different interests, again beyond learning. Politicians act to preserve their positions in power, which may lead them to target particular groups (geographic, ethnic, or economic) for benefits. Bureaucrats may focus more on keeping

Figure O.11 Technical and political factors divert schools, teachers, and families from a focus on learning



Source: WDR 2018 team.

politicians and teachers happy than on promoting student learning, or they may simply try to protect their own positions. Some private suppliers of education services—whether textbooks, construction, or schooling—may, in the pursuit of profit, advocate policy choices not in the interest of students. Teachers and other education professionals, even when motivated by a sense of mission, also may fight to maintain secure employment and to protect their incomes. None of this is to say that education actors don't care about learning. Rather, especially in poorly managed systems, competing interests may loom larger than the learning-aligned interests (table O.2).

Misalignments aren't random. Because of these competing interests, the choice of a particular policy is rarely determined by whether it improves learning. More often, the choice is made by the more powerful actors in the policy arena. Agents are accountable to one another for different reasons, not just learning. Given these interests, it should come as no surprise that little learning often results.

One problem is that activities to promote learning are difficult to manage. Teaching and learning in the

Table O.1 Alignment and coherence both matter

Are system elements . . .		Coherent?	
		Yes	No
Aligned toward learning?	Yes	<i>High performance:</i> Systems well organized to promote learning <i>Examples:</i> High performers at each level (Shanghai [China], Finland, Vietnam)	<i>Incoherent strivers:</i> Systems incoherently oriented toward learning <i>Examples:</i> Countries that borrow learning-oriented “best practice” elements but do not ensure that the various elements are coherent with each other
	No	<i>Coherent nonlearners:</i> Systems well organized to promote a different goal <i>Examples:</i> Totalitarian or authoritarian systems focused on promoting loyalty to the state or nation building (Stalin-era USSR, Suharto-era Indonesia); systems that focus on school attainment rather than learning (many systems)	<i>Failed systems:</i> Systems that are not trying to achieve learning or anything else in a coherent way <i>Examples:</i> Systems in failed states

Source: WDR 2018 team.

Table O.2 Multiple interests govern the actions of education stakeholders

Stakeholders	Examples of . . .	
	Learning-aligned interests	Competing interests
Teachers	Student learning, professional ethic	Employment, job security, salary, private tuitions
Principals	Student learning, teacher performance	Employment, salary, good relations with staff, favoritism
Bureaucrats	Well-functioning schools	Employment, salary, rent-seeking
Politicians	Well-functioning schools	Electoral gains, rent-seeking, patronage
Parents and students	Student learning, employment of graduates	Family employment, family income, outdoing others
Judiciary	Meaningful right to education	Favoritism, rent-seeking
Employers	Skilled graduates	Low taxes, narrowly defined self-interests
Nongovernment schools (religious, nongovernmental, for-profit)	Innovative, responsive schooling	Profit, religious mission, funding
Suppliers of educational inputs (e.g., textbooks, information technology, buildings)	High-quality, relevant inputs	Profit, influence
International donors	Student learning	Domestic strategic interests, taxpayer support, employment

Source: WDR 2018 team.

classroom involve significant discretion by teachers, as well as regular and repeated interactions between students and teachers.⁵² These characteristics, coupled with a dearth of reliable information on learning, make managing learning more difficult than pursuing other goals.⁵³ For example, improvements in access to education can be monitored by looking

at simple, easily collected enrollment data. Similarly, school construction, cash transfer programs, teacher hiring, and school grant programs intended to expand access are all highly visible, easily monitored investments.

The potential beneficiaries of better foundational learning—such as students, parents, and employers—

often lack the organization, information, or short-term incentive to press for change. Parents are usually not organized to participate in debates at the system level, and they may lack knowledge of the potential gains from different policies to improve learning.⁵⁴ They also may worry about the potential ramifications for their children or themselves of opposing interests such as teachers, bureaucrats, or politicians. Students have even less power—except sometimes in higher education, where they can threaten demonstrations—and, like parents, they may be unaware of how little they are learning until they start looking for work. Finally, the business community, even if it suffers from a shortage of skilled graduates to hire, often fails to advocate for quality education, instead lobbying for lower taxes and spending. By contrast to these potential beneficiaries of reform, the potential losers tend to be more aware of what is at stake for them and, in many cases, better organized to act collectively.

As a result, many systems are stuck in low-learning traps, characterized by low accountability and high inequality. These traps bind together key stakeholders through informal contracts that prioritize other goals such as civil service employment, corporate profits, or reelection, perpetuating the low-accountability equilibrium. In better-run systems, actors such as bureaucrats and teachers can devote much of their energy to improving outcomes for students. But in low-learning traps those same actors lack either the incentives or the support needed to focus on learning. Instead, they are constantly pressured to deliver other services for more powerful players. As actors juggle multiple objectives, relying on each other in an environment of uncertainty, low social trust, and risk aversion, it is often in the interest of each to maintain the status quo—even if society, and many of these actors, would be better off if they could shift to a higher-quality equilibrium.

This diagnosis has concentrated on the shortfalls in foundational learning, as will the priorities for action discussed in the next section. However, this focus should not be interpreted as a statement that other areas are unimportant. Education systems and their enabling environment are broader and more complex than this Report can cover, so our priority here is to highlight what can be done most immediately to strengthen the foundations of learning on which all successful systems are built. But both the diagnosis and the priorities for action are relevant for

other parts of the system, such as higher education or lifelong learning. In these areas, too, many countries suffer from a lack of attention to outcomes, wide gaps in opportunity, and systemic barriers to resolving these problems.

Still, there are reasons for hope

Even in countries that seem stuck in low-learning traps, some teachers and schools manage to strengthen learning. These examples may not be sustainable—and they are not likely to spread systemwide without efforts to reorient the system toward learning—but systems willing to learn from these outliers can benefit. On a larger scale, some regions within countries are more successful in promoting learning, as are some countries at each income level.

These examples reveal that higher-level system equilibriums exist. But is it possible for a whole system to escape the low-learning trap, moving to a better one? There are at least two reasons for optimism. First, as countries innovate to improve learning, they can draw on more systematic knowledge than ever available before about what can work at the micro level—the level of learners, classrooms, and schools. A number of interventions, innovations, and approaches have resulted in substantial gains in learning. These promising approaches come in many flavors—new pedagogical methods, ways to ensure that students and teachers are motivated, approaches to school management, technologies to enhance teaching learning—and they may not pay off in all contexts, but the fact that it is possible to improve learning outcomes should give hope. These interventions can provide substantial improvements in learning: almost one or two grade-equivalents for some students.⁵⁵ Even though successful interventions cannot be imported wholesale into new contexts, countries can use them as starting points for their own innovations.

Second, some countries have implemented reforms that have led to sustained systemwide improvements in learning. Finland's major education reform in the 1970s famously improved the equity of outcomes while also increasing quality, so that by the time of the first PISA in 2000, Finland topped the assessment. More recently, Chile, Peru, Poland, and the United Kingdom have made serious, sustained commitments to reforming the quality of their education systems. In all these countries, learning has improved over time—not always steadily, but enough to show that system-level reforms can pay off.

The education systems in Shanghai (China) and Vietnam today—and Korea decades ago—show that it is possible to perform far better than income levels would predict, thanks to a sustained focus on learning with equity. Brazil and Indonesia have made considerable progress, despite the challenges of reforming large, decentralized systems.

How to realize education's promise: Three policy responses

Learning outcomes won't change unless education systems take learning seriously and use learning as a guide and metric. This idea can be summarized as “all for learning.”⁵⁶ As this section explains, a commitment to all for learning—and thus to learning for all—implies three complementary strategies:

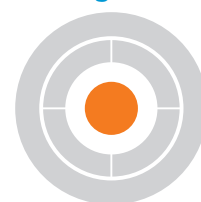
- *Assess learning—to make it a serious goal.* Measure and track learning better; use the results to guide action.
- *Act on evidence—to make schools work for all learners.* Use evidence to guide innovation and practice.
- *Align actors—to make the whole system work for learning.* Tackle the technical and political barriers to learning at scale.

These three strategies depend on one another. Adopting a learning metric without any credible way to achieve learning goals will simply lead to frustration. School-level innovations without a learning metric could take schools off course, and without the system-level support they could prove ephemeral. And system-level commitment to learning without school-level innovation, and without learning measures to guide the reforms, is unlikely to amount to more than aspirational rhetoric. But together, the three strategies can create change for the better.

The potential payoff is huge. When children have a growth mindset, meaning they understand their own great learning potential, they learn much more than when they believe they are constrained by a fixed intelligence.⁵⁷ Societies have the same opportunity. By adopting a social growth mindset—recognizing the barriers to learning, but also the very real opportunities to break them down—they can make progress on learning. One overarching priority should be to end the hidden exclusion of low learning. This is not just the right thing to do; it is also the surest way to improve average learning levels and reap education's full rewards for society as a whole.

Assess learning—to make it a serious goal

“What gets measured gets managed.” “Just weighing the pig doesn't make it fatter.” There is some truth to both of these sayings. Lack of measurement makes it hard to know where things are, where they are going, and what actions are making any difference. Knowing these things can provide focus and stimulate action. But measurement that is too removed from action can lead nowhere. The challenge is striking a balance—finding the right measures for the right purposes and implementing them within an appropriate accountability framework.



Policy response 1:
Assess learning

Use measurement to shine a light on learning

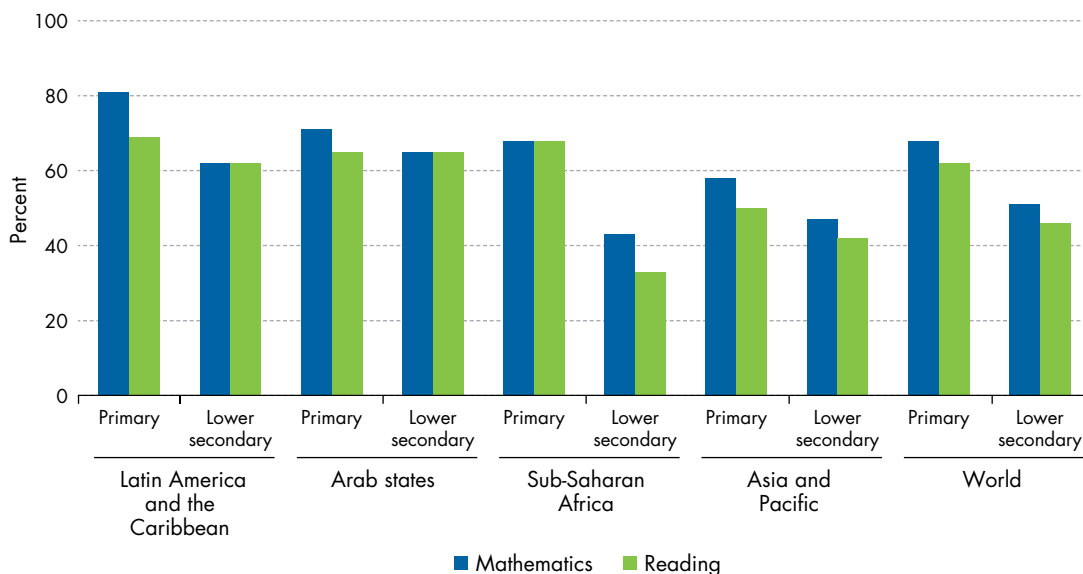
The first step to improving systemwide learning is to put in place good metrics for monitoring whether programs and policies are delivering learning. Credible, reliable information can shape the incentives facing politicians. Most notably, information on student learning and school performance—if presented in a way that makes it salient and acceptable—fosters healthier political engagement and better service delivery. Information also helps policy makers manage a complex system.

Measuring learning can improve equity by revealing hidden exclusions. As emphasized at the outset of this overview, the learning crisis is not just a problem for the society and economy overall; it is also a fundamental source of inequities and widening gaps in opportunity. But because reliable information on learning is so spotty in many education systems, especially in primary and lower secondary schools, the way the system is failing disadvantaged children is a hidden exclusion.⁵⁸ Unlike exclusion from school, lack of learning is often invisible, making it impossible for families and communities to exercise their right to quality education.

