System Coherence for Learning: Applications of the RISE Education Systems Framework

Michelle Kaffenberger and Marla Spivack

Abstract

In recent decades, education systems in most low- and middle-income countries (LMICs) have rapidly expanded access to schooling, but learning has lagged behind. There are many reasons for low learning in LMICs. Proximate determinants (such as insufficient financing or poor school management) receive much attention, but focus on these often ignores underlying system drivers. In this paper, we use a systems approach to describe underlying system dynamics that drive learning outcomes. To do so, we first describe the RISE education systems framework and then apply it to two cases. In the case of Sobral, Brazil, the systems framework illustrates how a coherent package of reforms, improving upon multiple system components, produced positive outcomes. In the case of Indonesia, a reform that increased teacher pay, but did not change underlying system dynamics, had no impact on learning. The paper shows how a systems approach can help to understand success, diagnose failure, and inform action to bring about improvements to children's learning.

System Coherence for Learning: Applications of the RISE Education Systems Framework

Michelle Kaffenberger
Blavatnik School of Government, University of Oxford
michelle.kaffenberger@bsg.ox.ac.uk

Marla Spivack
Kennedy School of Government, Harvard University
marla_spivack@hks.harvard.edu

1. Introduction

In recent decades, education systems in most low- and middle-income countries (LMICs) have succeeded in rapidly expanding access to schooling, so that today most children attend at least some school. However, this expansion in schooling access has not produced commensurate improvements in learning outcomes. A global learning crisis is widely acknowledged (World Bank, 2018; Angrist et al 2021; Beatty et al 2021; Le Nestour et al 2021).

The Research on Improving Systems of Education (RISE) Programme is a long-term, multi-country research programme applying systems thinking and analysis to understand why learning is low and how education systems can shift to improve outcomes. The programme's research agenda is anchored around a framework that specifies the elements, relationships, and feedback loops in education systems, and the ways these interact to achieve or frustrate children's learning. The framework hypothesizes that low learning is the result of education systems that are primarily coherent for *schooling* rather than for *learning*, and that systems deliver learning when their elements are coherent for learning objectives.

There are many potential drivers of low learning in LMICs. Financing may be inadequate (UNESCO, 2015); teaching and learning materials may be lacking (UNESCO, 2016); teachers may be in short supply or poorly prepared (Education Commission, 2019); schools may be poorly managed (Lemos et al 2021) and more. These challenges represent proximate determinants of the learning crisis, or the determinants most directly (whether temporally or mechanistically) associated with low learning (Pritchett, 2015). A systems thinking approach asks what system dynamics produced these proximate determinants of low learning and seeks to understand their underlying causes.

The effects of many proximate determinants of learning also vary widely across contexts (Pritchett, 2021). One study found that the effect of smaller class sizes varied from negative, to zero, to positive in different settings (Wößmann and West 2006). A recent report by the World Bank compared effectiveness of different categories of learning interventions. Programmes in one category designated as a "good buy" (structured lesson plans with linked materials, teacher training, and monitoring) ranged from the least effective (i.e. a negative impact on learning outcomes) to the second most effective of all included interventions (World Bank, 2020). Systems thinking can help diagnose the system dynamics that drive such varied outcomes.

The RISE education systems framework is a tool for understanding the underlying system dynamics that drive the level and efficacy of proximate determinants of learning and, ultimately, learning outcomes. It can be used to understand education system outcomes at different levels of schooling (e.g. primary, secondary) and different levels of the education system (e.g. municipal, state, national). The framework helps understand success, diagnose failure, and inform actions that, taking into account the interactions in a system, could bring about change. This chapter will

describe the RISE education systems framework and provide two applications of the framework to empirical examples of system coherence and incoherence for learning.

