Evaluating systems: Three approaches for analyzing education systems and informing action

Michelle Kaffenberger, Jason Silberstein, and Marla Spivack
**RISE Conference**
June 2022

Motivation

- Learning crisis: many countries have experienced schooling success, but a persistent learning crisis (WDR 2018)

- Systems thinking: Education is a complex system with many parts and multiple purposes. System (in)coherence determines educational outcomes. Accountability for outcomes requires a theory of the system (WDR 2004; Pritchett 2015)

→ Our contribution: Describe 3 concrete approaches to analyze coherence around learning in education systems, apply each approach, and show how it can inform action

Approach 1

Learning trajectories

RISE

Learning trajectories show how much children learn as they progress through school (MICS-6 data from 22 LMICs)
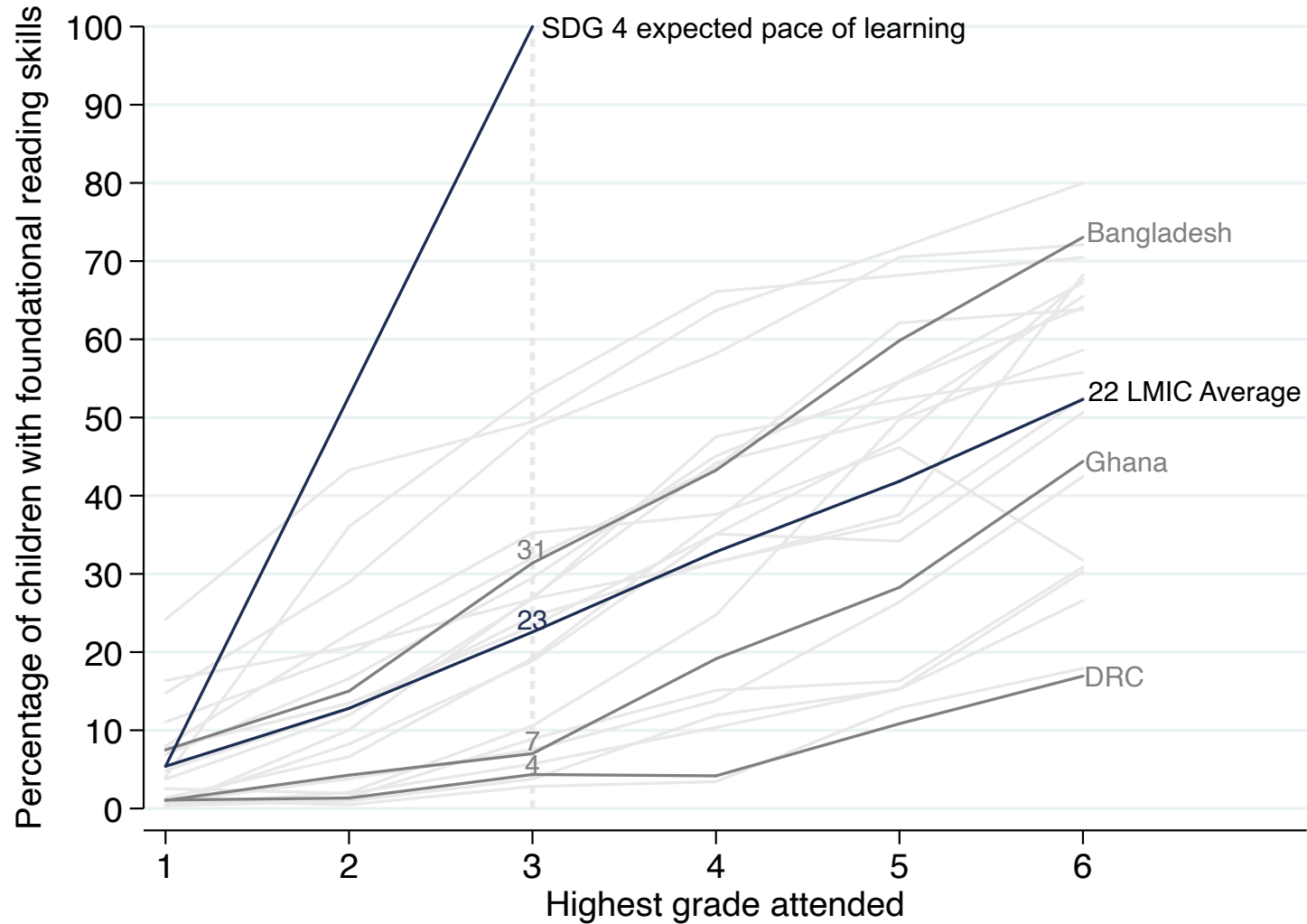
