TCAI: Lessons from first Endline

TCAI Development Partners

April 24, 2012

Motivating Questions

- **Despite significant education spending, many students in Ghana's primary schools never achieve basic literacy and numeracy**
  - ➔ What programs can provide high <u>value for money</u> in improving student achievement?

- **Evidence suggests that assistants teaching targeted lessons to lowest achievers can improve early-grade reading and math skills**
  - ➔ Can this effect be replicated under the school conditions in Ghana?
  - ➔ Are targeted lessons most effective when complementary or supplementary to normal class lessons?
  - ➔ Is effect caused by the <u>smaller class sizes </u>from the addition of an assistant?
  - ➔ Could we achieve same effect from providing <u>in-service teacher training on targeting lessons</u>?
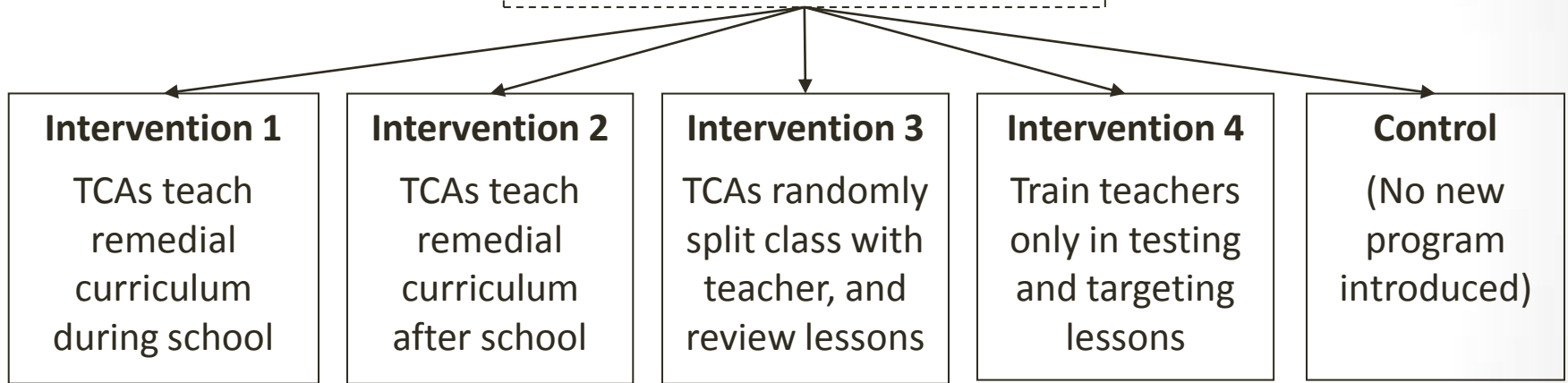
What's TCAI?

- Easy assessment of pupils by teachers/assistants
- Children taught by ability level
- Focused time on literacy and numeracy
- Child centered pedagogy/learning materials
- Taught by untrained teachers given a short training and some ongoing support
- Rigorous data evaluation and monitoring tools
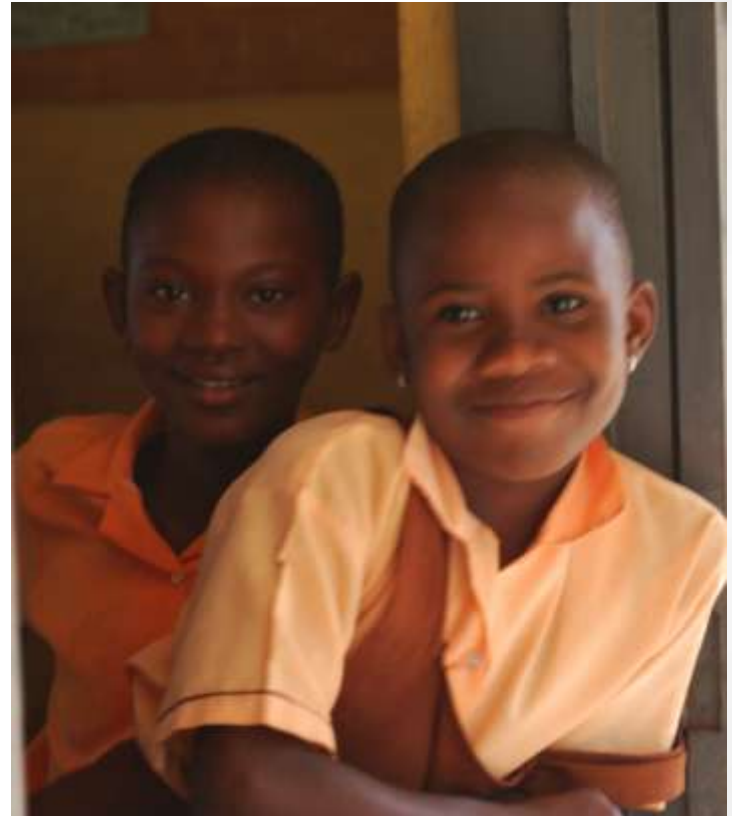
Impact Evaluation Design

Nationally representative sample of 500 schools across 42 Districts.

*Allocated **randomly** into one of five groups:*

Intervention 1	**Intervention 2**	**Intervention 3**	**Intervention 4**	**Control**
TCAs teach remedial curriculum during school	TCAs teach remedial curriculum after school	TCAs randomly split class with teacher, and review lessons	Train teachers only in testing and targeting lessons	(No new program introduced)

Random allocation ensures that groups are identical <u>before</u> program begins, so differences observed <u>after</u> are entirely due to the program and not pre-existing differences or external factors.

Structure of the Interventions

TCAI Interventions	1 Remedial Class During School	2 Remedial Class After School	3 Review Class During School	4 Class Teacher Intervention
Does the school have a TCA?	Yes	Yes	Yes	No, these schools have no TCA. The regular classroom teacher is trained in the TCAI methodology and in continuous assessment of pupils' ability levels.
When does remedial/review class take place?	During school hours	After school hours	During school hours	
What pupils are in the remedial/review class?	Weakest pupils	Weakest pupils	Random half of the class	
What pedagogy is taught?	Basic Skills	Basic Skills	Review	Ability Groups

Results

What Was Tested?

