

Applying Systems Thinking to Education: Using the RISE Systems Framework to Diagnose Education Systems¹

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Introduction

Most education systems in low- and middle-income countries are experiencing a learning crisis. The last 30 years have seen dramatic success in the expansion of schooling access and attainment for children around the world. Education systems in the majority of low- and middle-income countries have become very successful at achieving schooling for all (or nearly all) children. However, they persistently fail to produce learning for all (Pritchett, 2013, World Bank, 2018). Prior to the pandemic, the World Bank estimated that 53 percent of children in low- and middle-income countries, and nearly 80 percent of children in low-income countries will reach the end of primary school without being able to read a simple text (World Bank, 2019). Recent analysis also shows that this problem has been getting worse, not better over time. Analysing repeated cross-sectional data across 88 countries shows that the “quality” of education—defined as the literacy rate of adults with a given level of schooling—was either stagnant or declining in most developing countries between 1960 and 2000 (Le Nestour et al., 2022).

It is not just the poorest and most marginalised who are being left behind. Even children from households among the socio-economic elite in many low- and middle-income countries fail to master the basics (Pritchett and Viarengo, 2021). If the majority of the children in an education system lack the foundational skills needed not only to succeed in higher levels of education but also to reach their full potential as adults, then education systems are failing to deliver on one of their fundamental objectives.

Key Points

- Many education systems in low- and middle-income countries are experiencing a learning crisis. Many efforts to address this crisis do not account for the system features of education, meaning that they fail to consider the ways that interactions and feedback loops produce outcomes.
- Thinking through the feedback relationships that produce the education system can be challenging. The RISE Education Systems Framework, which is sufficiently structured to give boundaries to the analysis but sufficiently flexible to be adapted to multiple scenarios, can be helpful.
- The RISE Framework identifies four key relationships in an education system: politics, compact, management, and voice and choice; and five features that can be used to describe these relationships: delegation, finance, information, support, and motivation.
- This Framework can be a useful approach for characterising the key actors and interactions in the education system, thinking through how these interactions produce systems outcomes, and identifying ways to intervene that can shift the system towards better outcomes.

¹ This document is an updated version of a RISE Insight Note “Applying Systems Thinking to Education: The RISE Systems Framework” (Spivack, 2021). It has been augmented to include more details on practical applications of the framework to the RISE education systems diagnostic.

How is it that education systems have succeeded in expanding schooling access and grade attainment, and yet consistently struggle to achieve learning for all? How can governments, donors, and civil society better understand the constraints to the achievement of foundational skills in national education systems and identify priorities for reform? Many efforts to address this crisis do not account for the systemic features of education, meaning that they fail to consider the ways that interactions and feedback loops produce outcomes. An accurate and comprehensive diagnosis of why education systems persistently deliver poor learning outcomes is the first step in understanding how national education systems can transform into learning systems, capable of delivering high quality education to all.

This essay summarises a framework for understanding education systems by specifying the system's components and the ways that those components interact to cultivate or undermine learning for children.² Since education systems are complex and involve complex interactions, a structured framework for characterising their features can help identify problems and the way towards solutions to overcome them.

Discussions of systems thinking in education can sometimes induce eye-rolls and groans. It is perceived as the purview of academics who want to develop abstract theories or donors who want to spend money on “capacity building”, and in either case far removed from the practical, pressing concerns facing policymakers, teachers and students.

To deliver learning for all children, it is certainly correct that the interactions between teachers and students in tens of millions of classrooms around the world will need to improve. Conventional wisdom asserts that those who wish to be useful to policymakers should provide actionable solutions. But an approach that starts with a solution in mind and tries to adapt that solution to fit the context is much less likely to succeed than an approach that starts with a careful definition of the problem and then makes an effort to develop a solution (Andrews, Pritchett, and Woolcock, 2017). Rushing to point to a solution to improve teacher–student interactions ignores the fact that teachers and students are embedded in larger systems that might be the cause of their poor performance and that determine the scope for intervention to improve it.

For example, if too little water is coming out of your tap, increasing the water pressure might seem like an obvious solution. But if the cause of your slow waterflow is a leaky pipe, raising the pressure might just exacerbate the problem. Systems thinking can be a useful approach to diagnose the underlying problem so that solutions are effective.

This document outlines the conceptual thinking behind the RISE Systems Framework and offers a practical approach for how the framework can be applied to diagnose constraints in an education system. It opens with a discussion of what systems thinking is and how it can be useful in understanding outcomes in service delivery sectors like education. Next, it presents the RISE Framework for understanding education systems, including practical guidance for how this framework can be applied. It concludes with a discussion of how a systems perspective—and the RISE Framework in particular—can be used to understand observed outcomes in education systems and for moving beyond a description of problems towards a diagnosis of why the problem exists and how it can be addressed.

Systems thinking

A system is made up of constituent parts that are connected to each other through complex sets of interactions and feedback loops which cumulatively produce the system's outcomes (Meadows, 2008). Ecosystems are a very familiar example of a system and Table 1 shows a simplified illustration of the components, relationships, and functions of the marine ecosystem.

² This framework builds on, adapts, and expands a general accountability framework for service delivery in the 2004 World Development Report “Making Services Work for the Poor”, adapted to education systems in a 2015 paper by RISE Research Director Lant Pritchett, and further illuminated by research and synthesis as part of the RISE Programme.

Table 1: Simplified illustration of the components of a system

System	Elements	Relationships	Functions and emergent properties
Ocean life ecosystem	Sun, chemicals, water, fish, seaweed	<ul style="list-style-type: none"> • Sun shines • Water is heated by sun • Fish get oxygen from water and put carbon dioxide into the water • Seaweed takes carbon dioxide from water, and light from sun to grow, it puts oxygen into the water • Fish eat plants, excrete nitrogen, die and decompose to fertilise seaweed • Fish eat other fish • Plants use nitrogen to grow 	<ul style="list-style-type: none"> • Sustain life • New species evolve • Struggling species get extinct

Source: Authors' illustrative example based on Meadows, 2008

The components of the system are its visible parts, whether organisms, objects, processes, or the like. But its essential “system-ness” is that there are relationships between the components. These relationships produce the emergent properties of the system. Often, these emergent properties or outcomes are not the explicit goal of any individual element (Meadows, 2008). Sun, water, chemicals, plants, and animals all interact to produce the marine ecosystem. But the sun does not shine so that the seaweed can grow, and the seaweed does not grow so that it can feed the fish. The evolutionary pressures produced by the system—which over time produce advantageous adaptations, and then entirely new species—are not under the control of any single participant in the ecosystem.

