Center for Global Development

RESEARCH ON IMPROVING SYSTEMS OF EDUCATION (RISE) VISION DOCUMENT 3

Why Research into Education Systems Is Needed

Key messages

- **The RISE initiative seeks to provide evidence on education systems in order to guide policymakers and others undertake practical, contextualized, achievable and successful reform oriented toward improving learning.**
- **It is important to appreciate how different parts of the system work together in order to orchestrate successful reform. Well-intentioned, narrow reforms (e.g. higher teacher pay, improving inputs, autonomy, etc.) that are implemented in ineffective systems may not be successful unless fundamental system features are also addressed.**
- **Systems that have been successful at large-scale logistical tasks such as increasing enrollments will need to be reoriented to implement measures, such as professionalizing teaching, required for learning improvements. The RISE initiative will investigate how this reorientation can be successful in different contexts.**

Addressing the global learning crisis and putting countries on a path towards achieving learning goals in a generation is going to require more than more of business as usual. It requires reforms that change the way that education systems work so that they create a powerful impetus toward continuous improvement in system features—like instructional practices—through teacher recruitment, retention, support and compensation. Understanding education systems in ways that could help policy makers and others guide practical, contextualized, achievable and successful reform is the objective of the Research on Improving Systems of Education (RISE initiative.

Education systems are puzzles with lots of pieces

When a child shows up at a school ready to learn, what does it take for her to have a successful learning experience? The primordial requirement is a teacher who:

- Knows what it is the child is meant to learn
- Understands the subject and can model it
- Has mastery of at least one effective technique for teaching the material
- Is motivated to assist the child's learning
- Is able to assess whether a student has mastered the material

The teacher must be supported with:

- Physical facilities adequate to the learning process
- Instructional materials

A system approach to education asks "who" "how" and "why" for each of these key functions required for learning. An analytical description of a system has to be able to answer:

- *Who* is responsible for assuring the classrooms have teachers who know the subject matter? *Who* is responsible for building schools? *Who* is responsible for assessing progress?
- *How* are these people expected to carry out their functions—to what financial resources do they have access? What technical support are they given? What actions can they take? *Why* will people who are responsible do a good job at fulfilling their functions?

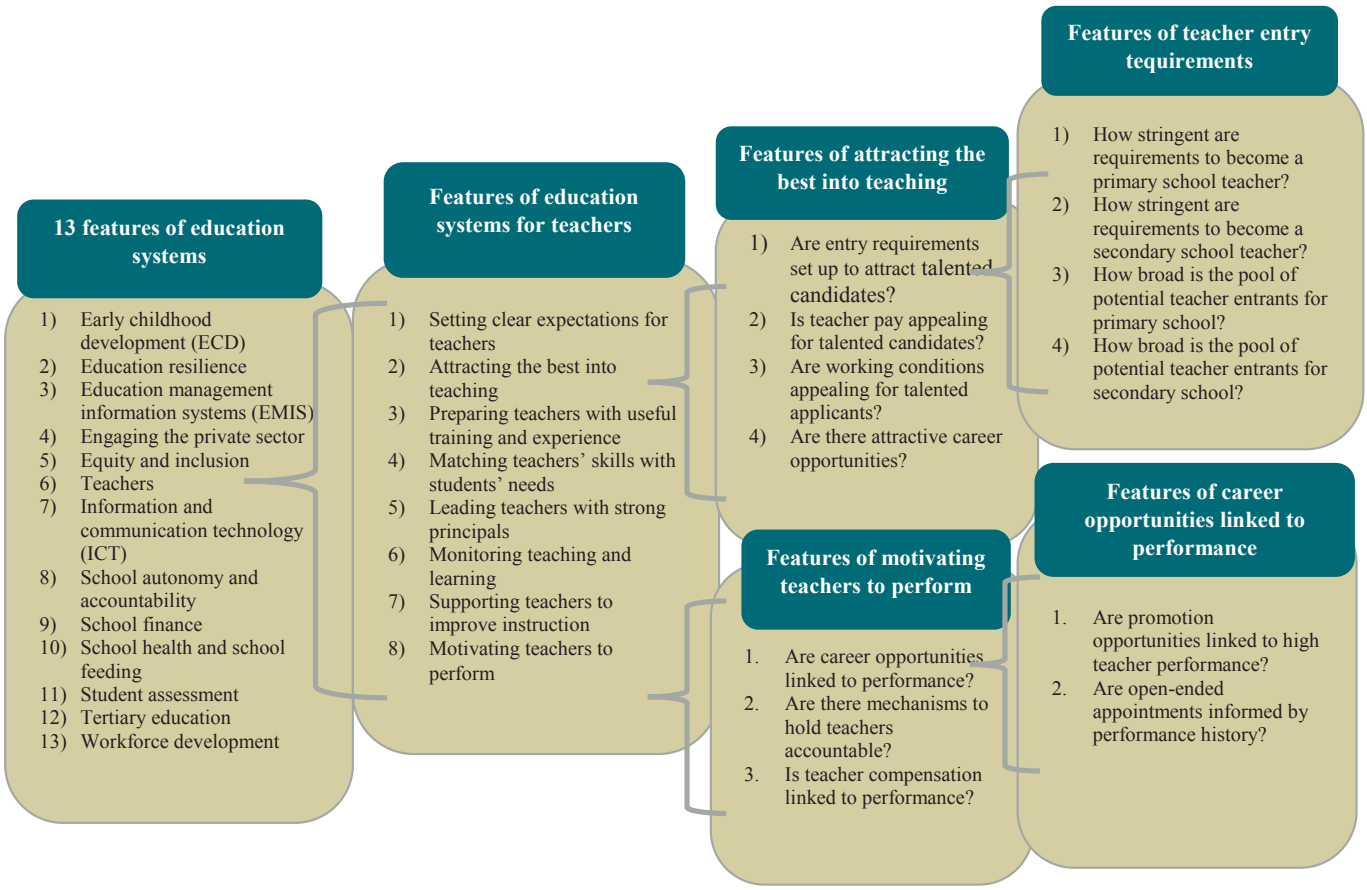
Even *describing* how education systems actually operate in practice—as opposed to simply describing how they look—is a challenging task. The SABER (Systems Approach for Better Education Results) effort at the World Bank aims to do just this. Figure 1 illustrates the challenge. The effort divides the education system up into 13 policy areas, one of which is teachers. Within this policy area are elements of a desirable (sub)system for teachers, such as "setting clear expectations for teachers" and "motivating teachers to perform." Just to describe the teacher policy area involves 57 distinct questions, each of which is broad. For example, under "setting clear expectations for teachers" one question asks "Are there standards for what students must know and be able to do?" Just describing five of the thirteen policy areas of an education system involves 398 distinct questions.