- **Oral English and local language tests, including sections on:**
    1) Listening, reciting, and conversation
    2) Grammar and vocabulary
    3) Reading and pre-reading

- **Oral math test, including sections on:**
    1) Numbers and fractions
    2) Computations and operations
    3) Geometry, measurement, and data

- **All tests included sections on most basic skills, which were the focus of the remedial pedagogy**

Summary of Results

1. **In-school and after-school remedial program caused the largest increases in student test scores**
   - The test score impacts were primarily driven by improvements in basic literacy and numeracy skills

2. **After-school remedial program was slightly more effective than the during-school one, particularly in deprived districts**
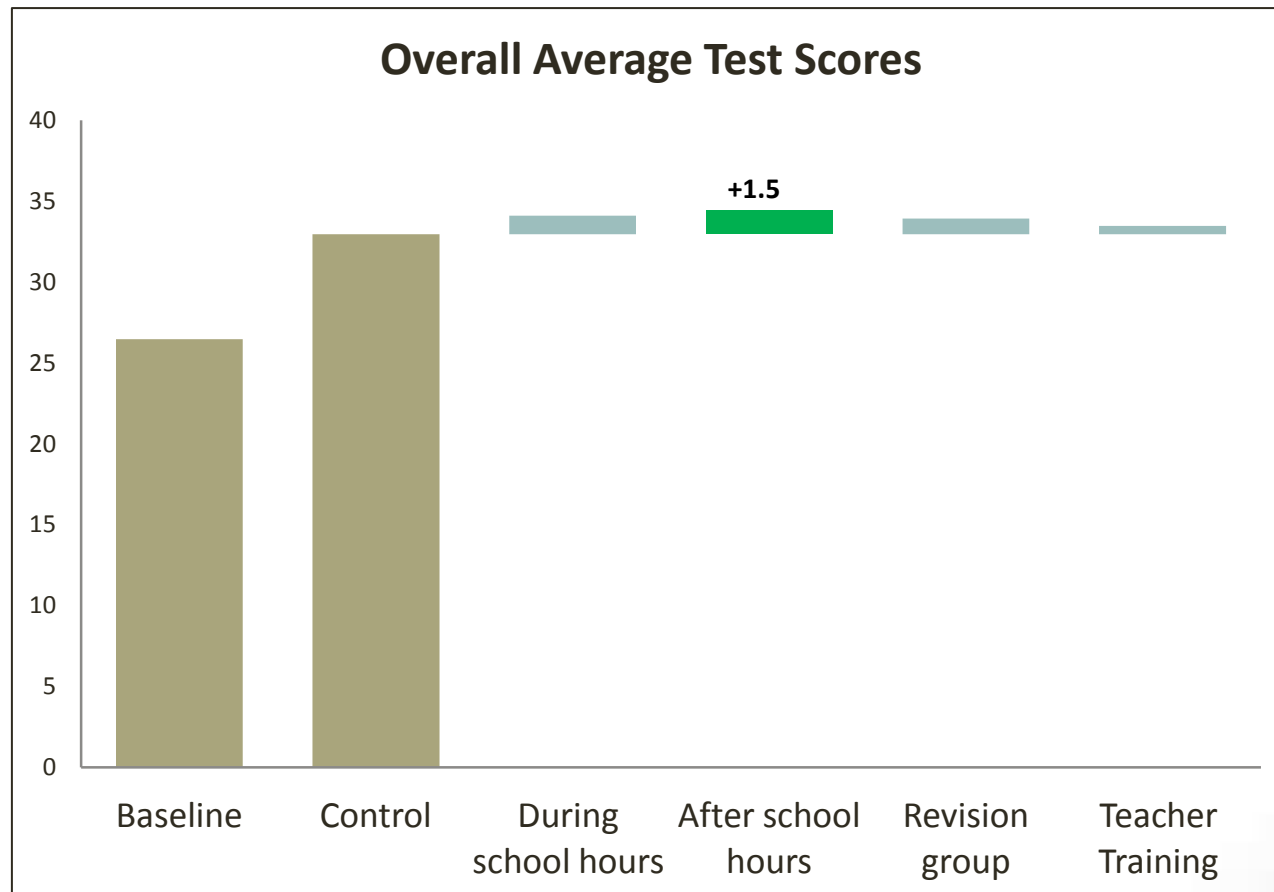   - Lack of infrastructure in deprived schools may have prevented assistants from finding necessary space
   - After school program allowed for more focused learning time

3. **Simply training teachers to target their lessons, or reducing class size by adding an assistant, had minimal impact on test scores**
   - Suggests the impact of remedial program was driven by the combination of intensive, basic-skills instruction with low-performing pupils

Overall Test Scores

- **Only after-school remedial program had a significant impact on average test scores, which increased by 1.5 percentage points (> 4%)**


Overall Average Test Scores

Bar chart showing test scores for Baseline (~26.5), Control (~33), During school hours (~34), After school hours (~34, labeled +1.5, highlighted green), Revision group (~34), Teacher Training (~33.5).

Average Math Scores

- **The average effects were largely driven by math scores, which were positively affected by all interventions that provided assistants**
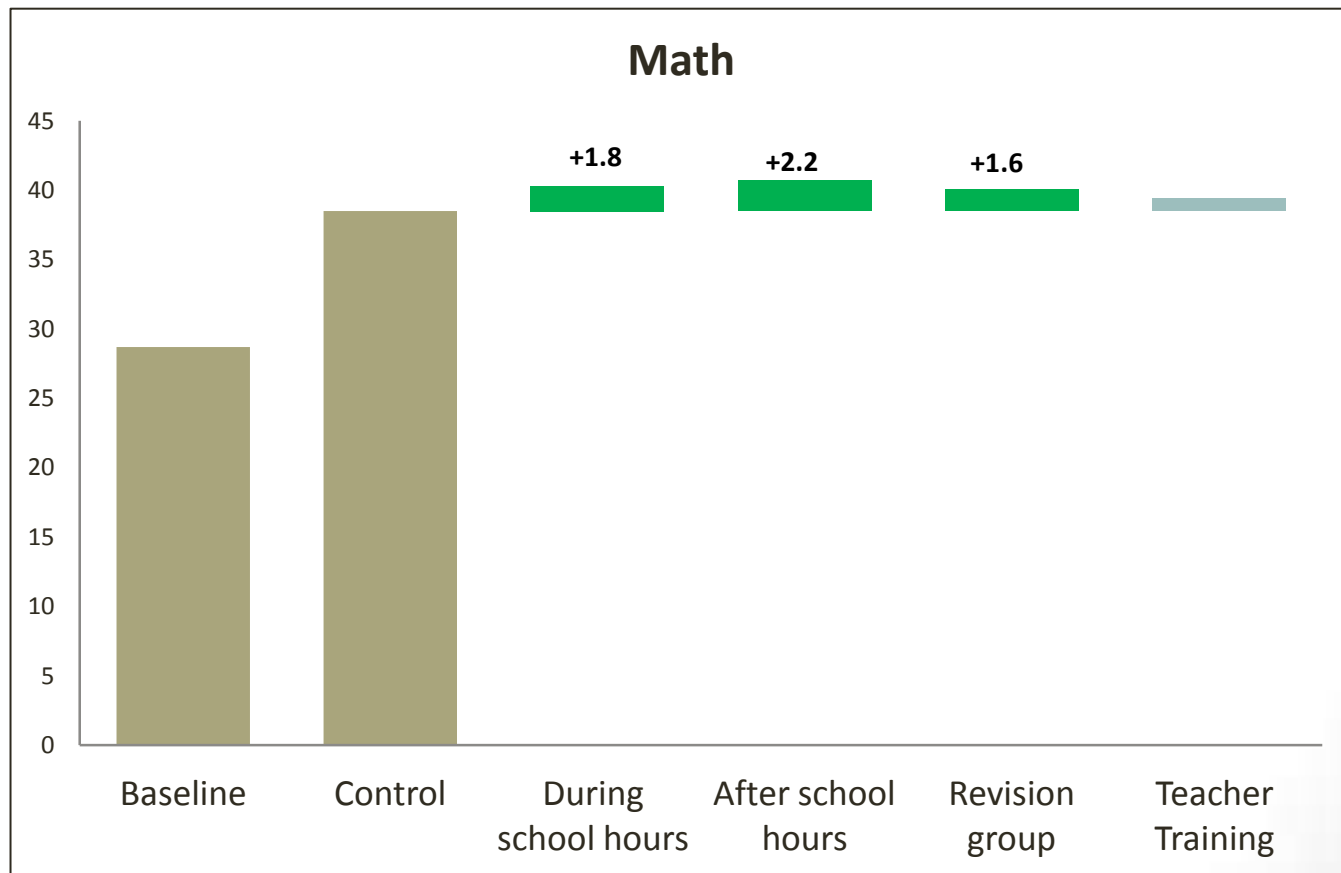
Math: Numbers, Computation & Operations