Though systems are made up of their components and the relationships between them, they exist as ontologically distinct “things” from those components and relationships. Studying the individual animals and plants of marine ecosystems reveals some useful information, but studying the interactions between the species and how these interactions produce system outcomes can reveal a great deal more.

Because the system's properties are produced by interactions between components, interventions in the system that focus on one element can have unintended consequences. To take a specific example from marine life, in the Pacific Northwest killer whale populations have been steadily rising since the mid 1980s—a victory for conservation of this endangered species. At the same time, though, Chinook salmon populations have been declining. Both species are protected under different provisions of the endangered species act, but provisions of the law only allow for interventions that protect individual species. There are no provisions for interventions to support the ecosystem when both a predator and prey species are designated for protection (Marshall et al., 2015). A component-by-component approach is insufficient in this case; a solution that takes the interactions and the overall system into account is needed.

Systems thinking

It can be easy to grasp the connection between the feedback relationships and emergent properties of tangible systems, like that of ocean life, but it can be harder to see these connections in social systems like education. This is why developing a framework for studying education systems that clearly identifies the elements, relationships between them, and resulting system functions is so helpful.

Education systems are made up of elements that include people acting in specific roles, like teachers, students, and parents; organisations, like schools and ministries; and things like classrooms and teaching materials. These elements interact with each other via relationships: the parents send their children to school, the teachers teach the students, the teachers are employed by the school, and the school is managed by the ministry, and so on. As with the economy, the functions are revealed by the results of the interactions among the elements, but they might include: teaching foundational skills, ensuring a minimum number of years of schooling are reached, or socialisation to a national identity.

Distinguishing between symptom-only and diagnostic thinking

It is relatively easy to grasp the import of systems thinking in physical systems, but it can be harder to see these connections in social systems like education. Medicine is a familiar social system where systems thinking is both essential, intuitive, and commonplace. When a person gets sick, their symptoms can be treated one by one, but correctly diagnosing their ailment first is likely to lead to a better outcome.

Table 2 shows a (highly stylised) list of symptoms and treatments for a mystery ailment. Without a correct diagnosis of what is making the patient ill, treating the symptoms might offer temporary relief, but it cannot offer a cure. Moreover, in some cases treating the patient without an accurate diagnosis could lead to prescriptions that do more harm than good.

Table 2: Symptom by treatment of disease

Symptom	Symptom treatment	Possible diagnosis	Possible diagnostic treatments
Fever	Fever reducer	<ul style="list-style-type: none"> • COVID-19 • Influenza • Bacterial tonsillitis 	<ul style="list-style-type: none"> • Plasma with COVID-19 antibodies • Tamiflu • Antibiotic
Cough	Cough suppressant		
Sore throat	Pain killer		
Aches	Pain killer		
Weakness	Hydration		
Chills	Warm blankets		
Sweating	Cold compress		

Source: Authors

Poorly performing education systems face many problems. Poor teacher training, poor teacher attendance, poor teaching materials, high dropout rates, and poor learning outcomes are all symptoms of a poorly performing education system.

One way to think of these symptoms is as potential “proximate determinants” of the low learning outcomes of a particular child. A child might emerge from her basic education without foundational skills because her teachers were not adequately prepared to teach her, because there were inadequate or inappropriate teaching and learning materials in her classrooms, because she dropped out of school, or because of some combination of these and other factors. We could point to any one of these as the “cause” or proximate determinant of her low learning outcomes at the end of primary school (Pritchett, 2015).

To improve outcomes, the interactions between teachers and students have to change. Those who want to help facilitate that change often begin by asking: “What needs to be different about this classroom for the student to emerge prepared?” This line of thinking leads to a focus on all of the symptoms/proximate determinants mentioned above. A well-intentioned NGO or government official interested in improving outcomes might observe that there are no textbooks in a classroom. Having identified this symptom, they might reasonably think: “There are no textbooks in this school, so we will provide textbooks. Students will be able to study at home now, follow along better in class, and their learning will improve”.

The problem with this symptom-only way of thinking is that it fails to acknowledge that the teacher and student are embedded in a larger system. It doesn’t ask why there no books in the classroom in the first place. Failing to develop a diagnostic understanding of the problem can lead to a false conclusion about the cause, and to an intervention solution that has little effect on learning (as in the Glewwe, Moulin, and Kremer, 2009, example discussed below).

Since education systems in developing countries face so many constraints, symptom-by-symptom thinking is tempting. Examples abound of project or programme interventions that look like the “symptom treatments” in the right-hand column of Table 3. Textbooks are missing, so provide them; teachers are absent, so monitor their attendance and

enforce it with payment rewards or punishments; students drop out, so provide cash incentives for them to stay in school; and so on. Moreover, the symptom-by-symptom approach is also conducive to the “project dominated” approach to education aid favoured by many donors, making it even more attractive to the sector (Nino Zarazua, 2016).

Table 3: Symptom by symptom treatment of the education system

Symptom	Symptom treatment (programme)
Students lack textbooks	Provide textbooks
Weak teaching	Teacher training
Teacher absenteeism	Cameras in classrooms
Students drop out	Scholarships
Weak management	Management training
Poor teacher motivation	Raise teacher salaries

Source: Authors

All too often, programmes are designed to address one of these symptoms, are implemented faithfully, and yet fail to improve learning outcomes. When a programme fails to have the desired impact, it is tempting to look for a devil in the details; i.e., some aspect of programme design or execution that could be tweaked and to produce better performance. But often the devil is in the system, not in the details (Silberstein, 2020b). The programme failed not because of an internal design flaw, but because of a mismatch with the external system.

One example is a 2009 study of the distribution of textbooks to Kenyan schools. A randomised-control trial found no effect of the books on pedagogy or average test scores, but a positive effect on test scores of the best performers. The authors noted that the textbooks were in English and so were inaccessible to most of the students, who could not read English well. The books were the standard government textbooks for this grade level, so the fact that they were in a language that most children could not read reflected the elite orientation of the Kenyan curriculum at the time. The intervention was designed under the assumption that lack of resources for textbooks was the constraint to performance in Kenya. But, as the evaluation revealed, the deeper cause of poor performance in the Kenyan system was a curriculum that moved too quickly and left students behind (Glewwe, Moulin, and Kremer, 2009). This type of systemic misalignment is common in education systems in low- and middle-income countries (Hwa et al., 2020).

