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USAID's Early Grade Reading and Early Grade Math Impact Evaluations: Lessons Learned

National Education Week

Reforming the Education Sector for Effective Service Delivery: Embracing Innovations

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Presentation Outline

This presentation looks at lessons learned with regards to teacher performance from USAID's Early Grade Reading and Math Programs:

Program Designs

Understanding the Impact Evaluation

Impact and outcome results

Fidelity of implementation

Recommendations

PROGRAM DESIGNS

Numeracy Pilot		Early Grade Reading Program
Revised syllabus with greater emphasis on conceptual understanding and mathematical reasoning	IMPROVED PEDAGOGY	*Use of Ghanaian language and focus on phonics versus "whole language" approach to literacy acquisition*
Teacher resource guide with weekly work schemes, games and activities, performance standards, and assessment tasks	MATERIALS	*Ghanaian language materials including scripted lesson plans, pupil workbooks, supplementary readers, and assessment tools*
Training of Math Coaches who facilitate INSET and weekly learning circles to help teachers put the resources into practice	TRAINING	*Teachers trained on use of new materials through training events and weekly school-based INSET meetings*
Math Coaches and Head Teachers to provide regular classroom observation and coaching/feedback	COACHING & MONITORING	*Head Teachers, Curriculum Leads, and Circuit Supervisors regularly observe and coach teachers on instructional practices*

EVALUATION QUESTIONS

Impact / Goal Questions

Math

After 1 year, to what extent does the Numeracy Pilot improve early grade mathematics performance for P1 and P2 learners, as measured by the Early Grade Mathematics Assessment (EGMA) and select subtests of the Ghana Early Numeracy Assessment (GENA)?

