International Initiative for Impact Evaluation

Systematic Review of the Effects of Interventions to Improve Education in Developing Countries

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What is 3ie?

- An international grant-making NGO that funds the production of and advocates for the use of rigorous evidence to improve the effectiveness of development policies and programmes

- Established by donor consortium 8 years ago; Membership-based, most LMIC institutions

- Have supported or are supporting in over 50 countries
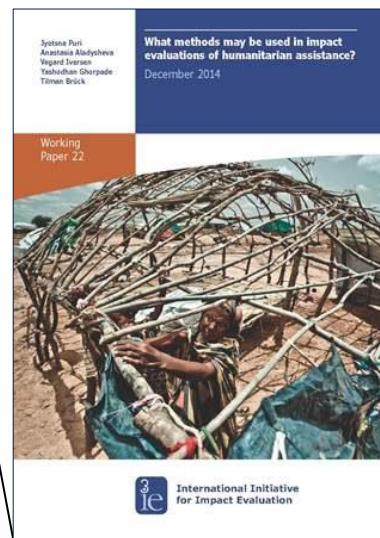
Impact evaluation "means the study of changes in outcomes that are attributable to an intervention."

Complex because the road to results is a long one and attribution is difficult because of
>   -- Outside factors
>   -- Selection by participants and by implementers

| Inputs | ➡ | Activities | ➡ | Outputs | ➡ | Outcomes | ➡ | Impact |
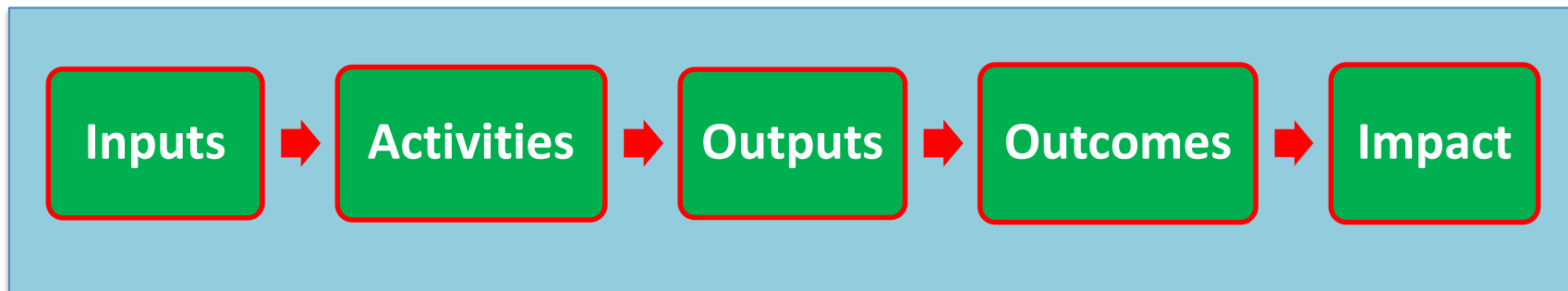
Resolved by:
>   -- Experimental and
>   -- Quasi-experimental Techniques