A second example can be found in a study of a teacher policy reform effort in Indonesia in the early 2000s. The 2005 Teacher Reform Law, as originally proposed, aimed to improve teacher quality by providing financial incentives for teachers to receive higher certifications that were meant to include rigorous external assessment. Pressure from teacher lobby groups diluted the law, and the certification process eventually adopted was much a much weaker portfolio submission process and two-week training for those who did not pass. The reform ultimately resulted in the near-universal doubling of civil servant teacher salaries (World Bank, 2013, de Ree et al., 2018). Researchers worked with the government to randomise the rollout of these increases so that teachers in a group of treatment schools were able to have higher pay sooner, allowing for an assessment of the effects of the salary increase. They found that while teachers were more satisfied with their jobs, the pay increase had no effect on teacher attendance, subject knowledge, or student learning (de Ree et al., 2018). Changing just one component of teacher’s employment—their salary—without changing anything else about the system teachers were embedded in did not change their behaviour.

A final example comes from a more recent study conducted as part of the RISE Programme. In this case, a randomised evaluation studied a large-scale management reform meant to improve teacher performance initially implemented in Madhya Pradesh, India, and then scaled to hundreds of thousands of schools nationally. The programme was modelled on state-of-the-art management approaches, and process evaluations revealed it was implemented faithfully. The results? No impact could be detected on any of the performance indicators the study followed: student absence, teacher absence, monitoring and support by managers, or student test scores. The bureaucrats responsible for implementing the programme filled out paperwork and developed plans for improving schools, as they were required to, but when it came to transforming these plans into actions and changes in teachers’ behaviour, the programme broke down.

The authors found a “disconnect between the programme’s objectives and how it was actually perceived by those implementing it” (Muralidharan and Singh 2020, p. 20). In other words, there was a mismatch between the programme and the system, not a problem with the programme per se (Silberstein, 2020b).

These examples do not prove that providing more textbooks, higher teacher wages, or school improvement plans do not contribute to student learning. Instead, they show that attempts to address these individual problems without considering the wider system are likely to fail.

The RISE Systems Framework

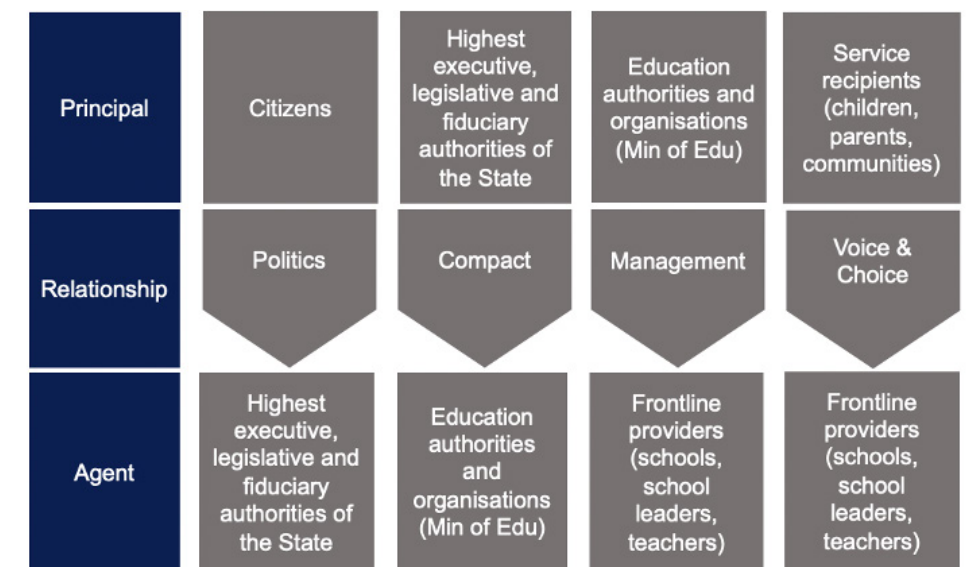
The RISE Systems Framework³ provides the scaffolding for considering the key relationships in an education system, the elements that constitute each relationship, and the ways in which these relationships jointly produce the system’s outcomes. With a clear picture of these in mind, it becomes possible to move beyond symptom-by-symptom responses and to design reforms and interventions that move the system toward producing learning outcomes.

Relationships

In considering the relationships between the components of the system, the RISE Framework draws on the paradigm of a principal-agent relationship. A principal-agent relationship is a model used to describe a situation where one actor (the principal) wants a task accomplished, so they engage another actor (the agent) to complete the task. The principal sets out what is expect of the agent and how the agent will be rewarded for completing the task(s) the principal lays out—in other words, how the principal will hold the agent accountable.⁴

As shown in Figure 1, the RISE Systems Framework describes four key relationships of accountability between the key stakeholders in an education system: citizens; the highest executive, legislative, and fiduciary authorities of the state; education authorities and organisations; schools, school leaders, and teachers; and children, families, and communities.

Figure 1: Four accountability relationships in the education system



Source: Adapted from Pritchett, 2015

Politics is the relationship between citizens⁵ (the principal) and the highest executive, legislative and fiduciary authorities of the state (the agent). The citizens can act in their role as the principal in the politics relationship in a

³ Sometimes referred to as the “5x4”, the “accountability triangle”, or the RISE accountability framework.

⁴ This is why the RISE Framework is sometimes referred to as the “Accountability Framework”.

number of different ways. These include participating in elections, participating in party activities, and engaging in civil society activities. While the mechanisms through which these activities operate differ between democratic and non-democratic regimes, they are relevant to both.

The executive authority of the state is usually embodied in a President, Prime Minister, or other chief executive. The role of the legislative body in education and budget-setting differs across countries, so its importance in the relationship of accountability varies. The fiduciary authority (i.e., organisation(s) within government that make decisions about budget allocations) usually rests in the Ministry of Finance. In most countries the Ministry of Finance is tightly controlled either by the executive or the legislature (depending on how budgeting is conducted), so the framework groups them together as a joint agent in this relationship.

