Improving reading outcomes in Kenya: First-year effects of the PRIMR Initiative

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ABSTRACT

While educational participation is high in Kenya, literacy outcomes remain poor. The PRIMR Initiative aims to improve literacy learning by aligning curriculum and teacher practices with current research, providing ongoing instructional support and observation, and supplying basic instructional materials and English and Kiswahili books for students. In a randomized control trial in more than 400 schools in three counties in Kenya, the intervention improved oral reading fluency and in grade 1 formal and nonformal schools and grade 2 nonformal schools for both English and Kiswahili. The findings support the importance of in-classroom teacher support in program implementation to improve literacy outcomes.

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1. Introduction

Despite dramatic increases in primary-level education participation over the past decade, the quality of education in Kenya remains low. Investments by the government and families alike often do not result in meaningful learning (Mugo et al., 2011; National Assessment System for Monitoring Learner Achievement, 2010). This problem is by no means unique to Kenya, but is common in the region (Uwezo, 2012). As a group, the countries of sub-Saharan Africa have the lowest youth literacy rate in the world, just 72% (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2012). This has dramatic consequences for national development. While longitudinal evidence on literacy in Kenya is limited, a study using the South African Cape Area Panel Survey found that students' literacy skills were associated with dropout three years later (Marteleto et al., 2008), aligning with similar results from the United States (Alexander et al., 1997; Jimerson et al., 2000). As shown in a recent analysis of 15 countries, including Malawi and Ghana, education is associated with wage-earning employment outside of the agricultural sector (Winters et al., 2009). Therefore, youth with poor literacy skills will have difficulty completing the basic education cycle and, as adults, finding steady employment that will support them and their families.

In order to support the Kenyan government in its efforts to improve educational outcomes, high-quality evidence on the effectiveness of affordable and scalable intervention options is needed. This is the goal of the Primary Mathematics and Reading (PRIMR) Initiative. PRIMR is a program funded by the United States Agency for International Development (USAID) and the British Department for International Development (DFID), and operating in partnership with Kenya's Ministry of Education, Science & Technology (MoEST). PRIMR, focused on reading and mathematics in grades 1 and 2, is using a nested series of randomized controlled trials to examine the effectiveness of several interventions, including enhanced technology in the classroom and additional teacher support. In this paper, we focus on the first-year effects of a quality improvement program aimed at grade 1 and 2 teachers in formal government and low-cost nonformal private schools serving slum communities. In its first year, this program included: (1) teacher training to align classroom practices with current research on literacy acquisition; (2) ongoing instructional support from zonal-level Teachers' Advisory Centre (TAC) tutors serving sets of 8–19 schools; (3) monthly observation and feedback; and (4) provision of English and Kiswahili books for students, as well as instructional materials and structured lesson plans for teachers. These components are described more fully in the research design section below.

While many programs have focused on improving the quality of literacy instruction in sub-Saharan Africa, and some in Kenya –

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including the Aga Khan Foundation's study of Reading to Learn, the Health and Literacy Intervention, and Buddy Reading – there remains a gap in the literature with respect to analyses that use methods for assessing the impact of instructional programs targeting multilingual populations. PRIMR is designed to fill that gap by utilizing its randomized controlled design to attempt to estimate the impact of the program on literacy outcomes in two languages: Kiswahili and English. Although the total research design covers three years, the aim of our analyses completed for this paper was to assess the effects of this intervention on student literacy after one year of implementation. Our specific research questions were:

(1) Has the PRIMR literacy intervention increased students' oral reading fluency? Does this effect differ by language?
(2) Has the PRIMR literacy intervention increased students' reading comprehension? Does this effect differ by language?

In addition to responding to these research questions, we also identify and discuss the differences in effects between formal (government) and nonformal schools and address the cost-effectiveness of the program.

