

Researchers

Annie Duflo
Executive Director

Jessica Kiessel
Omidyar Network

Adrienne M. Lucas
Lerner College of Business and Economics, University of Delaware

Staff

Annie Duflo
Executive Director

Grace Gletsu
Research Associate

Madeleen Husselman
Country Director, Ghana

Loïc Watine
Chief Research & Policy Officer

Gloria Abankwa
Research Associate

Harrison Diamond Pollock
Research Manager

Timeline

2010-2013

Sample Size

25,000 pupils

Research Implemented by IPA

Yes



EXPERIMENTAL EVIDENCE ON FOUR POLICIES TO INCREASE LEARNING AT SCALE*

Annie Duflo, Jessica Kiessel and Adrienne M. Lucas

We partnered with the Ghanaian government to simultaneously test four methods of increasing achievement—accelerated remedial pull-out lessons, remedial after-school lessons, smaller class sizes and teacher-implemented partial day tracking—in schools with low and heterogeneous student achievement. The interventions increased student learning by about 0.3 standard deviations, rising to 0.4 standard deviations when adjusting for imperfect implementation, with no effects on attendance, grade repetition or dropout. Test score increases were larger for girls. Test score gains persisted after the program ended. Accelerated implemented the program with higher fidelity than teachers, although their fidelity decreased over time while teacher fidelity marginally improved.

Many developing countries have eliminated the fee-based barriers to primary school enrollment, leading to a substantial rise in the number of enrolled children (Lucas and Mbiti, 2012). Unfortunately, the existing education systems, designed to serve a smaller and more homogeneous student population, struggle to accommodate more heterogeneous classrooms and first-generation learners. Effective solutions have been proposed through smaller randomised controlled trials, yet whether they can increase learning when integrated into existing systems at scale is unknown. This paper tests, in existing systems, four alternatives to support teachers' transition to the new status quo, a frontier challenge for developing countries. In a single 500-school, nationwide, randomised controlled trial (RCT) that reached over 80,000 students, we test four models that built on some of the most effective content delivery interventions in the last 20 years in developing countries—assistant teachers, smaller class sizes, additional instructional time, tracking, and remedial and differentiated instruction—and show their potential, relative effectiveness and

*Corresponding author: Adrienne M. Lucas, Department of Economics, University of Delaware, 406 Parrish Hall, Newark, DE 19716, USA. Email: alucas@udel.edu

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The data and codes for this paper are available on the Journal repository (Duflo et al., 2013). They were checked for their ability to reproduce the results presented in the paper. The replication package for this paper is available at the following address: <https://doi.org/10.5281/zenodo.10497307>

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Evaluating the Teacher Community Assistant Initiative in Ghana

Abstract

Over the last decade, millions more children in developing countries have gained access to primary school education. Despite this achievement, a large number of children enrolled in their first years of school are still not learning how to read, write, or do basic math. Building on previous research, researchers in this study evaluated the impact of several targeted instruction programs on the learning outcomes of primary school students in Ghana's public schools. Researchers found significant improvements in numeracy and literacy on average, with regional variations. Of four interventions, in-school and after-school remedial lessons delivered by Teacher Community Assistants had the largest impact on pupil achievement.

Policy Issue

Many developing countries have greatly expanded access to primary school education, spurred by initiatives such as the United Nations Millennium Development Goals, which call for achieving universal primary education by 2015. Yet educating more children has strained education systems, and in many developing nations primary school education is failing to equip a large portion of students with even basic reading, writing, and math skills. Evidence from research in Kenya and India suggests that targeting instruction at the child's level, for example by using teaching assistants from local communities to teach remedial classes to the lowest half of the class, can raise learning levels. This study contributes to evidence-based education policy by helping to determine best practices in remedial education in a developing country context.

Context of the Evaluation

In Ghana, 95 percent of children are now enrolled in school. However, data suggests the majority of students are not keeping up with the curriculum. During the initial survey for this study, less than 10 percent of Ghanaian 3rd graders could read four-letter words, only 6 percent could read a basic paragraph, and only about 20 percent were able to identify three-digit numbers—abilities in which 3rd graders in Ghana are expected to be proficient.

Despite the obvious need for improvements to the education system, the Ghana government is already investing a large portion of its budget into schools. Ghana spends approximately 30 percent of its budget on education, with 99 percent of Ghana's contributions going toward salaries. There is, therefore, a great need for cost-effective strategies to improve students' learning levels in Ghana.

Details of the Intervention

IPA partnered with Ghana Education Services, Ghana National Association of Teachers, and the National Youth Employment Program, to develop and evaluate the Teacher Community Assistant Initiative (TCAI).

The initiative recruited teaching assistants from high school graduates in local communities and placed them into government primary schools across Ghana. Because the gap in academic performance between the strongest and weakest pupils grows from first to third grade, the initiative focused on pupils in grades 1-3 in government schools.