The politics relationship is the starting point of what has been termed “long route of accountability” because, while the ultimate accountability for service delivery originates with citizens, that accountability passes through political leaders and government agencies before reaching the frontline, where services are actually delivered (World Bank, 2003).

Compact is the relationship between the highest executive, legislative and fiduciary authorities of the state (the principal) and education authorities and organisations (the agent). The principal in the compact relationship is the highest executive, legislative, and fiduciary authority. The organisations and individuals that comprise the agent in the politics relationship are the principal in this relationship. In this way the principal in the compact relationship acts as a conduit to convey the objectives of the politics relationship to the organisations responsible for delivery of education.

The agents of the compact relationship include the Ministry of Education. In many systems, there are other government or non-government organisations that executive, legislative, and fiduciary authorities also delegate education responsibilities to. These can include national curriculum boards, regulatory agencies, or religious authorities that run schools in parallel with the Ministry of Education.

A second set of agents in the compact relationship are private sector actors in education—for example, private schools and private providers of textbooks and other education materials and services. These private actors are another group of organisations, alongside government agencies, responsible for delivery of education. They are often regulated by government and operate with the implicit or explicit permission of government. In this sense, they are an agent of the highest executive authorities.

Management is the relationship between education authorities and organisations (the principal) and school leaders and teachers on the frontline (the agents). In some education systems the management relationship exists within a single organisation: the Ministry of Education. This would be the case if all or most education functions fall under the remit of a single ministry. In others the relationship is more complicated, with multiple organisations 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. Also, some areas of authority over schools might be held by the Ministry of Education, while others may be held by the Ministry of Local Government.

The management relationship also includes interactions on at a smaller scale, as between an individual and their boss (i.e., school leaders and teachers), but the framework emphasises the relationship between the leaders or centre of the education organisation, and the frontline providers. This emphasis on the main centre-frontline relationship is partly because every education system’s configuration of smaller-scale management relationships is unique to how authority and discretion are distributed in that particular context.

Voice & Choice is the relationship between families and communities (the principal) and school leaders and teachers (the agent). Students, parents, and communities can hold schools and teachers accountable for education primarily in two ways: through exercising their voice to exert pressure on a school or teacher to change, or by using exit (i.e., choice) to leave a school or teacher they are unhappy with and select a different one.

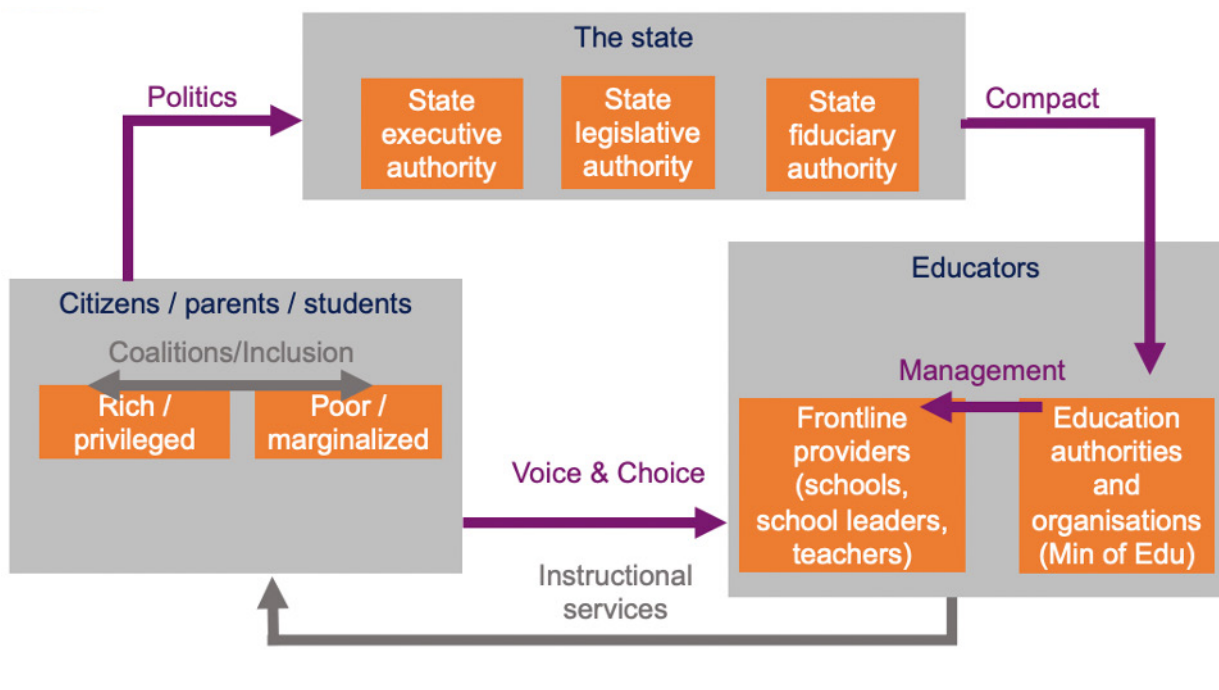
⁵ Using the term “citizen” here is not intended to suggest that the views and needs of non-citizen residents are not important in the politics relationship. Instead, this is partly a term of convenience and partly a term to highlight the importance of electoral politics in many contexts.

Parents can participate in school committees or parent associations to enhance their ability to exercise voice. As for choice, parents usually exercise choice as an individual decision, not intending to have a systemic effect, but the collective choices of many parents to shift from one school to another, or out of the public sector and into private schools, can have significant effects on the education system overall. Local communities can also exert pressure on schools via representative local government, village groups, or traditional leaders, who can use their platforms to pressure schools and sometimes also control the provision and use of supplemental funds to schools.

School leaders and teachers are in the particularly challenging position of being accountable to two different principals. They are directly accountable to parents and communities in the voice and choice relationship, but they are also accountable to their supervisors at the school or district level, in the management relationship.

Figure 2 shows the “accountability triangle”, a graphical illustration of the relationships between the various actors within the system.

Figure 2: Accountability triangle of an education system



Source: Adapted from Pritchett, 2015

Elements of relationships

There are five elements that are helpful for describing each relationship. These elements describe the nature of the relationship between the principal and the agent in terms of what the principal asks the agent to do, how the principal equips the agent to do it, and monitors and incentivises their performance.