2. The RISE Education Systems Framework

The RISE education systems framework provides the scaffolding for considering the key elements, actors, and relationships in an education system and the ways these interact to produce the system's outcomes (Pritchett, 2015).[1]
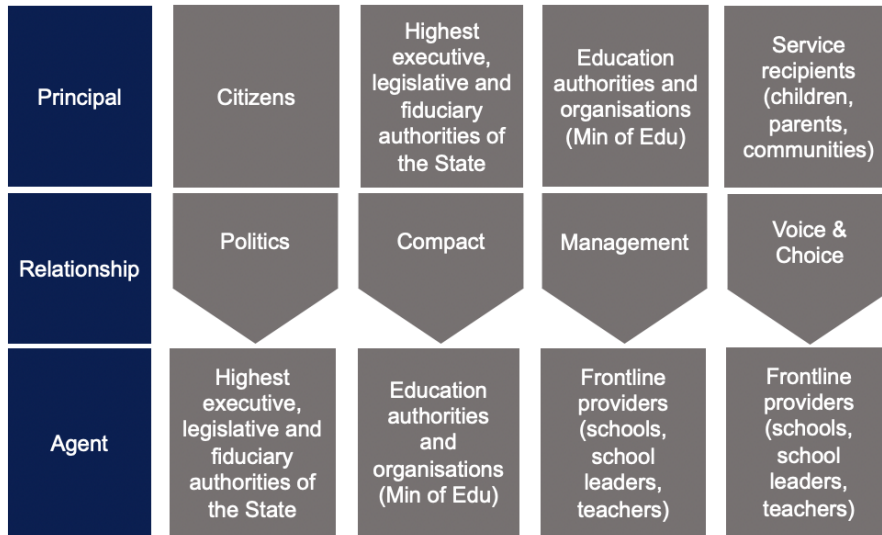
The RISE framework is rooted in the conceptualization of service delivery systems presented in the 2004 World Development Report (WDR) "Delivering Services to the Poor." This report framed service delivery systems as a set of interconnected principal-agent relationships, referred to as an accountability triangle (World Bank, 2004). This conceptualization in turn was underpinned by the "strategic triangle" articulated in Moore's (1995) *Creating Public Value: Strategic Management in Government*. The RISE framework adapts the WDR accountability triangle to describe the education sector. It also draws on insights about how states build capability for implementation, which are introduced in *Building State Capability* (Andrews, Pritchett, and Woolcock, 2016).

Actors and relationships

Education systems are made up of many actors. The RISE framework summarizes these actors as: citizens (parents, children, communities); executive, legislative, and fiduciary authorities; education authorities and organizations; and frontline workers (school leaders, head teachers, teachers, etc.). It uses the paradigm of a relationship of accountability, with a principal and an agent, to describe their interactions (Figure 1) (Pritchett, 2015; World Bank, 2004). In its simplest form, this frames the relationships in terms of a principal who wants a task accomplished and engages an agent to complete the task. For example, a ministry of education wants children to be taught, so it engages teachers to teach children.

---

[1] This section draws heavily on Pritchett (2015) and a summary of the framework provided in Spivack (2021).

Figure 1. Four accountability relationships in the education system

Principal	Citizens	Highest executive, legislative and fiduciary authorities of the State	Education authorities and organisations (Min of Edu)	Service recipients (children, parents, communities)
Relationship	Politics	Compact	Management	Voice & Choice
Agent	Highest executive, legislative and fiduciary authorities of the State	Education authorities and organisations (Min of Edu)	Frontline providers (schools, school leaders, teachers)	Frontline providers (schools, school leaders, teachers)

Source: Spivack 2021, adapted from Pritchett 2015

The RISE systems framework includes four key relationships of accountability between these actors (Figure 2) (Pritchett, 2015; World Bank 2004). First, the politics relationship is the relationship between citizens, who are the principal, and the highest executive, legislative and fiduciary authorities of the state (e.g. the president or prime minister's office, the parliament, and the finance ministry), which are the agents. This represents the ways citizens express preferences to political actors, and, ideally, hold political actors accountable for their actions. Among citizens there may be groups or coalitions with varying degrees of influence in the politics relationship. For example the wealthy or privileged may have more influence than the poor or marginalized (Figure 2).

Second, the compact relationship is the relationship between the highest executive, legislative and fiduciary authorities of the state, the principal, and education authorities and organizations, the agent. In this relationship, (non-education) authorities, such as the ministry of finance or legislature, interact with education actors such as the ministry of education, through actions such as determining budgets or delegating priorities.

Third, management is the relationship between education authorities and organizations, the principal, and frontline workers, such as school leaders and teachers, who are the agents.

Education authorities include all levels of the education bureaucracy, and the dynamics of this relationship vary based on factors such as level of (de)centralization.[2]

Fourth, voice and choice is the relationship between recipients of services, including parents, children and communities, who are the principals, and the frontline workers that provide services, including school leaders and teachers, who are the agents. As part of this relationship frontline providers provide instructional services to children.