Shifting Evidence Gaps: Number of IEs have grown dramatically in 10 years

Note: The data for 2015 only covers the first three quarters

Legend: IER 2012, IER 2015
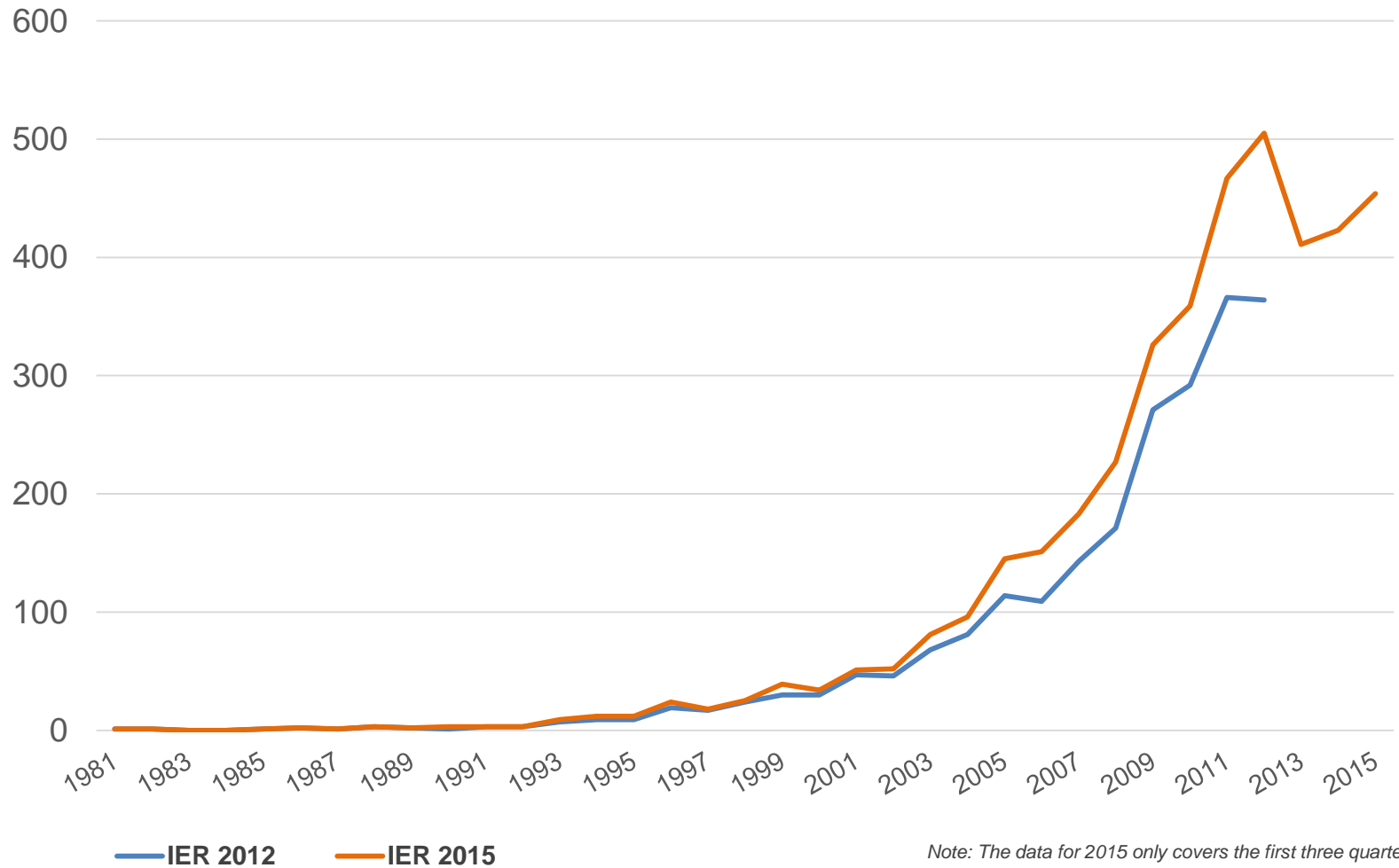
Miranda, Jorge et. al. "Is Impact evaluation still on the rise?" Web blog post. *Evidence Matters.* The International Initiative for Impact Evaluation. 11 Aug. 2016

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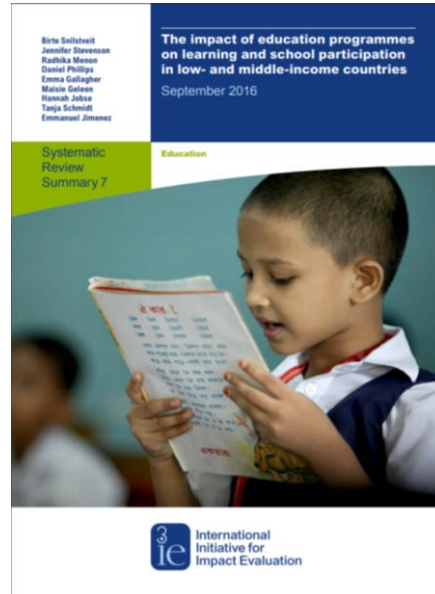# Systematic Review of What Works to Improve School Participation and Student Learning in LMICs

The impact of education programmes on learning and school participation in low- and middle-income countries by Snilstveit *et al.* 2016

http://www.3ieimpact.org/en/publications/systematic-review-publications/3ie-systematic-review-education-effectivenes-srs7/

- Key steps: setting inclusion criteria, search, screening, data extraction, critical appraisal, analysis, interpretation

- Meta-analysis to synthesise effects

- Narrative synthesis to synthesise qualitative/ process evidence

- Use programme theories to bring findings together

Why synthesize evidence through systematic reviews of education investments?

Decisions are better if they use evidence that:
- Differentiates studies by quality
- Are based on more than just one study
- Comes from a representative range of studies

Research questions

(1a): What are the effects of different education interventions on participation and learning outcomes for primary and secondary school children in low-and middle-income countries?

(1b): Are the effects different for sub-groups of children?

(2a): What intervention and implementation features are associated with success and failure of interventions?

(2b): What are the contextual factors related to the effectiveness of educational interventions?