Delegation is what the principal wants the agent to do. For example, in the management relationship the Ministry of Education delegates what should be taught to students via the curriculum.

Finance refers to the resources the principal has allocated to the agent to achieve their assigned task. For example, in the compact relationship the Ministry of Finance allocates budget to the education authorities to carry out educational activities.

Information is how the principal assesses the agent’s performance. For example, in the voice & choice relationship parents can gather information about their children’s school experience by asking their children how they feel about school or by reviewing their children’s test scores.

Support refers to the preparation and assistance that the principal provides to the agent to complete the task. For example, in the management relationship the Ministry of Education may prepare teachers for their job by providing pre- and in-service teacher training.

Motivation refers to how the principal motivates the agent, including the ways in which the agent's welfare is contingent on their performance against objectives. Motivation can be extrinsic (mediated by principal) or intrinsic (mediated by agent). For example, in the voice & choice relationship parents or community groups may directly pressure teachers to improve their attendance at school by calling them out in community meetings for failing to do so.

Combining the four key relationships and five features together, as shown in Table 4, produces the RISE Systems Framework, also known as the 5x4 framework.

Table 4: The 5x4 Education Systems Framework

	Principal-agent relationships			
Five features of each relationship of accountability (Principal [P] to Agent [A])	Politics: Citizens and the highest executive, legislative, and fiduciary authorities of the state	Compact: Highest executive, legislative, and fiduciary authorities of the State to education authority	Management: Education authorities and frontline providers (schools, school leaders, and teachers)	Voice & Choice: Service recipients (parents/children) and providers of service (schools, school leaders, teachers)
Delegation: What the principal wants the agent to do.				
Finance: The resources the principal has allocated to the agent to achieve assigned task.				
Information: How the principal assesses the agent's performance				
Support: Preparation and assistance that the principal provides to the agent to complete the task.			e.g., Teacher training as part of new curriculum or pedagogical approach	
Motivation: How the principal motivates the agent, including the ways in which agent's welfare is contingent on their performance against objectives.				
Performance of agent is the endogenous, or organic, outcome of the interactions between the actors in the system. The interaction between the actors in the system are characterised by the design elements of the relationships.				
Systems deliver learning when strong relationships of accountability align across design elements around learning objectives				

Source: Adapted from Pritchett, 2015

Emergent properties: diagnosing system (mis)alignment

Education systems deliver learning when strong relationships are aligned around a learning objective across their elements (Crouch, 2020). There are at least two types of systemic misalignment that often cause education systems to fail to deliver learning outcomes: 1) Interactions between the parts of the system produce alignment with an objective other than learning; or 2) Interactions between the parts of the system are misaligned with each other.

System (mis)alignments can be thought of as the emergent properties of the system. The emergent properties of the system are the result of the interactions between the constituent parts, and are not under any single part's control. Innovation is an emergent property of an economy, just like a fish's gills are an emergent property of an ecosystem. It may seem like there is an "invisible hand" creating the economy or a "mother nature" orchestrating evolution, but these features emerge from system pressures, not from any intentional plan. Similarly, alignment and misalignment are outcomes of the system even though they are not intentionally created by any actor in the system.

Alignment around an objective other than learning

Systems deliver learning when relationships of accountability are aligned around learning objectives, but in many systems relationships are aligned around other objectives. The framework can help identify and evaluate the alignment of a relationship of accountability.

Examining each relationship of accountability and its features can point towards the overall alignment of the relationship, which may be implicit or different from explicitly stated purposes. This alignment analysis is best suited to understanding the compact, management, and voice & choice relationships. Analysing the politics relationship requires a different approach and is beyond the scope of this discussion.⁶ A primary alignment can be identified by defining the actors and organisations that compose each relationship and then asking what delegation, finance, information, management, support, and motivation look like from the perspective of both the principal and the agent in the relationship.

The most common alignment in education systems is alignment for access and attainment. In relationships aligned for access, the delegation of objectives, the financing of activities, the information used to evaluate performance, the support provided to improve performance, and the motivation to deliver are all geared towards expanding the number of children in school and the years of school they complete. The alignment for access and attainment in most education systems is evidenced by the rapid expansion in enrolment and grade attainment over the last 50 years.

More generally, common alignments include:

Alignment for learning. Elements of the relationship are aligned around learning objectives. Clear goals for learning are articulated, financed, and supported. These types have cohesive voice that advocates for learning for all.

Aligned for access and attainment. Elements of the relationship are aligned around expanding enrolment and grade attainment (getting all children to go to and stay in school). While these systems may talk about educational "quality", it is usually not defined in relationship to learning outcomes, and is instead connected to a laundry list of inputs (e.g., things measured by EMIS) which together set the standard for a minimum "quality" school. Systems like these usually place an emphasis on accounting over accounts, narrowing accountability to a set of thin indicators and paying limited attention to thick narratives that justify actions and explain outcomes (Honig and Pritchett, 2019).

Aligned for socialisation. Elements of the relationship are characterised by an emphasis on spreading or maintaining a socialisation or ideological goal for society through the education system.

Aligned for selection. Elements of the relationship are aligned to select top performers to continue in their education and have access to subsequent opportunities. These "filtration" systems select the lucky minority of children who will

⁶ Because an analysis of the politics relationship would require a more in-depth political economy approach, it has not been included in the RISE education systems diagnostic thus far. For a discussion of alignments of the politics relationship in the RISE Systems Framework, see Belafi (2022). For a discussion of the political economy of education and entry points to align politics around children's learning, see Levy (2022).

graduate and win a place at university, or in the labour market. They prioritise exam scores and signalling.

Aligned for process compliance. Elements of the relationship are dominated by a focus on logistical tasks like keeping to scheduled activities and meeting reporting targets. While these may have originally served a purpose, they are now bureaucratic compliance for the sake of compliance. The technical core⁷ and purpose is weak or lost all together, and instead the relationship is dominated by support functions such as human resources, information technology, or procurement (Hwa and Pritchett, 2021). Isomorphic mimicry, a process through which systems adopt the external form of more capable organisations without developing the associated capability (Andrews et al., 2017), may emerge in these types of systems to hide the underlying focus on process compliance. Systems like these usually place an emphasis on accounting over accounts (Honig and Pritchett, 2019).