Figure 2. Relationships and actors in the education system
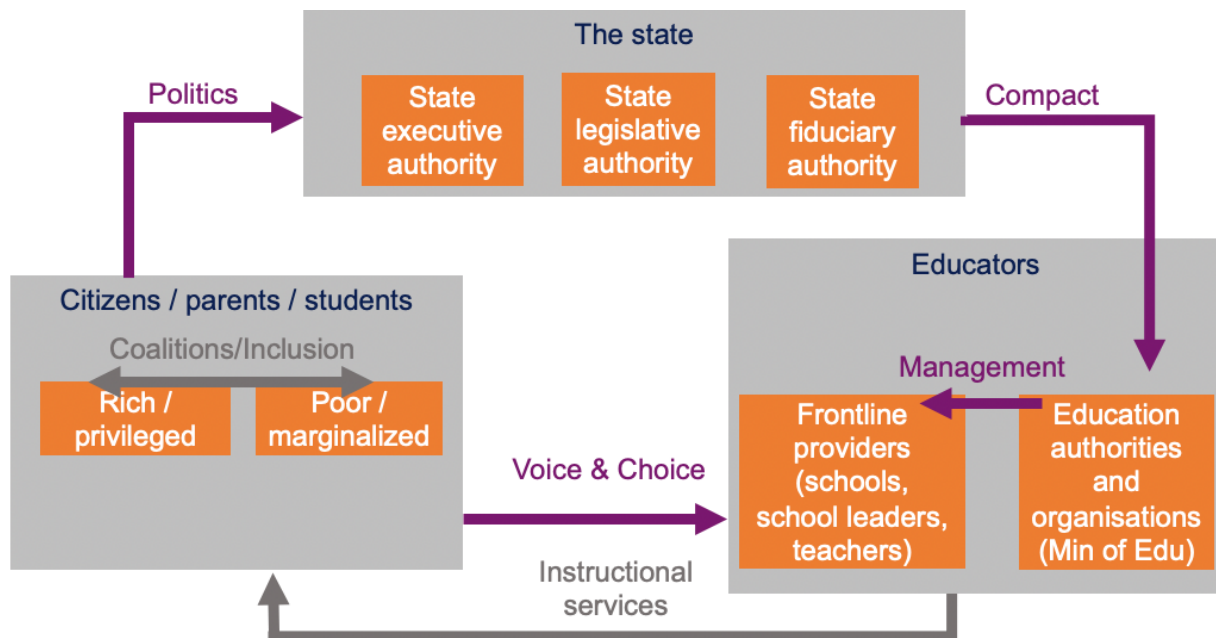
Source: Adapted from Pritchett, 2015.

Design elements

Actors in an education system interact in many ways. The RISE framework includes five design elements that cut across each relationship and describe the interactions between the actors. These design elements describe the relationship between the principal and the agent in terms of what the principal asks the agent to do, and how the principal equips the agent to do it and monitors and incentivizes their performance (Pritchett, 2015).

---

[2] In many education systems the management relationship exists within a single organization – the ministry of education. This would be the case if all or most education functions fall under the remit of a single ministry. In other education systems the relationship is more complex, with multiple organizations in the "education authority" role, and each with their own set of frontline workers. For example, in some systems there are schools that fall under the authority of the ministry of education, and other schools that are managed by a religious authority.

The first design element is delegation, which is what the principal delegates to or expects the agent to do. Second is finance, referring to the resources the principal has allocated to the agent to achieve the assigned task. Third is the information the principal uses to assess the agent's performance. Fourth is support, which refers to the preparation and assistance that the principal provides to the agent to complete the task (e.g. teacher training and instructional materials). Fifth is motivation, referring to how the principal motivates the agent, including the ways in which the agent's welfare is contingent on their performance. Motivation can be external (mediated by principal, i.e., salary) or internal (mediated by agent, i.e., job satisfaction).

Combining the four key relationships and five design elements produces a 5x4 matrix (Table 1) which represents the RISE systems framework, and facilitates analysis of the interactions between actors in the system and how these interactions produce system outcomes.

Table 1. The 5x4 Education Systems Framework (5 design elements and 4 relationships of accountability)

Five elements of each relationship	Principal-agent relationships			
	Politics: Citizens to the highest authorities of the state	**Compact**: Highest authorities of the state to education authorities	**Management**: Education authorities to frontline providers (schools, school leaders, and teachers)	**Voice & Choice**: Service recipients (parents/children) to frontline providers (schools, school leaders, teachers)
Delegation: What the principal wants the agent to do.		Example 1. (a) Executive authority delegates learning improvements	Example 2. (a) Education ministry launches new foundational skills learning initiative	Example 2. (b) Parents prefer and pressure schools and teachers to prioritize preparation for high stakes school leaving exams
Finance: the resources the principal has allocated to the agent to achieve assigned task.				
Information: how the principal asses the agent's performance		Example 1. (b) Despite delegating learning improvements, Executive authority only monitors information on enrollment rates and teacher attendance		
Support: preparation and assistance that the principal provides to the agent to complete the task.				
Motivation: How the principal motivates the agent, including the ways in which agent's welfare is contingent on their performance against objectives.				

Source: Adapted from Pritchett, 2015, with examples from the authors.

Embedded in the RISE framework is the assumption that coherence across relationships of accountability and design elements matters for the outcomes a system produces (Pritchett, 2015).

To produce learning, the framework hypothesizes that relationships and design elements need to be at least somewhat aligned with learning objectives.

Systems may be incoherent for learning in at least two ways. First, education systems can be coherent for a goal other than learning. In recent decades, many education systems in LMICs have achieved rapid and large-scale increases in school grade attainment by making their systems coherent for schooling access (Pritchett, 2013). Some education systems are coherent for identifying and selecting top performers for elite schooling, while leaving most children behind (Muralidharan and Singh, 2021). In these situations, the columns and rows of the RISE framework are largely aligned with each other but working towards a goal other than universal learning.