- **All assistant interventions had an effect on operations section of the math test, but only after-school remedial program had effect on computation section**

Math S1 - Numbers

Math S2 – Computation and Operations
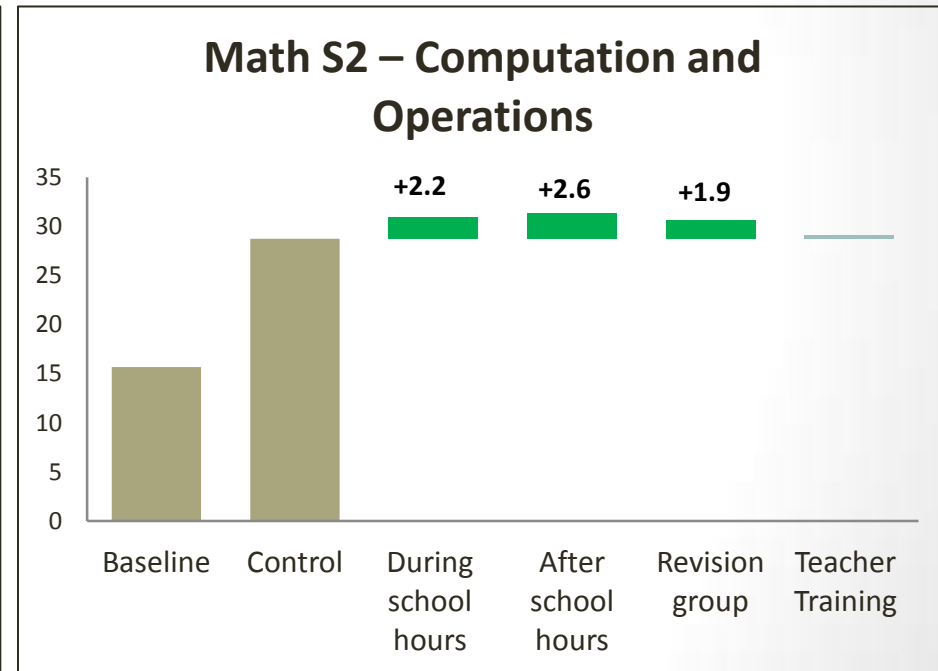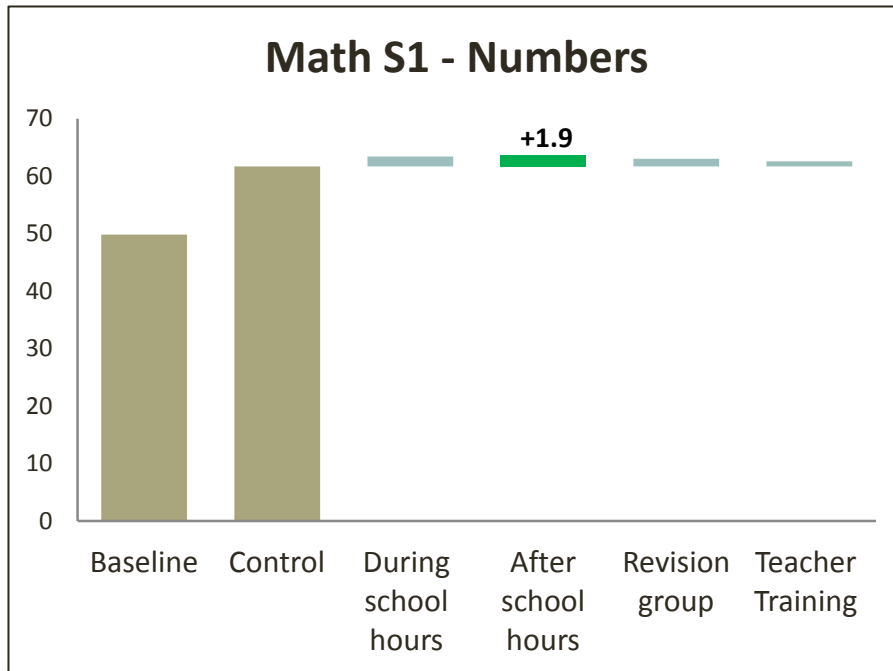
Literacy: Reading and Pre-Reading

