The Impact of Government-run Remedial Education Programs on Student Learning in Ghana

Sector(s): Education

Fieldwork: Innovations for Poverty Action (IPA)

Location: Ghana

Sample: 500 schools, 12,955 students

Target group: Primary schools Students Teachers

Outcome of interest: Student learning

Intervention type: Pedagogical innovation Tailored instruction

AEA RCT registration number: AEARCTR-0005912

Data: Zenodo

Partner organization(s): Government of Ghana Ministry of Education, Ghana Education Service, Ghana Ministry of Youth and Sports, International Growth Center (IGC), William and Flora Hewlett Foundation, Children's Investment Fund Foundation (CIFF)

Over the last two decades, millions more children in low- and middle-income 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; of the four interventions, in-school and after-school remedial lessons delivered by Teacher Community Assistants had the largest impact on pupil achievement.

Policy issue

Many low- and middle-income countries have greatly expanded access to primary school education, yet in many countries, primary school education is failing to equip a large portion of students with even basic reading, writing, and math skills. Existing evidence in Chile, India, Kenya, and the United States 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. However, most rigorous studies focus on one or two interventions at a time, in a specific setting, often with a well-resourced non-governmental implementing partner. Open questions remain about how to help government partners effectively improve student outcomes within existing government accountability systems.

How do four alternative instructional models, all implemented within existing government structures, impact student achievement? Additionally, what is the cost effectiveness of each model?

Context of the evaluation

In Ghana, primary education is free and as of 2011, almost 98 percent of children start school. However, data suggests the majority of students are not keeping up with the curriculum. In 2013, only about a quarter of students reached proficiency levels in English and math, and approximately 42 percent failed to reach even minimum competency in either subject. Additionally,

teachers are encouraged to adhere to the content and pace of the official curriculum regardless of the learning levels of their students. This leads to classrooms where students have different levels of skills, and those with the lowest learning levels are left behind.

These learning gaps persist despite the fact that Ghana spends approximately 30 percent of its budget on education, with nearly all of the contributions going toward salaries. There is, therefore, a great need for cost-effective strategies to improve students' learning levels in Ghana.

Researchers partnered with Ghana Education Services (GES), 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 aged 18 to 35 who were 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. Of the schools in the study, the average pupil-teacher ratio was 35 to 1, about one quarter of the schools had electricity, and over 80 percent of schools had cement or concrete floors and walls and a metal roof.



A TCAI teacher teaches a classroom of students in Ghana in January of 2012.

Photo Credit: Stella Benezra | J-PAL/IPA.

Details of the intervention

Researchers partnered with GES to conduct a randomized evaluation to test the impact of four different targeted instruction programs on student learning outcomes.

The program was implemented during the 2010-2013 school years, and consisted of materials, personnel, and training, almost all of which was implemented exclusively through the existing government system. Oversight of schools continued as usual, with the addition of four TCAI Regional Coordinators, each responsible for 100 schools, focused primarily on ensuring the distribution of program materials. TCAI consisted of four different program groups and a comparison group, each reaching 100 schools. Five hundred schools across 42 districts, chosen to be nationally representative, were randomly assigned to one of five groups as follows:

- *In-school remedial TCAs:* Teacher community assistants (TCAs) taught remedial classes during school hours, with a focus on basic literacy and numeracy skills. Assistants were expected to work with students for four hours per week. The remedial sessions were targeted at the weakest pupils in first through third grades. (100 schools)
- *After-school remedial TCAs:* TCAs taught remedial classes after school hours with a focus on basic literacy and numeracy skills. Assistants were expected to work with students for four hours per week. The remedial sessions were also targeted at the weakest pupils in first through third grades. (100 schools)
- *Normal curriculum TCAs:* TCAs pulled out half of the class at random (i.e. not remedial students only) in first through third grades to review the teacher's literacy and numeracy lessons, focusing on student-centered learning rather than remedial instruction, for four hours per week. The assistant alternated which students were pulled out of class. (100 schools)
- *Teacher-led targeted instruction:* Public school teachers were trained in how to provide small-group instruction targeted at pupils' actual learning levels in first through third grades. In the first year of the intervention, students stayed with their existing teacher. Starting in the second year of implementation, these teachers split their students by ability levels across grades for one hour daily, four days per week. (100 schools)
- *Comparison group:* There were no changes to teaching methods in these schools. (100 schools)

Researchers collected nine separate rounds of data between October 2010 and July 2013. Researchers tested students in English, math, and the school's local instruction language using exams developed in collaboration with the Assessment Services Unit of the Curriculum Research and Development Division of GES. Additionally, researchers collected information on students' attendance, whether they had dropped out of school, and whether they had been demoted or held back a grade. During six additional school visits, researchers also visited classrooms to collect information like teacher, assistant, and student attendance, teacher engagement with students, instructional time, and whether learning materials were visible in classrooms.

Results and policy lessons

The Teacher Community Assistant Initiative significantly improved students' 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.

Student achievement: After being exposed to the program for two years, students who started the program in grade 1 increased their test scores by 0.08 (teacher-led targeted instruction) to 0.15 standard deviations (assistant-led remedial after school) relative to the comparison group. These changes are equivalent to 18 to 34 percent of a year of schooling in this context. Student scores improved by a similar magnitude with remedial TCAs, regardless of if they were removed from classrooms or instructed after school. Additionally, the test scores of female students increased by at least 0.10 standard deviations more than for male students in the three interventions that had a remedial component. Furthermore, the effects persisted for students who started the program in grade 2 and experienced the program for less time; one year after the program, these students' test scores were 0.01 to 0.12 standard deviations higher than the comparison group.

Other student outcomes: None of the interventions impacted student attendance or the likelihood that students dropped out of school. Additionally, the interventions did not impact the likelihood of demotion from a students' expected grade level.

Program implementation: All four interventions faced implementation difficulties related to the challenges of scaling a program within existing government structures. Across all treatments, materials were delayed in reaching schools, both teachers and assistants were often absent, and payment to assistants was often delayed.

Cost-effectiveness: The three remedial interventions were equally cost effective; the two assistant-led remedial interventions improved test scores by about twice the size of the teacher-led targeted instruction intervention, and researchers estimate that they would cost about twice as much at scale due to the extra cost of the assistant salaries. For every US$100 spent, researchers estimate the normal curriculum assistant split program would raise test scores by 0.21 standard deviations, the teacher-led targeted remedial instruction would raise scores by 0.36 standard deviations, and the assistant-led remedial programs during and after school would raise scores by 0.38 standard deviations.

Researchers suggest that future research should focus on how to most efficiently and effectively strengthen government systems to enable the implementation of programs focused on quality learning.

In the academic year 2018-2019, Adrienne Lucas, and co-authors partnered with Ghana Education Services, UNICEF, and IPA Ghana to evaluate different versions, of the teacher-led targeted instruction program, which is now being scaled to 10,000 schools as part of the Ghana Accountability for Learning Outcomes Project, . To learn more about how this research impacted policy, read IPA's scaling effective solutions note here.