Second, the relationships of accountability and design elements can be incoherent with each other. An education ministry may delegate to schools and teachers to improve learning outcomes, but not provide the training or support needed for teachers to improve their instruction.

Incoherence can arise within a relationship (between design elements). For example, within a compact relationship, the executive authority may delegate learning improvements but only ask education authorities (i.e. ministry of education) for information on enrollment rates and teacher attendance (Example 1 in Table 1). In this case there is incoherence between what is delegated and the information used to evaluate the ministry's performance. This undermines the delegated objective as education ministry officials are likely to focus to what is being measured, rather than what is being rhetorically delegated.

Incoherence can also arise within a design element (between the relationships of accountability). For example, the education ministry may launch a new initiative aimed at ensuring all children master foundational skills and delegate these priorities to teachers and schools. Parents, however, may prioritize their children passing a high-stakes exam, and pressure teachers to prioritize test preparation (Example 2 in Table 1).

Of course, this is not the only framework for studying educations systems, and other useful frameworks are discussed elsewhere in this book. The contributions of the RISE framework are to provide a structure for inquiry into the systemic roots of low learning outcomes, and to emphasize the role of coherence among relationships in driving system outcomes. Applying this framework to examine education systems can help identify incoherence that hinders progress.

3. **Delegation of learning goals and system alignment for learning through the lens of a systems framework: the Case of Sobral, Brazil**

A small but growing body of evidence suggests that a key to achieving large improvements in learning is the clear delegation of explicit learning goals by leadership in an education system, which establish a common purpose and drive other elements of the system to align around the learning goals (Kaffenberger, 2021; London, 2020). The RISE systems framework can be applied to better understand and analyze the sources and processes of such success.

This section analyzes, through the lens of the RISE framework, the experience of the municipality of Sobral, Brazil, which achieved transformative improvements in learning outcomes in recent years.[3] A theme in the Sobral experience is the commitment and dedication of municipal leadership to explicit learning goals, and the clear communication and delegation of those goals to the rest of the system. This established a common purpose and collective responsibility for achieving goals, and enabled many other elements of the system, including information, motivation, support, and finance, to align around the goals.[4]

In just 12 years, Sobral rose from being the 1,366th ranked municipality in Brazil for learning outcomes to being the top performer in Brazil's national basic education assessment (Crouch, 2020). This is despite high levels of poverty: its scores in 2017 were 80 percent higher than would be expected for its level of education expenditure relative to other Brazilian municipalities.

A key driver of Sobral's learning gains was the clear delegation of explicit learning goals by Sobral's mayor (Loureiro and Cruz, 2020; Crouch, 2020) and subsequent collective commitment to the goals (McNaught and Tami, forthcoming). In 2000-2001, an independent learning assessment conducted by the municipality revealed that 40 percent of primary school students could not read (Loureiro and Cruz, 2020). In response to these findings and others, Sobral's mayor established seven education goals, the top two priorities of which were achieving universal literacy in the first two years of primary school, and remediating children in higher grades who could not yet read (Becskehazy and Louzano, 2019). These goals had a slogan, "Alphabetization (literacy) at the Right Age", and significant collective responsibility was fostered in support of the goals. In the context of the RISE systems framework, this represents delegation in the compact relationship, in which the executive authority (in this case, the municipality's mayor) delegated goals to the education actors in the system. The Secretariat of Education, i.e. the education authority in the municipality, then delegated and supported schools and teachers to achieve these goals through the management relationship.

---

[3] This section draws on case studies of the Sobral experience by Cruz and Loureiro (2020) and Crouch (2020).
[4] The example of Sobral also shows how the RISE framework can be applied at different levels of the system, including national, regional, or municipal.

This delegation led to a series of policies and reforms that were coherent with each other, and coherent with the delegated learning goals. According to Loureiro and Cruz (2020; p.13), Sobral's success was due to "its ability to converge the whole education system toward learning", with sustained political leadership an essential condition underlying the other efforts. The efforts involved reforms to curriculum, pedagogy, training, and professional development for teachers (support); new student assessments used for tracking progress and informing adjustments to classroom instruction (information); new incentives and recognition for teachers tied to performance on the learning goals (motivation); and increased funding and financial autonomy (finance) (Table 2).

To support teachers and schools in achieving the learning goals, the Secretariat of Education set clear, sequenced learning objectives, establishing expectations for students at each learning level and grade (Loureiro and Cruz, 2020; Crouch, 2020). A sequenced curriculum was then developed, along with structured teaching and learning materials and student assessments, all aligned with the learning objectives. Teachers participated in initial training on the curriculum, learning objectives, pedagogical practices, and materials to be used in the classroom, as well as subsequent monthly in-service training. Regular classroom observations from schools' pedagogical coordinators and from Secretariat staff provided regular feedback and tailored support for teachers. Secretariat staff visited schools monthly to provide support to coordinators and teachers (Loureiro and Cruz, 2020).