- **Remedial program during and after school affected reading and pre-reading, the areas the pedagogy targeted**
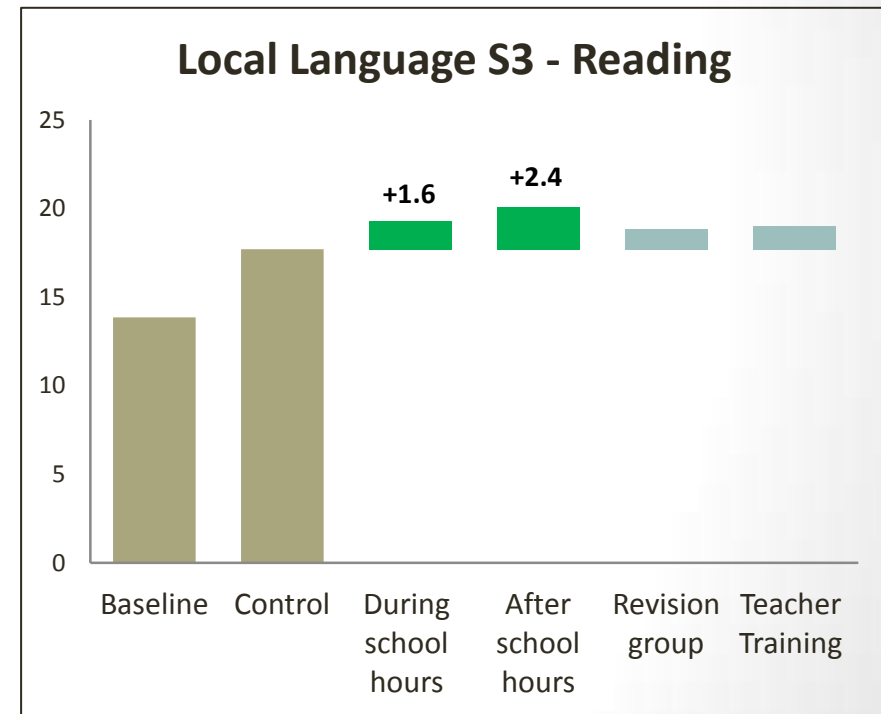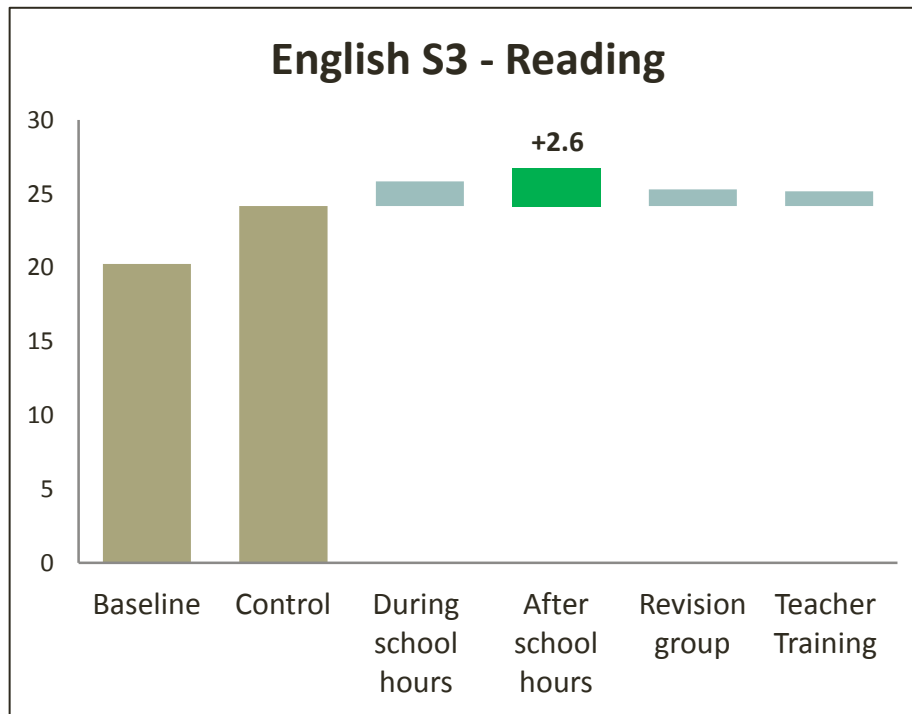
Improvements in Basic Skills

① Numeracy Basic Skills –

- **Level 1 – Identification and counting single digit numbers**
- **Level 2 – Identification of two digit numbers, one digit addition**
- **Level 3 – One digit addition with carry over**

② Literacy Basic Skills –

- **Level 1 – Reading & sound recognition of Alphabets**
- **Level 2 – Reading two and three letter words**
- **Level 3 – Reading more complex sounds and longer words**
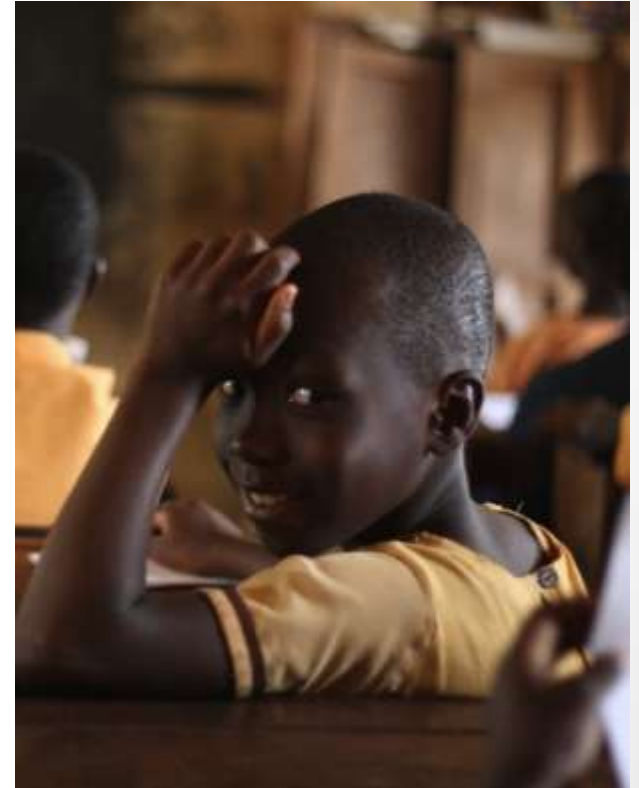
Basic Skills: Literacy

• **Remedial education after schools hours, during school hours and teacher training all had a positive effect on basic literacy skills.**

• **The highest effect was for remedial education after school hours: scores increased by 12.6 percent.**
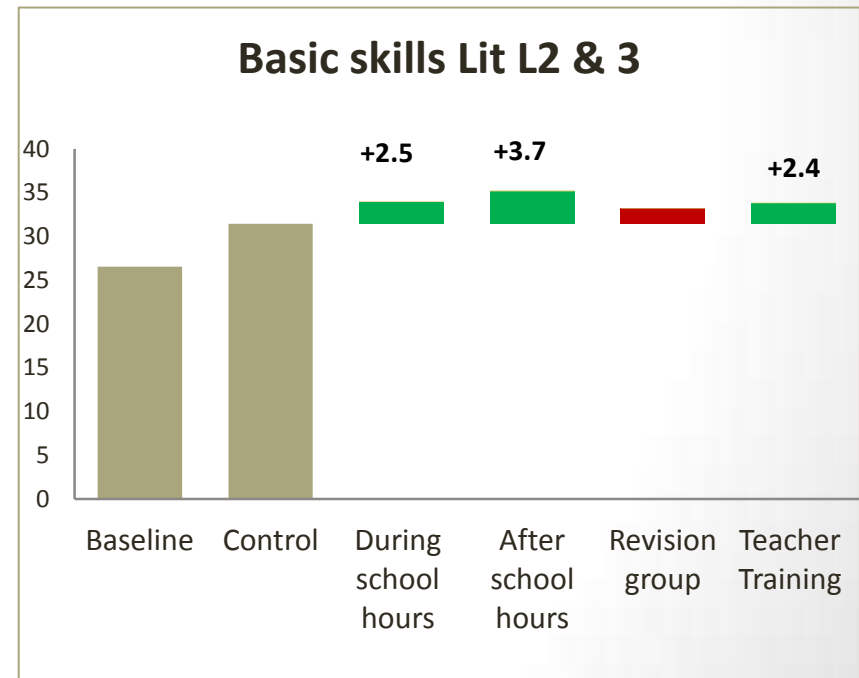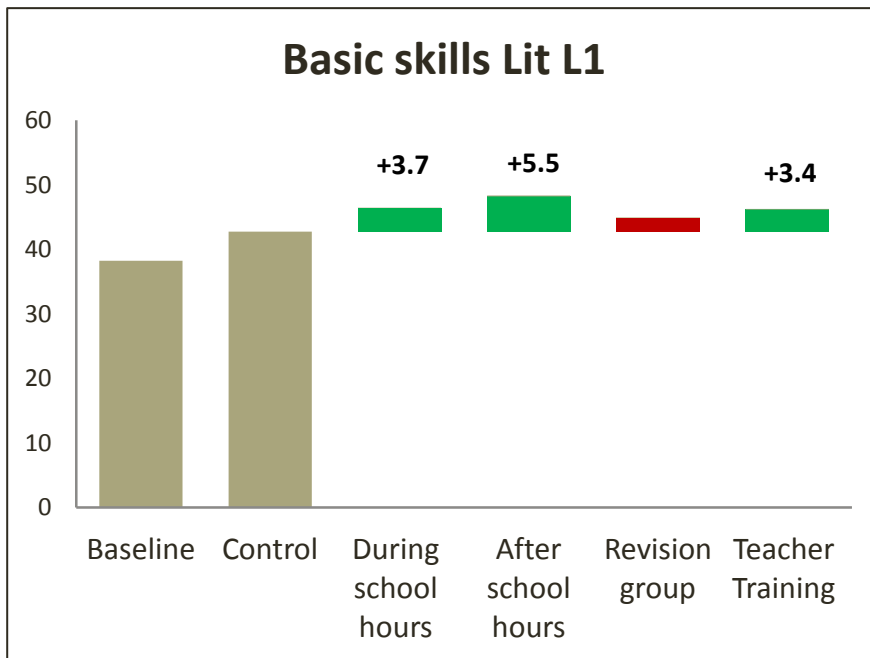
Basic Skills: Math