Aligned for patronage and/or specific interest groups. Elements of the relationship are aligned for a purpose other than education. In the case of patronage systems, short-term, clientelist political objectives dominate. Politicians and those in power use the system as a patronage mill (e.g., to hire teachers, or to build schools for certain constituencies). Another variation of this type of system are those unduly influenced by special interests in which a particular group (e.g., employment/wage concerns of teacher unions, or profits of textbook producers) ensures that their needs are prioritised. When these systems diverge far enough from any core educational purpose, often those who can will opt out of the public system (resulting in a large low-cost private school sector). These systems may try to hide their focus through isomorphic adoption of features of other types of systems, but in reality they do not deliver learning or schooling for all, or subvert the rules in process compliance systems to favour the dominant group.

Some alignments are more relevant to specific relationships. For example, socialisation is most relevant to a discussion of the compact relationship since control over the socialisation function of education is usually contested and monopolised by the state (this alignment may also be pursued by groups of non-state schools in the management relationship, or families in the voice relationship, but more rarely at systemic scale). Process compliance is most relevant to the management relationship since it is typically arises as an administrative approach of an organisation (acting as a principal) seeks to supervise a large number of distributed agents. Table 5 matches the various alignments to their relevant relationships.

Table 5. Map of the possible alignments of the compact, management, and voice & choice relationships

	Possible Alignments					
	Learning: Relationship is aligned around all children learning.	Access: Relationship is aligned around enrolment and attainment goals.	Selection: Relationship is aligned to filter a restricted number of students on to further levels of education.	Socialisation: Relationship is characterised by socialisation or ideological goal.	Process compliance: Relationship pursues bureaucratic compliance and is dominated by support functions (e.g., human resources, IT, or procurement)	Patronage and/or specific interest groups: Short-term clientelist objectives or particular interest groups dominate
Compact	x	x		x		x
Management	x	x	x		x	x
Voice & choice	x	x	x			x

⁷ Hwa and Pritchett (2021) define the technical core of an organisation as having two components: a purpose shared by key actors within the organisation and a set of technical practices shared by the actors that advance that purpose. They argue that organisations deliver on their purpose when support functions such as human resources, procurement, IT, and finance operate in service of the core. Organisations can lose their core and become dominated by their support functions either due to conflict over the purpose or erosion of technical practices (Hwa and Pritchett, 2021).

An assessment of which alignment or alignments best describe a relationship can be made by reviewing each element (delegation, finance, information, support, and motivation) of the relationship and considering the alignment that best explains those elements. In the [RISE Education Systems Diagnostic Toolkit](#) (Spivack, Silberstein, and Hwa, 2023), Tools #4, #5, and #6 lay out features that describe the sub-elements of delegation, finance, information, support, and motivation respectively in the case of different possible alignments. Tool #4 shows this for compact, Tool #5 for management, and Tool #6 for voice & choice.

A single relationship (or even a single element) may have multiple, overlapping alignments. Different elements of the system may exhibit traits of one alignment, while other elements conform to a different alignment. This is in keeping with the fact that systems can—and often legitimately should—pursue multiple educational goals. For example, alignment for socialisation is often compatible with alignment for access, as the pursuit of an ideological goal is supported by bringing more children into the school system. Similarly, an approach to teacher allocation may be aligned to increased access and system expansion, even while information about teachers in that system may be more geared towards process compliance. Process compliance is often part of multiple alignments since it is often the bureaucratic means through which systems pursue selection or access goals. Many features of a process compliance system—such as widespread isomorphic mimicry⁸—are compatible with access, selection, and even patronage-aligned systems. However, the diagnostic approach maintains process compliance as a separate alignment since bureaucratic process can also calcify, in many instances, into its own self-fulfilling purpose. Distinguishing between primary and secondary alignments may be a nuanced judgment that the descriptions in the Annexes can help make.

Alignment between parts of the system

Misalignment between different parts of the system can hinder progress towards learning objectives. There are two main types of misalignment visible within the 5x4 matrix: within a relationship and across relationships.

Within a relationship

Misalignment within a relationship occurs when the different elements within a particular relationship of accountability are pulling in different directions.

For example, within a compact relationship, executive and fiduciary authorities (e.g., the Ministry of Finance) may delegate the objective of improving learning levels but only ask education authorities (e.g., Ministry of Education) for information on enrolment rates. This means that there is misalignment between the delegated priorities and the information used to evaluate the ministry's performance. This undermines the delegated objective, as ministry officials shift their focus to what is being measured, rather than what is being rhetorically delegated, thus weakening the overall relationship of accountability (see Table 6).

Systems often adopt de jure policies that appear to delegate one alignment (e.g., a claim in policy documents that learning or universal expansion are top priorities), but review of the finance, information, motivation, and support elements may indicate that they are aligned with a different purpose. Therefore, such a relationship is misaligned within the relationship (column) in the 5x4 matrix.

⁸ Pritchett (2013) offers this description of isomorphic mimicry: 'The deception of camouflage also works for organizations. Sociologists borrowed the idea of animal isomorphic mimicry and have applied it to organizational ecosystems to describe how many organizations behave (DiMaggio and Powell, 1983). Organizations, particularly in fields in which the desired outcomes are complex to produce and hard to assess, can enhance their organizational survival by adopting "best practice" where it doesn't really matter. Such reforms can make them look like functional organizations. Adopting the forms of best practice without any of the underlying functionality that actually characterizes the best practice can produce quick and easy gains in perception. Such organizations can look like successful organizations while lacking any real success' (p. 96). An example of isomorphic mimicry in an education system might be a school inspection system that only collects information on inputs (e.g., how many teachers have filled in their lesson plan record books) and that results in neither consequences nor targeted support for schools and teachers – it looks like an inspection system, and conducts activities and produces reports that look like inspections, but it serves no actual purpose.

Table 6: Examples of misalignment within a relationship

	Politics	Compact	Management	Voice & Choice
Delegation		Executive and fiduciary authorities may delegate learning improvements. e.g., president's office calls for a new initiative to improve test scores.		
Finance				
Information		In regular reporting on Ministry of Education activities and in justification of resources, Ministry of Education is only asked to report on enrolment rates.		
Support				
Motivation				

Source: Authors

Across relationships

Misalignment between different relationships across relationships (rows) in the 5x4 framework can also produce interactions that fail to prioritise learning.