New sources of information were introduced into the system, to track and support progress on the delegated learning goals, with "information about learning outcomes extensively used to guide the education strategy at the municipal, school, and classroom levels" (Loureiro and Cruz, 2020, p.18). Learning assessments were conducted twice per year, with midterm results used to inform course-correction, and end-of-year results used to inform strategies for the following year. Use of information on learning was a priority of education leadership – the Secretariat dedicated one-third of their time and effort to student assessment, including designing, implementing, and analyzing assessment results, and using results to provide feedback and guidance on progress to schools (Loureiro and Cruz, 2020). In the classroom, continuous assessment was part of the new, structured pedagogical approach, and teachers were trained and supported to use these assessments to adjust their instruction (Crouch, 2020).

Teachers and other education actors were provided with new incentives to motivate focus on the delegated learning goals. Financial incentives were established for teachers, pedagogical coordinators, and school principals when schools achieved annual learning goals, and teachers could receive bonuses if their class performed well (Loureiro and Cruz, 2020). Non-monetary incentives were also provided, including special honors and public recognition events for high-performing teachers (Crouch, 2020).

Finance reforms also supported achievement of the learning goals. Around the same time as the reforms, the federal government in Brazil began pooling education resources from the federal, state, and municipal governments and redistributing them based on student enrollments, reducing inequality in education financing, and increasing per-pupil financing particularly in poor municipalities including Sobral (Loureiro and Cruz, 2020). Within the municipality, Sobral undertook a major transition from politically appointed school principals to meritocratically selected principals, chosen for their technical and pedagogical skills. With skilled leadership in place, Sobral then devolved financial autonomy to schools, with two main effects. First, schools had both more financial independence and more responsibility for achieving results through results-based accountability. Second, the role of the Secretariat was transformed from a primarily administrative role to a technical role including providing pedagogical and assessment support to schools (Loureiro and Cruz, 2020).

While many education policies and projects aim to make changes in one cell of the RISE systems framework, such as increasing budget outlays (in the finance/compact cell) or implementing a teacher training program (in the support/management cell), the Sobral experience stands out for including a coherent set of reforms encompassing many cells of the framework. This integrated, system-wide approach, combined with political commitment to learning and the common purpose and collective responsibility for results at all levels of the system produced a system shift with large improvements in learning outcomes.

Table 2. System reforms in Sobral, Brazil created coherence for learning across the compact and management relationships and all 5 design elements

Five design elements	Principal-agent relationships of accountability			
	Politics	**Compact**	**Management**	**Voice & Choice**
Delegation		• Mayor delegates explicit learning goals, including universal literacy in first two years of primary, and remediation for children in older grades, with • Slogan of "Alphabetization (literacy) at the Right Age"	• Secretariat of Education delegates goals to schools and teachers and brings other system elements in line with the delegated goals	• Parents expressed initial resistance to reform, but regular dialogue from the mayor and Secretariat increased support. Parents were encouraged to reinforce learning goals, ensure their children attend school, and more.
Finance		• Federal education funding increased for poor municipalities, including Sobral	• Financial autonomy devolved to school level, giving more financial independence and responsibility for results	
Support			• Teachers provided with sequenced learning objectives, structured teaching and learning materials, training and professional development, and ongoing feedback and support through classroom observations, all aligned with learning goals.	
Information	• Information on low learning from new assessments were shared publicly by the mayor to increase citizen buy-in for improving learning		• Use of information on learning a top priority for education leadership, with 1/3 of time and effort dedicated to this. • Twice-yearly assessments used by education leadership to measure progress and inform course-correction and strategy. • Teachers supported to use continuous assessment in classroom for regular feedback on student progress and to inform adjustments to instruction.	
Motivation			• Financial incentives for teachers, in-school pedagogical coordinators, and principals for achieving learning goals • Public recognition events for high-performing teachers	

Source: Authors' analysis, drawing on Loureiro and Cruz, 2020 and Crouch, 2020.

4. Teacher career structures and compensation through the lens of a systems framework: the Case of Indonesia

The structure of teacher careers – how they are recruited, selected, retained, and motivated, and their professional norms – all bear critically on their performance and thus on their interactions with students. This section describes a teacher reform in Indonesia through the lens of the RISE framework and illustrates how the framework can help understand success and diagnose failure in reform efforts.