Remedial education after schools hours and during school hours had a positive effect on basic numeracy skills.

Basic skills Numeracy L1

Basic skills Numeracy L2 & 3
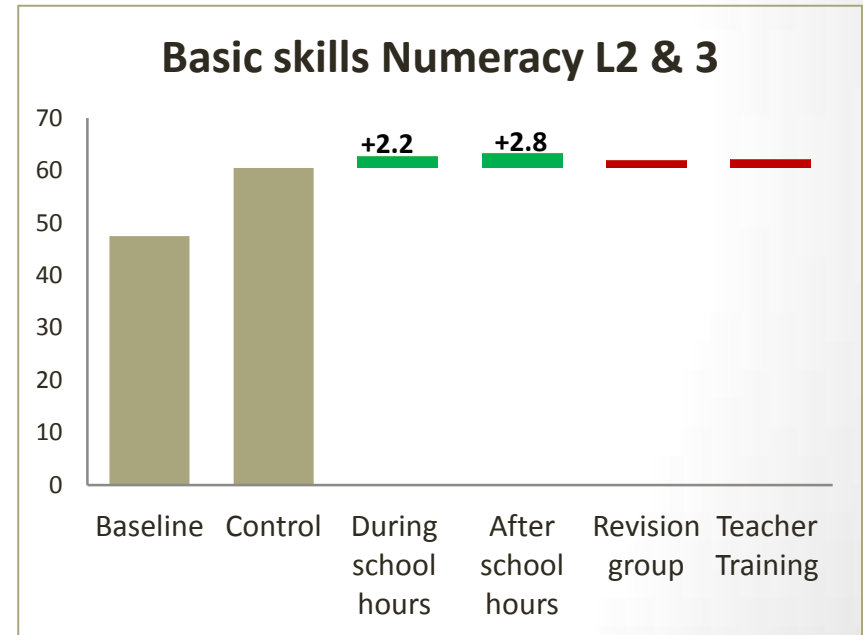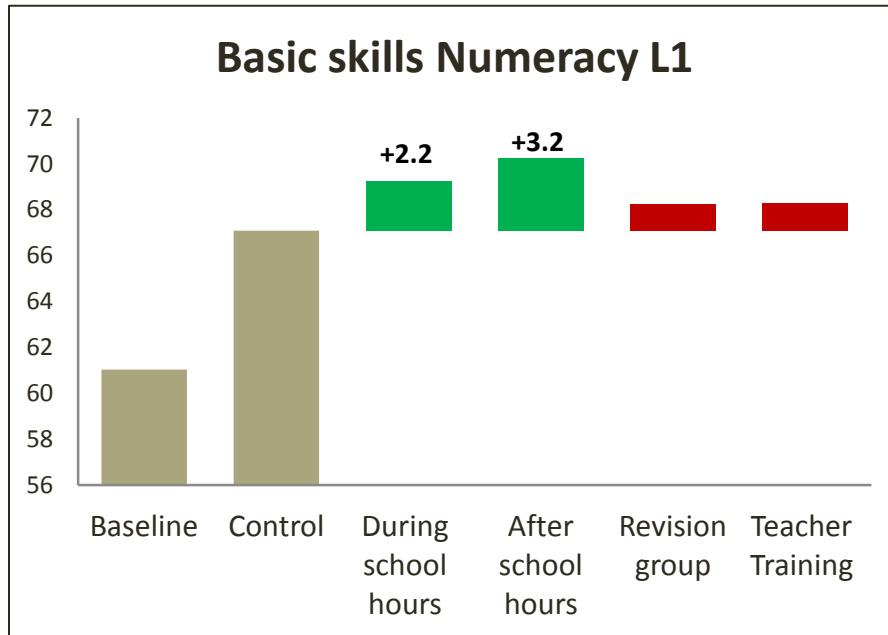
Effects on Treated Pupils

• **Around a third of pupils in schools with the remedial intervention were assigned to the remedial classes; effects presented so far are averages for *everyone* in these classes**

• **We can estimate the effect on the pupils who were actually assigned to remedial sessions, assuming they are the only ones affected by the sessions**

Effects on Treated: Basic skills Lit L1
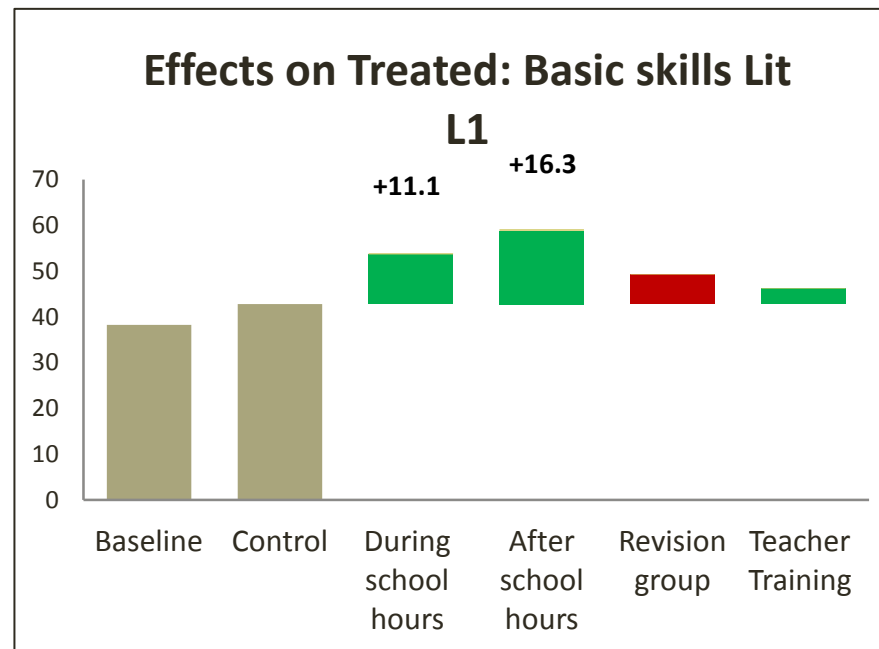
Effects of School Conditions