Scope and Intervention Framework

238 studies
216 programmes
16 million children
52 countries
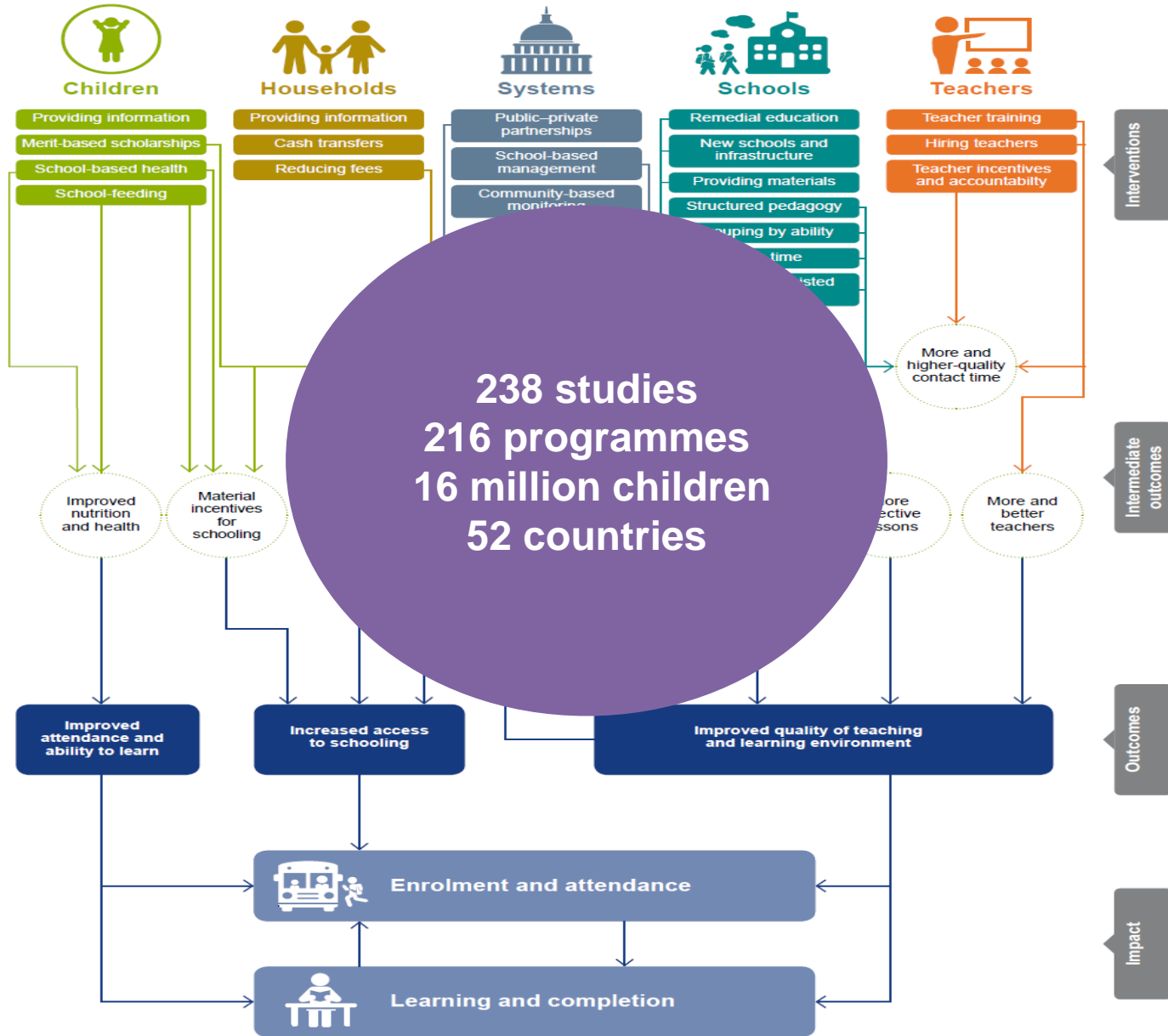
Substantial resources are directed to programmes where effects remain unknown

Intervention level	Intervention category	Number of studies	Total number of studies 238
Children	School-based health		16
	School-feeding		16
	Merit-based scholarships		11
	Providing information		4
Households	Cash Transfer		50
	Reducing or eliminating fees		10
Schools	Pedagogy		22
	Computer-assisted learning		18
	New schools and infrastructure		7
	Providing materials		4
	Remedial education		4
	Extending school hours		3
	Tracking		2
	Grade retention		1
Teachers	Teacher incentives		10
	Teacher hiring		8
	Diagnostic feedback		2
	Teacher training		1
Systems	School-based management		14
	Public–private partnerships		12
	Multi-component interventions		12
	Community-based monitoring		11