The structure of teacher recruitment in Indonesia originates in the rapid expansion of the Indonesian schooling system in the late 1970s, as part of the Suharto government's National Development Strategy (Haug et al 2020; World Bank 1990). The rapid expansion necessitated significant growth in the teacher workforce, which prioritized mass hiring to fill positions, with less emphasis given to ensuring recruitment of quality candidates and providing them with adequate preparation for the classroom (Huang et al, 2020).

Beginning in the early 1990s, there was growing recognition among international advisors and education officials within the ministry of education that the system was failing to deliver adequate learning and that poor teaching was hindering outcomes (World Bank, 1989; World Bank, 2013). At the same time, teachers were among the most respected members of many communities and an important political constituency (World Bank, 2013). Teacher groups argued that the income levels and professional status of teachers were key constraints to progress and that teachers needed both better pay and professional status on par with doctors and lawyers. With these factors in mind, a consensus emerged among the various relevant ministries (including Education, Finance, and Planning), political parties, legislature, and teachers groups, that a reform effort aimed at improving teachers' performance and rewards could be a viable path forward (World Bank, 2013).

A reform package with three main components was developed with the intent of overhauling the teacher career structure, "re-professionalizing" teachers, improving equity in the geographical distribution of teachers, and increasing motivation and performance. First, it sought to improve teacher quality by increasing support to teachers with training and certification. As initially proposed, certification was meant to include an external evaluation of teacher's pedagogical knowledge plus a year of further training and assessment for teachers who failed certification (World Bank, 2013; Ree et al, 2016). Second, the reform sought to increase teacher motivation by tying salary increases to the training and certification. Most civil service teachers would qualify for a 100% salary increase if they successfully completed the certification process.[5]

---

[5] Technically, the salary increases were only available to teachers with a four-year degree or a sufficiently high civil service ranking. However, most teachers without a four-year degree were administratively given a high enough civil service rank to qualify, making the salary increase effectively available to all teachers (World Bank, 2013).

Third, the reform provided bonuses for teachers who accepted posts in marginalized areas (World Bank, 2013).

The reform was deployed in the form of a new Teacher Law (referred to as the "2005 Teacher Law") adopted by the legislature and implemented by the Ministry of Education. It was primarily financed through a contemporaneous constitutional amendment mandating 20% of government spending go to education.

Despite intentions, pressure from teachers' associations throughout the policy making and implementation process diluted the reform, producing an enacted reform that differed substantially from the initial design (World Bank, 2013; Ree et al, 2016). Teachers' groups successfully lobbied to eliminate funding for external teacher evaluations as part of the certification process. External evaluations were replaced with a requirement to submit a portfolio of teaching materials for review (World Bank, 2013). In practice, portfolio reviews became largely pro-forma, with most teachers passing. Those who did not could complete a two-week course and take a test, which nearly all candidates passed to get certification (World Bank, 2013; Ree et al, 2016). As a result, the law effectively provided for a nearly universal doubling of civil servant teacher salaries, with limited or no requirements aimed at raising teacher qualifications (Ree et al, 2016). Bonuses for working in marginalized areas were left in place.

An evaluation of the reform found that despite achieving many of the intended intermediate effects the (teachers were more likely to have obtained certification, were happier with their jobs, and less likely to have a second job), the reform had no effect on teachers' attendance, their subject knowledge, nor on student learning outcomes (Ree, et al 2016).

This case illustrates two points about coherence. First it illustrates incoherence that can emerge in delegation by citizens and by government authorities (i.e. incoherence within the delegation row, between the politics column and the compact column). Effort from government officials for reforms to increase teacher pay and improve motivation and support (through certification and training) with goals of ultimately improving quality, was met with resistance from teachers' groups (part of the citizenry) who opposed the the motivation and support components and were interested in only the pay increases.

Second, a change to just one element of the teacher career, finance, had limited effect on outcomes, because it was not paired with reforms to other system elements. It did not change what teachers were delegated, supported, monitored, or motivated to do. The final, watered down version of the certification requirement was so weak that subsequent evaluations found no difference in the performance or knowledge between certified and uncertified teachers (World Bank 2013), and the universal salary increase did not change incentives or induce greater effort (Ree et al 2016).

Table 3. The 2005 Teacher Reform in Indonesia suffered from incoherence within the delegation row and within the management column