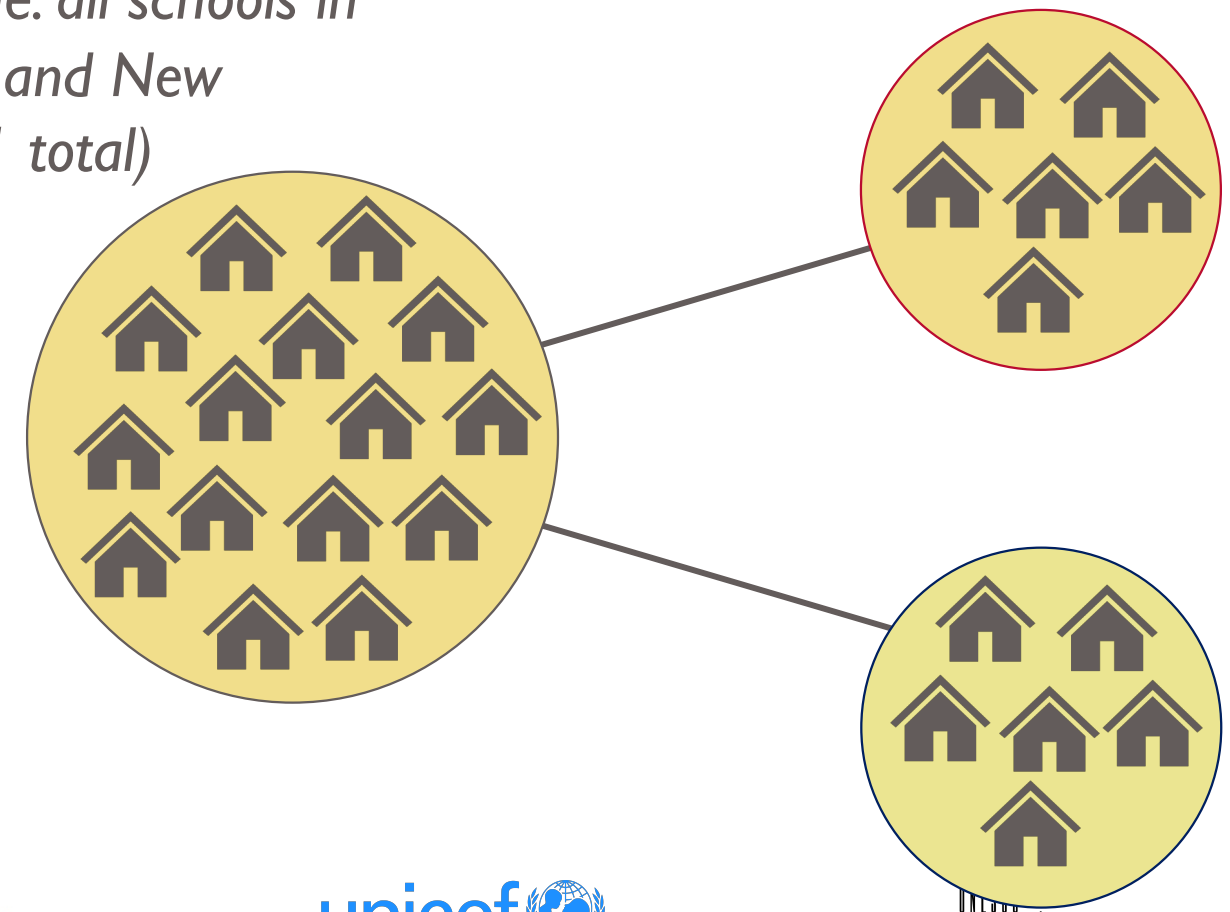
Reading

After 2 years, to what extent does the Early Grade Reading Program improve P1 and P2 reading skills, as measured by the Early Grade Reading Assessment (EGRA)?

EVALUATION RESEARCH DESIGN

Randomized Controlled Trial (RCT)

Sampling frame: all schools in Shai Osudoku and New Juanbeng (121 total)



60 schools randomly assigned to numeracy pilot

61 schools randomly assigned to control

EVALUATION RESEARCH DESIGN

Reading

Quasi-Experiment Using Statistical Matching

Intervention

Comparison

PROGRAM IMPACT MATH

Pupil Mathematics Performance

EGRA: Procedural understanding of math	GENA: Conceptual Understanding of math
3.8% increase in P1 5.3% increase in P2	17.3% increase in P1 18.9% increase in P2
Small reduction in zero scores	Small reduction in zero scores

PROGRAM IMPACT READING

4.72	18.54	4.04	5.17	6.17
Percent	letter sounds per minute	words per minute	words per minute	Percent

Pre-Reading → Fluency/Comprehension → Initial Reading

Listening Comprehension

s y m o
ɛ y m N
u k ɔ a

Letter Sounds

kɛw rɔm mɛn
nuw lim lɔm
gɔm lam mun

Non-Word Reading

Oral Reading Fluency

Abasɛm tiawa bi ni. Mepɛ sɛ wokenkan no dennennen, ne ntɛmntɛm ma me. Wokenkan wie a, mebisabisa nsɛm bi afa nea woakenkan no ho. Meka sɛ “Fi Ase” a kenkan abasɛm no sɛnea wubetumi biara. Wudu asɛmfua bi so na wunnim a, kɔ asɛmfua foforo so.