What works in most contexts, what is promising and what is unknown

Children
- Providing information
- Merit-based scholarships
- School-based health
- School-feeding

Households
- Providing information
- Cash transfers
- Reducing fees

Systems
- Public–private partnerships
- School-based management
- Community-based monitoring

Schools
- Remedial education
- New schools and infrastructure
- Providing materials
- Structured pedagogy
- Grouping by ability
- Extra time
- Computer-assisted learning

Teachers
- Teacher training
- Hiring teachers
- Teacher incentives and accountabilty

Legend:
- What works in most contexts
- What is promising (may work in some contexts)
- What doesn't always work
- What is unknown

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Programmes typically improve either participation or learning, but not both

Children
- Providing information
- Merit-based scholarships
- School-based health
- School-feeding

Households
- Providing information
- Cash transfers
- Reducing fees

Systems
- Public–private partnerships
- School-based management
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Legend:
- What works in most contexts
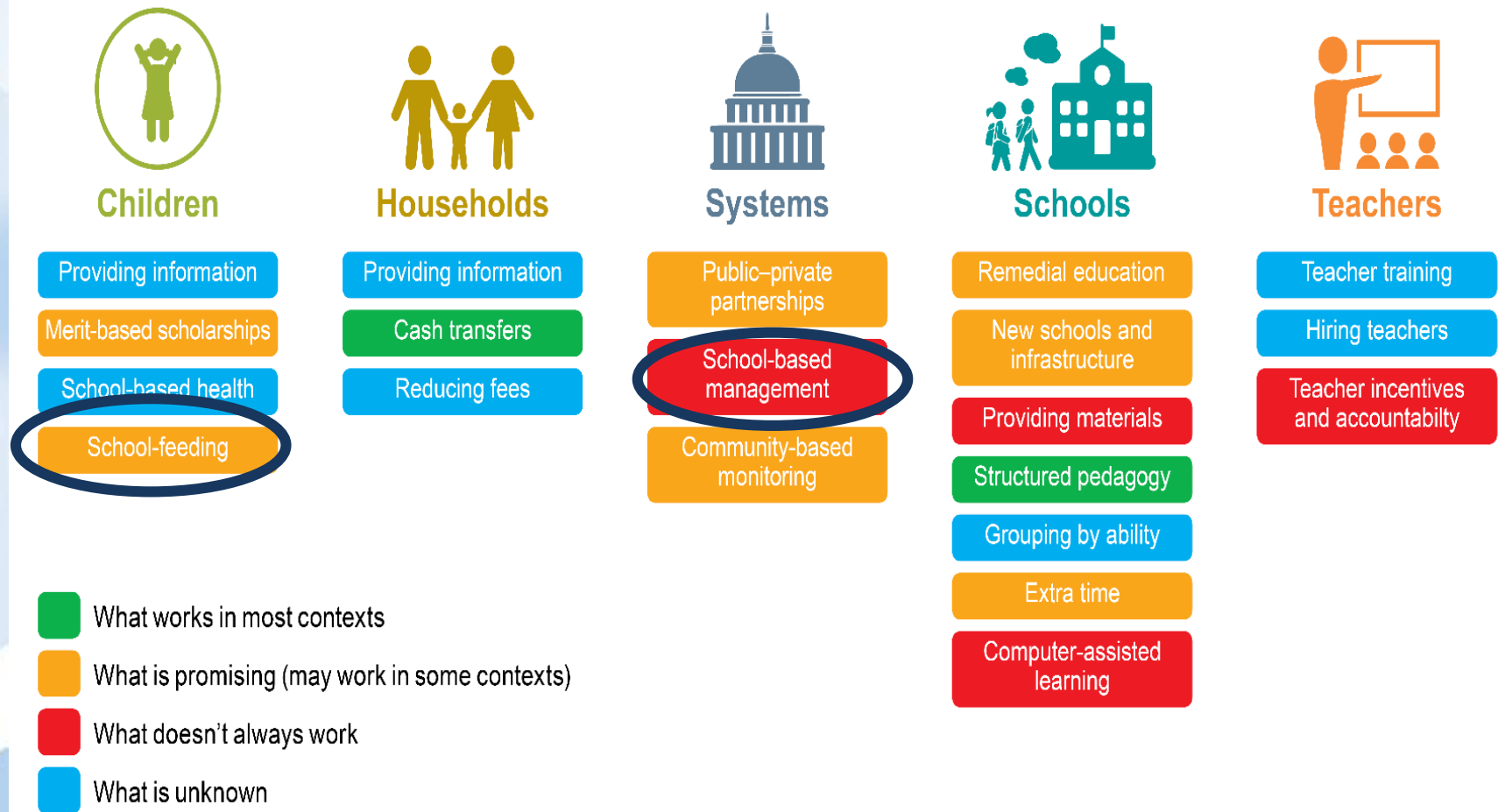- What is promising (may work in some contexts)
- What doesn't always work
- What is unknown