Despite the challenges in describing a system, it is clear that some countries have managed to create effective systems—ones that lead to effective classroom instruction and good learning outcomes—whereas other countries and regions have not.

Ignoring interactions in education systems can lead a good policy to fail

There are many examples of education reforms around the globe that have focused on only one element of an education system or even just a policy reform, and ignored complimentary elements needed for success, with poor and often costly results. Successful reforms depend on reforms understanding how the parts of the system work together.

Figure 1: Describing education system functions is complicated and difficult



Source: World Bank, 2015

One example is teacher pay. Many high performing education systems pay their teachers well. Finland is often cited as an illustration of this point, since it is one of the best OECD performers on Programme for International Student Assessment (PISA) and has well-paid teachers. Unfortunately, without an understanding of how systems operate and Finland's context, policymakers could conclude that just paying teachers well will produce a high quality education system.

In Indonesia for instance, there was a proposal to improve teaching by simultaneously increasing teacher pay substantially and changing the way teacher performance was measured and rewarded. Unfortunately as the new Teacher Law was actually passed by the legislature, the complementary system reform measures were dropped. All teachers with formal qualifications had their pay doubled after some formalities that aren't linked to performance. The pay increase over the original base salaries cost four billion US dollars a year in 2013 (Chang et al., 2014). Yet rigorous evidence of the impact of this massive increase in expenditure (using randomized sequencing of teacher eligibility for higher pay to estimate the causal impact of higher pay), finds that the increase in pay had exactly zero impact on student learning (de Ree et al., 2015). Not at all surprisingly to those with a system perspective, higher pay for teachers, without the other elements of the Finnish system, did not achieve the intended impact. A decade of opportunity—and a decade of chances for children—and billions of dollars were squandered.

Along with higher pay, high-performing education systems also spend what it takes to achieve quality schools. But without understanding systems, countries often assume that spending more will produce high quality systems.

In India, the national government launched a large central program to increase expenditures by providing funds to the states. From 2008 to 2012, the per student education budget more than doubled. However, over that same period, the assessed reading and mathematics competency of children in government schools in rural areas declined substantially. More and more parents and students opted out of government schools into private schools (Ministry of Finance, 2014). This isn't because the inputs didn't improve. In the state of Tamil Nadu from school years 2004/05 to 2011/12, the fraction of schools with drinking water increased from 80 to 100 percent, the fraction with girls toilets increased from 25 to 75 percent, and pupil teacher ratios fell from 55 to 29. However, despite these improvements, enrollment in government schools *fell* by 1.2 million students while private enrollment increase by 900,000, and assessed reading and math ability in rural areas stagnated (Pritchett, 2014).