These measures of learning will never be the only guide for educational progress, nor should they be. Education systems should have ways of tracking progress toward any goal they set for themselves and their students—not just learning. Systems should also track the critical factors that drive learning—such as learner preparation, teacher skills, quality of school management, and the level and equity of financing. But learning metrics are an essential starting point for improving lagging systems.

Figure O.12 Many countries lack information on learning outcomes

Percentage of countries with data to monitor progress toward the Sustainable Development Goals for learning by the end of primary or lower secondary school



Source: UIS (2016). Data at http://bit.do/WDR2018-Fig_O-12.

Note: Regional groupings follow UNESCO definitions.

There is too little measurement of learning, not too much

A recommendation to start tackling the learning crisis with more and better measurement of learning may seem jarring. Many education debates highlight the risks of overtesting or an overemphasis on tests. In the United States, two decades of high-stakes testing have led to patterns of behavior consistent with these concerns.⁵⁹ Some teachers have been found to concentrate on test-specific skills instead of untested subjects, and some schools have engaged in strategic behavior to ensure that only the better-performing students are tested, such as assigning students to special education that excuses them from testing.⁶⁰ In the extreme, problems have expanded to convictions for systemic cheating at the school district level.⁶¹ At the same time, media coverage of education in many low- and middle-income countries (and some high-income ones) often focuses on high-stakes national examinations that screen candidates for tertiary education—raising concerns about an overemphasis on testing.

But in many systems the problem is too little focus on learning—not too much. Many countries lack information on even basic reading and math competencies. An assessment of capacity to monitor

progress toward the United Nations' Sustainable Development Goals found that of the 121 countries studied, a third lack the data required to report on the levels of reading and mathematics proficiency of children at the end of primary school.⁶² Even more lack data for the end of lower secondary school (figure O.12). Even when countries have these data, they are often from one-off assessments that do not allow systematic tracking over time. A lack of good measurement means that education systems are often flying blind—and without even agreement on the destination.

Use a range of metrics with one ultimate goal

Different learning metrics have different purposes, but each contributes to learning for all. Teachers assess students in classrooms every day—formally or informally—even in poorly resourced, poorly managed school systems. But using metrics properly to improve learning systemwide requires a spectrum of types of assessment that, together, allow educators and policy makers to use the right combination of teaching approaches, programs, and policies.

Formative assessment by teachers helps guide instruction and tailor teaching to the needs of

students. Well-prepared, motivated teachers do not need to operate in the dark: they know how to assess the learning of students regularly, formally and informally. As the next section discusses, this type of regular check-in is important because many students lag so far behind that they effectively stop learning. Knowing where students are allows teachers to adjust their teaching accordingly and to give students learning opportunities they can handle. Singapore has successfully used this approach—identifying lagging students in grade 1 using screening tests and then giving them intensive support to bring them up to grade level.⁶³

National and subnational learning assessments provide system-level insights that classroom assessments by teachers cannot. To guide an education system, policy makers need to understand whether students are mastering the national curriculum, in which areas students are stronger or weaker, whether certain population groups are lagging behind and by how much, and which factors are associated with better student achievement. There is no effective way to aggregate the results of classroom-level formative assessment by teachers into this type of reliable system-level information. This is why systems need assessments of representative samples of students across wider jurisdictions, such as countries or provinces. Such assessments can be an especially important part of tracking systemwide progress because they are anchored in a system's own expectations for itself. And national assessments can provide a check on the quality of subnational assessments by flagging cases in which trends or levels of student achievement diverge across the two. In the United States, the National Assessment of Educational Progress has played this role.⁶⁴

International assessments also provide information that helps improve systems. Globally benchmarked student assessments such as PISA, TIMSS, and PIRLS, as well as regionally benchmarked ones such as PASEC in West and Central Africa and the Latin American Laboratory for Assessment of the Quality of Education (LLECE), provide an additional perspective on how well students are learning. They allow assessment of country performance in a way that is comparable across countries, and they provide a check on the information that emerges from national assessments. And international assessments can be powerful tools politically: because country leaders are concerned with national productivity and competitiveness, international benchmarking can

raise awareness of how a country is falling short of its peers in building human capital.

Two other types of learning metrics measured in nonschool settings can be used to strengthen the quality and equity focus of assessment systems. Grassroots accountability movements—led by civil society organizations such as the ASER Centre in India and Uwezo in East Africa—have deployed citizen-led assessments that recruit volunteers to measure the foundational learning of young children in their communities. These organizations then use their learning data to advocate for education reform. Some multipurpose household surveys also collect learning data, enabling researchers to analyze how learning outcomes correlate with income and community variables. Both types of assessments are administered in people's homes, not schools. As a result, they don't suffer from a key weakness of school-based assessments: when marginal students drop out, their absence can improve the average scores on school assessments, thereby creating a perverse incentive for school leaders. But household-based assessments yield learning metrics that reward systems for improving both access and quality. This is crucial to ensuring that no child is written off. Even for students who are in school, household-based assessments provide an alternative source of learning data, which can be important in settings where official assessments are of questionable quality.

Measurement can be hard

Why isn't there more and better measurement of learning? As with system barriers to learning, barriers to better measurement are both technical and political. From a technical perspective, conducting good assessments is not easy. At the classroom level, teachers lack the training to assess learning effectively, especially when assessments try to capture higher-order skills—say, through project-based assessment—rather than rote learning. And at the system level, education ministries lack the capacity to design valid assessments and implement them in a sample of schools. Political factors intrude as well. To paraphrase an old saying, policy makers may decide it is better to avoid testing and be assumed ineffective than to test students and remove all doubt. And even when they do participate in assessments, governments sometimes decline to release the learning results to the public, as happened with the 1995 TIMSS in Mexico.⁶⁵ Finally, if assessments are poorly designed or inappropriately made into high-stakes

tests, administrators or educators may have an incentive to cheat on them, rendering the assessment results worthless as a guide to policy.

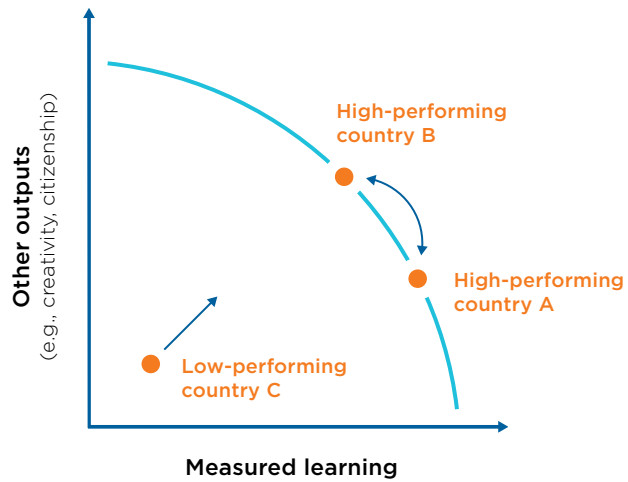
Measurement doesn't need to detract from broader education objectives—it can even support them

A stronger emphasis on measurable learning doesn't mean that other education outcomes don't matter. Formal education and other opportunities for learning have many goals, only some of which are captured by the usual assessments of literacy, numeracy, and reasoning. Educators also aspire to help learners develop higher-order cognitive skills, including some (like creativity) that are hard to capture through assessments. Success in life also depends on socioemotional and noncognitive skills—such as persistence, resilience, and teamwork—that a good education helps individuals develop. Education systems often have other goals as well: they want to endow students with citizenship skills, encourage civic-minded values, and promote social cohesion. These are widely shared goals of education, and it is understandable that people will ask whether, especially in education systems that are already overburdened, increasing the emphasis on measurable learning will crowd out these other goals.

In fact, a focus on learning—and on the educational quality that drives it—is more likely to “crowd in” these other desirable outcomes. Conditions that allow children to spend two or three years in school without learning to read a single word, or to reach the end of primary school without learning to do two-digit subtraction, are not conducive to reaching the higher goals of education. Schools that cannot equip youth with relevant job skills usually will not prepare them to launch new companies or analyze great works of literature either. If students cannot focus because of deprivation, if teachers lack the pedagogical skills and motivation to engage students, if materials meant for the classroom never reach it because of poor management, and if the system as a whole is unmoored from the needs of society—well, is it really plausible to believe that students are developing higher-order thinking skills like problem-solving and creativity? It is more likely that these conditions undermine the quest for higher goals—and that, conversely, improving the learning focus would accelerate progress toward those goals as well.

Paradoxically, lower-performing countries probably do not face the same sharp trade-offs encountered

Figure O.13 Low-performing countries don't face sharp trade-offs between learning and other education outputs



Source: WDR 2018 team.

by high-performing countries on the education frontier. Economists use the concept of the production possibilities frontier to understand how producers—or in this case countries—make trade-offs between the production of different goods. This idea encapsulates the debates on education policy in OECD countries on the learning frontier (figure O.13). For example, in recent years many stakeholders in Korea have argued that their high-performing education system places too much emphasis on test scores (called “measured learning” in figure O.13) and not enough on creativity and certain socioemotional skills such as teamwork (“other outputs”). Implicitly, this Korean debate is about whether to try to move up and to the left on the frontier—that is, from A toward B. But in the low-learning trap, represented by “low-performing country C” in the figure, there is so much slack and such a weak focus on outcomes that this OECD-driven debate is not relevant. Country C has an opportunity to improve on both measured learning and other education outputs at the same time. An experiment in Andhra Pradesh, India, that rewarded teachers for gains in measured learning in math and language led to more learning not just in those subjects, but also in science and social studies—even though there were no rewards for the latter.⁶⁶ This outcome makes sense—after all, literacy and numeracy are gateways to education more generally.

Act on evidence—to make schools work for all learners



Policy response 2: Act on evidence

Measurement of learning shortfalls doesn't provide clear guidance on how to remedy them. Fortunately, there is now a lot of experience on ways to improve learning outcomes at the student, classroom, and school levels. Cognitive neuroscience has evolved dramatically in the last two decades, providing insights on how children learn.⁶⁷

This work has revealed how important the first several years of life are to a child's brain development.⁶⁸ At the same time, schools and systems around the world have innovated in many ways: by deploying novel approaches to pedagogy, using new technologies to enhance teaching and learning in classrooms, or increasing the accountability, and sometimes autonomy, of various actors in the system. The number of systematic evaluations of whether these interventions have improved learning has increased more than 10-fold, from just 19 in 2000 to 299 in 2016.⁶⁹

Many interventions have succeeded in improving learning outcomes. The learning gains from effective interventions translate into additional years of schooling, higher earnings, and lower poverty. For a group of stunted Jamaican children 9–24 months old, a program to improve cognitive and socioemotional development led to much better outcomes 20 years later—lower crime rates, better mental health, and earnings that were 25 percent higher than those of nonparticipants.⁷⁰ Programs to improve pedagogy have had an impact greater than the equivalent of an extra half a year of business-as-usual schooling and an 8 percent increase in the present discounted value of lifetime earnings.⁷¹ So while tackling the learning crisis is hard, the fact that there are interventions that improve learning suggests ways forward.

This evidence base does not allow us to identify what works in all contexts because there are no global solutions in education. Improving learning in a particular setting will never be as simple as taking a successful program from one country or region and implementing it elsewhere. Randomized controlled trials and other approaches to evaluate impact place a premium on carefully isolating the causal impact of an intervention. But such approaches may ignore important interactions with underlying factors that affect whether an intervention makes a difference—factors that may not be at play when replicating the intervention in a new context. For example, increasing class size by 10 students reduced test scores by

four times as much in Israel as it did in Kenya—and it has had no impact in some contexts.⁷² In the words of two commentators on this literature: “Knowing ‘what works’ in the sense of the treatment effect on the trial population is of limited value without understanding the political and institutional environment in which it is set.”⁷³

The next section tackles the question of that broader environment, but in the meantime we first address how to use this evidence most effectively. There are four main considerations.