Works in most context: Cash transfers and structured pedagogy

Children
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- School-based health
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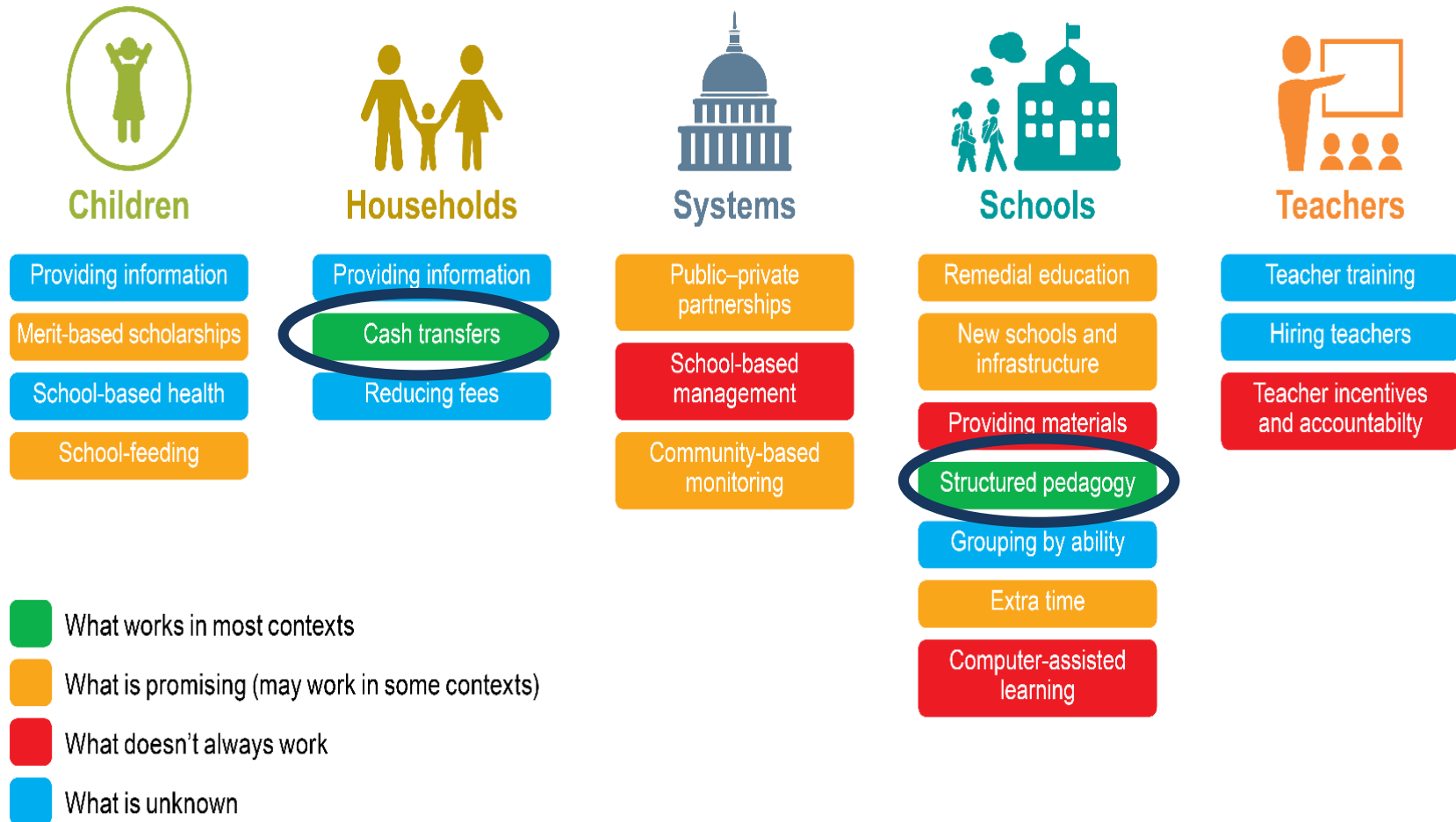- What doesn't always work
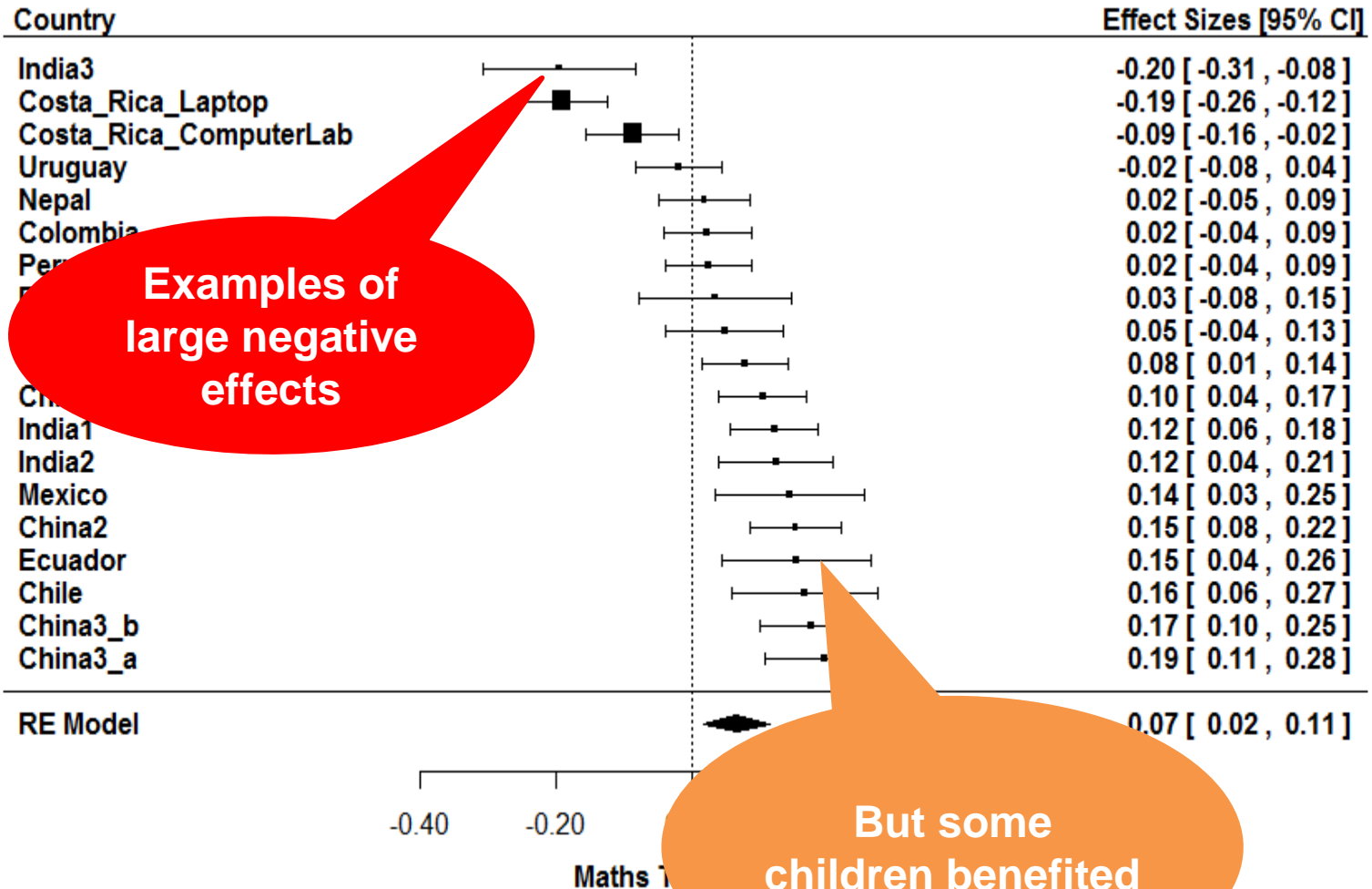- What is unknown