• **Remedial TCAs after school, when they were able to conduct intensive lessons with few interruptions, were most effective overall**

• **This is particularly true in deprived districts, probably because in-school remedial TCAs were competing with normal classes for space and resources**
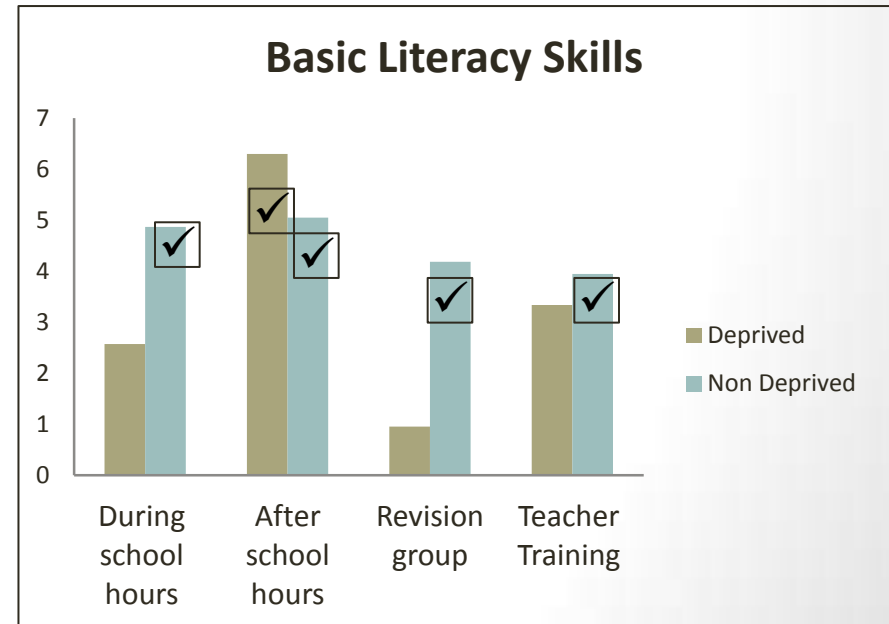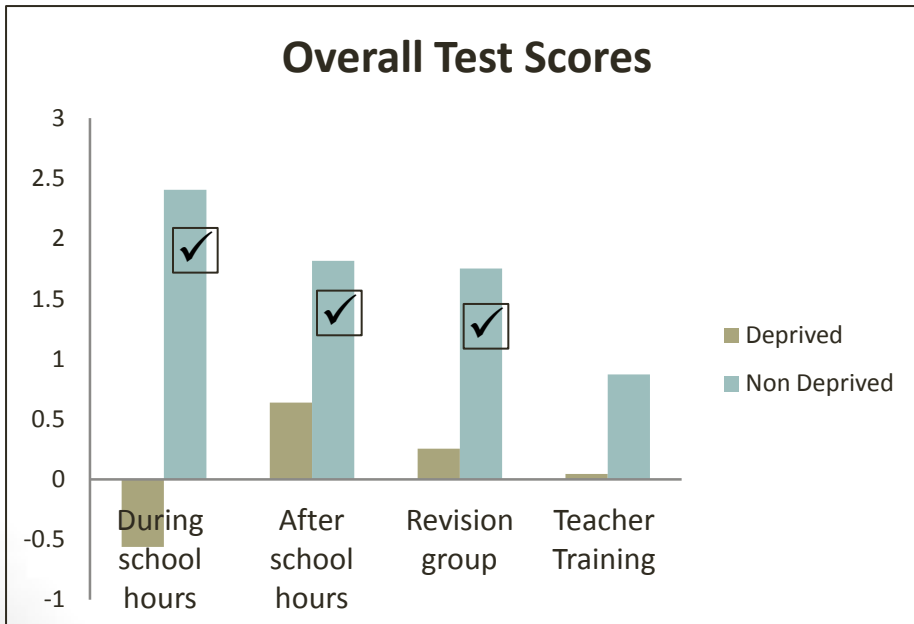
Summary of Results

1. Intensive remedial classes deliver improved learning outcomes
   - Improvements are highest in basic skills
   - Highest impact in after school program, then during school program
   - Teacher training also had positive effect, but only on basic literacy in upper half of the class
   - Results are comparable to other successful educational interventions after one year

2. Improved learning outcomes achieved despite short time of teaching (~10 weeks) before survey and other implementation challenges
   - Results stronger for during school TCA intervention where school conditions were good

3. Much larger potential exists that can be achieved by optimizing program.
   - Increasing quality of teaching of assistants to the standard of better performing ones
   - Increase time on task is increased
   - Improve monitoring
   - Increase assignment rate to the remedial class from current rate of 34% to 50%

What has been learned?

- It is important to generate ***evidence for decision making***:
  - the most effective intervention is not always intuitively so;
  - context matters

- Simple ***assessment*** systems can provide feedback on a child's competency on a continuum towards grade level proficiency

- Targeting learning levels is important: focused ***time on basic skills*** for low level learners can lead to rapid skill acquisition

- A ***moderately trained community member***, with support, a script, materials and follow-up can help children become literate and numerate

Next Steps…

- **Lessons from the programme could be incorporated into Ghana's education programming in several ways**
  - Re-orient the existing "community education teaching assistants" program, to focus on providing remedial lessons for lowest achievers
  - Consider how to deploy resources in deprived vs. non-deprived districts, to have the greatest impact
- **Several next steps are planned to encourage scale-up**
  - Work with GES, GNAT, and NYEP to improve program functioning, consider long-term institutionalization
  - Test new questions related to early grade reading
  - Second year of evaluation, to generate better estimates of impact
  - Cost-effectiveness analysis, enabling comparison with other effective programs to determine which provides greatest value for money

Teacher Community Assistant Initiative (TCAI)

A project of the Ghana Education Service with:

Ghana National Association of Teachers
National Youth Employment Program
Innovations for Poverty Action (IPA)

Republic of Ghana
GHANA EDUCATION SERVICE

Background on Ghana

- Geographically centermost in the world.
- Reputation as friendliest country in West Africa.
- Population: ~ 21 million; 40% under 15
- 2-6-3-3-4 educational system
- Constitution mandates free, compulsory, universal basic education
- Quality education for all (why TCAI?)