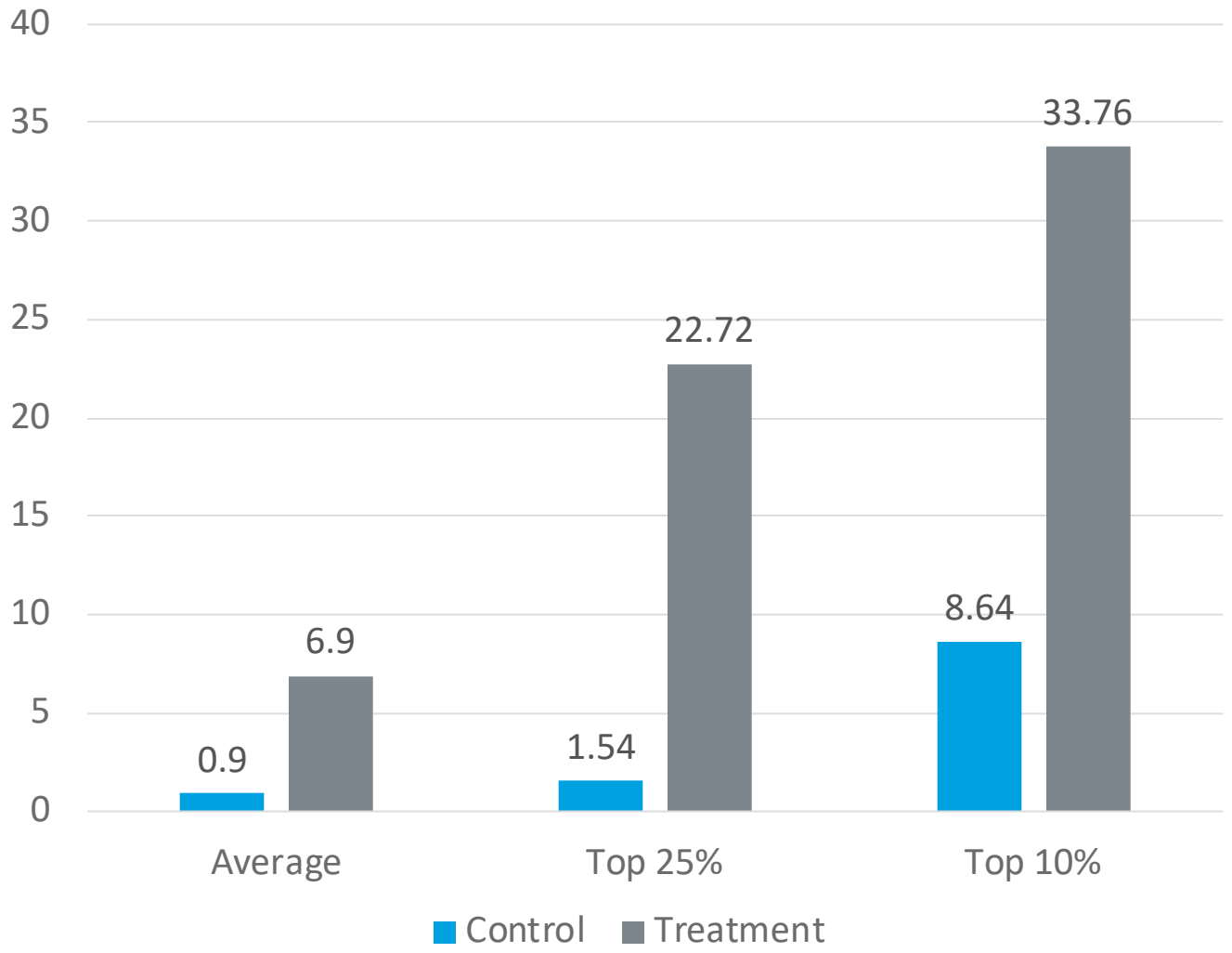
Reading Comprehension

PROGRAM IMPACT READING

The average gains are not representative of all students.

The most significant gains exist amongst the top 10% and top 25% of students.

The driver of the low averages are zero scorers



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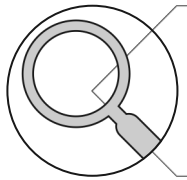
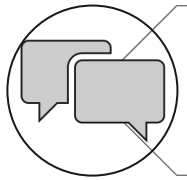
TEACHER PERFORMANCE MATH

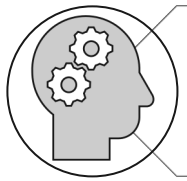
The following observed changes to teacher performance show greater use of teaching approaches that promote a conceptual understanding of math



29% more likely to ask students to find and share problem solving strategies

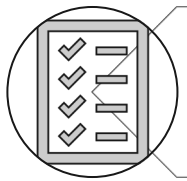


15% more likely to engage in mathematical communication



14% more likely to provide students opportunities to use mathematical reasoning

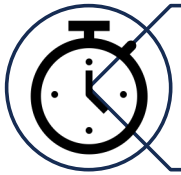
10-15% more likely to use active learning techniques in classroom



Reduced frequency of assessment but greater response to assessment data

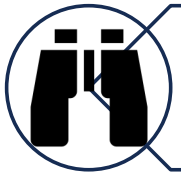
TEACHER PERFORMANCE READING

Most outcomes surrounding changes in pupil and teacher behaviour were positive

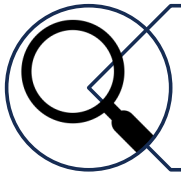


7% increase in time spent on learning activities

28% increase in coaching and mentoring



20% increase in coaching based on observation



Reduced frequency of assessment

Improvement in implementation of 4 out of 5 teaching best practices

FIDELITY OF IMPLEMENTATION MATH

In terms of use, lesson plans and teacher guides were widely used, while classroom materials, even when present, were used inconsistently