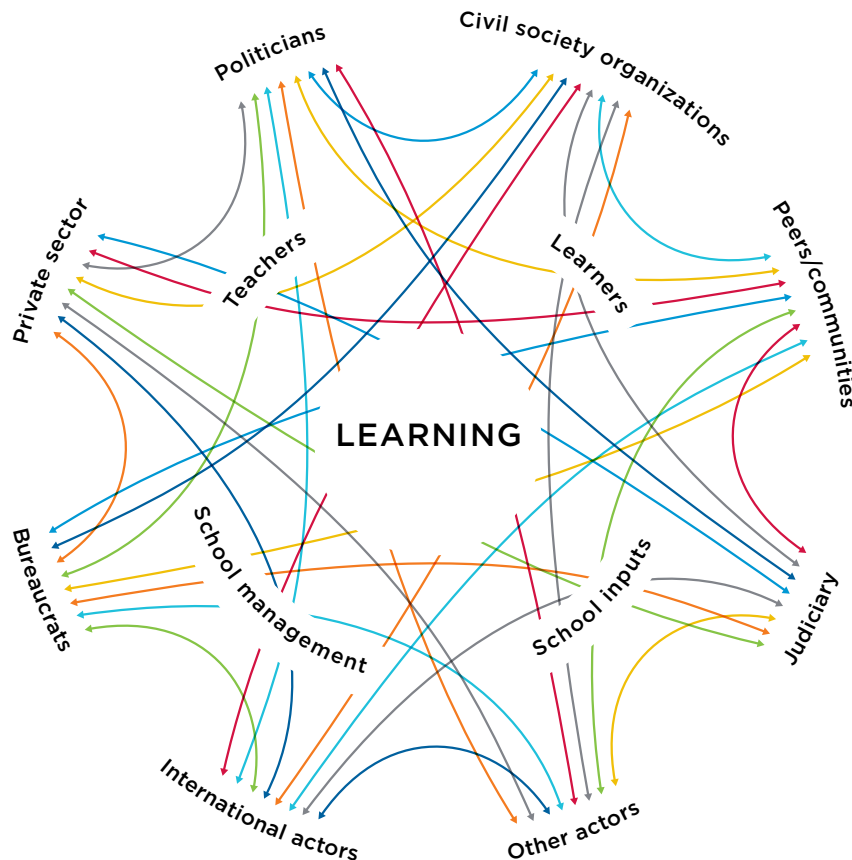
First, more important than the individual results from individual studies are the principles of how and why programs work. In economic terms, “principles” correspond to models of behavior that can then help guide broader sets of approaches to addressing problems. Three types of models can prove especially insightful: straightforward models in which actors maximize their welfare subject to the constraints they face; principal-agent models that incorporate multiple actors with different goals and perhaps different information; and behavioral models that factor in mental models and social norms.

Second, a gap between what the evidence suggests may be effective and what is done in practice points to a potential entry point for action. Understanding why gaps open up helps guide how to address them. For example, when different actors face different information, or some actors lack information, this suggests drawing from approaches that show how information can be disseminated and used better. Gaps point to which types of principles should drive context-specific innovation.

Third, evidence tends to accumulate where it is easiest to generate, not necessarily where action would make the most difference, so policies focused only on that evidence might be misguided.⁷⁴ Though the scope of the accumulated evidence in education is broad, just because an approach hasn't been evaluated doesn't mean it lacks potential. Context-specific innovation may mean trying things that have not been tried elsewhere.

Fourth, a focus on underlying principles highlights that the problem can't be solved by one decision maker simply prescribing an increase in the quantity, or even the quality, of one or more inputs. Many of the inputs in learning are the result of choices made by the various actors—choices made in reaction to the actual and anticipated choices of other actors. For example, teachers respond to incentives to attend school and to improve student outcomes, even though the nature of the response varies across contexts.⁷⁵ Likewise, students and parents make choices

Figure O.14 It's more complicated than it looks: People act in reaction to the choices of others throughout the system



Source: WDR 2018 team.

responding to other decisions. In India and Zambia, government grants to schools led parents to reduce their own investments in their children's schooling.⁷⁶ All things considered, a more complete characterization of the learning framework might be closer to the one illustrated in figure O.14: learning how to improve outcomes by intervening at the student, classroom, and school levels involves illuminating the various arrows.

Putting all this together sheds light on three sets of promising entry points: prepared learners, effective teaching, and school-level interventions that actually affect the teaching and learning process. Each of these priority areas is founded on evidence from multiple contexts showing that it can make a real difference for learning.

Prepare children and youth for learning

Getting learners to school ready and motivated to learn is a first step to better learning. Without it, other policies and programs will have a minimal effect.

There are three key entry points to addressing learner preparation:

- *Set children on high-development trajectories through early childhood nutrition, stimulation, and care.* Three approaches stand out from successful experiences. First, target mothers and their babies with health and nutrition interventions during the first 1,000 days to reduce malnutrition and foster physiological development. Second, increase the frequency and quality of stimulation and opportunities for learning at home (starting from birth) to improve language and motor development, as well as to cultivate early cognitive and socioemotional skills. Third, promote day-care centers for very young children and preschool programs for children 3–6 years old—along with caregiver programs that enhance the nurturing and protection of children—to improve cognitive and socioemotional skills in the short run, as well as education and labor market outcomes later in life.⁷⁷ Program quality matters

a lot: center-based programs with poor process quality (even with relatively good infrastructure, caregiver training, and caregiver-children ratios) can actually worsen developmental outcomes.⁷⁸

- *Lower the cost of schooling to get children into school, but then use other tools to boost motivation and effort because cost-reducing interventions don't usually lead to learning on their own.*⁷⁹ To improve learning, demand-side programs need to increase a student's effort or capacity to learn. School-provided meals, for example, have had positive effects on access—and also on learning in places where children have limited access to food at home.⁸⁰ Targeted cash transfers have led to more learning when they have incentivized performance itself⁸¹ or were marketed in a way that induces more effort, such as in Cambodia.⁸² Some information interventions have motivated efforts as well.⁸³
- *To make up for the fact that so many youth lack skills when leaving basic education, provide remediation before further education and training.*⁸⁴ Remediation in school is a first best approach. After school, the more successful programs share two main features. First, they provide bridging courses in real-life settings, which allows learners with very low foundational skills to build these in the workplace.⁸⁵ Second, accelerated, flexible pathways—not sequential courses over multiple semesters—are associated with greater student retention and ultimate certification.⁸⁶

Make teaching more effective

Effective teaching depends on teachers' skills and motivation, and yet many systems do not take them seriously. Teacher salaries are the largest single budget item in education systems, consuming three-quarters of the budget at the primary level in developing countries. Yet many systems struggle to attract strong candidates into teaching and to provide a solid foundation of subject or pedagogical knowledge before they start teaching. As a result, new teachers often find themselves in classrooms with little mastery of the content they are to teach.⁸⁷ Once teachers are in place, the professional development they receive is often inconsistent and overly theoretical. In some countries, the cost of this training is enormous, reaching \$2.5 billion a year in the United States.⁸⁸ Moreover, education systems often have few effective mechanisms in place to mentor, support, and motivate teachers—even though teachers' skills do nothing for learning unless teachers choose to apply them in the classroom.⁸⁹ Fortunately, teachers' skills and motivation can be strengthened, leading to greater effort and more learning, with three main promising principles emerging:

- *For effective teacher training, design it to be individually targeted and repeated, with follow-up coaching—often around a specific pedagogical technique.* This approach contrasts starkly with much of today's professional development for teachers across a range of countries. In the United States, a team of teacher training experts characterized professional development there as “episodic, myopic, and often meaningless.”⁹⁰ In Sub-Saharan Africa, teacher training is often too short to be effective and too low in quality to make a difference.⁹¹ By contrast, programs in Africa and South Asia that provided long-term coaching led to sizable learning gains.⁹²
- *To keep learners from falling behind to the point where they cannot catch up, target teaching to the level of the student.* Over the course of several grades, often only a fraction of learners progress at grade level, with most falling behind and some learning almost nothing. This is partly because teachers teach to the most advanced students in the class, as documented from Australia to Sweden to the United States,⁹³ or because the curriculum is too ambitious but teachers are required to teach it.⁹⁴ Effective strategies to target teaching to the level of the student include using community teachers to provide remedial lessons to the lowest performers, reorganizing classes by ability, or using technology to adapt lessons to individual student needs.⁹⁵
- *Use pecuniary and nonpecuniary incentives to improve the motivation of teachers, ensuring that the incentivized actions are within teachers' capacity.* Education systems typically neither reward teachers for performing well nor penalize them for performing poorly. Incentives are most likely to be effective at improving outcomes when there are straightforward actions that teachers can take to improve learning—such as increasing attendance when absenteeism is the constraint. But incentives do not need to be high stakes (or financial) to affect behavior. In Mexico and Punjab, Pakistan, simply providing diagnostic information to parents and schools about the schools' relative performance improved learning outcomes.⁹⁶

Focus everything else on teaching and learning

School inputs, management, and governance must benefit the learner-teacher relationship if they are to improve learning—but many do not. Debates on improving education outcomes frequently revolve around increasing inputs, such as textbooks, technology, or school infrastructure. But too often the question of why these inputs might actually improve learning is

overlooked. The evidence on successful use of inputs and management suggests three main principles:

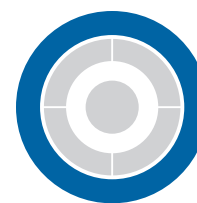
- *Provide additional inputs, including new technologies, in ways that complement rather than substitute for teachers.*⁹⁷ A computer-assisted learning program in Gujarat, India, improved learning when it added to teaching and learning time, especially for the poorest-performing students.⁹⁸ A Kenyan program that provided public school teachers with tablets to support instruction increased the reading performance of their students.⁹⁹ But simply providing desktop computers to classrooms in Colombia—where they were not well integrated with the curriculum—had no impact on learning.¹⁰⁰ Even more traditional inputs—such as books—often fail to affect teaching and learning when they aren't actually deployed in classrooms, or if the content is too advanced for the students.¹⁰¹
- *Ensure that new information and communication technology is really implementable in the current systems.* Interventions that incorporate information and communication technology have some of the biggest impacts on learning.¹⁰² But for every highly effective program—such as a dynamic computer-assisted learning program for secondary school students in Delhi that increased math and language scores more than the vast majority of other learning interventions tested in India or elsewhere¹⁰³—there are programs such as the One Laptop Per Child programs in Peru and Uruguay, which evaluations suggested had no impact on student reading or math ability.¹⁰⁴ Technologies ill-adapted to their settings often fail to reach the classroom or to be used if they reach it.¹⁰⁵
- *Focus school management and governance reforms on improving teacher-learner interaction.* Training principals in how to improve that interaction—by providing feedback to teachers on lesson plans, action plans to improve student performance, and classroom behavior—has led to a large impact on student learning.¹⁰⁶ In countries ranging from Brazil and India to Sweden, the United Kingdom, and the United States, the management capacity of school principals significantly and robustly relates to student performance—even after controlling for a variety of student and school characteristics.¹⁰⁷ Involving communities, parents, and school actors in ways that promote local oversight and accountability for service delivery can improve outcomes.¹⁰⁸ But community monitoring tends to have more impact when it covers things that parents can easily observe (such as teacher absenteeism when

it is high), and when a range of stakeholders (not just parents) are brought together in ways that lead to action. In Indonesia, school grants improved learning when links between the school and the village council—a center of local authority—were strengthened.¹⁰⁹

The most effective systems—in terms of learning—are those that have narrowed gaps between evidence and practice. On learner preparation, for example, East Asian countries such as Korea and Singapore have achieved high levels of children ready to learn. Stunting rates among preschool-age children are low, and children are motivated and supported by their families. To promote effective teaching, Finland and Singapore attract some of the most highly skilled graduates from tertiary education into teaching and provide them with effective professional development opportunities and sustained support.