2. Background and context

School fees were effectively abolished in Kenya in 2003, when a new administration came into power. Since that time, gross primary enrollment rates have risen above 100% (World Bank, 2011). This indicates that older youth who did not previously have access to primary school began enrolling, in addition to the great majority of those of primary school age. Additionally, some students repeated grades in order to improve outcomes, particularly as they neared the critically important primary school leaving examination. However, this dramatic increase in enrollment over a short period put considerable strain on the government school system, which did not receive funding increases commensurate with the enrollment increases. In 1998, the national student–teacher ratio was 28:1. In 2011, it was 47:1 (World Bank, 2011). Within the sample of public schools in this study, the student–teacher ratio in grades 1 and 2 was 44.6 in October 2012. In addition to handling large classes, Kenyan teachers often deal with space and materials shortages that impair their ability to teach effectively (Sifuna, 2007; UNESCO, 2005). Data from a study conducted by the Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) in 2005 found that nationally, only 27% of students had their own reading textbooks (Onsomu et al., 2005). These figures have improved recently; the government textbook policy now mandates a 3:1 student-to-textbook ratio, and recent research in Kenya has indicated that a 3:1 ratio is the average in rural and urban locations (Piper and Mugenda, 2012). While Glewwe et al. (2009) found limited effects of reducing the student–textbook ratio in Kenya for grades 3 through 8, access to textbooks and other print materials is critically important for children in the earlier grades, who are learning to read (Neuman, 2004).

Perhaps unsurprisingly, given the high student–teacher ratios, limited teacher training, and lack of sufficient text materials, reading outcomes for students attending Kenyan primary schools are generally poor. The results of a series of assessments conducted over the decade since fee abolition converge on a common finding: Kenyan children are not meeting the Ministry of Education, Science & Technology's benchmarks and on average read far below grade level (Mugo et al., 2011; National Assessment Centre, 2010; Onsomu et al., 2005; Piper, 2010; Piper and Mugenda, 2012; Wasanga et al., 2010). For example, the 2011 national Uwezo study found that just 57% of third-graders could read basic sentences, and only 30% a second-grade-level story (Mugo et al., 2011).

If children do not learn how to read in the first few years of primary school, they will struggle to complete the cycle and are at greater risk of dropping out. It is therefore crucial to identify and test interventions that have the potential of making a large impact, can be implemented quickly, and are affordable to be taken to scale by the Kenyan government. This is the goal of the PRIMR Initiative – to test various options for improving learning outcomes and instruction in Kenyan schools, using a randomized controlled design. The design helps differentiate this contribution, as many pilot programs in the sector do not test the impacts of quality-improvement methods at a medium scale and with enough rigor to identify a causal impact. In this paper, we focus on early-grade literacy outcomes after one year of implementation for pupils in grades 1 and 2.

3. Research design

3.1. Site

The schools participating in the arms of the PRIMR study analyzed in this paper were in peri-urban and rural zones in Nairobi, Nakuru, and Kiambu counties. Peri-urban regions are on the outskirts of urban areas – near enough that residents can commute to towns and cities via local transport, but still possessing many rural characteristics, such as agriculture being the predominant economic activity (Mandere et al., 2010). In Nairobi, the largest city and capital of Kenya, more than half of the population lives in unplanned informal settlements, sometimes referred to as slums (United Nations Human Settlements Programme [UN-HABITAT], 2013). Many of these settlements have no running water, access to electricity, or basic sanitation facilities. Critically, the residents do not have ownership of the land and it is therefore illegal for them to construct permanent structures.

Low-cost, private nonformal schools are common alternatives to public government schools, particularly at the primary level. The nonformal schools participating in PRIMR generally are characterized by low tuition rates (less than US$10 per month), substandard infrastructure (predominantly tin roofs and unfinished floors and walls), high student and teacher turnover, and lack of trained principals and teachers. Despite these issues, many poor families believe these schools offer a better quality of education than the local government schools (Ngware et al., 2012; Oketch et al., 2012; Tooley et al., 2008). Smaller class sizes are one reason for this perception (Ngware et al., 2011; Oketch et al., 2012). In urban informal areas of Nairobi, attending a government school predicted poor achievement on the Kenya Certificate of Primary Education (KCPE) exams (Ejakait et al., 2011). For some families, the choice may not be between a government primary school and a nonformal school, but between the nonformal school and no school at all. Though Kenya has a Free Primary Education (FPE) policy, many formal schools in the locations surrounding these nonformal settlements have insufficient space for all of the pupils (Oketch et al., 2010). For example, Kibera, which is home to both PRIMR treatment and control schools, is widely cited as being the largest nonformal settlement in sub-Saharan Africa (UN-HABITAT, 2013). Kibera has only two public primary schools serving a catchment area with a population estimated at between 200,000 and 1,000,000, with the 2009 Kenyan census citing 250,000 residents (Kenya National Bureau of Statistics, 2010).

3.2. Sample

The USAID-funded PRIMR Initiative is supporting a total of 502 formal and nonformal schools during the period 2011 through 2014. This study focuses on the 125 schools that began implementing PRIMR in January 2012 and the 101 schools that serve as control schools and began implementing the intervention