Fully Implemented

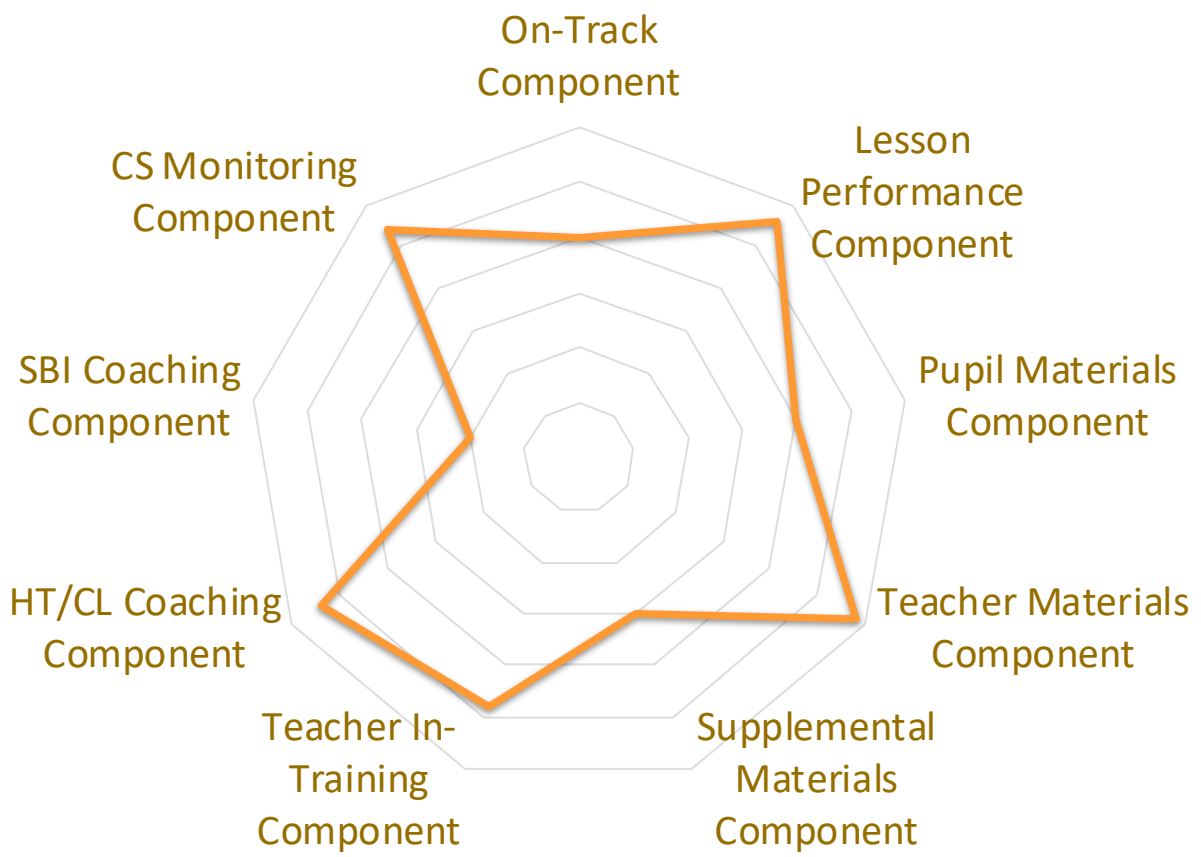
- Training of head teachers
- Training of math coaches
- Provision of Materials

Partially implemented

- Math coaches provided only 20% of planned INSET training
- Math coaches, head teachers, and circuit supervisors provided support at 30% dosage
- Supplementary materials not developed consistently

FIDELITY OF IMPLEMENTATION READING

About 80% of treatment schools in a state of "full" or "near full" implementation fidelity on multiple components.