The first phase of TCAI tested four different programs, reaching 25,000 pupils. Five hundred schools across 42 districts, chosen to be nationally representative, were randomly assigned to one of five groups:

In-school remedial TCAs: Teacher community assistants taught remedial classes during school hours, with a focus on basic literacy and numeracy skills. The remedial sessions were targeted to the weakest pupils in first through third grades. (100 schools)

After-school remedial TCAs: Teacher community assistants taught remedial classes after school hours with a focus on basic literacy and numeracy skills. The remedial sessions were also targeted to the weakest pupils in first through third grades. (100 schools)

Normal curriculum TCAs: Teacher community assistants pulled out students randomly (i.e not remedial students only) in first through third grades to review the teacher's lessons on literacy and numeracy for a few hours a day. The assistant alternated which students were pulled out of class. (100 schools)

Targeted lessons training for teachers: Public school teachers were trained in how to provide small-group instruction targeted at pupils' actual learning levels in first through third grades. Starting in the second year of implementation, these teachers split their students by ability levels, rather than grades, for one hour daily. (100 schools)

Comparison group: No program. (100 schools)

All of the interventions were designed for scale; efforts were made to keep them low-cost and they were implemented through the government system with support from existing mechanisms.

Results and Policy Lessons

The Teacher Community Assistant Initiative significantly improved children's basic skills in numeracy and literacy on average. Of the four interventions, the in-school and after-school remedial TCAs had the largest impact on pupil achievement.

In-school Remedial TCAs: This approach yielded the largest increases in learning relative to

the comparison group: a 6.4 percent increase in scores for third- and fourth-graders. This intervention also had a greater impact on more complex skills, meaning there is potential to also push students beyond just remedial skill levels.

After-school Remedial TCAs: This approach produced a 6.2 percent increase in test scores for third and fourth graders relative to the comparison group. This intervention showed the highest impact on basic skills in both numeracy and literacy.

Normal Curriculum TCAs: This approach improved students' test scores by 5 percent for third- and fourth-graders on average in relation to the comparison group and had the highest TCA attendance.

Targeted Lessons Training for Teachers: This approach improved student test scores by 4 percent on average in relation to the comparison group. Researchers attributed the relative low effect to teachers' low compliance with the program. Teachers likely faced competing goals of completing the core curriculum and carrying out the non-mandated program.

Although it was slightly cheaper to provide either small group instruction through normal curriculum TCAs or targeted lessons through classroom teachers, these interventions did not improve test scores as much as the combination of teaching at a child's level and providing community assistants.

Test scores improved across all subjects, but the greatest impacts were achieved for literacy and for remedial lesson subjects. Reading skills scores improved by 18 percent for the local language and 10 percent for English in relation to the comparison group, and test scores for computation increased by 10 percent. Effects were highest for the most basic skills, though there were also effects on more complex skills, indicating that mastering basic literacy and numeracy concepts helped students learn better in other subjects.

Furthermore, when 4th graders were tested a year after the program ended, they still experienced significant impacts in relation to students who had not received the program, indicating that the effects persist even after children have stopped remedial lessons.

Finally, there was great variation in impact across regions, which appears to be correlated with variations in implementation quality. Impact for the in-school intervention almost closed the initial achievement gap between the lowest performing students and the highest performing students in the Upper West region. These findings indicate the importance of implementation, particularly monitoring and ensuring timely payments to the teaching assistants.

Resources

1. **Numeracy Activity Book** - This resource provides a number of games and activities that can be done to enhance the math lessons. They are ideal for practicing newly acquired skills or reviewing old lessons using a multisensory approach to learning.

2. **Numeracy Manual** - The manual is the curriculum for the targeted instructions numeracy lessons and provides teachers with strategies for teaching the lessons. The lessons are given by skill/ subject and are not time bound, so a lesson could be taught in one day or one week, depending on the needs of the class.
3. **Numeracy Levels at a Glance (P3 and P4)** - This resource is useful for providing structure for how lessons can be taught in an efficient manner. The resource is meant to help teachers spiral lessons and understand how best to incorporate old lessons into new ones, while using activities that are engaging for all learners. The page numbers in the bottom of each day were left blank to be filled by teachers in order to have them actively identify the resources where information would be pulled for the days lessons.
4. **Literacy Activity Book** - This resource provides a number of games and activities that can be done to enhance the reading and writing lessons. They are ideal for practicing newly acquired skills or reviewing old lessons using a multisensory approach to learning.
5. **Literacy Manual** - The manual is the curriculum for the targeted instructions literacy lessons and provides teachers with strategies for teaching the lessons. The lessons are given by skill/ subject and are not time bound, so a lesson could be taught in one day or one week, depending on the needs of the class.
6. **Literacy Levels at a Glance (P3 and P4)** - This resource is useful for providing structure for how lessons can be taught in an efficient manner. The resource is meant to help teachers spiral lessons and understand how best to incorporate old lessons into new ones, while using activities that are engaging for all learners. The page numbers in the bottom of each day were left blank to be filled by teachers in order to have them actively identify the resources where information would be pulled for the days lessons.
7. **Understanding the LAG** - A guide to help explain how best to use the Levels at a Glance Calendar to plan lessons.

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