Align actors—to make the whole system work for learning

Working at scale is not just “scaling up.” The concept of scaling up in education implies taking interventions that have been shown to be effective on a pilot or experimental scale and replicating them across hundreds or thousands of schools. However, this approach often fails because the key actors are human beings, operating with human aspirations and limitations in a politically charged arena. Real-world complications can undermine well-designed programs, especially when new, systemwide forces come into play. When the Cambodian government tried to scale up early child development centers and preschools—programs that had worked in some parts of the country when implemented by nongovernmental organizations (NGOs)—low demand from parents and low-quality services led to no impacts on child development, and even slowed it for some.¹¹⁰ When the Kenyan government tried to lower student-teacher ratios by hiring contract teachers—an intervention that had improved student outcomes when implemented by an NGO—the results were negligible because of both implementation constraints and political economy factors.¹¹¹ And when the Indonesian government tried to increase teacher capacity by nearly doubling the salaries of certified teachers, political pressures watered down the certification process and left only the pay increase in place. The result was much larger



Policy response 3:
Align actors

budget outlays on salaries, but no increase in teachers' skills or student learning.¹¹²

The lesson, then, is that better interventions at the school and student levels will sustainably improve learning only if countries tackle the stubborn system-level technical and political barriers to change. Technical barriers include the complexity of the system, the large number of actors, the interdependence of reforms, and the slow pace of change in education systems. Political barriers include the competing interests of different players and the difficulty of moving out of a low-quality equilibrium, especially in low-trust environments where risks predominate. All of these barriers pull actors away from learning, as discussed earlier. Systems that surmount these barriers and align actors toward learning can achieve remarkable learning outcomes. Shanghai provided proof when it topped the 2012 PISA rankings, in part thanks to policies that ensured that every classroom had a prepared, supported, and motivated teacher.¹¹³

To shift the system toward learning, technically and politically, reformers can use three sets of tools:

- *Information and metrics.* Better information and metrics can promote learning in two ways: by catalyzing reforms and by serving as indicators of whether reforms are working to improve learning with equity. Thus they can improve both the political and technical alignment of the system.
- *Coalitions and incentives.* Good information will have a payoff only if there is enough support for prioritizing learning. Politics is often the problem, and politics must be part of the solution. This requires forming coalitions to advocate for broad-based learning and skills and to rebalance the political incentives.
- *Innovation and agility.* Schools and societies have achieved high levels of equitable learning in a variety of ways. Figuring out what approaches will work in a given context requires innovation and adaptation. This means using evidence to identify where to start and then using metrics to iterate with feedback loops.

All of these tools will be most effective when supported by strong implementation capacity within government.

Information and metrics

Better information and measurement—starting with learning metrics—are critical to creating political space for innovation and then using that space to achieve continuous improvement. As emphasized,

the absence of good information on learning prevents stakeholders from judging system performance, designing the appropriate policies, and holding politicians and bureaucrats to account. Thus improving learning metrics is crucial for drawing attention to problems and building the will for action. In Tanzania in the early 2010s, poor results on school-leaving examinations—along with well-publicized results from citizen-led learning assessments and surveys showing poor service delivery in schools—motivated policy makers to launch ambitious reforms. In Germany, the shock of mediocre results on the first PISA in 2000 led to reforms that improved both learning and equity.

Efforts in this area need to go beyond just measuring learning; they should track its determinants as well. Understanding these determinants can enable reforms to grapple with the deeper causes, if there is a systemwide commitment to improving learning. Take the issue of learner preparedness. When indicators reveal that poorer children already lag far behind by the time they start primary school, this finding can build political will not only to expand preschool education in low-income areas, but also to combat stunting and educate parents about early stimulation of children. When indicators show that many teachers lack a strong command of what their students are meant to learn, this finding can spark efforts to improve the quality of teacher education.¹¹⁴

Of course, information and metrics can also be misleading, irrelevant, or politically unsustainable, so they need to be designed and used wisely. Metrics may fail to capture important dimensions of the outcomes the education system is trying to promote. For example, the Millennium Development Goal of universal primary education by 2015 embodied a crucial goal—equitable access—but it did not represent what many assumed it did: universal acquisition of foundational literacy and numeracy, let alone other life skills. Another risk is of distorting good metrics by putting high stakes on them, if potential beneficiaries can game the indicators. Thus systems will need different measures for different purposes.¹¹⁵ Even if they are technically sound, metrics may prove politically unsustainable if they highlight too many problems and do not provide any reason for hope. One way to address this problem is to focus not on levels of learning, which may be very low, but on progress over time.

Coalitions and incentives

Mobilizing everyone who has a stake in learning has been an important strategy in efforts to improve learning. Many countries have used wide-ranging

consultations that have tried to bring in all interest groups to build support for proposed changes in education policy. Malaysia used a “lab” model to bring together coalitions of stakeholders and involve them in all stages of reform, from design to implementation.¹¹⁶ Mobilizing citizens through regular information and communication campaigns can also be an important strategy. In Peru, reformers in the government used information on poor learning outcomes and performance of the education system to mobilize public support for reforms to strengthen teacher accountability. That information also catalyzed action by the business community, which funded a campaign highlighting the importance of quality education for economic growth. In parts of Peru, parents used this entry point to protest teacher strikes that had disrupted schooling.¹¹⁷ Another tool for building coalitions is to bundle reforms, so that each actor achieves one of its top priorities. For example, a commitment to modernize vocational training—a reform that could help employers immediately—could buy their support for broader education reforms.

Where feasible, a negotiated and gradual approach to reform can provide a more promising alternative to direct confrontation. When system actors agree to collaborate and build trust around shared goals, the chances of successful reform are likely to be higher. In Chile, successive negotiations between the government and the teachers’ union built broad support for a series of reforms that adjusted the working conditions of teachers to improve their overall welfare, while linking pay and career development more closely to performance.¹¹⁸ One approach used by several countries has been to compensate actors who might lose out from reforms. In other cases, dual-track reforms have been introduced to phase in changes in a way that protects incumbent actors from their effects—for example, in Peru and the District of Columbia in the United States, pay-for-performance schemes were initially voluntary.¹¹⁹

Building strong partnerships between schools and their communities is also important for sustaining reforms. Where political and bureaucratic incentives for reform are weak, action at the local level can act as a substitute. In South Africa, the political and economic context constrains efforts to improve education performance. Yet progress was made in improving outcomes at the local level through strong partnerships between parents and schools.¹²⁰ Even where broader incentives exist to improve learning, community engagement at the local level is important and can complement national or subnational change efforts.¹²¹

Innovation and agility

To develop effective learning approaches that fit their contexts, education systems need to encourage innovation and adaptation. In many education systems, schools and other education institutions regularly adapt to changing circumstances. Through these adaptations, innovative solutions to education challenges often emerge. Exploring the well-performing parts of any education system can reveal technically and politically feasible approaches to the problems systems face in improving learning. For example, in Misiones province in Argentina high student dropout rates were widespread, but some schools seemed to buck the trend. A closer look at these “positive deviants” revealed very different relationships between teachers and parents. When other schools adopted the more constructive approach to parent-teacher relations used by the successful schools, their dropout rates fell significantly.¹²² Burundi, while recovering from a civil war, used an adaptive approach to find the right way to get textbooks to schools. It reduced delivery times from over a year to 60 days—then replicated that approach in other areas.¹²³

Incentives are important in determining whether systems innovate and adopt emerging solutions at scale. Systems that are closed, that limit the autonomy of teachers and schools, and that judge performance by the extent of compliance with rules governing resource use often provide little room for innovation. By contrast, more open systems that pay more attention to overall outcomes and reward progress in raising outcomes are more likely to see greater innovation and the diffusion of new approaches across the education system.¹²⁴

To make a difference at the system level, such innovations need to be packaged with good metrics and with system-level coalitions for learning. Without both, any improvements from innovation are likely to prove short-lived or limited to local areas. But with such support, a virtuous cycle becomes possible as systems follow these steps:

- Set learning as a clearly articulated goal and measure it.
- Build a coalition for learning that gives the political space for innovation and experimentation.
- Innovate and test approaches that seem the most promising for the given context, drawing inspiration from the evidence base and focusing on areas that promise the biggest improvements over current practice.
- Use the measure of learning, along with the other metrics of delivery, as a gauge of whether the approach is working.

Figure O.15 Coherence and alignment toward learning



Source: WDR 2018 team.

- Build on what works, and scale back what doesn't, to deliver short-term results that strengthen the long-term resolve of the coalition for learning.
- Repeat.

The payoff to doing what needs to be done is a system in which the elements are coherent with each other and everything aligns with learning (figure O.15).

Increased financing can support this learning-for-all equilibrium, if the various key actors behave in ways that show learning matters to them. This is a big “if” because higher levels of public spending are not associated statistically with higher completion or even enrollment rates in countries with weak governance.¹²⁵ Ensuring that students learn is even more challenging, and so there is little correlation between spending and learning after accounting for national income. It is easy to see the reason for this because of the many ways in which financing can leak out—whether because money never reaches the school, or because it pays for inputs that don't affect the

teaching-learning relationship, or because the system doesn't prioritize learning for disadvantaged children and youth. More financing for business as usual will therefore just lead to the usual outcomes. But where countries seriously tackle the barriers to learning for all, spending on education is a critical investment for development, especially for those countries where overall spending is currently low, as recent major studies of global education have emphasized.¹²⁶ More children staying in school longer and learning while there will undoubtedly require more public financing for education. An injection of financing—either from domestic or international sources—can help countries escape the low-learning trap, if they are willing to take the other necessary steps laid out here.

Implications for external actors

External actors can reinforce these strategies for opening the political and technical space for learning. In the realm of information and metrics, for example, international actors can fund participation

in regional learning assessments (such as PASEC in West Africa or LLECE in Latin America) or global learning assessments (such as PISA or TIMSS) to spotlight challenges and catalyze domestic efforts for reform. External actors can also develop tools for tracking the proximate determinants of learning to aid in feedback loops. Domestic financing usually makes up the bulk of education financing, so a high-leverage entry point for international actors is to fund better information that will make domestic spending more effective. In the realm of innovation and experimentation, external funders such as the World Bank can provide results-based financing that gives countries more room to innovate and iterate their way to achieving better outcomes.

Learning to realize education's promise

By showing that learning really matters to them, countries can realize education's full promise. Beyond being a basic human right, education—done right—improves social outcomes in many spheres of life. For individuals and families, education boosts human capital, improves economic opportunities, promotes health, and expands the ability to make effective choices. For societies, education expands economic opportunities, promotes social mobility, and makes institutions function more effectively. In measuring these benefits, research has only recently focused on the distinction between schooling and learning. But the evidence confirms the intuition that these benefits often depend on the skills that students acquire, not just the number of years in the classroom. Economies with higher skills grow faster than those with schooling but mediocre skills; higher literacy predicts better financial knowledge and better health, beyond the effects of schooling; and poor children are more likely to rise in the income distribution when they grow up in communities with better learning outcomes.

Taking learning seriously won't be easy. It's hard enough to work through the technical challenges of figuring out what will promote learning at the level of the student and school in any context, let alone tackle the political and technical challenges of working at scale. Many countries struggling with the learning crisis may be tempted to continue with business as usual. After all, they may reason, development will eventually improve learning outcomes: as households escape poverty and schools take advantage of better facilities, more materials, and better-trained teachers, better learning outcomes should follow.

But waiting out the learning crisis isn't a winning strategy. Even though national income and learning are somewhat correlated at lower levels of development, higher incomes do not invariably lead to better learning outcomes. And to the extent that development does bring better learning and skills, it is partly because development has been accompanied by a willingness to tackle the political impasses and governance challenges that hamper learning. Ultimately, then, those challenges are not avoidable. Furthermore, there's no need to wait for learning. At every level of income, there are countries that not only score better than others on international assessments, but also—and more important—show from the quality of their education systems and their policy making that they are committed to learning.

The future of work will place a premium on learning. Rapid technological change has led to major shifts in the nature of work, leading some to declare this a new era—the Second Machine Age or the Fourth Industrial Revolution. In the extreme versions of this vision, all but a few jobs could disappear, decreasing the value of skills for most people. But the seismic changes predicted have yet to permeate the high-income countries, let alone the low- and middle-income ones. More important, no matter how the demand for skills changes in the future, people will require a solid foundation of basic skills and knowledge. If anything, rapid change will increase the returns to learning how to learn, which requires foundational skills that allow individuals to size up new situations, adapt their thinking, and know where to go for information and how to make sense of it.

* * *

Countries have already made a tremendous start by getting so many children and youth into school. Now it's time to realize education's promise by accelerating learning. A real education—one that encourages learning—is a tool for promoting both shared prosperity and poverty elimination. That type of education will benefit many: children and families whose positive schooling experience restores their faith in government and society rather than eroding it; youth who have skills employers are seeking; teachers who can respond to their professional calling rather than to political demands; adult workers who have learned how to learn, preparing them for unforeseeable economic and social changes; and citizens who have the values and reasoning abilities to contribute to civic life and social cohesion.

