Efficacy of Numeracy Themed Read Aloud Activities in Boosting Literacy and Numeracy in Development Contexts: Evidence from Norther Nigeria

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Purpose: The purpose of this paper is to present how the Reading and Numeracy Activity (RANA) project evaluates the impact of a numeracy themed read aloud activity in classrooms in Northern Nigeria and estimates causal effects on EGMA scores, EGRA scores, and pupil interest in mathematics.

Background

Data are drawn from an early grade reading and numeracy intervention implemented in Northern Nigeria. The intervention itself is a three-year pilot Project being implemented in Katsina and Zamfara states of Northern Nigeria. The primary objective of the project is to improve reading and numeracy among girls and boys in their first three grades of primary education using mother tongue language. The impact evaluation that is being led by an external evaluator would test and document student literacy at the P2 level at baseline, midline and end line, statistically compare learning outcomes between the RANA supported schools and the control schools. The program includes a set of phonics-based literacy lessons, plus a weekly read aloud class that integrates literacy and numeracy instruction. These numeracy read alouds are being evaluated through a randomized controlled trial (RCT) of schools within the three Local Government Areas (LGA) within which RANA is being implemented in each of the states.

Design/Methodology/Approach

The Numeracy Read Aloud Stories (NRAS) is an innovative approach designed to enhance pupils' numeracy and literacy skills through literacy lessons delivered in mother tongue and that show how math is used in real (and imaginary) situations. Each lesson includes a math-themed story, followed by listening comprehension questions and math exercises. The NRAS has its story themes aligned with the concepts taught in early grade Nigeria Maths' curriculum. Beginning in September 2016, teachers in P1, P2 and P3 received training on each term of the read aloud stories, which included practice in math instruction and reading with expression. In order to evaluate and identify the impact of this NRAS on student-level reading and numeracy outcomes, the intervention implemented a clustered randomized controlled trial (RCT) for P2 teachers at the school cluster level. Since the intervention delivers the treatment to clusters of neighboring schools at a time, this evaluation was able to randomize the NRAS treatment at the same level. The RCT had two treatment groups and a control. In the first treatment group (25 percent of all school clusters), P2 teachers were trained to conduct a weekly lesson that entailed a language (Hausa) read-aloud without numeracy theme. In the second treatment group (comprised of another 25 percent of all school clusters) P2 teachers were trained to conduct a weekly lesson with the NRAS. Lastly, the remainder 50 percent of clusters and schools is providing their P2 students with no read-aloud activities. At the end of the 2016-2017 schoolyear, learning outcomes was compared across the 3 groups to assess the impact of numeracy read alouds on both math and listening comprehension.

Findings

NRAS has proven to be an effective tool at the teacher's disposal to boost literacy and numeracy skills, as measured by EGRA and EGMA. We find that EGMA scores from the treatment group exposed to NRAS showing positive and statistically significant differences between the group receiving numeracy themed read alouds and the control group. Additionally, we find positive and statistically significant differences between both treatment groups and the control group in oral reading fluency (ORF).

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