For example, executive and fiduciary authorities may delegate a focus on access and attainment, but education authorities may try to begin delegating goals around improved learning outcomes. This misalignment in what is being delegated at different levels of the system may cause confusion. It might also result in insufficient finance and support for the learning objectives the Ministry of Education is trying to adopt.

Misalignment between relationships is a particular challenge for frontline providers (teachers and school leaders), who are the only actors in the system who are the agent of more than one principal. As a result, they are particularly vulnerable to misalignment due to inconsistencies between their two principals.

For example, education authorities may want to change the pedagogical approach in schools. They can delegate this change, finance it adequately, provide support to help teachers adopt it, and collect information about the adoption. However, if parents are opposed to the change, they can pressure teachers to stick to the old approach (see Table 7).

Table 7: Examples of misalignment across relationships

	Politics	Compact	Management	Voice & Choice
Delegation			Education authorities introduce pedagogical approach	Parents prefer old approach and express this preference to teachers
Finance			Adequate financing provided to develop and deploy new approach	
Information			Information on adoption of new approach by frontline collected	
Support			Training in new approach provided	
Motivation				Parents and community groups pressure teachers to stick to old approach

Source: Authors

Examples of common misalignments

The concept of misalignment helps make sense of familiar problems present in many education systems. Table 8 is an illustrative, and far from exhaustive, list of commonly encountered misalignments.

Table 8. Examples of misalignment

Parts of system involved	Description
<p>Within the compact relationship: misalignment between delegation, finance, and information</p>	<p>Misalignment between delegation and other elements in the compact relationship is common because the state can easily adopt rhetoric that signals one set of delegated priorities, while adopting actions that indicate another. This can occur because the state's stated priorities are purely rhetorical with no effort made to change policy. It can also occur if the state adopts a de jure policy change, but then fails to make changes to finance, support, or information that would enable implementation of that change.</p> <p>For example, the state may indicate a desire to improve learning outcomes by announcing a reform, but then fail to allocate sufficient finance to the reform because most expenditures are tied up in recurring teacher salaries. Alternatively, the state may indicate that education is a priority, allocate additional funds to education, but then fail to set out metrics by which educational agencies will be evaluated, creating confusion about how additional resources can be spent within the sector.</p>

Parts of system involved	Description
<p>Within the voice & choice relationship: misalignment between information and delegation, motivation, and finance</p>	<p>Do parents and communities have the power to act on new information, and the means to do so? Providing new information to parents (on students learning, or on ways to get involved in school) is one of the most popular interventions aimed at voice.</p> <p>However, providing new information does not, on its own, lead to actions that hold schools accountable. Parents must also have the ability to propose action (delegate) to schools and the ability to take action (by pulling the levers of either finance or motivation). When there is alignment between these elements, then information provided to parents can serve as a call to action. In a misaligned relationship where parents have no clear way to delegate to, finance, or motivate schools, then new information will likely have little impact. (For some empirical examples, see Silberstein, 2020a.)</p>
<p>Within the management relationship: misalignment between delegation and information</p>	<p>Are the curriculum and assessment aligned? The curriculum is one of the most influential ways that the system delegates to teachers what should be taught. Assessments are a similarly powerful driver of teacher behaviour in the system, and act both to measure performance (as information) and set expectations (as a competing source of delegation).</p> <p>However, the curriculum and assessments are often misaligned, sometimes due to silos between competing government agencies (Atuhurra and Kaffenberger, 2020). In other cases, delegation either to complete the curriculum or to raise exam pass rates may dominate at the expense of the other. For example, the emphasis on passing exams in many systems will frequently lead teachers to depart from the curriculum to teach to the test.</p>
<p>Within the management relationship: misalignment between delegation and support</p>	<p>Is there adequate support to teachers to deliver the curriculum? Teachers often lack instructional materials that are aligned with the curriculum and with students' learning levels. Teachers often also lack the knowledge or experience to teach the curriculum, and they may not receive adequate or high-quality training and coaching that could help them improve over time.</p>
<p>Within the management relationship: misalignment between delegation and information</p>	<p>Is the information collected about teachers aligned with the teaching they are being asked to do? Or are teachers required to generate and report information to fulfil administrative requirements? Extensive administrative duties, and a lack of monitoring of classroom teaching practices, can signal a misalignment that moves interactions within the system away from quality teaching.</p>
<p>Between the compact and management relationships (across rows)</p>	<p>Reforms related to teacher careers are particularly vulnerable to misalignments between the compact and management columns. Critical aspects of teacher careers are determined through civil service rules set by the compact relationship, making it difficult to manage teachers in the management relationship. When a change is made within either the compact or management relationship that affects one aspect of teacher careers, it is often difficult to adjust other aspects.</p> <p>One evergreen example of this is around teacher salaries, where the rules governing finance in the compact relationship often constrain how, or in what way, the management relationship can motivate teachers. This creates ripe conditions for misalignment that challenge or even undermine the intended effects of teacher career reforms.</p>

Parts of system involved	Description
<p>Between the voice & choice and management relationships (across rows)</p>	<p>Since education authorities and communities share a common agent in the framework—namely, schools and teachers—misalignment can result when the two principals have different goals. The most common example of this tension is in centralised systems where a centralised bureaucracy controls schools, and marginalises voice.</p> <p>For example, school committees are a popular “best practice” to encourage voice, but systems often give them relatively insubstantial tasks that don’t significantly impact the goals, financing, or motivation of teachers, and end up delivering form over function.</p>

Source: Authors

A real-world example of misalignment: Teacher training in a new curriculum or pedagogy

To fully convey the intuition behind the concept of misalignment, and to illustrate the kind of real-world evidence that can be used to diagnose misalignment in practice, it is helpful to discuss a specific case.

Teacher training programmes are a critical activity through which education authorities support frontline school leaders and teachers, but they often fail to improve learning outcomes. These activities fall within the “Management – Support” cell of the matrix (see the green cell in Table 4). Applying the systems framework can reveal the misalignments at the root of why a seemingly well-designed programme can fall short of a goal to improve student learning outcomes.