Notes

1. Uwezo (2014). In all countries, the test was administered in English. In Kenya and Tanzania, it was also administered in Kiswahili, and the highest score (English or Kiswahili) was used in the assessment of proficiency. English is the language of instruction in Kenya and Uganda.
2. ASER Centre (2017).
3. WDR 2018 team, using data from the Programme for International Student Assessment (PISA), 2015 (OECD 2016).
4. WDR 2018 team, using data from the Third Regional Comparative and Explanatory Study (TERCE), 2012 (UNESCO 2013).
5. UNESCO (2016).
6. World Bank (2011).
7. Barro and Lee (2013).
8. Pritchett (2013).
9. Pritchett (2013).
10. Gove and Cvelich (2011).
11. Crouch (2006).
12. Castillo and others (2011).
13. ASER Pakistan (2015a, 2015b).
14. Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) results for grade 6 students in 15 countries in 2007 (Hungu and others 2010).
15. Programme d'Analyse des Systèmes Éducatifs de la Confemem (PASEC) results for grade 6 students in 10 francophone countries in 2014 (PASEC 2015).
16. ASER Centre (2017).
17. RTI International (2009).
18. World Bank (2016b).
19. Muralidharan and Zieleniak (2013).
20. Spaul and Kotze (2015).
21. Singh (2015).
22. *Minimum proficiency* is defined as one standard deviation below the mean of the harmonized assessment scores.
23. These numbers are based on analysis of the data in "A Global Data Set on Education Quality" (2017), a data set made available to the WDR 2018 team by Nadir Altinok, Noam Angrist, and Harry Anthony Patrinos. These averages do not include China or India because of lack of data.
24. UNESCO (2016).
25. UIS and EFA (2015).
26. Banerjee, Jacob, and Kremer (2000); Hanushek and Woessmann (2008); Rivkin, Hanushek, and Kain (2005).
27. Alderman, Orazem, and Paterno (2001); Andrabi, Das, and Khwaja (2008); Farah (1996); Kingdon (1996); Orazem (2000); Tooley and Dixon (2007).
28. Hanushek, Lavy, and Hitomi (2008).
29. STEP surveys (World Bank 2014).
30. Lupien and others (2000); McCoy and others (2016); Walker and others (2007).
31. Coe and Lubach (2007); Garner and others (2012); Nelson (2016).
32. Black and others (2017). *Stunting* is defined by the World Health Organization (WHO) as a height-for-age z-score of less than two standard deviations below the median of a healthy reference population.
33. Paxson and Schady (2007); Schady and others (2015).
34. Hanushek (1992); Rockoff (2004).
35. Bau and Das (2017).
36. Bruns and Luque (2015).
37. UIS (2006).
38. Chang and others (2013).
39. Abadzi (2009); EQUIP2 (2010).
40. Bold and others (2017).
41. Hanushek (1995); Mingat and Tan (1998); Tan and Mingat (1992); Wolf (2004).
42. Glewwe and others (2011); Hanushek (1986); Kremer (1995).
43. Sabarwal, Evans, and Marshak (2014).
44. Lavinias and Veiga (2013).
45. Robinson, Lloyd, and Rowe (2008); Waters, Marzano, and McNulty (2003).
46. Bloom and others (2015). Management areas include operations, monitoring, target setting, and people management.
47. Bruns, Filmer, and Patrinos (2011); Orazem, Glewwe, and Patrinos (2007); World Bank (2003).
48. Data extracted from U.S. Agency for International Development's Demographic and Health Survey (DHS) StatCompiler, <http://www.statcompiler.com/en/>.
49. Park (2016).
50. Todd and Mason (2005).
51. Chisholm and Leyendecker (2008).
52. World Bank (2003).
53. Andrews, Pritchett, and Woolcock (2017).
54. Grindle (2004).
55. Evans and Yuan (2017).
56. The team thanks Kai-Ming Cheng for suggesting this formulation.
57. Dweck (2008).
58. Save the Children (2013).
59. Guilfoyle (2006).
60. Jacob (2005).
61. Fausset (2014).
62. UIS (2016).
63. OECD (2011).
64. Jacob (2007).
65. Solano-Flores, Contreras-Niño, and Backhoff Escudero (2005).
66. Muralidharan and Sundararaman (2011).
67. De Smedt (2014); Insel and Landis (2013); Kuhl (2010).
68. Dua and others (2016).
69. Evans and Popova (2016).
70. Gertler and others (2014).
71. Calculations carried out for WDR 2018. See Evans and Yuan (2017).
72. Pritchett and Sandefur (2013).
73. Deaton and Cartwright (2016).
74. Romer (2015).

75. Duflo, Hanna, and Ryan (2012); Muralidharan and Sundararaman (2011).
76. Das and others (2013).
77. The evidence is from countries ranging from the United States to Argentina, Bangladesh, China, and Uganda, among others (Berlinski, Galiani, and Gertler 2008; Engle and others 2011).
78. Berlinski and Schady (2015); Bernal and others (2016); Grantham-McGregor and others (2014).
79. Baird and others (2014); Fiszbein and Schady (2009); Morgan, Petrosino, and Fronius (2012).
80. Snilstveit and others (2016).
81. Blimpo (2014); Kremer, Miguel, and Thornton (2009). Direct financial incentives have been less successful in high-income countries (Fryer 2011), although alternate designs that deliver incentives immediately after the test have worked (Levitt and others 2016).
82. Barrera-Osorio and Filmer (2013).
83. Avitabile and de Hoyos (2015); Nguyen (2008).
84. ILO (2015).
85. Bragg (2014).
86. Calcagno and Long (2008); Martorell and McFarlin Jr. (2011); Scott-Clayton and Rodriguez (2014).
87. Tandon and Fukao (2015); World Bank (2013, 2016a).
88. Layton (2015).
89. Bruns and Luque (2015); Mulkeen (2010).
90. Darling-Hammond and others (2009).
91. Lauwerier and Akkari (2015).
92. Banerjee and others (2007); Conn (2017).
93. Abadzi and Llambiri (2011); Ciaccio (2004); Leder (1987).
94. Banerjee and others (2016); Pritchett and Beatty (2015).
95. Banerjee and others (2007); Duflo, Dupas, and Kremer (2011); Kiessel and Duflo (2014); Muralidharan, Singh, and Ganimian (2016).
96. Andrabi, Das, and Khwaja (2015); de Hoyos, Garcia-Moreno, and Patrinos (2017).
97. Snilstveit and others (2016).
98. Linden (2008).
99. Piper and others (2015).
100. Barrera-Osorio and Linden (2009).
101. Glewwe, Kremer, and Moulin (2009); Sabarwal, Evans, and Marshak (2014).
102. McEwan (2015).
103. Muralidharan, Singh, and Ganimian (2016).
104. Cristia and others (2012); De Melo, Machado, and Miranda (2014). For Uruguay, the evaluation covers math and reading impacts in the early years of the program, when its main objective was to provide equipment and connectivity for schools; the program evolved since then to add ICT training for teachers and adaptive educational technology, and new evaluations are expected to be published in late 2017.
105. Lavinás and Veiga (2013).
106. Fryer (2017).
107. Bloom and others (2015).
108. Bruns, Filmer, and Patrinos (2011).
109. Pradhan and others (2014).
110. Bouguen and others (2013).
111. Bold and others (2013).
112. Chang and others (2013); de Ree and others (2015).
113. Liang, Kidwai, and Zhang (2016).
114. For example, in Mozambique, after the World Bank's Service Delivery Indicators revealed very low levels of teacher knowledge and very high levels of absenteeism—results that were picked up by the local media—the government launched a program (ultimately supported through a loan from the World Bank) to address these issues.
115. Neal (2013).
116. World Bank (2017).
117. Bruns and Luque (2015).
118. Mizala and Schneider (2014); Wales, Ali, and Nicolai (2014).
119. Birnbaum (2010); Bruns and Luque (2015).
120. Levy and others (2016).
121. Mansuri and Rao (2013).
122. Green (2016); Pascale, Sternin, and Sternin (2010).
123. Campos, Randrianarivelo, and Winning (2015).
124. Andrews, Pritchett, and Woolcock (2013).
125. Rajkumar and Swaroop (2008); Suryadarma (2012).
126. See, in particular, the report of the Education Commission (2016), which emphasizes the important role of finance in complementing reforms.

References

- Abadzi, Helen. 2009. "Instructional Time Loss in Developing Countries: Concepts, Measurement, and Implications." *World Bank Research Observer* 24 (2): 267–90.
- Abadzi, Helen, and Stavri Llambiri. 2011. "Selective Teacher Attention in Lower-Income Countries: A Phenomenon Linked to Dropout and Illiteracy?" *Prospects* 41 (4): 491–506.
- Alderman, Harold, Peter F. Orazem, and Elizabeth M. Paterno. 2001. "School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan." *Journal of Human Resources* 36 (2): 304–26.
- Andrabi, Tahir, Jishnu Das, and Asim Ijaz Khwaja. 2008. "A Dime a Day: The Possibilities and Limits of Private Schooling in Pakistan." *Comparative Education Review* 52 (3): 329–55.
- . 2015. "Report Cards: The Impact of Providing School and Child Test Scores on Educational Markets." Policy Research Working Paper 7226, World Bank, Washington, DC.
- Andrews, Matt, Lant Pritchett, and Michael Woolcock. 2013. "Escaping Capability Traps through Problem Driven Iterative Adaptation (PDIA)." *World Development* 51: 234–44.
- . 2017. *Building State Capability: Evidence, Analysis, Action*. New York: Oxford University Press.
- ASER Centre. 2017. *Annual Status of Education Report (Rural) 2016*. New Delhi: ASER Centre. http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202016/aser_2016.pdf.
- ASER Pakistan. 2015a. "Annual Status of Education Report: ASER Pakistan 2015 National (Rural)." Lahore, Pakistan: South Asian Forum for Education Development.