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Computer-assisted learning

- Studies of 16 different programmes implemented in a range of countries, including Chile, China, Colombia, Ecuador, India, Nepal, Peru and Uruguay.

- Different combinations of intervention components, such as laptops or computer labs, training for teachers and new content.
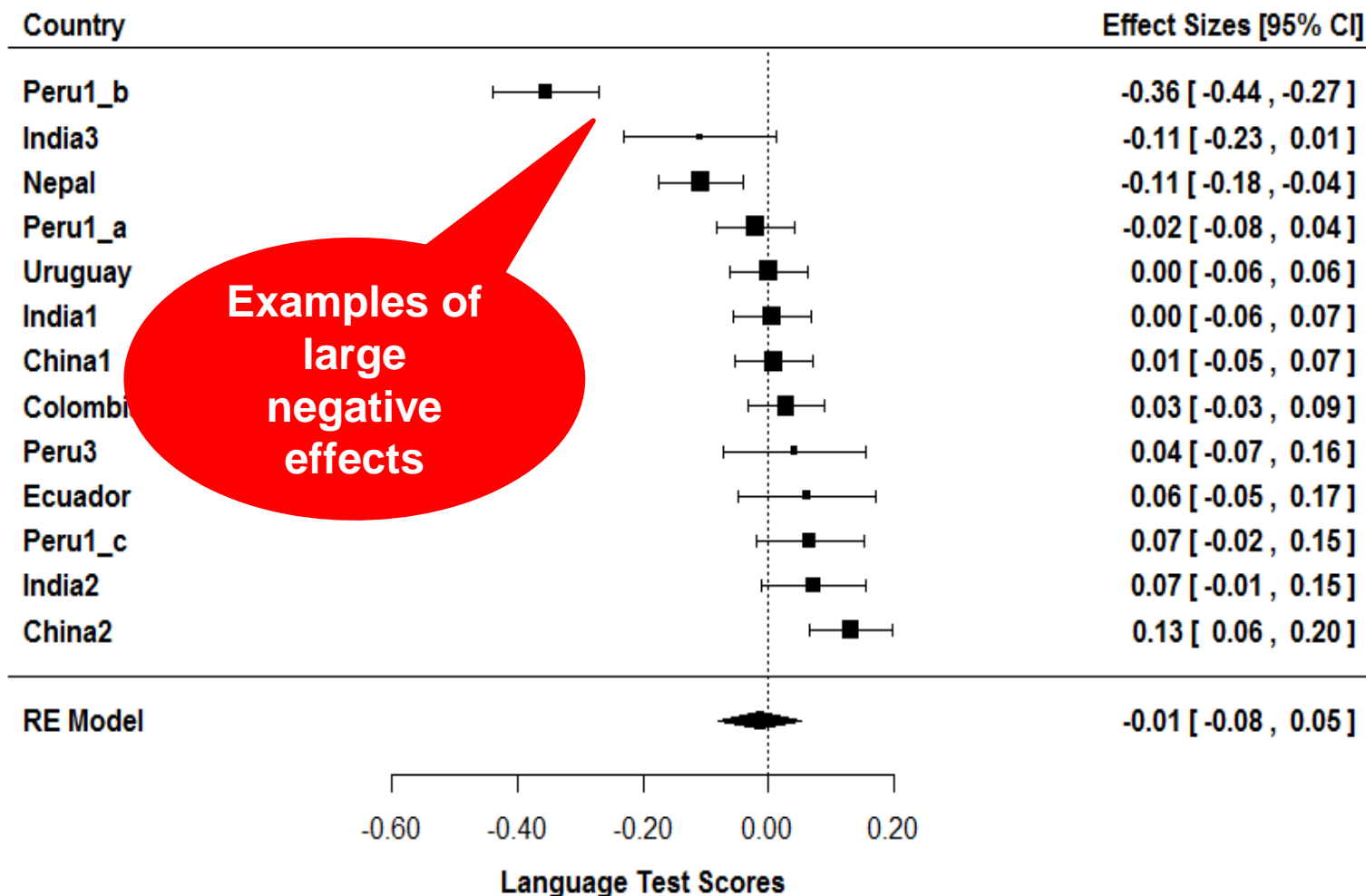

https://globalpressjournal.com/

May improve maths in some contexts

Country	Effect Sizes [95% CI]
India3	-0.20 [-0.31 , -0.08]
Costa_Rica_Laptop	-0.19 [-0.26 , -0.12]
Costa_Rica_ComputerLab	-0.09 [-0.16 , -0.02]
Uruguay	-0.02 [-0.08 , 0.04]
Nepal	0.02 [-0.05 , 0.09]
Colombia	0.02 [-0.04 , 0.09]
Peru	0.02 [-0.04 , 0.09]
	0.03 [-0.08 , 0.15]
	0.05 [-0.04 , 0.13]
	0.08 [0.01 , 0.14]
China	0.10 [0.04 , 0.17]
India1	0.12 [0.06 , 0.18]
India2	0.12 [0.04 , 0.21]
Mexico	0.14 [0.03 , 0.25]
China2	0.15 [0.08 , 0.22]
Ecuador	0.15 [0.04 , 0.26]
Chile	0.16 [0.06 , 0.27]
China3_b	0.17 [0.10 , 0.25]
China3_a	0.19 [0.11 , 0.28]
RE Model	0.07 [0.02 , 0.11]

-0.40   -0.20

Maths

Examples of large negative effects

But some children benefited

But no overall positive effects on language arts

Common characteristics of successful programmes

- All the programmes focused on Maths
- They provided new content and software along with computers
- Most of these were pilots implemented by researchers or NGOs
- The follow up period for these studies were relatively short

Why did some programmes fail?