Five design elements	Principal-agent relationships of accountability			Voice & Choice
	Politics	**Compact**	**Management**	
Delegation	• Teachers' groups argue that higher salaries and professional status will improve performance. • Pressure from teachers' groups to dilute aspects of the law, in particular the teacher certification process.	• Intended reform: delegation from legislative authorities to adopt pay raises for certified teachers to improve learning; Enacted reform: legal provisions on teacher certification significantly diluted producing a de facto universal salary increase.	• Intended reform: Delegation of quality improvement for teaching through merit-based certification process; Enacted reform: merit-based components replaced with superficial effectively universal certification process	
Finance		• Additional financial resources needed for salary increases financed by a constitutional amendment passed around the same time mandating 20% of government spending go to education	• Intended reform: Finance provided to raise salaries for teachers who pass external evaluation for merit-based certification; Enacted reform: Finance provided to raise salaries for teachers who submit a portfolio and/or complete two-week course.	
Support			• Intended reform: comprehensive support and training to teachers who do not pass the certification process; Enacted reform: completion of a two weeks course allows nearly automatic certification	
Information			• Intended reform: rigorous external evaluation to verify quality of teacher pedagogical knowledge; Enacted reform: Teacher quality superficially verified through portfolio review or two-week course.	
Motivation			• Intended reform: salary increase for teachers who pass rigorous certification process; Enacted reform: de facto nearly universal salary increase, not contingent on performance.	

Source: Authors analysis, drawing on World Bank 2013 and de Ree et al 2016.

The RISE framework helps understand why the teacher reform in Indonesia did not produce learning gains. Because only one system element was adjusted – finance – without (de facto) reform to related elements, teachers did not need to change practices to benefit from the salary increase. A description of a coherent teacher career policy that attracts, retains, and motivates effective teachers is proposed in Hwa and Pritchett (2021). They emphasize that the design elements of a teacher career path must be coherent across the different stages of teacher careers, from preservice, to novice, to experienced, to veteran teachers, something the Indonesia reform did not address in its standardized treatment of nearly all civil servant teachers.

5. Conclusion

The learning crisis is severe in many LMICs. The RISE systems framework is a tool for describing the complex dynamics of a system, including the design elements, relationships of accountability, and feedback loops, that drive system outcomes. By going beyond proximate causes of low learning, it applies systems thinking to describe the fundamental drivers of success and failure and identify constraints to progress in a particular context.

The RISE framework is useful for understanding successful efforts to improve learning outcomes. In the case of Sobral, Brazil, the framework provided a structured way to describe the system actors that played a role in the successful reforms, the interactions between those actors, and the system elements that changed as part of the reform.

The framework is also useful for diagnosing the reasons why reform efforts do not produce intended or desired outcomes. In the Indonesia case, analysis of the reform through the lens of the framework showed that, by only changing one system element (financing) without related changes to other elements (such as delegation, motivation, or support), the reform did not sufficiently change the dynamics in the system to bring about intended learning improvements. Lessons from such retrospective analyses can inform future policy reforms.

The RISE framework can also be applied prospectively, to inform action. It can be used to diagnose existing incoherence in an education system and inform needed actions to improve outcomes. Atuhurra and Kaffenberger (2020) apply the framework to identify incoherence in what different education authorities, including curriculum agencies and exams agencies, expect of teachers in Uganda and Tanzania, and inform possible actions to improve alignment. The framework has also been used to diagnose existing incoherence in the education system in Ghana as input to a government planning and reform process.[6] In Ghana, workshops and interviews with government and other actors were used to diagnose critical areas of incoherence that need to be alleviated to improve learning.

---

[6] See: https://epg.org.uk/portfolio/ghana-accountability-for-learning-framework/

There is not a quantified level of coherence that is considered "sufficient" for learning in an absolute sense. In the Sobral case, the coherent set of reforms produced changes in nine cells of the framework, all of which worked collectively towards a common purpose. Atuhurra and Kaffenberger's (2020) application of the framework suggests that improved coherence in two cells of the management column could potentially improve learning in Tanzania and Uganda. Rather than setting a target level of "sufficient" coherence, the RISE framework is used as a qualitative tool to improve understanding of system dynamics, identify areas of incoherence, and determine in which areas changes are most critical for aligning the system for learning.

Applications of the RISE framework reveal additional complexities. The case studies in this chapter illustrate the role that agents, not just principals, play in shaping priorities and outcomes in an education system. In Indonesia, the ministry of education (which is an agent in the compact relationship) influenced the formation of the reform package enacted by the legislature. In Sobral, schools (which are agents in the management relationship) received more autonomy in financial decision making from the Secretariat of Education, but only after explicit learning goals had been set and qualified leadership put in place.

All education actors, from policy makers to mid-level bureaucrats, to teachers at the frontline, are embedded in a system that facilitates and constrains their possible actions. While it is not possible to reform all components of an education system at once, considering the system level constraints and incoherence can identify the most promising and feasible pathways to improvement. As the Sobral case demonstrates, not every "cell" in the RISE systems framework must experience reform in order to improve learning outcomes. But in Sobral, enough cells underwent a coherent set of reforms to realign the system for learning. Using the RISE framework to adopt a systems lens can help identify which constraints pose the most critical barriers and must be alleviated to enable change.

References

Andrews, Matt. 2017. Building State Capability: Evidence, Analysis, Action. First edition. Oxford ; New York, NY: Oxford University Press.