A recent experience with a teacher training programme in Rwanda offers a real-world illustration which can be used to explore different types of misalignment. In 2016, Rwanda undertook reforms in its primary and secondary school curricula, including to a secondary school subject on entrepreneurship. The reform aimed to take a more skills-based and student-centred approach to the subject. A non-governmental organisation (NGO) identified training in the new curriculum as an implementation gap and developed a training programme to be deployed in parallel to the curriculum rollout. The programme included in-service trainings, exchange visits to other schools, and outreach and support. While the curriculum was deployed around the country, the NGO training was only deployed to a randomly selected sample of schools, allowing for a quantitative, randomised evaluation of the training’s effects on teacher practices and student learning outcomes alongside a qualitative study of teacher and student perceptions of the new curriculum and training.

The quantitative evaluation found that, two years after the training programme was launched, treatment schools saw a six-fold increase (52 percentage points) in the use of skills labs—i.e., extended sessions for conducting hands-on experiential learning activities—compared to control schools. The increased use of skills labs in treatment schools went hand in hand with shifts in teacher pedagogy towards greater “student centredness.” Despite the encouraging indications about the role that the training played in changing classroom practices, the study found no effect of the training on student’s scores on high stakes national exams, nor on tests of financial literacy, entrepreneurship, and non-cognitive skills developed and administered by the researchers (Blimpo and Pugatch, 2020).

Interviews and focus group discussions conducted with students and teachers alongside the quantitative evaluation offer insights into why the training programme both succeeded in changing teacher practices in the way that the curriculum reform intended yet failed to deliver improvements in students’ outcomes.

The curriculum reform was not accompanied by exam reform. So while the training did help teachers adopt a more skills-based and student-centred approach, in particular through scheduling and conducting more skills labs, the overall pressure remained to teach the theory and content that appeared in the old curriculum and unchanged exam. In interviews and focus groups, both teachers and students noted this dissonance. Teachers suggested to interviewers that national exams should be updated to reflect the new curriculum, and some reported that they tried to make changes to internal, school-level exams to better reflect the skills-based approach they were now meant to teach. Students in treated schools reported that skills labs and student business clubs (another feature of the new curriculum) were planned and encouraged for students in Standard 4 and Standard 5—but not for Standard 6, the year in which students take national exams, and that that time was used for exam preparations (Anand, 2020).

What misalignments may have undermined the success of the training programme in this case?

Potential misalignments within the management relationship: The teacher training might have been mismatched with the other elements of the management relationship. The new training could have been misaligned with delegation element of the relationship if it were inconsistent with the new curriculum or pedagogy, or if there were insufficient support in general. It could also have been misaligned with the finance element of the relationship, if insufficient resources were allocated towards it; with the information element of the relationship if the authorities neglected to follow up to determine how well the training worked; or with the motivation element of the relationship, if teachers and school leaders had little incentive to actively engage in the training or implement the new pedagogy.

Diagnosis based on available empirical research: This type of misalignment is a prominent feature of this example in at least two ways. First, the business-as-usual approach of the government offered insufficient support to teachers to prepare for the new curriculum. As a result, the teachers who did not receive the NGO training made significantly fewer changes to their teaching practices than those who received training. Second, the high stakes exams—the most important information used by the system to measure teachers and students—were not reformed alongside the curriculum, creating a misalignment within the relationship. Teachers and schools, knowing the importance of exam performance, continued to emphasise the theoretical material that was the core of the old curriculum (Anand, 2020).

Potential misalignments across relationships: The usefulness of training may have been undermined by misalignments between the relationships of accountability. If the new curriculum or pedagogy featured in the training (delegated from education authorities to schools and teachers in the management relationship) was inconsistent with executive or fiduciary leaders' priorities (delegated from these leaders to education authorities in the compact relationship), insufficient resources could have been allocated towards it. Moreover, the inconsistency in delegation could mean that some actors within the education ministry were pushing the training while others were unconcerned with it, undermining motivation.

Besides possible misalignments between management and compact, the training implemented by the management relationship might also have clashed with voice & choice relationship. For instance, the training might have been inconsistent with parents' preferences for their children. If parents are uninterested in, or opposed to, the new pedagogy, then even a successful training would struggle to be effective since teachers could face pressure from parents to forgo the new approach.

Diagnosis based on available empirical research: For misalignments between management and compact, the available analysis in this case does not discuss the role that the Ministry of Finance or executive leaders played in the reform, so it's not possible to study misalignment across these relationships in this case.

For misalignments between management and voice & choice, the analysis of this case does not include information about parents' perspectives, but it does include analysis of focus group discussions held with students. It found that students had a positive view of the new curriculum, reporting that it provided them with some skills to start small businesses despite the fact that it was only partially implemented. Notably, many students in the treatment schools specifically mentioned useful things that they learned during skills labs and from student business clubs, neither of which were implemented in many of the control schools. The generally positive view of the new curriculum from the students suggests that misalignment between the management and voice and choice relationships was not a significant cause of misalignment in this case, though without information on broader family or community perceptions of the new curriculum—and their relative power to influence teachers—it's difficult to come to a definitive conclusion (Anand, 2020).

Conclusion

The Rwanda teacher training example discussed above, like most of the other examples in this essay, shows how misalignments in the education system can hinder a programme's effectiveness. Overall education quality has been stagnant or declining in most low- and middle- income countries (Le Nestour et al., 2022), but there are a handful of successful programmes and country trajectories. Often, the roots of success in improving learning outcomes can be traced to the emergence of alignment around learning across the relationships in an education system.

Take the case of Vietnam, a system that is widely acknowledged to overperform its peers at similar levels of economic development (Dang et al., 2020). A key feature of the Vietnamese system is a prevalent, nation-wide “all for learning” attitude, demonstrated by high-level political commitment to learning from national and party leaders, individual households’ financial commitments to education, and general public engagement in education issues (even in the absence of organised civil society in the education sector that is present in other developing countries). This reflects a high degree of alignment for learning in delegation and finance across multiple relationships of accountability in the Vietnamese system. This alignment around learning exists alongside other features of the Vietnamese system that could undermine performance, such as misaligned decentralisation and persistent inequalities between groups (London, 2021). The Vietnamese system is far from perfect, but it does perform much better than its peers and alignment around learning objectives is a key feature of this success.

Most education systems in low- and middle-income countries have a long way to go to deliver education of the quality that Vietnamese students enjoy. By providing a structured approach to understanding and analysing the components and interactions of an education system, the RISE framework can help diagnose the misalignments present in an education system. This diagnosis can then inform interventions that can meaningfully and sustainably realign the system to deliver learning outcomes.

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