Addressing Low Learning Levels

- Low learning levels in Ghana
  - Most pupils are not able to acquire basic literacy and numeracy skills by grade 3

- Education budget already 23% of national budget, with basic education getting ~45% – need cost effective solutions

- NALAP introduced to improve early grade literacy & numeracy

- But teachers coping with children at a wide range of learning levels
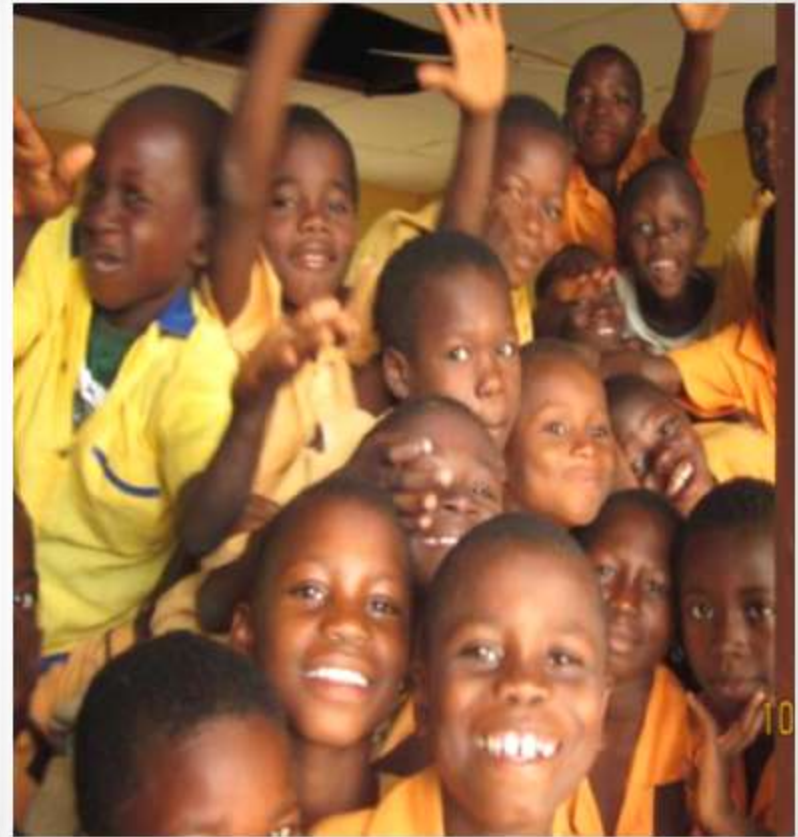
Outline

- TCAI Goals and Appeal

- Adapting Insights from Research Studies

- TCAI Key Components

  - Community Involvement

  - Working with the Existing Systems

  - Child Centered Teaching

  - Innovative Monitoring

  - Career Opportunities for the Youth

- Evaluating Impact and Program Variations

- Towards a National Rollout

TCAI Goals

- Complements existing programs by focusing on the lowest half
- Reinforces community's role by using Community Assistants
- Based on results of rigorous evaluations (India, Kenya)
- Consistent with the Strategic Plan's focus on quality
- Cost-effectiveness and sustainability (using NYEP structure)
- Offers effective entry points into career jobs for youth

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Results from Three Studies
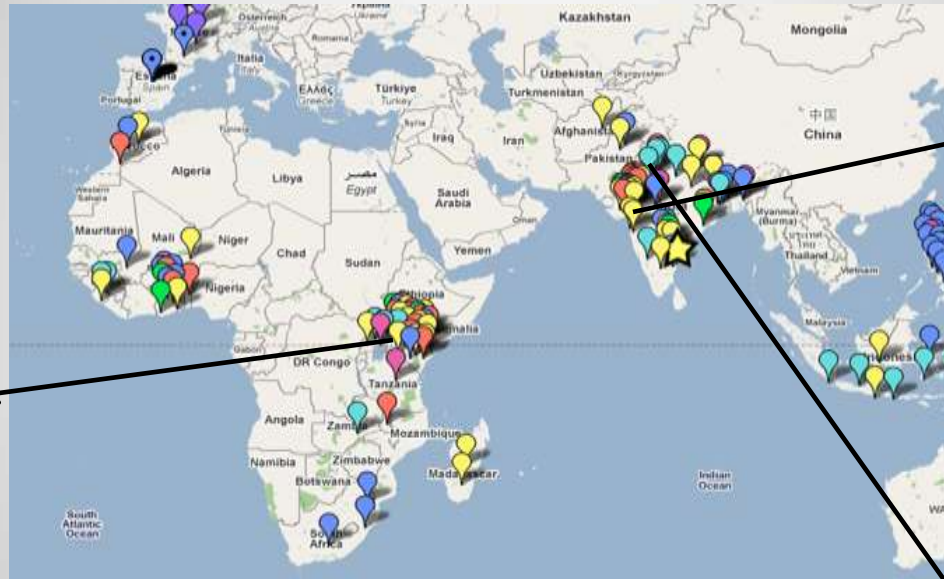
Kenya:
Adding Extra Teachers was most effective when class split by ability and with SMC monitoring

India: Remedial Education by community assistants during school hours was very effective (Pratham)

India: Community-based Volunteers running classes for low performing students in communities (Read India Program)

Three rigorous Randomized Controlled Trials showed cost effective ways to increase learning outcomes in school

Key Insights

- Easy to teach students how to read in a relatively short time, using a simple methodology and low-cost materials

- Key is to focus instruction at the right level. E.g, teaching the students lagging behind separately from the rest of the class

- Critical to have a reliable, easy methodology to identify the level of achievement of all the students

- Secondary school graduates can be trained in a short time (4 to 15 days) to teach *basic* literacy and numeracy

- Empowering local communities to hire assistants and monitor their performance can maximize the benefits for children

How can we adapt these insights to the Ghanaian context, in a relevant and sustainable manner?

Adapting to Local Context

|		
Sound Program Design	• Combines the successful components from different programs • Involves local partners such as School for Life (training and materials)	**The program** • TCAs hired through NYEP & trained • Teach basic skills to the lowest half (2 hours per remedial class, 2 classes per day) • Monitoring by regular system + SMCs
Wide Support	• Works with the existing system (GES structure, NYEP) • Partnership with the Teachers Union	
Financially Sustainable	• NYEP: already a system to pay for the assistants • Relatively low-cost program: Small proportion of education budget	

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Community Involvement

- Assistant (TCA) has to be from the community

- SMCs, PTAs & Community Leaders: Key roles
  - Identify and monitor the Assistants
  - Contribute to furniture and space if necessary