Source: Authors' calculations using MICS6 data. The threshold for foundational reading skills follows UNICEF (2020).
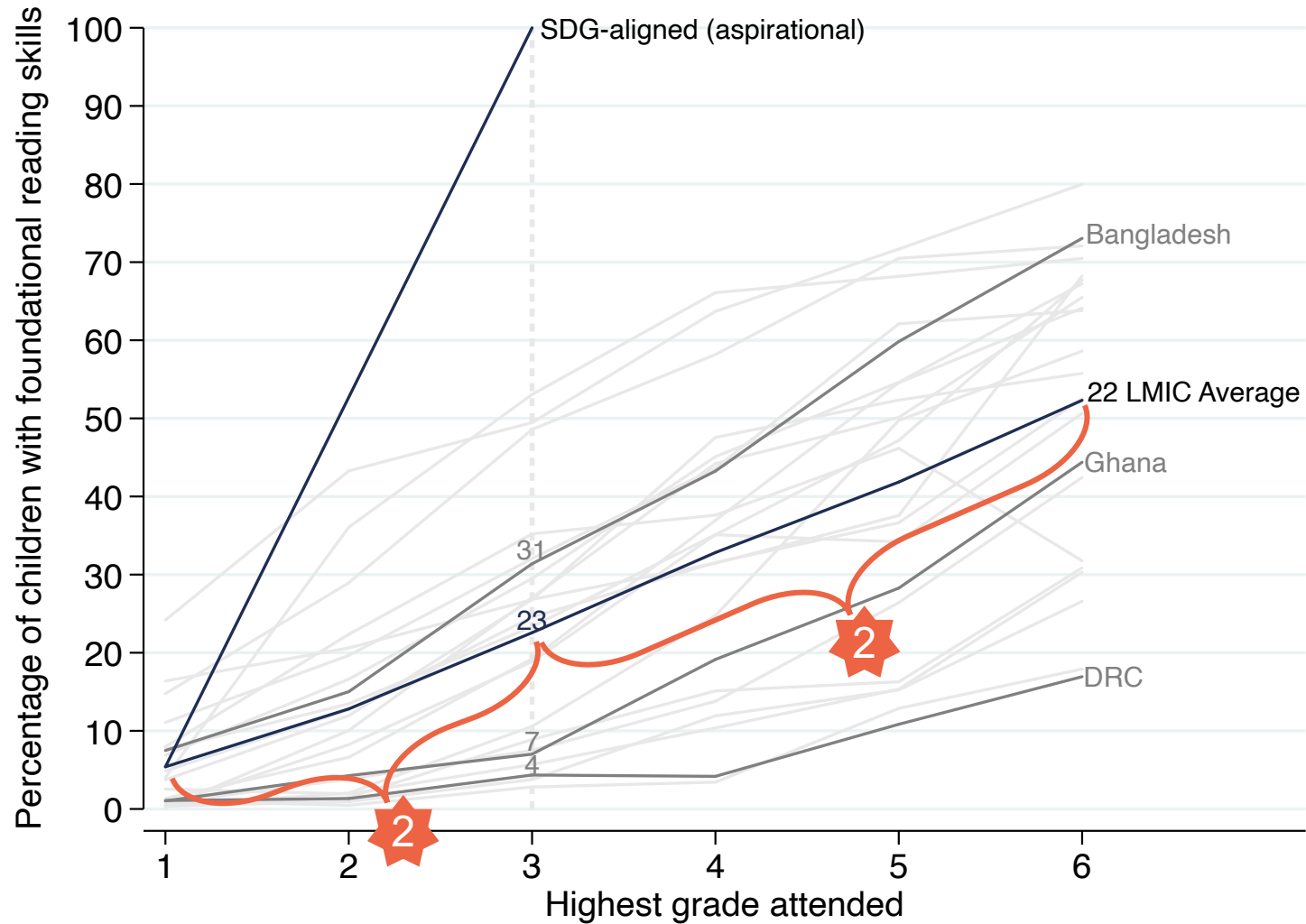
1) The pace of foundational learning is far too low relative to the pace of learning expected by the system
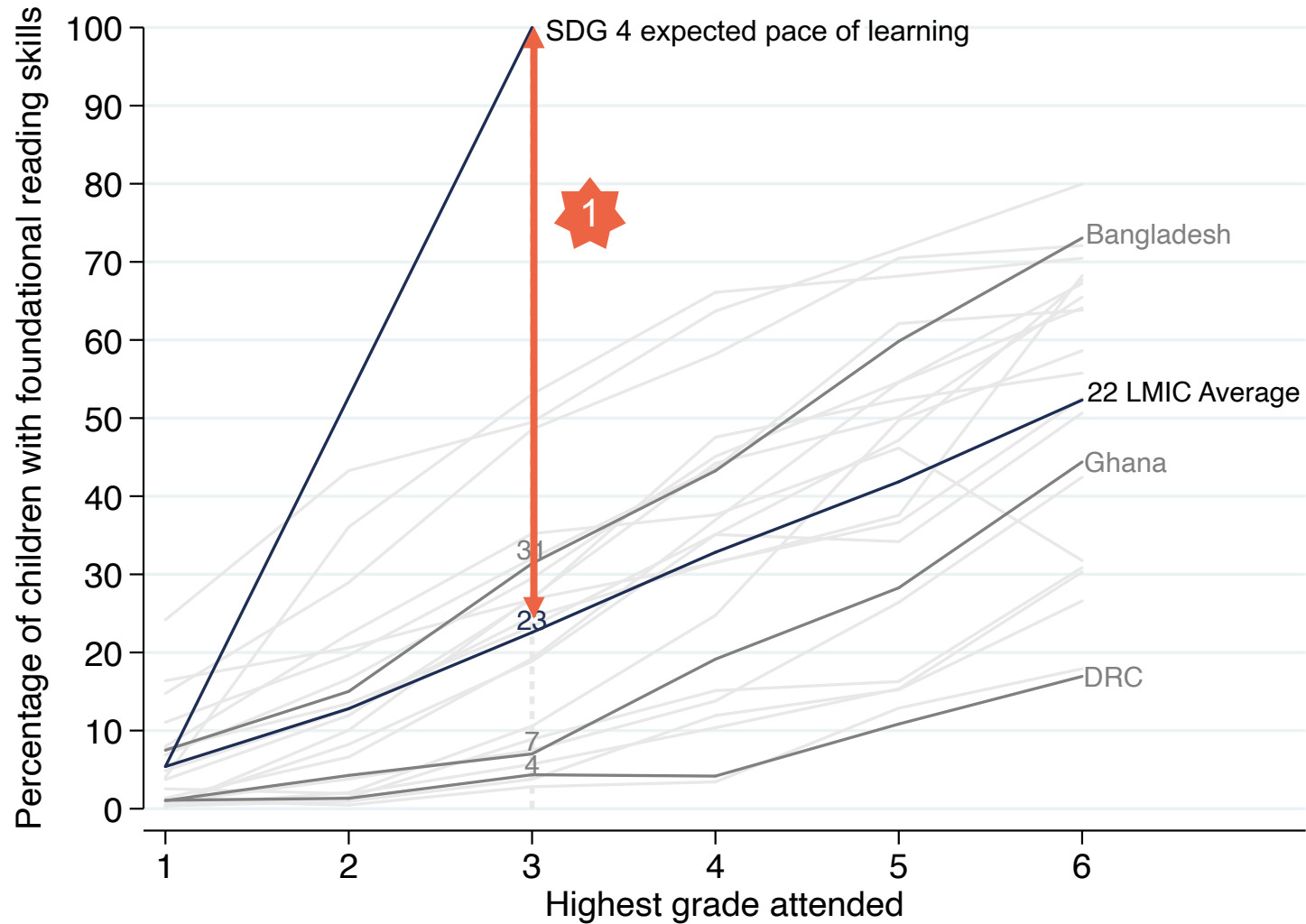
Source: Authors' calculations using MICS6 data. The threshold for foundational reading skills follows UNICEF (2020).