It is also commonly believed that more school autonomy will lead to higher quality schools. But even reforms of entire systems have less than expected impact if they ignore interactions among system components. Chile in 1981 adopted a "money follows the student" system that provided private schools with public funding and "municipalized" school funding so that municipal governments mostly received funding on a per student basis. Yet while evidence showed that students in private schools appeared to learn modestly more than in public schools, the overall transformative effects seemed small. Indeed, Chileans were more than a little surprised when their first PISA participation in 2000 revealed

their reading score of 410, which put them behind both Argentina (418) and Mexico (422). Clearly just "school autonomy"—even if it is one element of some high performing systems—needed other complementary actions to make it effective. By introducing additional system reforms focused on learning, Chile's reading scores increased from 410 in 2000 to 441 in 2012 (the highest in South America).

The thick and thin of education systems: The hard transition from one kind of success to another

The anthropologist Clifford Geertz (1973) coined the term "thick description" to distinguish the "thick" realities of human existence from "thin" characterizations based on broad categories. Similarly, the political scientist James Scott (1998) describes the phenomena of "seeing like a state" that reduces reality to only those elements easily visible to a bureaucracy.

When the task at hand is logistics, then using large bureaucracies with top-down management based on "thin" criteria works well. The massively successful expansion of education systems in the developing world is in part attributable to pure logistics: building schools, delivering textbooks, and buying desks and chairs. With economies of scale and scope, large organizations are often the most efficient for completing these tasks and emerge naturally.

But when the task at hand is a professional service, there are no gains from top-down, "thin" approaches or economies of scale. Left to the natural forces of organizational formation in a mixed economic system (that is, unless forced by government), there are for example no large firms of dentists. A large law firm in the USA has a few hundred lawyers. There are 12 million students in the USA enrolled in four-year universities, and yet none of the top five universities or top five liberal arts colleges have more than 7,000 students. The origins of Oxford University go back almost a thousand years and yet it still has less than 12,000 students.

There is tension between economies of scale and scope achieved by large organizations characterized by "thin" management and the demand for functions such as the ability to create trust, instill motivation and adapt, which require "thick" relationships amongst professional service providers and between providers and people they serve. The "thick" tends to put strong checks on the size of organizations that provide high quality professional services.

Thus, the pivot from the logistics of "thin" aspects of expanding schooling to achieve enrollment goals—which was a fantastically successful strategy —to success in the "thick" aspect of improving the instructional practices to which children are exposed in their time in school to achieve learning goals, is going to be difficult. Education Management Information Systems (EMIS) are seen as a way to achieve "quality" schools where "quality" is a reductionist definition of compliance with a set of thin or "EMIS visible" characteristics such as the formal qualifications of teachers, the physical condition of the school, and availability of inputs. Unfortunately, experience and evidence shows that quality teaching and student learning cannot be reduced to a thin formula.

A RISE research agenda

The RISE project is driven by *wanting* solid, evidence-based, policy-actionable answers to hard questions about how to reform existing education systems. The next stage of reform builds on the success in expanding enrollments and inputs and moves to accelerating progress on student learning at national scale. We don't have these answers to the hard questions yet, nor do we expect these answers to be easy, simple one-liners (like "accountability" or "privatization") or result in context-free best practice recommendations. These questions about how to reform education systems include the following:

- Can setting concrete learning goals with specific time horizons (like all children in grade 3 reading fluently) help reorient systems from inputs to outcomes? If so, how can policymakers avoid the dangers of replacing "thin" input goals with "thin" output goals – e.g., the pitfalls of high-stakes testing, and rewarding only a narrow set of outcomes?
- What role does student assessment play—including assessment by civil society actors, and the dissemination of those results—in creating a political and bureaucratic environment for action (including "positive deviance" and "disruptive" innovations)?
- How can teaching become less of a routine occupation for bureaucrats (like postal workers) and more professionalized (like dentistry) with strong norms of behavior and a system to attract the best into a highly valued—and appropriately compensated—vocation?
- How can education systems become more open to innovation, evidence about what works, and to the scaled diffusion of successful instructional practices through support to teachers to be better teachers?
- How can public sector educational finance be structured to flow to schools of various types in ways that provide an appropriate combination of autonomy and accountability for results?

The RISE initiative will attempt to answer some of these questions over the next several years. Recognizing that answers are context dependent, RISE will focus on building in-country research teams (paired with researchers from around the world) that are embedded in a domestic policy conversation. Recognizing the frequent disconnect between research evidence and policy implementation, RISE will focus specifically on the political and organizational obstacles of implementing large-scale reforms. As such, the approach will need to be methodologically flexible—experimental and non-experimental, mainly quantitative but also qualitative—striving to collect nationally representative samples of longitudinal data over multiple years that will provide a platform to assess new reform initiatives as they arise.

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This is the third in a series of three documents describing the vision of the RISE (Research on Improving Systems of Education) program. The first vision document is The Pivot from Schooling to Education and the second is Ambitious Learning Goals Need Audacious New Approaches.

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