- ASER Pakistan. 2015b. "Annual Status of Education Report: ASER Pakistan 2015 National (Urban)." Lahore, Pakistan: South Asian Forum for Education Development.
- Avitabile, Ciro, and Rafael E. de Hoyos. 2015. "The Heterogeneous Effect of Information on Student Performance: Evidence from a Randomized Control Trial in Mexico." Policy Research Working Paper 7422, World Bank, Washington, DC.
- Baird, Sarah Jane, Francisco H. G. Ferreira, Berk Özler, and Michael Woolcock. 2014. "Conditional, Unconditional and Everything in Between: A Systematic Review of the Effects of Cash Transfer Programmes on Schooling Outcomes." *Journal of Development Effectiveness* 6 (1): 1–43.
- Banerjee, Abhijit Vinayak, Rukmini Banerji, James Berry, Esther Duflo, Harini Kannan, Shobhini Mukherji, Marc Shotland, et al. 2016. "Mainstreaming an Effective Intervention: Evidence from Randomized Evaluations of 'Teaching at the Right Level' in India." NBER Working Paper 22746, National Bureau of Economic Research, Cambridge, MA.
- Banerjee, Abhijit Vinayak, Shawn Cole, Esther Duflo, and Leigh Linden. 2007. "Remedying Education: Evidence from Two Randomized Experiments in India." *Quarterly Journal of Economics* 122 (3): 1235–64.
- Banerjee, Abhijit Vinayak, Suraj Jacob, and Michael Kremer. 2000. "Promoting School Participation in Rural Rajasthan: Results from Some Prospective Trials." With Jenny Lanjouw and Peter Lanjouw. Working paper, Massachusetts Institute of Technology, Cambridge, MA.
- Barrera-Orsorio, Felipe, and Deon Filmer. 2013. "Incentivizing Schooling for Learning: Evidence on the Impact of Alternative Targeting Approaches." Policy Research Working Paper 6541, World Bank, Washington, DC.
- Barrera-Orsorio, Felipe, and Leigh L. Linden. 2009. "The Use and Misuse of Computers in Education: Evidence from a Randomized Experiment in Colombia." Policy Research Working Paper 4836, World Bank, Washington, DC.
- Barro, Robert J., and Jong Wha Lee. 2013. "A New Data Set of Educational Attainment in the World, 1950–2010." *Journal of Development Economics* 104: 184–98.
- Bau, Natalie, and Jishnu Das. 2017. "The Misallocation of Pay and Productivity in the Public Sector: Evidence from the Labor Market for Teachers." Policy Research Working Paper 8050, World Bank, Washington, DC.
- Berlinski, Samuel, Sebastian Galiani, and Paul J. Gertler. 2008. "The Effect of Pre-primary Education on Primary School Performance." *Journal of Public Economics* 93 (1–2): 219–34.
- Berlinski, Samuel, and Norbert R. Schady, eds. 2015. *The Early Years: Child Well-Being and the Role of Public Policy*. Development in the Americas Series. Washington, DC: Inter-American Development Bank; New York: Palgrave Macmillan.
- Bernal, Raquel, Orazio Pietro Attanasio, Ximena Peña, and Marcos Vera-Hernández. 2016. "The Effects of the Transition from Home-Based Community Nurseries to Child-Care Centers on Children in Colombia." Working paper, Universidad de los Andes, Bogotá, Colombia.
- Birnbaum, Michael. 2010. "D.C. Schools Unveil Teacher-Pay Bonus Plan." *Washington Post*, September 12. <http://www.washingtonpost.com/wp-dyn/content/article/2010/09/10/AR2010091006604.html>.
- Black, Maureen M., Susan P. Walker, Lia C. H. Fernald, Christopher T. Andersen, Ann M. DiGirolamo, Chunling Lu, Dana C. McCoy, et al. 2017. "Early Childhood Development Coming of Age: Science through the Life Course." *Lancet* 389 (10064): 77–90.
- Blimpo, Moussa P. 2014. "Team Incentives for Education in Developing Countries: A Randomized Field Experiment in Benin." *American Economic Journal: Applied Economics* 6 (4): 90–109.
- Bloom, Nicholas, Renata Lemos, Raffaella Sadun, Daniela Scur, and John Van Reenen. 2014. "JEEA-FBBVA Lecture 2013: The New Empirical Economics of Management." *Journal of the European Economic Association* 12 (4): 835–76.
- Bloom, Nicholas, Renata Lemos, Raffaella Sadun, and John Van Reenen. 2015. "Does Management Matter in Schools?" *Economic Journal* 125 (584): 647–74.
- Bold, Tessa, Deon Filmer, Gayle Martin, Ezequiel Molina, Brian Stacy, Christophe Rockmore, Jakob Svensson, et al. 2017. "What Do Teachers Know and Do? Does It Matter? Evidence from Primary Schools in Africa." Policy Research Working Paper 7956, World Bank, Washington, DC.
- Bold, Tessa, Mwangi Kimenyi, Germano Mwabu, Alice Ng'ang'a, and Justin Sandefur. 2013. "Scaling Up What Works: Experimental Evidence on External Validity in Kenyan Education." Working Paper 321, Center for Global Development, Washington, DC.
- Bouguen, Adrien, Deon Filmer, Karen Macours, and Sophie Naudeau. 2013. "Impact Evaluation of Three Types of Early Childhood Development Interventions in Cambodia." Policy Research Working Paper 6540, World Bank, Washington, DC.
- Bragg, Debra D. 2014. "Career Pathways in Disparate Industry Sectors to Serve Underserved Populations." Paper presented at American Educational Research Association conference, Philadelphia, April 5.
- Bruns, Barbara, Deon Filmer, and Harry Anthony Patrinos. 2011. *Making Schools Work: New Evidence on Accountability Reforms*. Human Development Perspectives Series. Washington, DC: World Bank.
- Bruns, Barbara, and Javier Luque. 2015. *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. With Soledad De Gregorio, David K. Evans, Marco Fernández, Martin Moreno, Jessica Rodriguez, Guillermo Toral, and Noah Yarrow. Latin American Development Forum Series. Washington, DC: World Bank.
- Calcagno, Juan Carlos, and Bridget Terry Long. 2008. "The Impact of Postsecondary Remediation Using a Regression Discontinuity Approach: Addressing Endogenous Sorting and Noncompliance." NBER Working Paper 14194, National Bureau of Economic Research, Cambridge, MA.
- Campos, Jose Edgardo, Benjamina Randrianarivelo, and Kay Winning. 2015. "Escaping the 'Capability Trap': Turning 'Small' Development into 'Big' Development." *International Public Management Review* 16 (1): 99–131.
- Castillo, Melba, Vanesa Castro, José Ramón Laguna, and Josefina Vijil. 2011. *Informe de Resultados: EGMS Nicaragua*.

- Research Triangle Park, NC: Centro de Investigación y Acción Educativa Social and RTI International. <https://shared.rti.org/content/informe-de-resultados-egma-nicaragua>.
- Chang, Mae Chu, Sheldon Shaeffer, Samer Al-Samarrai, Andrew B. Ragatz, Joppe De Ree, and Ritchie Stevenson. 2013. *Teacher Reform in Indonesia: The Role of Politics and Evidence in Policy Making*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- Chisholm, Linda, and Ramon Leyendecker. 2008. "Curriculum Reform in Post-1990s Sub-Saharan Africa." *International Journal of Educational Development* 28 (2): 195–205.
- Ciaccio, Joseph. 2004. *Totally Positive Teaching: A Five-Stage Approach to Energizing Students and Teachers*. Alexandria, VA: ASCD.
- Coe, Christopher L., and Gabrielle R. Lubach. 2007. "Mother-Infant Interactions and the Development of Immunity from Conception through Weaning." In *Psychoneuroimmunology*, edited by Robert Ader, 455–74. Burlington, MA: Elsevier Academic Press.
- Conn, Katharine M. 2017. "Identifying Effective Education Interventions in Sub-Saharan Africa: A Meta-Analysis of Impact Evaluations." *Review of Educational Research* (May 26). <http://journals.sagepub.com/doi/abs/10.3102/0034654317712025>.
- Cristia, Julián P., Pablo Ibarrarán, Santiago Cueto, Ana Santiago, and Eugenio Severín. 2012. "Technology and Child Development: Evidence from the One Laptop Per Child Program." IZA Discussion Paper 6401, Institute for the Study of Labor, Bonn, Germany.
- Crouch, Luis. 2006. "Education Sector: Standards, Accountability, and Support." In *A New Social Contract for Peru: An Agenda for Improving Education, Health Care, and the Social Safety Net*, edited by Daniel Cotlear, 71–106. World Bank Country Study Series. Washington, DC: World Bank.
- Darling-Hammond, Linda, Ruth Chung Wei, Alethea Andree, Nikole Richardson, and Stelios Orphanos. 2009. "Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad." National Staff Development Council, Dallas.
- Das, Jishnu, Stefan Dercon, James Habyarimana, Pramila Krishnan, Karthik Muralidharan, and Venkatesh Sundararaman. 2013. "School Inputs, Household Substitution, and Test Scores." *American Economic Journal: Applied Economics* 5 (2): 29–57.
- Deaton, Angus S., and Nancy Cartwright. 2016. "Understanding and Misunderstanding Randomized Controlled Trials." NBER Working Paper 22595, National Bureau of Economic Research, Cambridge, MA.
- de Hoyos, Rafael E., Vicente A. Garcia-Moreno, and Harry Anthony Patrinos. 2017. "The Impact of an Accountability Intervention with Diagnostic Feedback: Evidence from Mexico." *Economics of Education Review* 58: 123–40.
- De Melo, Gioia, Alina Machado, and Alfonso Miranda. 2014. "The Impact of a One Laptop Per Child Program on Learning: Evidence from Uruguay." IZA Discussion Paper 8489, Institute for the Study of Labor, Bonn, Germany.
- de Ree, Joppe, Karthik Muralidharan, Menno Pradhan, and Halsey Rogers. 2015. "Double for Nothing? Experimental Evidence on the Impact of an Unconditional Teacher Salary Increase on Student Performance in Indonesia." NBER Working Paper 21806, National Bureau of Economic Research, Cambridge, MA.
- De Smedt, Bert. 2014. "Advances in the Use of Neuroscience Methods in Research on Learning and Instruction." *Frontline Learning Research* 2 (4): 7–14.
- Dua, Tarun, Mark Tomlinson, Elizabeth Tablante, Pia Britto, Aisha Yousfzai, Bernadette Daelmans, and Gary L. Darmstadt. 2016. "Global Research Priorities to Accelerate Early Child Development in the Sustainable Development Era." *Lancet Global Health* 4 (12): e887–e889.
- Duflo, Esther, Pascaline Dupas, and Michael Kremer. 2011. "Peer Effects, Teacher Incentives, and the Impact of Tracking: Evidence from a Randomized Evaluation in Kenya." *American Economic Review* 101 (5): 1739–74.
- Duflo, Esther, Rema Hanna, and Stephen P. Ryan. 2012. "Incentives Work: Getting Teachers to Come to School." *American Economic Review* 102 (4): 1241–78.
- Dweck, Carol S. 2008. *Mindset, the New Psychology of Success: How We Can Learn to Fulfill Our Potential*. New York: Ballantine Books.
- Education Commission. 2016. *The Learning Generation: Investing in Education for a Changing World*. New York: International Commission on Financing Global Education Opportunity.
- Engle, Patrice L., Lia C. H. Fernald, Harold Alderman, Jere Behrman, Chloe O'Gara, Aisha Yousafzai, Meena Cabral de Mello, et al. 2011. "Strategies for Reducing Inequalities and Improving Developmental Outcomes for Young Children in Low-Income and Middle-Income Countries." *Lancet* 378 (9799): 1339–53.
- EQUIP2 (Educational Quality Improvement Program 2). 2010. "Using Opportunity to Learn and Early Grade Reading Fluency to Measure School Effectiveness in Ethiopia, Guatemala, Honduras, and Nepal." Working paper, Educational Policy, Systems Development, and Management, U.S. Agency for International Development, Washington, DC.
- Evans, David K., and Anna Popova. 2016. "What Really Works to Improve Learning in Developing Countries? An Analysis of Divergent Findings in Systematic Reviews." *World Bank Research Observer* 31 (2): 242–70.
- Evans, David K., and Fei Yuan. 2017. "Economic Returns to Interventions That Increase Learning." Background paper, *World Development Report 2018*, World Bank, Washington, DC.
- Farah, I. 1996. "Road to Success: Self-Sustaining Primary School Change in Rural Pakistan." With T. Mehmood, Amna, R. Jaffar, F. Ashams, P. Iqbal, S. Khanam, Z. Shah, and N. Gul-Mastoi. Institute for Educational Development, Aga Khan University, Karachi, Pakistan.
- Fausset, Richard. 2014. "Trial Opens in Atlanta School Cheating Scandal." *New York Times*, September 29. https://www.nytimes.com/2014/09/30/us/racketeering-trial-opens-in-altanta-schools-cheating-scandal.html?_r=1.
- Filmer, Deon. 2016. "Educational Attainment and Enrollment around the World: An International Database." World