See also learning trajectory analysis in: Pritchett & Sandefur, 2021; Kaffenberger & Pritchett, 2021; Beatty et al., 2021; Muralidharan & Singh, 2021

Source: Authors' calculations using MICS6 data. The threshold for foundational reading skills follows UNICEF (2020).

See also learning trajectory analysis in: Pritchett & Sandefur, 2021; Kaffenberger & Pritchett, 2021; Beatty et al., 2021; Muralidharan & Singh, 2021

Approach 2

ALIGNS
(Aligning Levels of Instruction with Goals
and the Needs of Students)

RISÉ

Set learning goals based on current learning levels

- Disconnect between what system expects of children, and what they actually know and can do
  - Because learning is cumulative, this can lead to lower learning (Abadzi 2020; Belafi et al. 2020)

- Case studies show realignment often begins with a learning assessment of foundational skills
  - **3Rs in Tanzania:** Low scores on PSLE/Uwezo/EGRA led to national KPIs around the 3Rs in the early grades (Todd & Attfield, 2017)
  - **TARL:** Diagnostic assessment of each child used to set clear foundational learning goals at their level (Banerji & Chavan, 2016)

RISE
RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Align instruction to be coherent with learning goals

- Multiple instructional components mediate between goals and what happens in the classroom
  - i.e. curriculum standards, assessments, teaching and learning materials, pedagogy (Hwa et al. 2020)

- These components are often poorly aligned with learning goals, and with each other
  - Overambitious curriculum (Pritchett and Beatty 2015; Muralidharan and Singh 2021)
  - Misalignment of curriculum, exams, instruction in East Africa (Atuhurra and Kaffenberger 2020)

- Case study: Tanzania streamlined its curriculum to focus 80% of early grade instructional time on 3Rs (Rodriguez-Segura & Mbiti, 2022)

RISE
RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Support teachers to implement changes to instruction

- Teachers often need continuous support to make lasting changes to instruction
  - Coaching often more effective than traditional teacher training in contexts with entrenched norms and low teacher content knowledge (i.e. Popova et al. 2021)

- TARL programmes exemplify support that is coherent with and reinforces intended changes to instructional components (Banerji and Chavan, 2016)
  - Coaches with practical experience
  - Regular classroom observations
  - Feedback focused on TARL method

Tailor implementation to context

- Approaches face contextual opportunities and constraints to shift different instructional components
  - Tanzania 3Rs reform realigned the curriculum (national level)
  - TARL realigns components inside the classroom (student level)

- Seemingly disparate programmes share common underlying principles

RISE
RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Approach 3

Education System Diagnostic

RISE

System outcomes are the result of the interactions and coherence between its constituent parts

5 components of each relationship	4 principal - agent relationships			
	Politics: Citizens → highest authorities of the State	**Compact**: Highest authorities of the State → education authorities	**Management**: Education authorities → schools	**Voice & Choice**: Families → schools
Delegation: purpose the principal provides to agent				
Finance: resources principal provides to agent				
Support: preparation and assistance that principal provides to agent				
Information: how principal assesses agent's performance				
Motivation: how principal motivates agent				

Source: Adaptation of WDR 2004 and Pritchett 2015

Diagnosing success:
Mapping Funda Wande to the framework

	Politics	Compact	Management	Voice & Choice
Delegation				
Finance				
Support			Instructional materials, teacher training, and coaching on how to teach foundational skills	
Information				
Motivation				

Source: Evans and Sorto 2021; Mason and Snow 2021; Ardington and Henry 2021

RISE

RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Funda Wande did not just work inside a cell, it took a systems approach that increased coherence for learning between multiple cells

	Politics	Compact	Management	Voice & Choice
Delegation				
Finance			Open-source anthologies of student reading materials to reduce costs	
Support			Instructional materials, teacher training, and coaching on how to teach foundational skills	
Information				
Motivation				

Source: Evans and Sorto 2021; Mason and Snow 2021; Ardington and Henry 2021

riSE
RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Funda Wande did not just work inside a cell, it took a systems approach that increased coherence for learning between multiple cells

	Politics	Compact	Management	Voice & Choice
Delegation		Build govt support for clear foundational learning goals	Ensure materials and training are aligned with curriculum (in local languages) so can be officially sanctioned	
Finance			Open-source anthologies of student reading materials to reduce costs	
Support			Instructional materials, teacher training, and coaching on how to teach foundational skills	
Information				
Motivation				

Source: Evans and Sorto 2021; Mason and Snow 2021; Ardington and Henry 2021

riSE
RESEARCH ON IMPROVING
SYSTEMS OF EDUCATION

Funda Wande did not just work inside a cell, it took a systems approach that increased coherence for learning between multiple cells

	Politics	Compact	Management	Voice & Choice
Delegation		Build govt support for clear foundational learning goals	Ensure materials and training are aligned with curriculum (in local languages) so can be officially sanctioned	
Finance		Advocate for using philanthropic money to improve public sector performance	Open-source anthologies of student reading materials to reduce costs	
Support			Instructional materials, teacher training, and coaching on how to teach foundational skills	
Information				
Motivation			Run teacher training as part of a degree certificate at a university	

Source: Evans and Sorto 2021; Mason and Snow 2021; Ardington and Henry 2021

Approach 1: Learning trajectories

- Children's actual pace of learning, and coherence with system expectations

Approach 2: ALIGNS

- Coherence of the instructional subsystem (that is driving learning dynamics)

Approach 3: System diagnostic

- Coherence in the wider system (that surrounds the instructional subsystem)