- TCAs trained to sensitize and involve the community
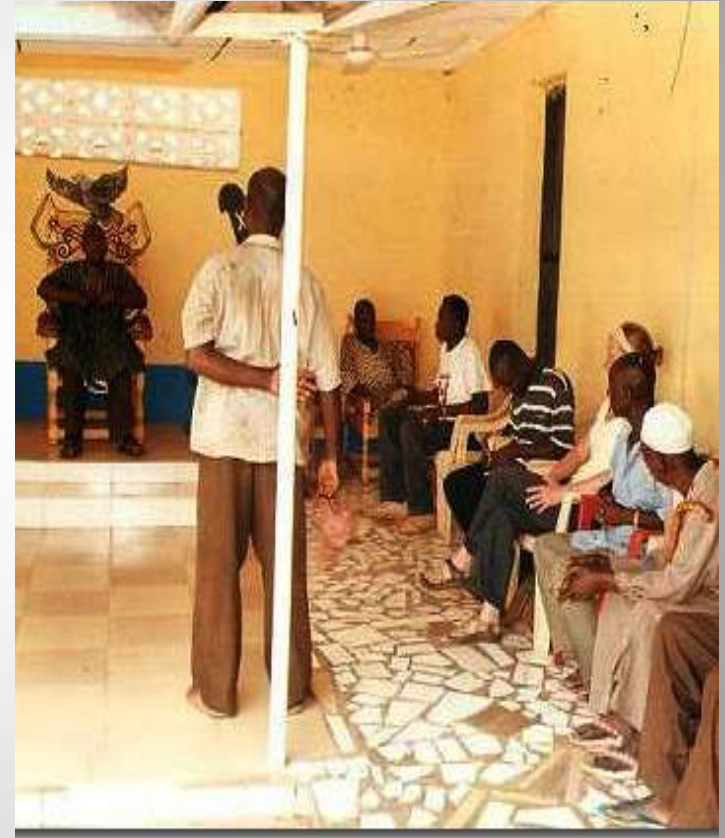
Working with the existing system

- Use of NYEP

- While SMCs identify candidates, joint interview by GES and NYEP (ensure quality)

- Key role of Circuit Supervisors
  - Trained as trainers; Supervision and support role.

- Key role of Head Teachers and Teachers
  - Trained as well; Need to be recognized as key players in the program
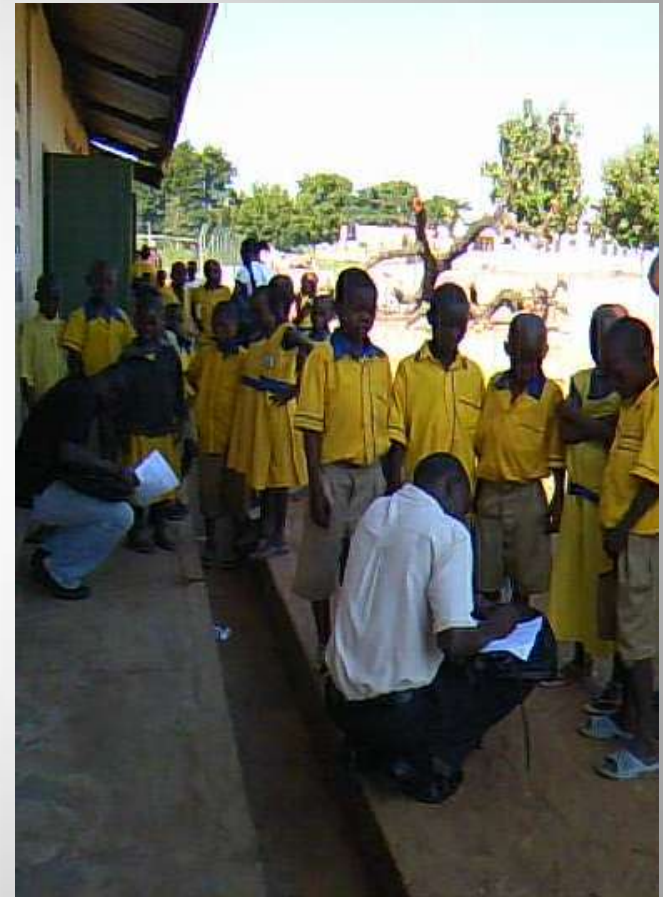
Child Centered Teaching

- 5-day training; refresher trainings; & continuous support by Circuit Supervisors:
  - Identify and track children's level using a simple test
  - Use games and activities (all class and ability groups)
  - Use & create supplementary materials
  - Focus on literacy (syllabic and phonic method) and math (focus on place value)

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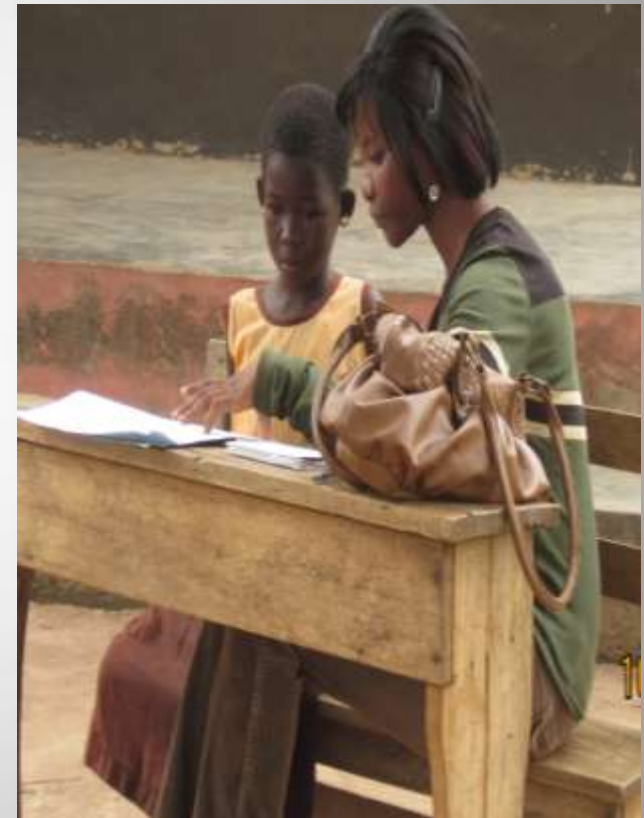
Innovative Monitoring

- Involvement of Community
  - One community member identified by SMC and PTA
- Cell-phone based
  - Head teachers, community members, Circuit Supervisors, GNAT, NYEP and TCAI Coordinators will all send sms
- Centralized data base with live data, accessible to all stakeholders

Career Opportunities for Youth

- Traditional Challenges:
  - Policies have favored investment & training but this does not lead to job creation
  - Rural youth flood urban centers, where opportunities for youth are few, if any
  - Most jobs available to young people provide no long term career path
- TCAI advantage
  - Jobs created within the community where the young people live
  - Opportunities to plug into existing programs for a career in the formal education sector

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Some questions

- Will it achieve the desired impact on learning outcomes?
- If so, is it remedial education, or just because of smaller class size?
- Will remedial education work better if done during or after school hours?
- Can teachers achieve the same results without assistants, if trained to do so?

We can test these questions!

10/11/2010 09:30

Data Collection

- Surveys: school, teacher, SMC/PTA and community members

- Testing: Designed in collaboration with IPA and CRDD
  - Individually administered test: Baseline, 1st and 2nd endline
  - Written test along the lines of NEA: 1st and 2nd endline
  - NEA (administered project-based): 2nd endline

- Administered by IPA through cell phones, with GES monitoring

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Towards a National Roll Out

Logistics Pilot	National Pilot preparations	National Pilot	National Roll-out?
May 10 – Dec 11	*Aug 10 – Mar 11*	*Apr 11 – Aug 13*	

- Test logistics and teaching methodology
- Start preparations for National Pilot

- Prepare training plans and materials
- Sensitization
- TCA recruitment and training

- Evaluate impact of TCAI and variations (500 schools in all country)
- Start Roll-out negotiations and plans

- National Roll-out of the program, if positive results