- Bank, Washington, DC. <http://go.worldbank.org/3GERWJ0Eo>.
- Fiszbein, Ariel, and Norbert R. Schady. 2009. *Conditional Cash Transfers: Reducing Present and Future Poverty*. With Francisco H. G. Ferreira, Margaret Grosh, Niall Keleher, Pedro Olinto, and Emmanuel Skoufias. World Bank Policy Research Report. Washington, DC: World Bank.
- Fryer, Roland G., Jr. 2011. "Financial Incentives and Student Achievement: Evidence from Randomized Trials." *Quarterly Journal of Economics* 126 (4): 1755–98.
- . 2017. "Management and Student Achievement: Evidence from a Randomized Field Experiment." Working paper, Harvard University, Cambridge, MA.
- Garner, Andrew S., Jack P. Shonkoff, Benjamin S. Siegel, Mary I. Dobbins, Marian F. Earls, Laura McGuinn, John Pascoe, et al. 2012. "Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science into Lifelong Health." *Pediatrics* 129 (1): e224–e231.
- Gertler, Paul J., James J. Heckman, Rodrigo Pinto, Arianna Zanolini, Christel Vermeersch, Susan Walker, Susan M. Chang, et al. 2014. "Labor Market Returns to an Early Childhood Stimulation Intervention in Jamaica." *Science* 344 (6187): 998–1001.
- Glewwe, Paul W., Eric A. Hanushek, Sarah D. Humpage, and Renato Ravina. 2011. "School Resources and Educational Outcomes in Developing Countries: A Review of the Literature from 1990 to 2010." NBER Working Paper 17554, National Bureau of Economic Research, Cambridge, MA.
- Glewwe, Paul W., Michael Kremer, and Sylvie Moulin. 2009. "Many Children Left Behind? Textbooks and Test Scores in Kenya." *American Economic Journal: Applied Economics* 1 (1): 112–35.
- Gove, Amber, and Peter Cvelich. 2011. "Early Reading, Igniting Education for All: A Report by the Early Grade Learning Community of Practice." Rev. ed. Research Triangle Park, NC: Research Triangle Institute.
- Grantham-McGregor, Sally M., Lia C. H. Fernald, Rose M. C. Kagawa, and Susan Walker. 2014. "Effects of Integrated Child Development and Nutrition Interventions on Child Development and Nutritional Status." *Annals of the New York Academy of Sciences* 1308 (1): 11–32.
- Green, Duncan. 2016. *How Change Happens*. Oxford, U.K.: Oxford University Press.
- Grindle, Merilee Serrill. 2004. *Despite the Odds: The Contentious Politics of Education Reform*. Princeton, NJ: Princeton University Press.
- Guilfoyle, Christy. 2006. "NCLB: Is There Life Beyond Testing?" *Educational Leadership* 64 (3): 8–13.
- Hanushek, Eric A. 1986. "The Economics of Schooling: Production and Efficiency in Public Schools." *Journal of Economic Literature* 24 (3): 1141–77.
- . 1992. "The Trade-Off between Child Quantity and Quality." *Journal of Political Economy* 100 (1): 84–117.
- . 1995. "Interpreting Recent Research on Schooling in Developing Countries." *World Bank Research Observer* 10 (2): 227–46.
- Hanushek, Eric A., Victor Lavy, and Kohtaro Hitomi. 2008. "Do Students Care about School Quality? Determinants of Dropout Behavior in Developing Countries." *Journal of Human Capital* 2 (1): 69–105.
- Hanushek, Eric A., and Ludger Woessmann. 2008. "The Role of Cognitive Skills in Economic Development." *Journal of Economic Literature* 46 (3): 607–68.
- Hungi, Njora, Demus Makuwa, Kenneth Norman Ross, Mioko Saito, Stéphanie Dolata, Frank Van Cappel, Laura Paviot, et al. 2010. "SACMEQ III Project Results: Pupil Achievement Levels in Reading and Mathematics." Southern and Eastern Africa Consortium for Monitoring Educational Quality, Paris.
- ILO (International Labor Organization). 2015. "Global Employment Trends for Youth 2015: Scaling Up Investments in Decent Jobs for Youth." ILO, Geneva.
- Insel, Thomas R., and Story C. Landis. 2013. "Twenty-Five Years of Progress: The View from Nimh and Ninds." *Neuron* 80 (3): 561–67.
- Jacob, Brian A. 2005. "Accountability, Incentives, and Behavior: The Impact of High-Stakes Testing in the Chicago Public Schools." *Journal of Public Economics* 89 (5): 761–96.
- . 2007. "Test-Based Accountability and Student Achievement: An Investigation of Differential Performance on NAEP and State Assessments." NBER Working Paper 12817, National Bureau of Economic Research, Cambridge, MA.
- Kiessel, Jessica, and Annie Duflo. 2014. "Cost Effectiveness Report: Teacher Community Assistant Initiative (TCAl)." IPA Brief (March 26), Innovation for Poverty Action, New Haven, CT.
- Kingdon, Geeta. 1996. "The Quality and Efficiency of Private and Public Education: A Case-Study of Urban India." *Oxford Bulletin of Economics and Statistics* 58 (1): 57–82.
- Kremer, Michael R. 1995. "Research on Schooling: What We Know and What We Don't, a Comment on Hanushek." *World Bank Research Observer* 10 (2): 247–54.
- Kremer, Michael R., Edward Miguel, and Rebecca Thornton. 2009. "Incentives to Learn." *Review of Economics and Statistics* 91 (3): 437–56.
- Kuhl, Patricia K. 2010. "Brain Mechanisms in Early Language Acquisition." *Neuron* 67 (5): 713–27.
- Lauwerier, Thibaut, and Abdeljalil Akkari. 2015. "Teachers and the Quality of Basic Education in Sub-Saharan Africa." ERF Working Paper 11, Education Research and Foresight, Paris.
- Lavinas, Lena, and Alinne Veiga. 2013. "Brazil's One Laptop Per Child Program: Impact Evaluation and Implementation Assessment." *Cadernos de Pesquisa* 43 (149).
- Layton, Lyndsey. 2015. "Study: Billions of Dollars in Annual Teacher Training Is Largely a Waste." *Washington Post*, August 4. https://www.washingtonpost.com/local/education/study-billions-of-dollars-in-annual-teacher-training-is-largely-a-waste/2015/08/03/c4e1f322-39ff-11e5-9c2d-ed991d848c48_story.html.
- Leder, Gilah C. 1987. "Teacher Student Interaction: A Case Study." *Educational Studies in Mathematics* 18 (3): 255–71.
- Lemos, Renata, and Daniela Scur. 2016. "Developing Management: An Expanded Evaluation Tool for Developing Countries." RISE Working Paper 16/007, Research on Improving Systems of Education, Blavatnik School of Government, Oxford University, Oxford, U.K.

- Levitt, Steven D., John A. List, Susanne Neckermann, and Sally Sadoff. 2016. "The Behavioralist Goes to School: Leveraging Behavioral Economics to Improve Educational Performance." *American Economic Journal: Economic Policy* 8 (4): 183–219.
- Levy, Brian, Robert Cameron, Ursula Hoadley, and Vinothan Naidoo. 2016. "The Politics of Governance and Basic Education: A Tale of Two South African Provinces." Occasional Working Paper 2, Graduate School of Development Policy and Practice, University of Cape Town, Cape Town.
- Liang, Xiaoyan, Huma Kidwai, and Minxuan Zhang. 2016. *How Shanghai Does It: Insights and Lessons from the Highest-Ranking Education System in the World*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- Linden, Leigh L. 2008. "Complement or Substitute? The Effect of Technology on Student Achievement in India." Edited by Michael Trucano. InfoDev Working Paper 17 (June), World Bank, Washington, DC.
- Lupien, Sonia J., Suzanne King, Michael J. Meaney, and Bruce S. McEwen. 2000. "Child's Stress Hormone Levels Correlate with Mother's Socioeconomic Status and Depressive State." *Biological Psychiatry* 48 (10): 976–80.
- Mansuri, Ghazala, and Vijayendra Rao. 2013. *Localizing Development: Does Participation Work?* Policy Research Report Series. Washington, DC: World Bank.
- Martorell, Paco, and Isaac McFarlin Jr. 2011. "Help or Hindrance? The Effects of College Remediation on Academic and Labor Market Outcomes." *Review of Economics and Statistics* 93 (2): 436–54.
- McCoy, Dana Charles, Evan D. Peet, Majid Ezzati, Goodarz Danaei, Maureen M. Black, Christopher R. Sudfeld, Wafaie Fawzi, et al. 2016. "Early Childhood Developmental Status in Low- and Middle-Income Countries: National, Regional, and Global Prevalence Estimates Using Predictive Modeling." *PLOS Medicine* 13 (6): e1002034.
- McEwan, Patrick J. 2015. "Improving Learning in Primary Schools of Developing Countries: A Meta-Analysis of Randomized Experiments." *Review of Educational Research* 85 (3): 353–94.
- Mingat, Alain, and Jee-Peng Tan. 1998. "The Mechanics of Progress in Education: Evidence from Cross-Country Data." Policy Research Working Paper 2015, World Bank, Washington, DC.
- Mizala, Alejandra, and Ben Ross Schneider. 2014. "Negotiating Education Reform: Teacher Evaluations and Incentives in Chile (1990–2010)." *Governance* 27 (1): 87–109.
- Morgan, Claire, Anthony Petrosino, and Trevor Fronius. 2012. "A Systematic Review of the Evidence of the Impact of Eliminating School User Fees in Low-Income Developing Countries." Evidence for Policy and Practice Information and Co-ordinating Centre, Social Science Research Unit, Institute of Education, University of London.
- Mulkeen, Aidan G. 2010. *Teachers in Anglophone Africa: Issues in Teacher Supply, Training, and Management*. Development Practice in Education Series. Washington, DC: World Bank.
- Mullis, I. V. S., M. O. Martin, P. Foy, and K. T. Drucker. 2012. "PIRLS 2011 International Results in Reading." TIMSS and PIRLS International Study Center, Boston College, Chestnut Hill, MA. <https://timssandpirls.bc.edu/pirls/2011/international-results-pirls.html>.
- Mullis, I. V. S., M. O. Martin, P. Foy, and M. Hooper. 2016. "TIMSS 2015 International Results in Mathematics." TIMSS and PIRLS International Study Center, Boston College, Chestnut Hill, MA. <http://timssandpirls.bc.edu/timss2015/international-results/>.
- Muralidharan, Karthik, Abhijeet Singh, and Alejandro Ganimian. 2016. "Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India." NBER Working Paper 22923, National Bureau of Economic Research, Cambridge, MA.
- Muralidharan, Karthik, and Venkatesh Sundararaman. 2011. "Teacher Performance Pay: Experimental Evidence from India." *Journal of Political Economy* 119 (1): 39–77.
- Muralidharan, Karthik, and Yendrick Zieleniak. 2013. "Measuring Learning Trajectories in Developing Countries with Longitudinal Data and Item Response Theory." Paper presented at Young Lives Conference, Oxford University, Oxford, U.K., July 8–9.
- Neal, Derek. 2013. "The Consequences of Using One Assessment System to Pursue Two Objectives." *Journal of Economic Education* 44 (4): 339–52.
- Nelson, Charles A. 2016. "Brain Imaging as a Measure of Future Cognitive Outcomes: A Study of Children in Bangladesh Exposed to Multiple Levels of Adversity." Presentation, CMU Department of Psychology Colloquium, Department of Psychology, College of Humanities and Social Sciences, Carnegie Mellon University, Pittsburgh, September 29.
- Nguyen, Trang. 2008. "Information, Role Models, and Perceived Returns to Education: Experimental Evidence from Madagascar." Economics Department, Massachusetts Institute of Technology, Cambridge, MA.
- OECD (Organisation for Economic Co-operation and Development). 2011. *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*. Paris: OECD.
- . 2016. *PISA 2015 Results: Excellence and Equity in Education*. Vol. 1. Paris: OECD.
- Orazem, Peter F. 2000. "The Urban and Rural Fellowship School Experiments in Pakistan: Design, Evaluation, and Sustainability." *Economics of Education Review* 22 (3): 265–74.
- Orazem, Peter F., Paul W. Glewwe, and Harry Patrinos. 2007. "The Benefits and Costs of Alternative Strategies to Improve Educational Outcomes." Department of Economics Working Paper 07028, Iowa State University, Ames.
- Park, Rufina Kyung Eun. 2016. "Preparing Students for South Korea's Creative Economy: The Successes and Challenges of Educational Reform" [refers to the Republic of Korea]. Research Report, Asia Pacific Foundation of Canada, Vancouver.
- Pascale, Richard T., Jerry Sternin, and Monique Sternin. 2010. *The Power of Positive Deviance: How Unlikely Innovators Solve the World's Toughest Problems*. Boston: Harvard Business Press.
- PASEC (Programme d'Analyse des Systèmes Éducatifs de la Confemen). 2015. *PASEC 2014: Education System Performance*