Angrist, Noam, Simeon Djankov, Pinelopi K. Goldberg, and Harry A. Patrinos. 2021. "Measuring Human Capital Using Global Learning Data." *Nature* 592 (7854): 403–8.

Atuhurra, Julius, and Michelle Kaffenberger. 2020. "System (In)Coherence: Quantifying the Alignment of Primary Education Curriculum Standards, Examinations, and Instruction in Two East African Countries." *RISE Working Paper 20/057.*

Beatty, Amanda, Emilie Berkhout, Luhur Bima, Thomas Coen, Menno Pradhan, and Daniel Suryadarma. 2021. "Schooling progress, learning reversal: Indonesia's learning profiles between 2000 and 2014." *International Journal of Educational Development* 85 (102436).

Becskehazy, Ilona and Paula Louzano. 2019. "Sobral: A case of educational success in the Semiarid Northeast" *ComCiencia*.

Crouch, Luis. 2020. "Systems Implications for Core Instructional Support Lessons from Sobral (Brazil), Puebla (Mexico), and Kenya." *RISE Insight Note*.

Education Commission. 2019. Transforming the Education Workforce: Learning Teams for a Learning Generation. New York: Education Commission.

Huang, Aris R, Shintia Revina, Rizki Fillaili, and Akhamdi. 2020. "The Struggle to Recruit Good Teachers in Indonesia: Institutional and Social Dysfunctions." *RISE Working Paper 20/041.*

Hwa, Yue-Yi, and Lant Pritchett. Forthcoming. "Teacher careers in education systems coherent for learning: Choose and curate toward commitment to capable and committed teachers (5Cs)." *Forthcoming RISE Working Paper.*

Kaffenberger, Michelle. 2021. "Aligning Education Systems for Learning: How Systems Shift." *RISE Programme blog.* Available: https://riseprogramme.org/blog/aligning-education-systems-for-learning-how-systems-shift.

Le Nestour, Alexis, Moscoviz, Laura, and Justin Sandefur. 2021. "The Long-Term Decline of School Quality in the Developing World."

Lemos, Renata, Karthik Muralidharan, and Daniela Scur. 2021. "Personnel Management and School Productivity: Evidence from India." *RISE Working Paper 21/063.*

London, Jonathan. 2021. "Outlier Vietnam and the Problem of Embeddedness: Contributions to the Political Economy of Learning." *RISE Working Paper 21/062*.

Loureiro, Andre, and Louise Cruz. 2020. "Achieving World-Class Education in Adverse Socioeconomic Conditions : The Case of Sobral in Brazil." World Bank.

McNaught, Tim and Julia Tami. Forthcoming. "Using problems to drive change in education systems: The story of Sobral in Brazil." *Forthcoming RISE Insight Note.*

Moore, Mark. 1995. *Creating Public Value: Strategic Management in Government.* Cambridge, Mass.: Harvard University Press

Muralidharan, Karthik, and Abhijeet Singh. 2021. "India's New National Education Policy: Evidence and Challenges." *Science* 372 (6537): 36–38.

Pritchett, Lant. 2013. *The Rebirth of Education: Schooling Ain't Learning.* Brookings Institution Press.

Pritchett, Lant. 2015. "Creating Education Systems Coherent for Learning Outcomes." *RISE Working Paper 15/005.*

Pritchett, Lant. 2021. "Let's Take the Con Out of Randomized Control Trials in Development: The Puzzles and Paradoxes of External Validity, Empirically Illustrated." *Center for International Development Faculty Working Paper No. 399.*

Rhee, Joppe de, 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 Series*.

Spivack, Marla. 2021. "Applying systems thinking to education: The RISE Systems Framework" *RISE Insight Note.*

UNESCO. 2015. "Pricing the Right to Education: The Cost of Reaching New Targets by 2030" *Education For All Global Monitoring Report, Policy Paper 18*.

UNESCO. 2016. "Every Child Should Have a Textbook." *Global Education Monitoring Report, Policy Paper 23*.

World Bank. 1989. "Indonesia - Basic Education Study." *World Bank, Report no. 7841*.

World Bank. 1990. "Indonesia - Strategy for a Sustained Reduction in Poverty." *World Bank, Report no. 10009*.

World Bank. 2004. *World Development Report 2004: Making Services Work for Poor People*. Washington, D.C.: World Bank.

World Bank. 2013. "Teacher Reform in Indonesia : The Role of Politics and Evidence in Policy Making." *World Bank Working Paper 75532*.

World Bank. 2018. "World Development Report 2018: Learning to Realize Education's Promise." World Bank: Washington, DC.

World Bank. 2020. "Cost-Effective Approaches to Improving Global Learning." World Bank: Washington, DC.

Wößmann, Ludger, and Martin West. 2006. "Class-Size Effects in School Systems around the World: Evidence from between-Grade Variation in TIMSS." *European Economic Review* 50 (3): 695–736.