- „Technological problems, including insufficient, damaged and/or dysfunctional equipment, lack of electricity or internet access

- New technology not integrated into existing curriculum and learning approaches
- Low quality CAL substituting for regular teaching

- Teachers not given sufficient training on using the laptops as a teaching aid

- Programmes did not consider teacher workloads, attitudes and motivation for making radical changes to the way they teach.

Cross cutting lessons

- Need to tailor programmes to local context
  - problem analysis and capacity of other parts of the school
system
- In some contexts strategies may need to address constraints
  at multiple levels
- Some interventions 'necessary but not sufficient'
  - Cash transfers, materials (vs SP, RE), SBM, CBM
- Interventions with relatively 'short' causal chains may be more
  effective

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What already exists? Evidence Gap Maps
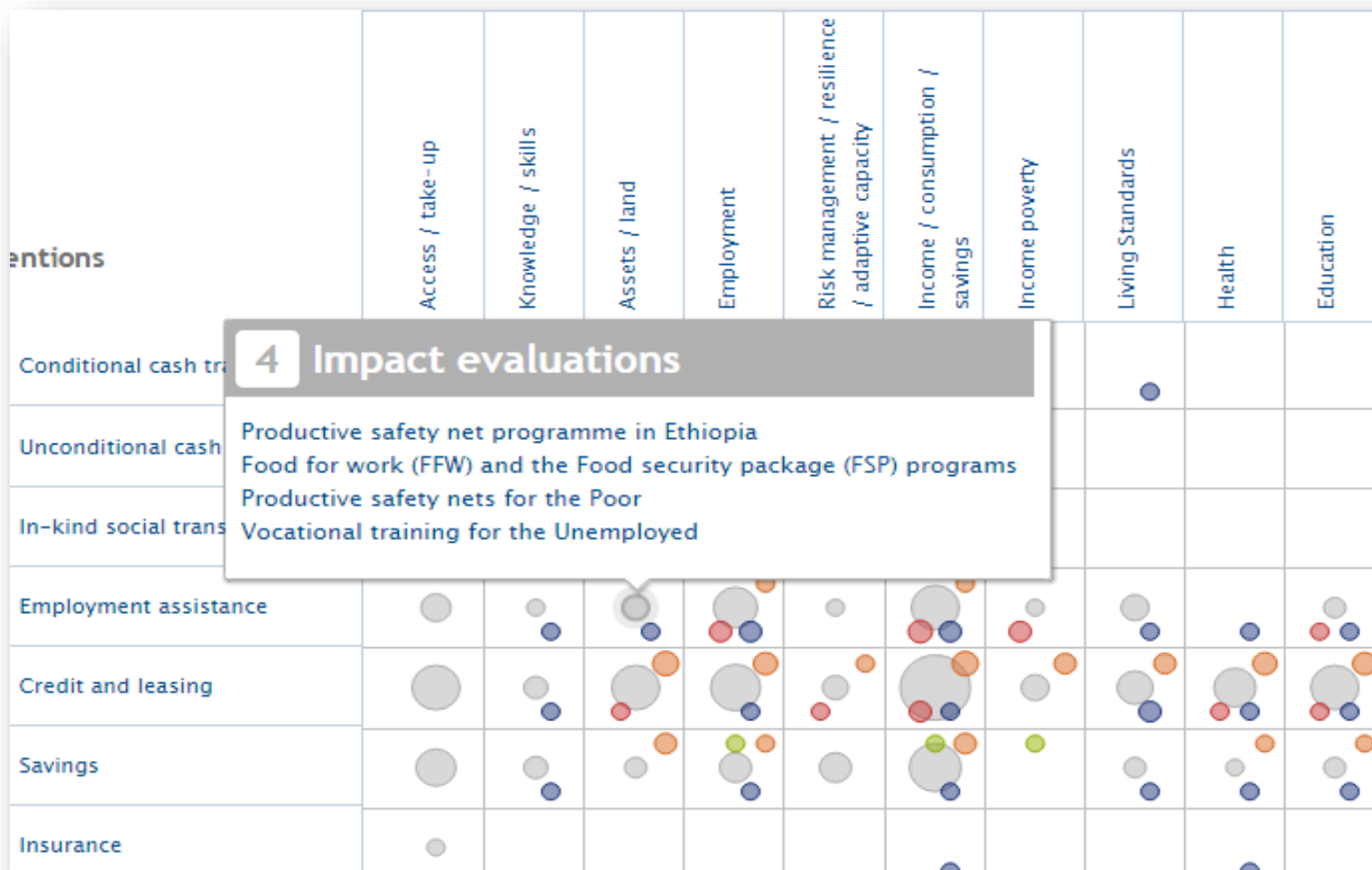
Thank you

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