- in Francophone Africa, *Competencies and Learning Factors in Primary Education*. Dakar, Senegal: PASEC.
- Paxson, Christina H., and Norbert R. Schady. 2007. "Cognitive Development among Young Children in Ecuador: The Roles of Wealth, Health, and Parenting." *Journal of Human Resources* 42 (1): 49–84.
- Piper, Benjamin, Evelyn Jepkemei, Dunston Kwayumba, and Kennedy Kibukho. 2015. "Kenya's ICT Policy in Practice: The Effectiveness of Tablets and E-readers in Improving Student Outcomes." *FIRE: Forum for International Research in Education* 2 (1): 3–18.
- Pradhan, Menno, Daniel Suryadarma, Amanda Beatty, Maisy Wong, Arya Gaduh, Armida Alisjahbana, and Rima Prama Artha. 2014. "Improving Educational Quality through Enhancing Community Participation: Results from a Randomized Field Experiment in Indonesia." *American Economic Journal: Applied Economics* 6 (2): 105–26.
- Pritchett, Lant. 2013. *The Rebirth of Education: Schooling Ain't Learning*. Washington, DC: Center for Global Development; Baltimore: Brookings Institution Press.
- Pritchett, Lant, and Amanda Beatty. 2015. "Slow Down, You're Going Too Fast: Matching Curricula to Student Skill Levels." *International Journal of Educational Development* 40: 276–88.
- Pritchett, Lant, and Justin Sandefur. 2013. "Context Matters for Size: Why External Validity Claims and Development Practice Do Not Mix." *Journal of Globalization and Development* 4 (2): 161–98.
- Rajkumar, Andrew Sunil, and Vinaya Swaroop. 2008. "Public Spending and Outcomes: Does Governance Matter?" *Journal of Development Economics* 86 (1): 96–111.
- Rivkin, Steven G., Eric A. Hanushek, and John F. Kain. 2005. "Teachers, Schools, and Academic Achievement." *Econometrica* 73 (2): 417–58.
- Robinson, Viviane M. J., Claire A. Lloyd, and Kenneth J. Rowe. 2008. "The Impact of Leadership on Student Outcomes: An Analysis of the Differential Effects of Leadership Types." *Educational Administration Quarterly* 44 (5): 635–74.
- Rockoff, Jonah E. 2004. "The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data." *American Economic Review* 94 (2): 247–52.
- Romer, Paul Michael. 2015. "Botox for Development." *Paul Romer's Blog*, September 13. <https://paulromer.net/botox-for-development/>.
- RTI International. 2009. "Early Grade Reading Assessment Toolkit." Research Triangle Institute, Research Triangle Park, NC.
- Sabarwal, Shwetlena, David K. Evans, and Anastasia Marshak. 2014. "The Permanent Input Hypothesis: The Case of Textbooks and (No) Student Learning in Sierra Leone." Policy Research Working Paper 7021, World Bank, Washington, DC.
- Save the Children. 2013. "Ending the Hidden Exclusion: Learning and Equity in Education Post-2015." Education Global Initiative, Save the Children International, London.
- Schady, Norbert R., Jere Behrman, Maria Caridad Araujo, Rodrigo Azuero, Raquel Bernal, David Bravo, Florencia Lopez-Boo, et al. 2015. "Wealth Gradients in Early Childhood Cognitive Development in Five Latin American Countries." *Journal of Human Resources* 50 (2): 446–63.
- Scott-Clayton, Judith, and Olga Rodriguez. 2014. "Development, Discouragement, or Diversion? New Evidence on the Effects of College Remediation Policy." *Education Finance and Policy* 10 (1): 4–45.
- Singh, Abhijeet. 2015. "Learning More with Every Year: School Year Productivity and International Learning Divergence." CESifo Area Conference on the Economics of Education, CESifo Group, Munich, September 11–12.
- Snijlsteit, Birte, Jennifer Stevenson, Radhika Menon, Daniel Phillips, Emma Gallagher, Maisie Geleen, Hannah Jobse, et al. 2016. "The Impact of Education Programmes on Learning and School Participation in Low- and Middle-Income Countries: A Systematic Review Summary Report." 3ie Systematic Review Summary 7, International Initiative for Impact Evaluation, London. http://www.3ieimpact.org/media/filer_public/2016/09/20/srs7-education-report.pdf.
- Solano-Flores, Guillermo, Luis Ángel Contreras-Niño, and Eduardo Backhoff Escudero. 2005. "The Mexican Translation of TIMSS-95: Test Translation Lessons from a Post-mortem Study." Paper presented at Annual Meeting, National Council on Measurement in Education, Montreal, April 12–14.
- Spaull, Nicholas, and Janeli Kotze. 2015. "Starting Behind and Staying Behind in South Africa: The Case of Insurmountable Learning Deficits in Mathematics." *International Journal of Educational Development* 41: 13–24.
- Suryadarma, Daniel. 2012. "How Corruption Diminishes the Effectiveness of Public Spending on Education in Indonesia." *Bulletin of Indonesian Economic Studies* 48 (1): 85–100.
- Tan, Jee-Peng, and Alain Mingat. 1992. *Education in Asia: A Comparative Study of Cost and Financing*. World Bank Regional and Sectoral Studies Series. Washington, DC: World Bank.
- Tandon, Prateek, and Tsuyoshi Fukao. 2015. *Educating the Next Generation: Improving Teacher Quality in Cambodia*. Directions in Development: Human Development Series. Washington, DC: World Bank.
- Todd, Alexa, and Mark Mason. 2005. "Enhancing Learning in South African Schools: Strategies beyond Outcomes-Based Education." *International Journal of Educational Development* 25 (3): 221–35.
- Tooley, James, and Pauline Dixon. 2007. "Private Education for Low-Income Families: Results from a Global Research Project." In *Private Schooling in Less Economically Developed Countries: Asian and African Perspectives*, edited by Prachi Srivastava and Geoffrey Walford, 15–39. Oxford Studies in Comparative Education Series. Oxford, U.K.: Symposium Books.
- UIS (UNESCO Institute for Statistics). 2006. *Teachers and Educational Quality: Monitoring Global Needs for 2015*. Montreal: UIS.
- . 2016. "Sustainable Development Data Digest: Laying the Foundation to Measure Sustainable Development Goal 4." UIS, Montreal.
- UIS (UNESCO Institute for Statistics) and EFA (Education for All). 2015. "A Growing Number of Children and

- Adolescents Are Out of School as Aid Fails to Meet the Mark.” Policy Paper 22/Fact Sheet 31, UIS, Montreal; EFA, Paris.
- UNESCO (United Nations Educational, Scientific, and Cultural Organization). 2013. Third Regional Comparative and Explanatory Study (TERCE). UNESCO Regional Bureau for Education in Latin America and the Caribbean, Santiago, Chile. <http://www.unesco.org/new/en/santiago/education/education-assessment-llece/third-regional-comparative-and-explanatory-study-terce/>.
- . 2016. *Global Education Monitoring Report 2016, Education for People and Planet: Creating Sustainable Futures for All*. Paris: UNESCO. <http://unesdoc.unesco.org/images/0024/002457/245752e.pdf>.
- USAID (U.S. Agency for International Development). 2017. Early Grade Reading Barometer. Washington, DC. <http://www.earlygradereadingbarometer.org/>.
- Uwezo. 2014. “Are Our Children Learning? Literacy and Numeracy across East Africa 2013.” Twaweza, Nairobi.
- Wales, Joseph, Ahmed Ali, and Susan Nicolai. 2014. “Improvements in the Quality of Basic Education: Chile’s Experience.” With Francisca Morales and Daniel Contreras. Case Study Report: Education, Overseas Development Institute, London.
- Walker, Susan P., Theodore D. Wachs, Julie Meeks Gardner, Betsy Lozoff, Gail A. Wasserman, Ernesto Pollitt, Julie A. Carter, and the International Child Development Steering Group. 2007. “Child Development: Risk Factors for Adverse Outcomes in Developing Countries.” *Lancet* 369 (9556): 145–57.
- Waters, Tim, Robert J. Marzano, and Brian McNulty. 2003. “Balanced Leadership: What 30 Years of Research Tells Us about the Effect of Leadership on Student Achievement.” McRel Working Paper, McRel International, Denver.
- Wolf, Alison. 2004. “Education and Economic Performance: Simplistic Theories and Their Policy Consequences.” *Oxford Review of Economic Policy* 20 (2): 315–33.
- World Bank. 2003. *World Development Report 2004: Making Services Work for Poor People*. Washington, DC: World Bank; New York: Oxford University Press.
- . 2011. *World Development Report 2012: Gender Equality and Development*. Washington, DC: World Bank.
- . 2013. Service Delivery Indicators (database). World Bank, Washington, DC. <http://datatopics.worldbank.org/sdi/>.
- . 2014. “STEP Skills Measurement Surveys: Innovative Tools for Assessing Skills.” Social Protection and Labor Discussion Paper No. 1421. Washington, DC. <http://documents.worldbank.org/curated/en/516741468178736065/STEP-skills-measurement-surveys-innovative-tools-for-assessing-skills>.
- . 2016a. *Assessing Basic Education Service Delivery in the Philippines: The Philippines Public Education Expenditure Tracking and Quantitative Service Delivery Study*. Report AUS6799. Washington, DC: World Bank.
- . 2016b. “Francophone Africa Results Monitor: Basic Education (Multiple Countries).” World Bank, Washington, DC. <http://documents.worldbank.org/curated/en/docsearch/projects/P156307>.
- . 2017. “Driving Performance from the Center: Malaysia’s Experience with Pemandu.” Knowledge and Research: The Malaysia Development Experience Series, World Bank, Kuala Lumpur.

Contents of the *World Development Report 2018*

Foreword

Acknowledgments

Abbreviations

Overview: Learning to realize education's promise

Part I: Education's promise

1 Schooling, learning, and the promise of education

Part II: The learning crisis

2 The great schooling expansion—and those it has left behind

Spotlight 1: The biology of learning

3 The many faces of the learning crisis

Spotlight 2: Poverty hinders biological development and undermines learning

4 To take learning seriously, start by measuring it

Spotlight 3: The multidimensionality of skills

Part III: Innovations and evidence for learning

Spotlight 4: Learning about learning

5 There is no learning without prepared, motivated learners

6 Teacher skills and motivation both matter (though many education systems act like they don't)

7 Everything else should strengthen the teacher-learner interaction

8 Build on foundations by linking skills training to jobs

Spotlight 5: Technology is changing the world of work: What does that mean for learning?

Part IV: Making the system work for learning at scale

9 Education systems are misaligned with learning

Spotlight 6: Spending more or spending better—or both?

10 Unhealthy politics drives misalignments

11 How to escape low-learning traps

ECO-AUDIT

Environmental Benefits Statement

The World Bank Group is committed to reducing its environmental footprint. In support of this commitment, we leverage electronic publishing options and print-on-demand technology, which is located in regional hubs worldwide. Together, these initiatives enable print runs to be lowered and shipping distances decreased, resulting in reduced paper consumption, chemical use, greenhouse gas emissions, and waste.

We follow the recommended standards for paper use set by the Green Press Initiative. The majority of our books are printed on Forest Stewardship Council (FSC)–certified paper, with nearly all containing 50–100 percent recycled content. The recycled fiber in our book paper is either unbleached or bleached using totally chlorine-free (TCF), processed chlorine-free (PCF), or enhanced elemental chlorine-free (EECF) processes.

More information about the Bank’s environmental philosophy can be found at <http://www.worldbank.org/corporateresponsibility>.



Every year, the World Bank's *World Development Report* (WDR) features a topic of central importance to global development. The 2018 WDR—***LEARNING to Realize Education's Promise***—is the first ever devoted entirely to education. And the time is right: education has long been critical to human welfare, but it is even more so in a time of rapid economic and social change. The best way to equip children and youth for the future is to make their learning the center of all efforts to promote education.



The 2018 WDR explores four main themes:

First, **education's promise**: education is a powerful instrument for eradicating poverty and promoting shared prosperity, but fulfilling its potential requires better policies—both within and outside the education system.

Second, the need to **shine a light on learning**: despite gains in access to education, recent learning assessments reveal that many young people around the world, especially those who are poor or marginalized, are leaving school unequipped with even the foundational skills they need for life. At the same time, internationally comparable learning assessments show that skills in many middle-income countries lag far behind what those countries aspire to. And too often these shortcomings are hidden—so as a first step to tackling this learning crisis, it is essential to shine a light on it by assessing student learning better.

Third, how to **make schools work for all learners**: research on areas such as brain science, pedagogical innovations, and school management has identified interventions that promote learning by ensuring that learners are prepared, teachers are both skilled and motivated, and other inputs support the teacher-learner relationship.

Fourth, how to **make systems work for learning**: achieving learning throughout an education system requires more than just scaling up effective interventions. Countries must also overcome technical and political barriers by deploying salient metrics for mobilizing actors and tracking progress, building coalitions for learning, and taking an adaptive approach to reform.