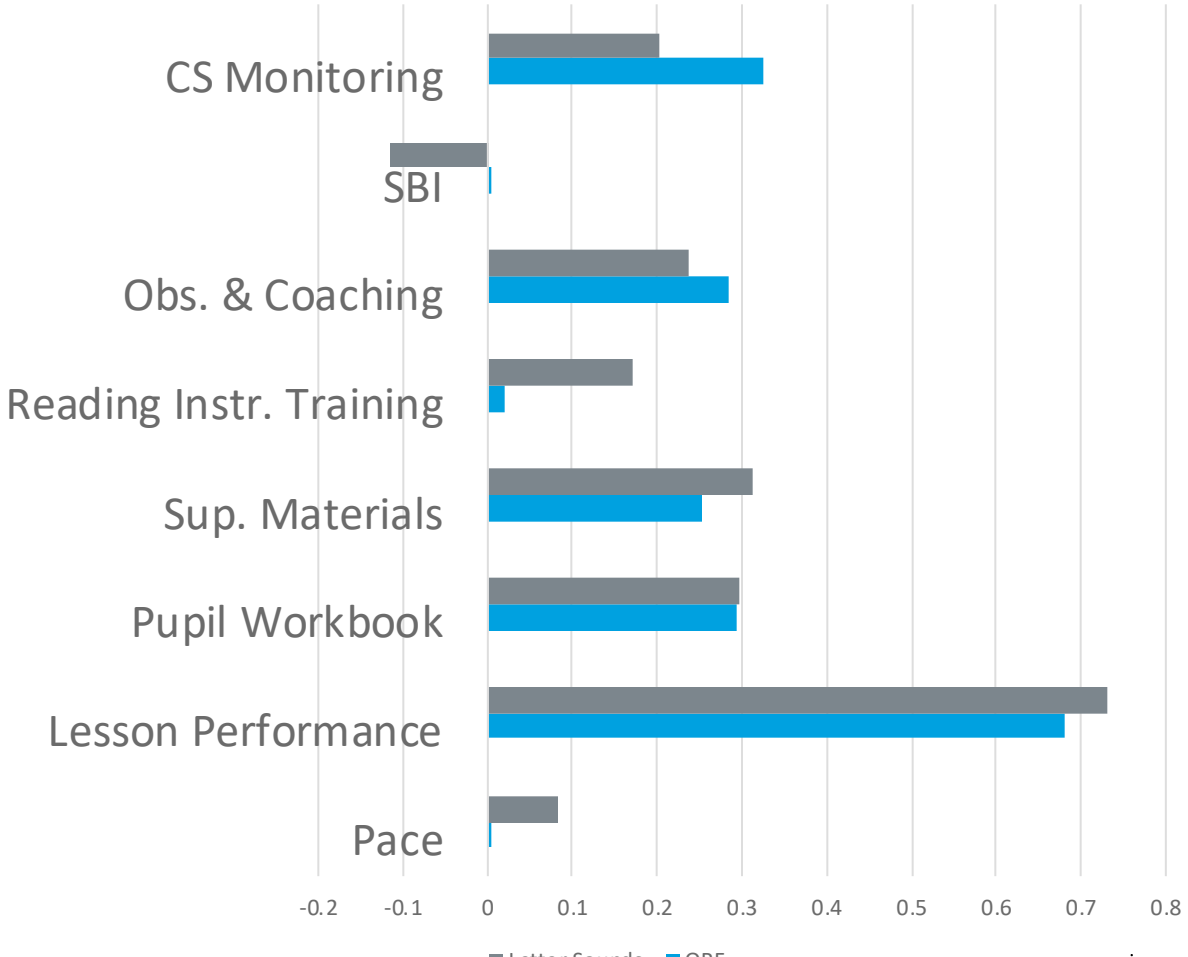


PREDICTORS OF PERFORMANCE MATH AND READING

	Predictor	Outcome
	Pupil always hungry at the start of school	▼
	Teacher punishes pupil for poor performance	▼
	School is in rural locality	▼
	Low language match	▼

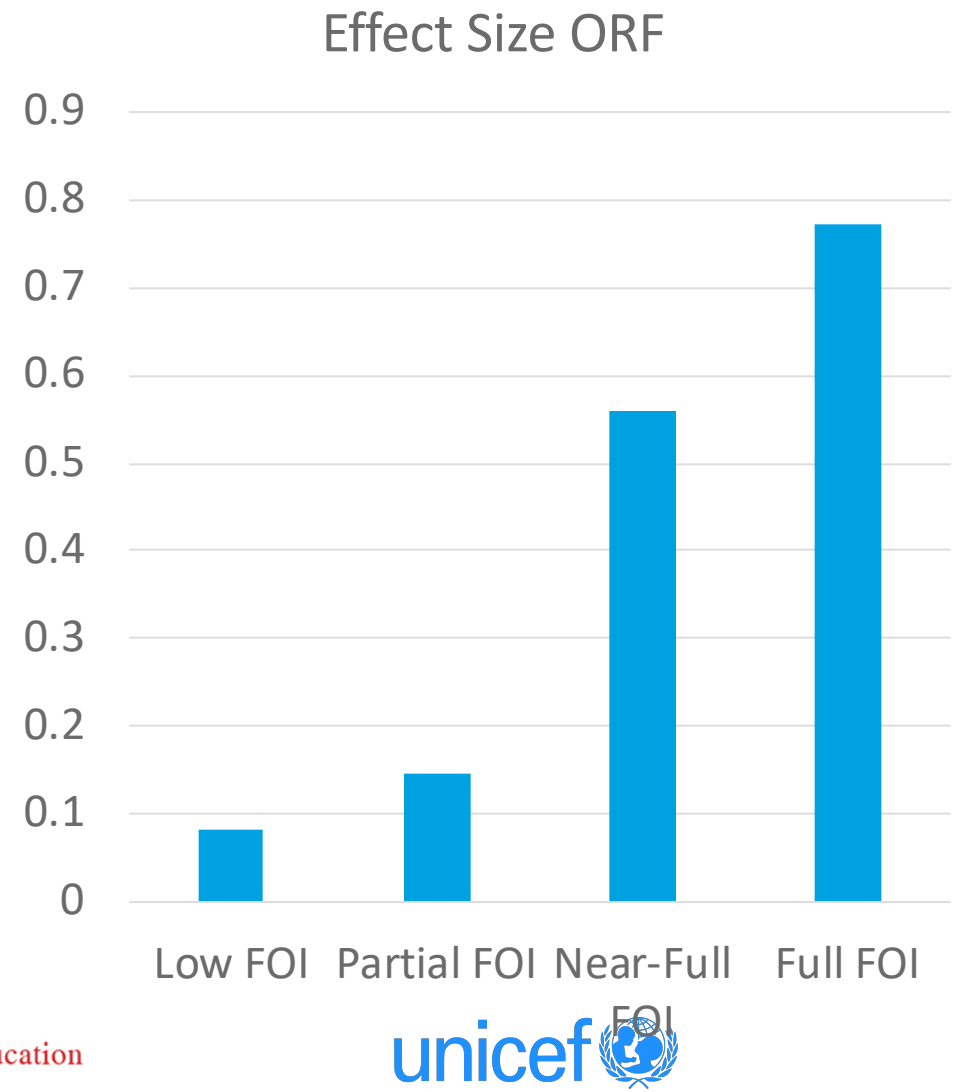
	Predictor	Outcome
	High fidelity to program	▲
	Enthusiasm for reading and math	▲
	Female student	▲
	Higher percent of reading teachers who are female	▲

PROGRAM PREDICTORS OF SUCCESS



The individual program component most significantly associated with program impact is lesson performance the extent to which teachers follow the scripted lesson plans and engage their students in doing so

PROGRAM PREDICTORS OF SUCCESS



Overall fidelity to the program was essential. The effect size of the program schools with low or partial fidelity were significantly lower than those with near full or full FOI

RECOMMENDATIONS

Outcomes

- **Program lesson plans and teacher guides** are helpful to teachers and are associated with success
- For full programmatic scale up, MOE and GES management should **integrate more accountability mechanisms that ensure greater fidelity of implementation**
- Teacher training curriculum should **encourage teachers to give positive rather than negative reinforcement** to students.
- Research how to **overcome the gap** between the large **conceptual** gains and the smaller **procedural** gains we see on math performance

Thank you

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